Eskom Holdings SOC Ltd

ERMELO-RICHARDS BAY COAL LINE UPGRADE PROJECT: PROPOSED UPGRADE OF 11.27KM OF THE UMFOLOZI TO EQWASHA TWIN WOLF ESKOM POWER LINE AND 0.5KM OF THE UMFOLOZI TO DUBULA TWIN WOLF ESKOM POWER LINE IN KWAZULU-NATAL, SOUTH AFRICA.

Final Basic Assessment Report

DEA Reference Number: 14/12/16/3/3/2/1106
Issue Date: 11 June 2015
Revision No.: 1
Project No.: 12133

Contact:
Kelly Tucker
SiVEST Environmental Consultants

51 Wessels Road
Rivonia
2128
Tel: 011 798 0600
Fax: 011 803 7272
Email: kellyt@sivest.co.za

Date:	11 June 2015
Document title:	**FINAL BAR: PROPOSED UPGRADE OF 11.27KM OF THE UMFOLOZI TO EQWASHA TWIN WOLF ESKOM POWER LINE AND 0.5KM OF THE UMFOLOZI TO DUBULA TWIN WOLF ESKOM POWER LINE IN KWAZULU-NATAL, SOUTH AFRICA.**
Author:	Veronique Evans, Kelly Tucker & Jenny Barnard
Revision No.:	1
Checked by:	Kelly Tucker
Approved:	Jenny Barnard
Signature:	JBarnard
For:	**SiVEST Environmental Division**
COPYRIGHT IS VESTED IN SiVEST IN TERMS OF THE COPYRIGHT ACT (ACT 97 OF 1978) AND NO USE OR REPRODUCTION OR DUPLICATION THEREOF MAY OCCUR WITHOUT THE WRITTEN CONSENT OF THE AUTHOR	

EXECUTIVE SUMMARY OF THE CONTENT OF THE BASIC ASSESSMENT REPORT

INTRODUCTION AND PROJECT DESCRIPTION:

The Applicant, Eskom Holdings (SOC) Ltd. is making an Application for Environmental Authorisation for the development of the rebuild of an 11.2km long 88kV power line between Umfolozi Substation and Eqwasha Substation near Ulundi, Ulundi Local Municipality Kwa-Zulu Natal Province, in terms of the National Environmental Management Act, Act No. 107 of 1998 (as amended). This Application for Environmental Authorisation is being made to the Competent Authority, namely, the National Department of Environmental Affairs (DEA). The proposed development requires compliance with the Environmental Impact Assessment (EIA) Regulations of 2010 (as amended), promulgated in terms of the National Environmental Management Act (No. 107 of 1998) (NEMA).

SiVEST Environmental has been appointed by Trans-Africa Projects Pty Ltd, on behalf of Eskom Holdings (SOC) Ltd (herein after referred to as the Applicant) to undertake a Basic Assessment (BA) Process for the above-mentioned project.

Background

The proposed project is part of a suite of projects collectively known as the Ermelo-Richards Bay Coal link Upgrade.

Transnet is South Africa's sole provider of rail transport infrastructure for coal transportation. One of South Africa's largest foreign exchange earners is the export of high quality coal products to China. The Transnet rail link between the coal fields in Mpumalanga Province and the export node, the Richards' Bay Coal Terminal, is one of the busiest railway links in South Africa.

The increase in demand for South Africa's high quality coal necessitates the increase in production, which in turn has demands on the railway network infrastructure. In response to the increased demand for South Africa's coal in the global market place, Transnet needs to increase the volume of coal that is being transported between the Mpumalanga coal fields and the Richard's Bay Coal Terminal. This increase will be facilitated through capital expenditure on two fronts, the supporting infrastructure, i.e. the electrical network supplying the locomotives and the locomotives themselves.

In order for Transnet to accomplish the above they need to upgrade their power supply to their various traction substations between Ermelo and Richards Bay to facilitate the introduction of the new, larger locomotives that will be added to increase the volume of coal being transported and exported. Eskom Holdings SOC Ltd being one of the main suppliers of electrical energy in South Africa has been tasked by Transnet to supply the additional energy requirements to these traction substations. In trying to meet the task Eskom Holdings SOC Ltd requires environmental authorisation from the Department of Environmental Affairs (DEA) to establish new substations and power lines.

Proposed Development

Eskom Holdings SOC Ltd is proposing the rebuild of an 11.2km long 88kV power line between Umfolozi Substation and Eqwasha Substation. The power line to be rebuilt is situated 15km north-west of Ulundi, KwaZulu-Natal and approximately 1.6km east of the R34. The power line runs east for 11.2km to terminate north-east of the Eqwasha railway station. The power line runs parallel to the White Umfolozi River and crosses the Transnet railway line at multiple locations. The proposed power line will loop in and out of the Dubula traction Substation, with a total length of 600m.

The proposed Umfolozi SS to Eqwasha SS line and Umfolozi SS to Dabula TSS turn in line are located in the Ulundi Local Municipality. The power line will consist of a series of towers located approximately 200 m apart, depending on the terrain and soil conditions. It is proposed that the Lattice tower type with a minimum height of 20 m and a maximum height of 33 m will be used

The following construction strategies are proposed for the power line rebuild:

1. **Servitude Swap.** This will include:
    - Negotiating a new servitude within 250m of either side of the existing servitude with land owner/s (where possible);
    - Registering the new servitude;
    - Building a new line in the new negotiated servitude;
    - Energising the new line;
    - Dismantling the old line and rehabilitate the associated servitude; and
    - Handing over of the old servitude to land owner/s.

2. **Line Bypass.** This will include:
    - Building a line bypass within 25m of the existing servitude;
    - The bypass line should then span the entire length of the line that will be upgraded;
    - Dismantling of the old line;
    - Building a new line;
    - Energising the new line;
    - Dismantling the bypass line; and
    - Rehabilitating the temporary servitude (if needed).

3. **Line Section Bypass.** This will include:
    - Building a line section/s bypass within 25m of the existing servitude;
    - Bypassing line section/s will be limited to strain section/s of the line that will be upgraded;
    - Dismantling of the old line section/s;
    - Building the new line section/s;
    - Energising the new line section/s;
    - Dismantling the bypass line section/s;
    - Rehabilitating the temporary servitude (if needed); and
    - Proceeding to the next line section/s that needs to be upgraded.

4. **Servitude Widening.** This will include:
    - Widening the servitude by 25m

It is envisaged that any line rebuild may warrant a combination off all four construction strategies. It is therefore important to note that the environmental authorisation should not limit any of the above construction strategies. It is noted that all four construction strategies should not violate any environmental considerations / constraints within the 500m corridor. Such constraints can be managed via the detailed environmental management plan and policed by an environmental control office. These construction strategies will be informed by the public participation process and the land owner negotiations.

Where applicable the procedure for the recycling and rehabilitation of the dismantled line will be in line with the Eskom process.

The dismantled towers and line hardware will be stored at a local Eskom depot. All steel material and conductors will be removed by an accredited Eskom supplier and recycled. All non-ferrous material will be returned to the Eskom stores and disposed of from there by an accredited scrap dealer.

A corridor width of 250m on either side of the existing line (i.e. corridor width is 500m) needs to be covered in the assessment. The reason for this approach is to have an approval in place that would support any of the construction strategies that are being explored.

The proposed power line will be rebuilt at 132kV with steel lattice towers or monopole towers but operated at 88kV in order to ensure future capacity increases. The power lines will consist of a series of towers located approximately 200m apart, depending on the terrain and soil conditions.

Access to the site is present through a well-maintained gravel road at the Umfolozi substation (western end of the power line). An existing access road running parallel to the railway line to the Eqwasha railway station serves as an access point to the eastern end of the power line. Access roads along the power line may require upgrading or construction where no access roads are present. The exact position and type of road will be determined once the power line positions have been confirmed through the negotiation process.

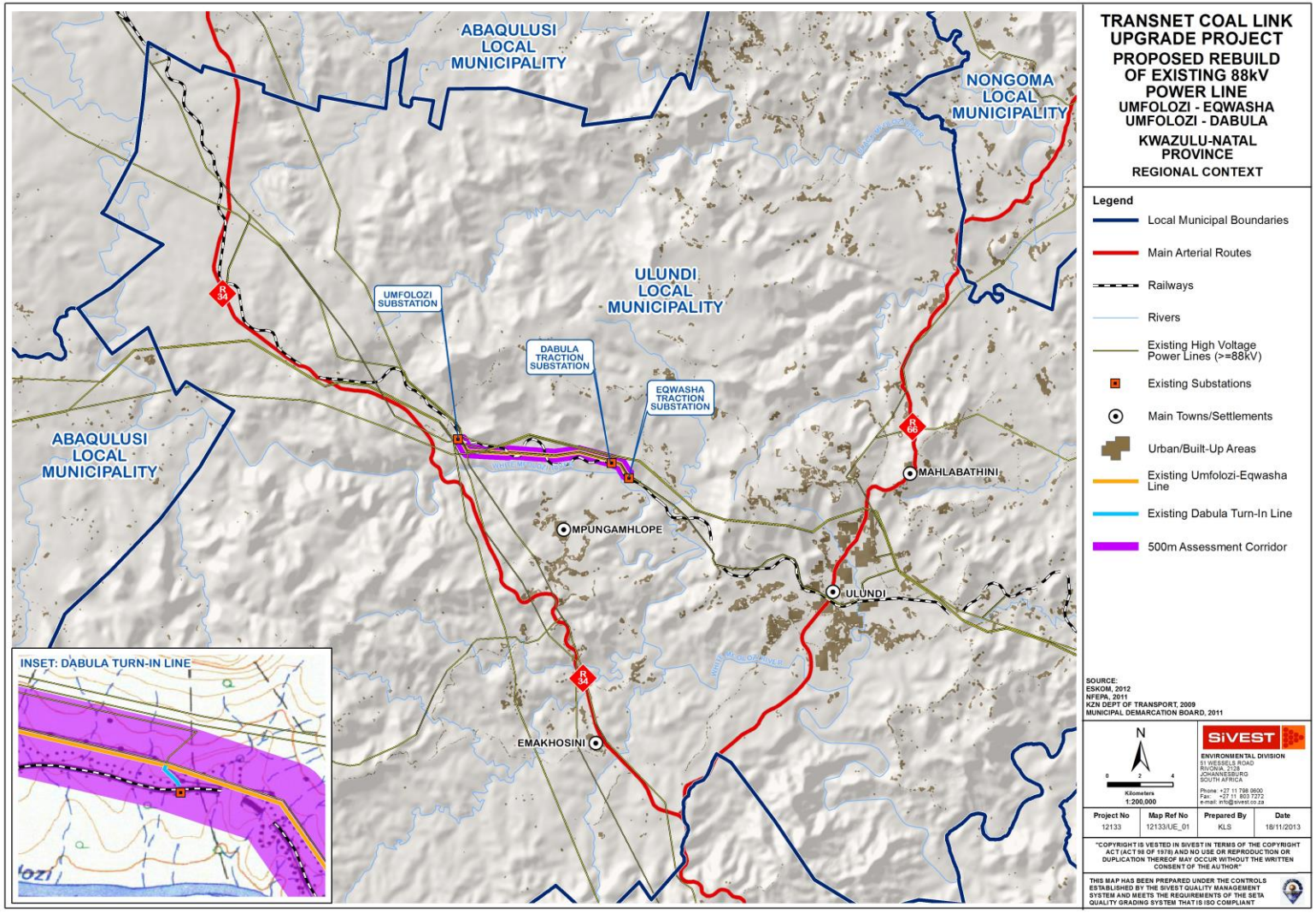

Figure 1: Site Locality Map

APPLICABILITY OF NEMA EIA REGULATIONS (2010):

The proposed development requires compliance with the Environmental Impact Assessment (EIA) Regulations of 2010, promulgated in terms of the National Environmental Management Act, Act 107 of 1998, as amended, as the BA was initiated prior to the EIA 2014 Regulations coming into effect. The proposed activity requires a BA Process be undertaken as listed ***Activities 10(i), 11(xi) and 18(i)*** under **Government Notice No R. 544** as well as listed ***Activities 4(a)ii.(cc)(ee), 12(b), 13(a)(c)ii.(cc), 14(a)i, and 16 (iv)(a)ii.(dd)(ff)*** of **Government Notice No R. 546** of the EIA 2010 Regulations are triggered.

RECEIVING ENVIRONMENT:

The proposed line corridor is located to the north of Mpungamhlope, approximately 10km north- west of Ulundi in KwaZulu-Natal. The site falls within Ulundi Local Municipality.

The proposed upgrade is situated between the Umfolozi substation and the Eqwasha substation and the turn-in line (approximately 500m in length) is situated at and the Dabula traction substation. The line traverses the KwaZulu-Natal Province approximately 10km north-west of Ulundi. The proposed Umfolozi to Eqwasha power line totals an approximate length of 11.27km. The proposed power line will include the utilisation of existing farm roads for area access. These access roads may need to be formalised at a later stage.

The topography in the study area is characterised by relatively steep mountainous terrain which slopes down toward the White Mfolozi River, which dissects the study area just south of the proposed power line. Lower lying terrain prevails within the steep valley created by the White Mfolozi River and in the eastern part of the study area where the White Mfolozi River connects with the Mhlahlane River.

The study areas is transversed by two vegetation units, namely Ithala Quartzite Sourveld and Northern Zululand Sourveld (Mucina & Rutherford, 2006). The Ithala Quartzite Sourveld, comprises approximately 90% of the entire line length rebuild while the Northern Zululand Sourveld, is only in the vicinity of Dubula and Eqwasha Substations.

The study area can be classified as humid subtropical with a summer rainfall regime as most of the rainfall is confined to late spring and summer. Average daily temperatures in summer range from 29°C to 21°C in winter, while average night time temperatures range from 18°C in summer to 8°C in winter (SAExplorer, 2014).

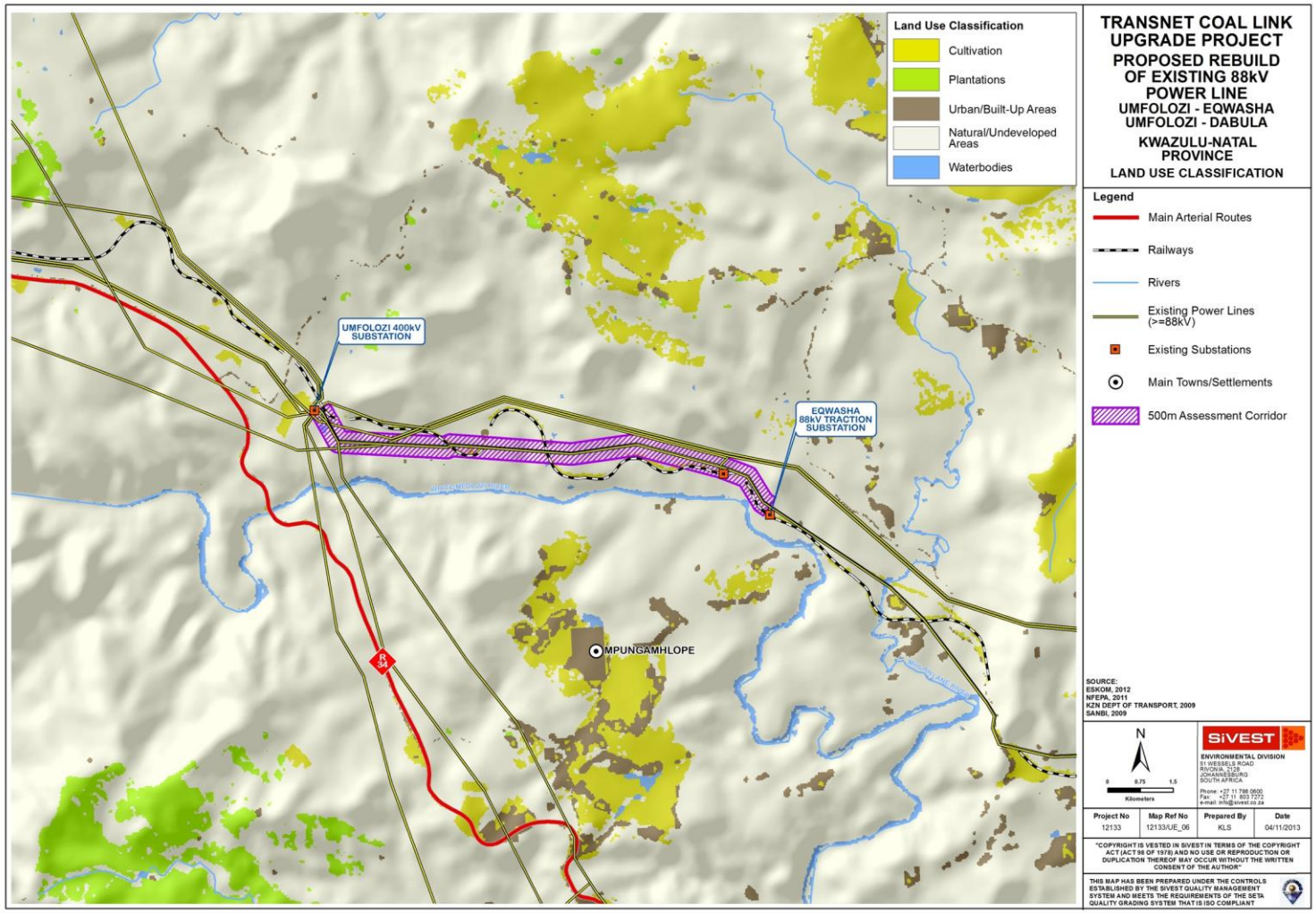

Figure 2: Land Use Map

ALTERNATIVES:

Alternatives are defined in the NEMA EIA Regulations (2010) as *"different means of meeting the general purpose and requirements of the activity, which may include alternatives to: (a) the property on which or location where it is proposed to undertake the activity; (b) the type of activity to be undertaken; (c) the design or layout of the activity; (d) the technology to be used in the activity; and (e) the operational aspects of the activity and (f) the option of not implementing the activity*".

For the purpose of this Application, all of the above Alternatives were investigated as indicated below:

IMPORTANT: Motivation for No Alternatives

The need for the proposed development is to supply additional energy to Eskom Holding's (SOC) various traction substations between Ermelo and Richards Bay. Transnet requires additional energy and capacity to facilitate the introduction of the new, larger locomotives that will be added to increase the volume of coal being transported and exported.

This is necessary as the increase in demand for South Africa's high quality coal necessitates the increase in production, which in turn has demands on the railway network infrastructure. In response to the increased demand for South Africa's coal in the global market place, Transnet needs to increase the volume of coal that is being transported between the Mpumalanga coal fields and the Richard's Bay Coal Terminal. This increase will be facilitated through capital expenditure on two fronts, the supporting infrastructure, i.e. the electrical network supplying the locomotives and the locomotives themselves. In order for Transnet to accomplish the above they need to upgrade their power supply to their various traction substations between Ermelo and Richards Bay to facilitate the increase demand for coal.

As per Chapter 1 of the EIA regulations (2010), feasible and reasonable alternatives are required to be considered during the BA process. Alternatives are defined as "different means of meeting the general purpose and requirements of the activity" These alternatives may include:

a) The property on which or location where it is proposed to undertake the activity;
b) The type of activity to be undertaken;
c) The design or layout of the activity;
d) The technology to be used in the activity;
e) The operational aspects of the activity; and
f) The option of not implementing the activity.

Each of these alternative types are discussed in relation to the proposed project in the sections below.

The property on which or location where it is proposed to undertake the activity:

No site alternatives for this project are being considered due to the placement of the proposed power line being dependent on several technical factors, all of which are favourable at the proposed site location. These include the existing operational power lines in the area, grid connections, existing substations and access to the site. In addition, Transnet also identified traction substations and associated power lines that need to be upgraded in order to facilitate the high demand for coal exports which directly places increased demand on the countries energy supply.

Considering that the proposed development is a power line rebuild the proposed development site is the only feasible option as it is a minor section of the existing line that will be upgraded. The project site also has advantageous grid connection potential through the existing Umfolozi Substation and Eqwasha Substation. The site is also easily accessible from the existing well-maintained gravel road at the Umfolozi substation (western end of the existing power line). An existing access road running

parallel to the railway line to the Eqwasha railway station also serves as an access point to the eastern end of the proposed power line. Access roads along the power line may require upgrading or construction where no access roads are present. The existing power line corridor is therefore considered highly suitable for the proposed development and no other locations or corridors are being considered. It must be noted that the 500m wide corridor forms part of the assessment of the proposed power line rebuild to allow for some manoeuvrability where required.

The type of activity to be undertaken:
No feasible and reasonable activity alternative exists therefore activity alternatives cannot be considered. The proposed activity is the rebuild of an existing power lines in order to meet the energy required by Transnet to increase their coal output. The proposed development is activity specific in that power lines are required to transmit and distribute electricity.

The design or layout of the activity:
Various environmental specialists have assessed the site within the 500m assessment corridor and have included the identification of sensitive areas. The identified sensitive areas will be used to guide the exact location of the power line rebuild in conjunction with, landowner negotiations and technical constraints. Additionally, there are various monopole tower types being considered for the proposed development. Each tower design type will have very little to no variation in environmental impacts between the different tower design types, as they will occupy relatively the same footprint size and have the same tower height. Additionally, the type of towers to be used will be determined by technical constraints and ultimately determined by the engineers. Therefore no feasible or reasonable design or layout alternatives were assessed in this BA.

The technology to be used in the activity;
There are four (4) construction strategies being applied for in this BA. The technology options include a servitude swap; line bypass, line section bypass or a servitude widening. The choice of technology used will ultimately be determined by the land owner / servitude negotiations process and technological constraints at a later stage. As it is envisaged that any power line rebuild may warrant a combination off all four construction strategies based on the land owner / servitude negotiation process and technical constraints. It is therefore important to note that the environmental authorisation should not limit any of the above options. It is noted that all four construction strategies would need to be considered within the environmental considerations / constraints occurring within the 500m corridor. Such constraints can be managed via the site specific EMPr and implemented by an environmental control officer. The selection of the four construction strategies will be informed by the public participation process and the land owner negotiations. Therefore no technology alternatives were assessed as part of this BA.

The operational aspects of the activity; and
The proposed development is operationally specific in that the operation of power lines are required for the proposed development

The option of not implementing the activity.
The option of not implementing the activity, or the **'no-go' alternative, has been considered in this BA**. The No-Go Alternative refers to the option of not implementing the proposed infrastructure development and ultimately the continuation of the current *status quo*. In order for Transnet to accomplish the increased demand for coal and the associated mining activities they need to upgrade their power supply to their various traction substations between Ermelo and Richards Bay. This will facilitate the introduction of the new, larger locomotives that will be added to increase the volume of coal being transported and exported. Should this development not proceed, this will result in the electricity demands I not being met. This would be detrimental as South Africa is under immense

pressure to provide electricity to meet the currently growing electricity demand in the country. Although the potential environmental issues, such as habitat destruction, would not occur if the project did not go ahead, the socio economic benefit of the proposed project should not be overlooked. The project would assist in achieving South Africa's goals in terms of energy security which in turn would promote local economic development.

Conclusion:
Given the above motivation, no feasible and reasonable alternatives other than *'(f) the option of not implementing the activity'* could be proposed for assessment. However, a 500m corridor was provided to specialists for assessment. The reason being, that it is likely that the proposed power line may need to be shifted for the final route selection due to environmental, social and technical reasons. The "No-go" option has however been assessed, but due to the need of the proposed project this has been ruled out.

No-Go Alternative:

The No-Go Alternative refers to the option of not implementing the activity (no rebuild of the 88kV Umfolozi to Eqwasha and Umfolozi to Dabula power line) and ultimately the continuation of the current *status quo*.

The proposed rebuild of the existing 88kV wolf power line from the Umfolozi Substation to the Eqwasha Substation and Dabula Traction Substation are necessary to provide sufficient electrical capacity to the area. The increase in demand for South Africa's high quality coal necessitates the increase in production, which in turn has demands on the railway network infrastructure. In response to the increased demand for South Africa's coal in the global market place, Transnet needs to increase the volume of coal that is being transported between the Mpumalanga coal fields and the Richard's Bay Coal Terminal.

One of the requirements for Transnet to meet this demand is to upgrade their power supply to their various traction substations between Ermelo and Richards Bay to facilitate the introduction of the new, larger locomotives that will be added to increase the volume of coal being transported and exported. Eskom Holdings (SOC) Ltd being one of the main suppliers of electrical energy in South Africa has been tasked by Transnet to supply the additional energy requirements to these traction substations.

Currently, the proposed rebuild of the power line is the only option to increase the electricity capacity and distribution to the Umfolozi and Eqwasha Substation and the Dabula Traction Substation. The project is, therefore regarded as a vital infrastructure component to sustain economic and social development in South Africa.

Given the above motivation, no feasible and reasonable alternatives other than *'(f) the option of not implementing the activity'* could be proposed for assessment. However, a 500m corridor was provided to specialists for assessment. The reason being, that it is likely that the proposed power line may need to be shifted for the final route selection due to environmental, social and technical reasons. The "No-go" option has however been assessed, but due to the need of the proposed project this has been ruled out.

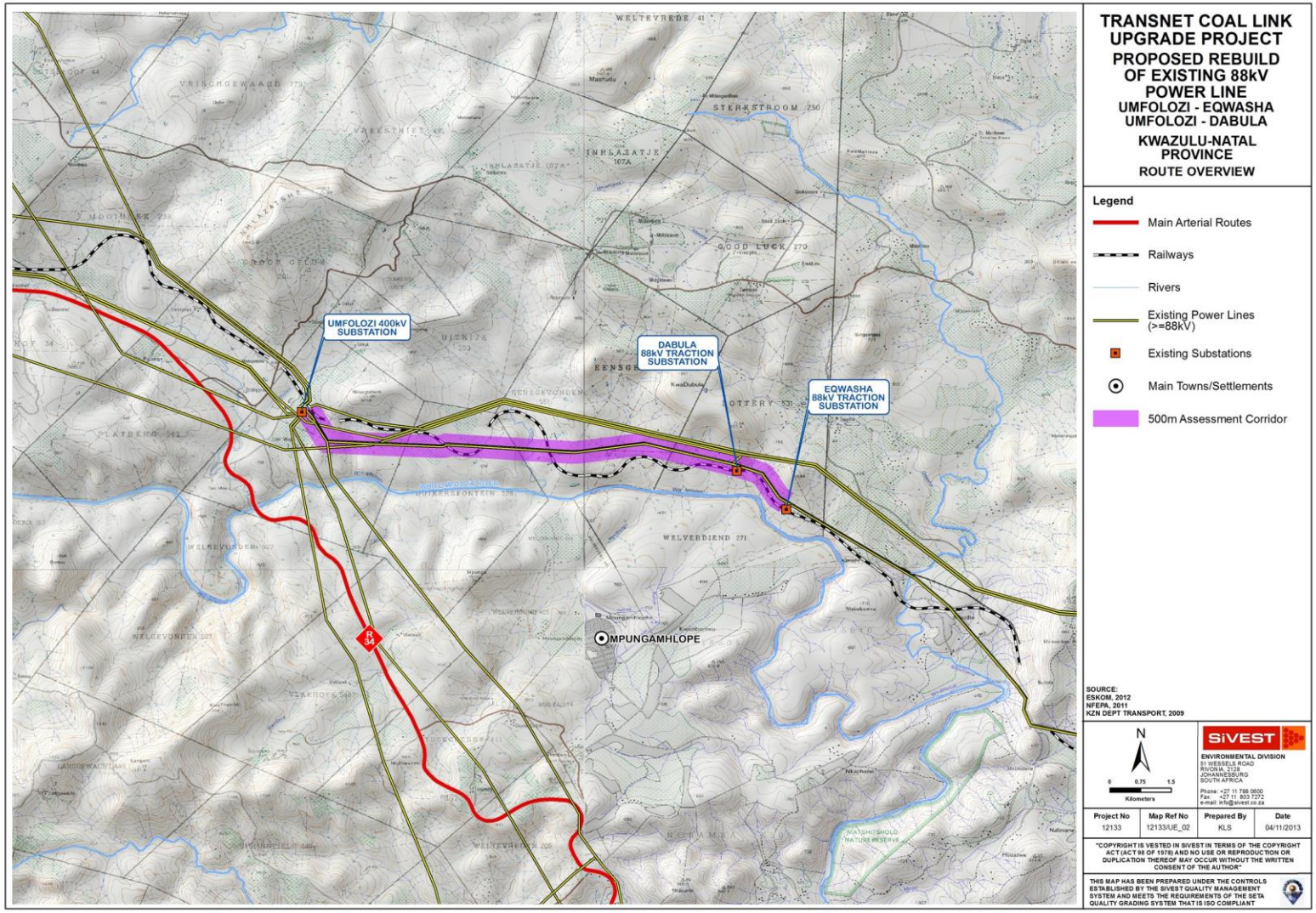

Figure 3: Route Overview

PUBLIC PARTICIPATION

A public participation process will be undertaken in accordance with the NEMA EIA 2010 Regulations, as the BA was initiated prior to the EIA 2014 Regulations coming into effect, and in terms of the Department of Environmental Affairs Companion to the EIA Regulations 2010, Integrated Environmental Management Guideline Series 5, October 2012.

Initial and Draft BAR Notification

Interested and Affected Parties (I&AP's) will be identified and provided with an opportunity to register their interest in the application process. The Draft Basic Assessment Report was submitted for review and comment by any interested and affected parties.

The following parties were notified of the BA Process and the availability of the Background Information Document (BID), Draft Basic Assessment Report (DBAR) and Environmental Management Programme (EMPr) for review and comment:

- Department of Environmental Affairs
- Department of Economic Development, Tourism and Environmental Affairs (KZN-EDTEA)
- Department of Water and Sanitation
- Department of Agriculture, Forestry and Fisheries
- KZN Wildlife
- District Municipality
- Ulundi Local Municipality
- NGO and Ratepayers Association of the Area
- Adjacent landowners
- Ward Councillor of the area

In addition to this, newspaper advertisements were published between the 23rd March 2015 – 3rd April 2015 in the Sowetan Newspaper, Ermelo Tribune, Zululand Observer and the Paulpietersburg Advertiser. Due to the high likelihood of overlapping stakeholders, all 8 Ermelo-Richards Bay Coal Link Upgrade projects are being advertised together.

Additionally, site notices were placed on the site (along route alternatives and at the substation sites); and the BID, Draft BAR and Draft EMPr were delivered to:

- Ulundi Community Library (Cnr. King Zwelithini and Princess Magogo Street, Ulundi 6650, Tel: 035 874 5215)

The documents were also made available on SiVEST's website (www.sivest.co.za) for review and comment. Stakeholders were given the opportunity to review and comment on the Draft BAR for a period of **40 days (26th March 2015 – 8th May 2015).** All comments received or responses sent during the public comment period for the Draft BAR are recorded in a Comments and Responses Report (to be included in Appendix E3 of the Final BAR)

Any concerns or issues that are raised during the review period for the Draft BAR were addressed by the Environmental Assessment Practitioner in a Comments and Responses

ENVIRONMENTAL IMPACT STATEMENT

The impact statements for the proposed power line is listed below. The impact statements for the route can be found in Appendix F (Impact Assessment Report) of this report.

The impacts rated for the CONSTRUCTION PHASE:

Impact rating summary during the construction phase.

Type of Impact	Description	Status	Significance Rating Pre-Mitigation	Status after mitigation
Botanical	Impact on rare and endemic plant species	Negative	Medium	Low
Botanical	Impact on natural vegetation	Negative	Low	Low
Botanical	Impact on sensitive vegetation types	Negative	Low	Low
Botanical	Impact on natural systems and their potential fragmentation	Negative	Low	Low
Botanical	Impact on Conservation Areas	Negative	Low	Low
Fauna	Vegetation clearing, disturbance and the use of heavy machinery and human presence along the power line route during construction is likely to negatively affect resident fauna directly and through habitat loss.	Negative	Medium	Low
Surface Water	Pre-Construction Lay-down area potential impacts: drainage lines and watercourse riparian habitat degradation	Negative	Medium	Low
Surface Water	Towers in Surface Water Resources and Removal of Vegetation for the Stringing of Power lines through Watercourse Riparian Habitat: Drainage Line and Watercourse Riparian Habitat Loss	Negative	High	Medium
Surface Water	Vehicle and Machinery Impacts: drainage lines and watercourse compaction/degradation	Negative	Medium	Low
Surface Water	Human degradation impacts: surface water resource fauna and flora physical degradation	Negative	Medium	Low
Surface Water	Erosion, increased run-off and sedimentation impacts	Negative	Medium	Low
Surface Water	Degradation Impacts: stringing of power lines through surface water resources	Negative	Medium	Low
Physical and Geographical	Soil erosion through vegetation clearance and soil compaction by heavy duty construction vehicles.	Negative	Low	Low
Physical and Geographical	Contamination of soils through indiscriminate disposal of construction waste and accidental spillage of petroleum products.	Negative	Low	Low
Soil and Agriculture	Loss of agricultural land and / or production as a result of the proposed power line construction	Negative	Low	Low
Avifauna	Disturbance of birds during construction of project	Negative	Medium	Low
Avifauna	Destruction and alteration of habitat available to birds and the area during construction of the proposed project	Negative	Medium	Low
Visual	Large construction vehicles and equipment during the construction phase may change the visual character of the study area and	Negative	Low	Low

Type of Impact	Description	Status	Significance Rating Pre-Mitigation	Status after mitigation
	expose sensitive receptors to visual impacts associated with the construction phase.			
Heritage	No heritage impacts occur near the proposed development site	Negative	High	N/A
Dust	Dust impacts on surrounding environment associated with construction activities.	Negative	Low	Low
Noise	Noise impacts on surrounding environment associated with construction activities.	Negative	Low	Low
Waste	Generating of additional waste / Litter and building rubble or hazardous material during the construction phase.	Negative	Medium	Low

The impacts rated for the <u>OPERATIONAL PHASE</u>

Impact rating summary during the operational phase.

Type of Impact	Description	Status	Significance Rating Pre-Mitigation	Status after mitigation
Botanical	Impact of maintenance activities on sensitive environments and vegetation	Negative	Low	Low
Botanical	Impact resulting from rehabilitation during decommissioning phase	Positive	Medium	Medium
Botanical	Impact associated with potential alien plant species infestations during decommissioning phase	Negative	Medium	Low
Surface Water	Service Road Establishment and Subsequent Vehicle Degradation Impacts to Riparian Habitats	Negative	High	Low
Surface Water	Power Line Collision and Electrocution Impacts to Avifauna	Negative	High	Medium
Avifauna	Electrocution of birds by pylons/towers.	Negative	Medium	Low
Avifauna	Collision of birds with overhead power line cables	Negative	Medium	Low
Visual	Change to the visual character of the surrounding area on potentially sensitive receptors	Negative	Low	Low
Socio - Economic	Positive socio-economic impacts as a result of constant, adequate, reliable supply of electricity to the area, thereby contributing positively to the expansion and strengthening of local economic activities.	Positive	High	High

The impact rated for the <u>NO-GO Alternative</u>:

Type of Impact	Description	Status	Significance Rating Pre-Mitigation	Status after mitigation
Socio - Economic	Negative socio-economic impacts as a result of inadequate supply of electricity to the Transnet railway	Negative	High	High

Type of Impact	Description	Status	Significance Rating Pre-Mitigation	Status after mitigation
	system thereby preventing an increased export tonnage of coal. This will prevent job creation in the Ulundi area and hinder South Africa's economic growth in the coal export sector.			

To summarise, the negative environmental impacts associated with the proposed development are generally considered to be local of nature and can be mitigated to a low level of significance in accordance with the detailed EMPr (Appendix G). The project will however, result in positive cumulative impacts on a national, regional and local level as a result of increased economic output in the coal export sector as well as temporary and permanent job creation.

Given the above motivation, no feasible and reasonable alternatives other than *'(f) the option of not implementing the activity*' could be proposed for assessment. However, a 500m corridor was provided to specialists for assessment. The reason being, that it is likely that the proposed power line may need to be shifted for the final route selection due to environmental, social and technical reasons. The "No-go" option has however been assessed, but due to the need of the proposed project this has been ruled out.

CONCLUSION AND RECOMMENDATIONS

The findings of the specialist studies undertaken within this BA provide an assessment of both the potential benefits and potential negative impacts anticipated as a result of the proposed development. The findings conclude that there are no environmental fatal flaws that should prevent the proposed project from proceeding. Areas of special concern have however been identified which will require site specific mitigation measures. These are included within the EMPr to ensure that these areas receive special attention.

The proposed development has an overall positive benefit to the socio-economic development of the region as well potential botanical advantages through alien clearing along the proposed power line route. The project is aligned with the objectives of the policies and frameworks at both Provincial and local level.

It is envisaged that any line rebuild may warrant a combination off all four construction strategies. It is therefore important to note that the environmental authorisation should not limit any of the above construction strategies. It is noted that all four construction strategies should not violate any environmental considerations / constraints within the 500m corridor. Such constraints can be managed via the detailed environmental management plan and policed by an environmental control officer. These construction strategies will be informed by the public participation process and the land owner negotiations.

Given the above motivation, no feasible and reasonable alternatives other than *'(f) the option of not implementing the activity*' could be proposed for assessment. However, a 500m corridor was provided to specialists for assessment. The reason being, that it is likely that the proposed power line may need to be shifted for the final route selection due to environmental, social and technical reasons. The "No-go" option has however been assessed, but due to the need of the proposed project this has been ruled out.

The Environmental Assessment Practitioner is therefore of the opinion that the negative environmental impacts associated with the proposed preferred route can be mitigated in accordance with the detailed EMPr (Appendix G).

environmental affairs

Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA

	(For official use only)
File Reference Number:	**14/12/16/3/3/1/1106**
Application Number:	
Date Received:	

Basic assessment report in terms of the Environmental Impact Assessment Regulations, 2010, promulgated in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended.

Kindly note that:

1. This **basic assessment report** is a standard report that may be required by a competent authority in terms of the EIA Regulations, 2010 and is meant to streamline applications. Please make sure that it is the report used by the particular competent authority for the activity that is being applied for.
2. This report format is current as of **1 August 2014**. It is the responsibility of the applicant to ascertain whether subsequent versions of the form have been published or produced by the competent authority
3. The report must be typed within the spaces provided in the form. The size of the spaces provided is not necessarily indicative of the amount of information to be provided. The report is in the form of a table that can extend itself as each space is filled with typing.
4. Where applicable **tick** the boxes that are applicable in the report.
5. An incomplete report may be returned to the applicant for revision.
6. The use of "not applicable" in the report must be done with circumspection because if it is used in respect of material information that is required by the competent authority for assessing the application, it may result in the rejection of the application as provided for in the regulations.
7. This report must be handed in at offices of the relevant competent authority as determined by each authority.
8. No faxed or e-mailed reports will be accepted.
9. The signature of the EAP on the report must be an original signature.
10. The report must be compiled by an independent environmental assessment practitioner.
11. Unless protected by law, all information in the report will become public information on receipt by the competent authority. Any interested and affected party should be provided with the information contained in this report on request, during any stage of the application process.
12. A competent authority may require that for specified types of activities in defined situations only parts of this report need to be completed.
13. Should a specialist report or report on a specialised process be submitted at any stage for any part of this application, the terms of reference for such report must also be submitted.

14. Two (2) colour hard copies and one (1) electronic copy of the report must be submitted to the competent authority.
15. Shape files (.shp) for maps must be included in the electronic copy of the report submitted to the competent authority.

SECTION A: ACTIVITY INFORMATION

Has a specialist been consulted to assist with the completion of this section? ✓YES

If YES, please complete the form entitled "Details of specialist and declaration of interest" for the specialist appointed and attach in Appendix I.

1. PROJECT DESCRIPTION

a) Describe the project associated with the listed activities applied for

Background

SiVEST Environmental Division has been appointed by Trans-Africa Projects, the implementation agents for Eskom Holdings (SOC) Ltd, to undertake the Environmental Authorisation Process for the proposed project. The project is part of a suite of projects collectively known as the Ermelo-Richards Bay Coal link Upgrade.

Transnet is South Africa's sole provider of rail transport infrastructure for coal transportation. One of South Africa's largest foreign exchange earners is the export of high quality coal products to China. The Transnet rail link between the coal fields in Mpumalanga Province and the export node, the Richards' Bay Coal Terminal, is one of the busiest railway links in South Africa.

The increase in demand for South Africa's high quality coal necessitates the increase in production, which in turn has demands on the railway network infrastructure. In response to the increased demand for South Africa's coal in the global market place, Transnet needs to increase the volume of coal that is being transported between the Mpumalanga coal fields and the Richard's Bay Coal Terminal. This increase will be facilitated through capital expenditure on two fronts, the supporting infrastructure, i.e. the electrical network supplying the locomotives and the locomotives themselves.

In order for Transnet to accomplish the above they need to upgrade their power supply to their various traction substations between Ermelo and Richards Bay to facilitate the introduction of the new, larger locomotives that will be added to increase the volume of coal being transported and exported. Eskom Holdings (SOC) Ltd being one of the main suppliers of electrical energy in South Africa has been tasked by Transnet to supply the additional energy requirements to these traction substations. In trying to meet the task Eskom Holdings (SOC) Ltd requires environmental authorisation from the Department of Environmental Affairs (DEA) to establish new substations and power lines.

Proposed Development

Eskom Holdings (SOC) Ltd is proposing the rebuild of an 11.2km long 88kV power line between Umfolozi Substation and Eqwasha Substation. The power line to be rebuilt is situated 15km north-west of Ulundi, KwaZulu-Natal and approximately 1.6km east of the R34. The power line runs east for 11.2km to terminate north-east of the Eqwasha railway station, this is a traction Substation. The power line runs parallel to the White Umfolozi River and crosses the Transnet railway line at multiple locations. The proposed power line will loop in and out of the Dubula traction Substation, with a total length of 600m.

The proposed Umfolozi SS to Eqwasha SS line and Umfolozi SS to Dabula TSS turn in line are located in the Ulundi Local Municipality. The power line will consist of a series of towers located approximately 200 m apart, depending on the terrain and soil conditions. It is proposed that the Lattice tower type with a minimum height of 20 m and a maximum height of 33 m will be used

The following construction strategies are proposed for the power line rebuild:

1. **Servitude Swap.** This will include:
   - Negotiating a new servitude within 250m of either side of the existing servitude with land owner/s (where possible);
   - Registering the new servitude;
   - Building a new line in the new negotiated servitude;
   - Energising the new line;
   - Dismantling the old line and rehabilitate the associated servitude; and
   - Handing over of the old servitude to land owner/s.

2. **Line Bypass.** This will include:
   - Building a line bypass within 25m of the existing servitude;
   - The bypass line should then span the entire length of the line that will be upgraded;
   - Dismantling of the old line;
   - Building a new line;
   - Energising the new line;
   - Dismantling the bypass line; and
   - Rehabilitating the temporary servitude (if needed).

3. **Line Section Bypass.** This will include:
   - Building a line section/s bypass within 25m of the existing servitude;
   - Bypassing line section/s will be limited to strain section/s of the line that will be upgraded;
   - Dismantling of the old line section/s;
   - Building the new line section/s;
   - Energising the new line section/s;
   - Dismantling the bypass line section/s;
   - Rehabilitating the temporary servitude (if needed); and
   - Proceeding to the next line section/s that needs to be upgraded.

4. **Servitude Widening.** This will include:
   - Widening the servitude by 25m

It is envisaged that any line rebuild may warrant a combination off all four construction strategies. It is therefore important to note that the environmental authorisation should not limit any of the above construction strategies. It is noted that all four construction strategies should not violate any environmental considerations / constraints within the 500m corridor. Such constraints can be managed via the detailed environmental management plan and policed by an environmental control office. These construction strategies will be informed by the public participation process and the land owner negotiations.

Where applicable the procedure for the recycling and rehabilitation of the dismantled line will be in line with the Eskom process.

The dismantled towers and line hardware will be stored at a local Eskom depot. All steel material and conductors will be removed by an accredited Eskom supplier and recycled. All non-ferrous material will be returned to the Eskom stores and disposed of from there by an accredited scrap dealer.

A corridor width of 250m on either side of the existing line (i.e. corridor width is 500m) needs to be

covered in the assessment. The reason for this approach is to have an approval in place that would support any of the construction strategies that are being explored.

The proposed power line will be rebuilt at 132kV with steel lattice towers or monopole towers but operated at 88kV in order to ensure future capacity increases. The power lines will consist of a series of towers located approximately 200m apart, depending on the terrain and soil conditions. The structures to be used to support the overhead Power line will be steel monopole.

Access to the site is present through a well-maintained gravel road at the Umfolozi substation (western end of the power line). An existing access road running parallel to the railway line to the Eqwasha passenger railway station serves as an access point to the eastern end of the power line. Access roads along the power line may require upgrading or construction where no access roads are present. The exact position and type of road will be determined once the power line positions have been confirmed through the negotiation process.

b) Provide a detailed description of the listed activities associated with the project as applied for

Note: New EIA Regulations were promulgated on 4 December 2014 (Government Gazette No. 38282 of 04 December 2014) and came into effect on 8 December 2014. However, the BA for this proposed project was initiated on 18 December 2013 prior the new EIA Regulations coming into effect. Therefore in accordance with Regulation 53 (1) of the EIA 2014 Regulations, any applications submitted in terms of the previous NEMA regulations must be undertaken as if the previous NEMA regulations were not repealed. This EIA has therefore been undertaken in accordance with the EIA 2010 Regulations which are contained in four Government Notices (GN 543, 544, 545 and 546) which were promulgated on 18 June 2010 and came into effect on 02 August 2010.

Listed activity as described in GN R.544, 545 and 546	Description of project activity
GN R544, Activity 10 (i): The construction of facilities or infrastructure for the transmission and distribution of electricity - (i) outside urban areas or industrial complexes with a capacity of more than 33 but less than 275 kilovolts	The capacity of the new distribution power lines is 88kV. The construction of the distribution lines will occur outside an urban area.
GN R544, Activity 11 (xi): The construction of: (xi) infrastructure or structures covering 50 square metres or more where such construction occurs within a watercourse or within 32 metres of a watercourse, measured from the edge of a watercourse, excluding where such construction will occur behind the development setback line.	The surface water assessment identified 37 surface water features. The erection of the pylons may fall within 32m of a watercourse.
GN R. 544 Item 18 (i): The infilling or depositing of any material of more	The surface water assessment identified 37 surface water features. It is likely that construction

than 5 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock from (i) a watercourse;	activities may need to take place within at least one of these surface water features. During these construction activities, soil may be removed from the watercourses.
GN 546 activity 4(a)ii. (cc) (ee): The construction of a road wider than 4 metres with a reserve less than 13,5 metres. (cc) Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority; (ee) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans;	The construction of a road may be required for construction and maintenance purposes. The botanical assessment identified that the proposed power line passes though Critical Biodiversity Areas due to the presence of; *Doratogonus falcatus;* Ithala Quartzite Sourveld; Paulpietersburg Moist Grassland; Northern Zululand Sourveld; Eastern Temperate Wetlands; *Transvaaliana draconis* and *Whitea alticeps.* Should the road be required for the proposed development, the road may be greater than 4 m wide but will be less than 8 m wide.
GN R546, Activity 12 (b): The clearance of an area of 300 square metres or more of vegetation where 75% or more of the vegetative cover constitutes indigenous vegetation: (b) Within critical biodiversity areas identified in bioregional plans;	The botanical assessment identified that the proposed power line passes though Critical Biodiversity Areas due to the presence of; *Doratogonus falcatus;* Ithala Quartzite Sourveld; Paulpietersburg Moist Grassland; Northern Zululand Sourveld; Eastern Temperate Wetlands; *Transvaaliana draconis* and *Whitea alticeps.* The construction of the power lines may require the clearance of an area of 300 square metres where 75% of the vegetation is indigenous.
GN R546, Activity 13(a)(c)ii.(cc): The clearance of an area of 1 hectare or more of vegetation where 75% or more of the vegetative cover constitutes indigenous vegetation, except where such removal of vegetation is required for: (a) Critical biodiversity areas and ecological support areas as identified in systematic biodiversity plans adopted by the competent authority. c) In Eastern Cape, Free State, KwaZulu-Natal, Limpopo, Mpumalanga, Northern Cape and Western Cape: ii. Outside urban areas, the following: (cc) Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority.	The botanical assessment identified that the proposed power line passes though Critical Biodiversity Areas due to the presence of; *Doratogonus falcatus;* Ithala Quartzite Sourveld; Paulpietersburg Moist Grassland; Northern Zululand Sourveld; Eastern Temperate Wetlands; *Transvaaliana draconis* and *Whitea alticeps.* The construction of the power lines may require the clearance of an area of 1 hectare or more of vegetation where 75% of the vegetation is indigenous.
GN R546, Activity 14(a)(i): The clearance of an area of 5 hectares or more	The botanical assessment identified that the proposed power line passes though Critical

of vegetation where 75% or more of the vegetative cover constitutes indigenous vegetation, except where such removal of vegetation is required for: (a) In Eastern Cape, Free State, KwaZulu-Natal, Gauteng, Limpopo, Mpumalanga, Northern Cape, Northwest and Western Cape: i. All areas outside urban areas.	Biodiversity Areas due to the presence of; *Doratogonus falcatus;* Ithala Quartzite Sourveld; Paulpietersburg Moist Grassland; Northern Zululand Sourveld; Eastern Temperate Wetlands; *Transvaaliana draconis* and *Whitea alticeps.* The construction of the power lines may require the clearance of an area of 5 hectares where 75% of the vegetation is indigenous.
GN R546, Activity 16 (iv)(a)ii.(dd)(ff): The construction of: (iv) infrastructure or structures covering 10 square metres or more where such construction occurs within a watercourse or within 32 metres of a watercourse, measured from the edge of a watercourse, excluding where such construction will occur behind the development setback line. (a) In Eastern Cape, Free State, KwaZulu-Natal, Gauteng, Limpopo, Mpumalanga, Northern Cape, Northwest and Western Cape: (ii) Outside urban areas, in: (dd) Sensitive Areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority. (ff) Critical biodiversity areas or ecosystem service areas identified in systematic biodiversity plans adopted by the competent authority or in biological plans.	The surface water assessment identified 37 surface water features. The erection of the pylons may fall within 32m of a watercourse. The botanical assessment identified that the proposed power line passes though Critical Biodiversity Areas due to the presence of; *Doratogonus falcatus;* Ithala Quartzite Sourveld; Paulpietersburg Moist Grassland; Northern Zululand Sourveld; Eastern Temperate Wetlands; *Transvaaliana draconis* and *Whitea alticeps.*

2. FEASIBLE AND REASONABLE ALTERNATIVES

"alternatives", in relation to a proposed activity, means different means of meeting the general purpose and requirements of the activity, which may include alternatives to—

(a) the property on which or location where it is proposed to undertake the activity;
(b) the type of activity to be undertaken;
(c) the design or layout of the activity;
(d) the technology to be used in the activity;
(e) the operational aspects of the activity; and
(f) the option of not implementing the activity.

Describe alternatives that are considered in this application as required by Regulation 22(2)(h) of GN R.543. Alternatives should include a consideration of all possible means by which the purpose and need of the proposed activity (NOT PROJECT) could be accomplished in the specific instance taking account of the interest of the applicant in the activity. The no-go alternative must in all cases be included in the assessment phase as the baseline against which the impacts of the other alternatives are assessed.

The determination of whether site or activity (including different processes, etc.) or both is appropriate needs to be informed by the specific circumstances of the activity and its environment. After receipt of this report the, competent authority may also request the applicant to assess additional alternatives that could possibly accomplish the purpose and need of the proposed activity if it is clear that realistic alternatives have not been considered to a reasonable extent.

The identification of alternatives should be in line with the Integrated Environmental Assessment Guideline Series 11, published by the DEA in 2004. Should the alternatives include different locations and lay-outs, the co-ordinates of the different alternatives must be provided. The co-ordinates should be in degrees, minutes and seconds. The projection that must be used in all cases is the WGS84 spheroid in a national or local projection.

IMPORTANT: Motivation for No Alternatives

The need for the proposed development is to supply additional energy to Eskom Holding's (SOC) various traction substations between Ermelo and Richards Bay. Transnet requires additional energy and capacity to facilitate the introduction of the new, larger locomotives that will be added to increase the volume of coal being transported and exported.

This is necessary as the increase in demand for South Africa's high quality coal necessitates the increase in production, which in turn has demands on the railway network infrastructure. In response to the increased demand for South Africa's coal in the global market place, Transnet needs to increase the volume of coal that is being transported between the Mpumalanga coal fields and the Richard's Bay Coal Terminal. This increase will be facilitated through capital expenditure on two fronts, the supporting infrastructure, i.e. the electrical network supplying the locomotives and the locomotives themselves. In order for Transnet to accomplish the above they need to upgrade their power supply to their various traction substations between Ermelo and Richards Bay to facilitate the increase demand for coal.

As per Chapter 1 of the EIA regulations (2010), feasible and reasonable alternatives are required to be considered during the BA process. Alternatives are defined as "different means of meeting the general purpose and requirements of the activity" These alternatives may include:

g) The property on which or location where it is proposed to undertake the activity;
h) The type of activity to be undertaken;
i) The design or layout of the activity;
j) The technology to be used in the activity;
k) The operational aspects of the activity; and
l) The option of not implementing the activity.

Each of these alternative types are discussed in relation to the proposed project in the sections below.

The property on which or location where it is proposed to undertake the activity:

No site alternatives for this project are being considered due to the placement of the proposed power line being dependent on several technical factors, all of which are favourable at the proposed site location. These include the existing operational power lines in the area, grid connections, existing

substations and access to the site. In addition, Transnet also identified traction substations and associated power lines that need to be upgraded in order to facilitate the high demand for coal exports which directly places increased demand on the countries energy supply.

Considering that the proposed development is a power line rebuild the proposed development site is the only feasible option as it is a minor section of the existing line that will be upgraded. The project site also has advantageous grid connection potential through the existing Umfolozi Substation and Eqwasha Substation. The site is also easily accessible from the existing well-maintained gravel road at the Umfolozi substation (western end of the existing power line). An existing access road running parallel to the railway line to the Eqwasha railway station also serves as an access point to the eastern end of the proposed power line. Access roads along the power line may require upgrading or construction where no access roads are present. The existing power line corridor is therefore considered highly suitable for the proposed development and no other locations or corridors are being considered. It must be noted that the 500m wide corridor forms part of the assessment of the proposed power line rebuild to allow for some maneuverability where required.

The type of activity to be undertaken:
No feasible and reasonable activity alternative exists therefore activity alternatives cannot be considered. The proposed activity is the rebuild of an existing power lines in order to meet the energy required by Transnet to increase their coal output. The proposed development is activity specific in that power lines are required to transmit and distribute electricity.

The design or layout of the activity:
Various environmental specialists have assessed the site within the 500m assessment corridor and have included the identification of sensitive areas. The identified sensitive areas will be used to guide the exact location of the power line rebuild in conjunction with, landowner negotiations and technical constraints. Additionally, there are various monopole tower types being considered for the proposed development. Each tower design type will have very little to no variation in environmental impacts between the different tower design types, as they will occupy relatively the same footprint size and have the same tower height. Additionally, the type of towers to be used will be determined by technical constraints and ultimately determined by the engineers. Therefore no feasible or reasonable design or layout alternatives were assessed in this BA.

The technology to be used in the activity;
There are four (4) construction strategies being applied for in this BA. The technology options include a servitude swap; line bypass, line section bypass or a servitude widening. The choice of technology used will ultimately be determined by the land owner / servitude negotiations process and technological constraints at a later stage. As it is envisaged that any power line rebuild may warrant a combination off all four construction strategies based on the land owner / servitude negotiation process and technical constraints. It is therefore important to note that the environmental authorisation should not limit any of the above options. It is noted that all four construction strategies would need to be considered within the environmental considerations / constraints occurring within the 500m corridor. Such constraints can be managed via the site specific EMPr and implemented by an environmental control officer. The selection of the four construction strategies will be informed by the public participation process and the land owner negotiations. Therefore no technology alternatives were assessed as part of this BA.

The operational aspects of the activity; and
The proposed development is operationally specific in that the operation of power lines are required for the proposed development

The option of not implementing the activity.
The option of not implementing the activity, or the **'no-go' alternative, has been considered in this BA**. The No-Go Alternative refers to the option of not implementing the proposed infrastructure development and ultimately the continuation of the current *status quo*. In order for Transnet to accomplish the increased demand for coal and the associated mining activities they need to upgrade their power supply to their various traction substations between Ermelo and Richards Bay. This will facilitate the introduction of the new, larger locomotives that will be added to increase the volume of coal being transported and exported. Should this development not proceed, this will result in the electricity demands I not being met. This would be detrimental as South Africa is under immense pressure to provide electricity to meet the currently growing electricity demand in the country. Although the potential environmental issues, such as habitat destruction, would not occur if the project did not go ahead, the socio economic benefit of the proposed project should not be overlooked. The project would assist in achieving South Africa's goals in terms of energy security which in turn would promote local economic development.

Conclusion:
Given the above motivation, no feasible and reasonable alternatives other than *'(f) the option of not implementing the activity'* could be proposed for assessment. However, a 500m corridor was provided to specialists for assessment. The reason being, that it is likely that the proposed power line may need to be shifted for the final route selection due to environmental, social and technical reasons. The "No-go" option has however been assessed, but due to the need of the proposed project this has been ruled out.

a) Site alternatives

Alternative 1		
Description	Lat (DDMMSS)	Long (DDMMSS)
N/A		
Alternative 2		
Description	Lat (DDMMSS)	Long (DDMMSS)
N/A		
Alternative 3		
Description	Lat (DDMMSS)	Long (DDMMSS)
N/A		

In the case of linear activities:

No route alternatives have been proposed as this project is a rebuild of an existing line within the 500m servitude.

Alternative:	**Latitude (S):**	**Longitude (E):**
Alternative S1 (preferred)		
• Starting point of the activity **(Umfolozi Substation)**	**28° 12' 56.081" S**	**31° 11' 19.244" E**
• Middle/Additional point of the activity	**28° 13' 27.687" S**	**31° 14' 29.522" E**
• End point of the activity **(Eqwasha Substation)**	**28° 14' 8.034" S**	**31° 17' 39.134" E**

Alternative S2 (if any) **N/A**

• Starting point of the activity		
• Middle/Additional point of the activity		
• End point of the activity		

Alternative S3 (if any) **N/A**

• Starting point of the activity		
• Middle/Additional point of the activity		
• End point of the activity		

For route alternatives that are longer than 500m, please provide an addendum with co-ordinates taken every 250 meters along the route for each alternative alignment.

In the case of an area being under application, please provide the co-ordinates of the corners of the site as indicated on the lay-out map provided in Appendix A.

As a result of the length of the line, coordinates of the bend points of the line have been included in the place of coordinates at 250m intervals.
Please refer to Appendix J3 for the bend point coordinates of the power line corridor.

b) Lay-out alternatives

Alternative 1 (preferred alternative)		
Description	Lat (DDMMSS)	Long (DDMMSS)
N/A		
Alternative 2		
Description	Lat (DDMMSS)	Long (DDMMSS)
N/A		
Alternative 3		
Description	Lat (DDMMSS)	Long (DDMMSS)
N/A		

c) Technology alternatives

Alternative 1 (preferred alternative)
N/A
Alternative 2
N/A
Alternative 3
N/A

d) Other alternatives (e.g. scheduling, demand, input, scale and design alternatives)

Alternative 1
Alternative 2

Alternative 3
The third option is to dismantle the existing line and construct a new line in the existing servitude.

e) No-go alternative

The No-Go Alternative refers to the option of not implementing the activity (no rebuild of the 88kV Umfolozi to Eqwasha and Umfolozi to Dabula power line) and ultimately the continuation of the current status quo.

The proposed rebuild of the existing 88kV wolf power line from the Umfolozi Substation to the Eqwasha Substation and Dabula Traction Substation are necessary to provide sufficient electrical capacity to the area. The increase in demand for South Africa's high quality coal necessitates the increase in production, which in turn has demands on the railway network infrastructure. In response to the increased demand for South Africa's coal in the global market place, Transnet needs to increase the volume of coal that is being transported between the Mpumalanga coal fields and the Richard's Bay Coal Terminal.

One of the requirements for Transnet to meet this demand is to upgrade their power supply to their various traction substations between Ermelo and Richards Bay to facilitate the introduction of the new, larger locomotives that will be added to increase the volume of coal being transported and exported. Eskom Holdings (SOC) Ltd being one of the main suppliers of electrical energy in South Africa has been tasked by Transnet to supply the additional energy requirements to these traction substations.

Currently, the proposed rebuild of the power line is the only option to increase the electricity capacity and distribution to the Umfolozi and Eqwasha Substation and the Dabula Traction Substation. The project is, therefore regarded as a vital infrastructure component to sustain economic and social development in South Africa.

The project is therefore regarded as a vital infrastructural component to sustain economic and social development at a local and national level.

Paragraphs 3 – 13 below should be completed for each alternative.

3. PHYSICAL SIZE OF THE ACTIVITY

a) Indicate the physical size of the preferred activity/technology as well as alternative activities/technologies (footprints):

Alternative:	**Size of the activity:**
Alternative A1[1] (preferred activity alternative)	[redacted]
Alternative A2 (if any)	
Alternative A3 (if any)	

or, for linear activities:

[1] "Alternative A.." refer to activity, process, technology or other alternatives.

Alternative:	**Length of the activity:**
Alternative A1 (preferred activity alternative)	**11.287km**
Alternative A2 (if any) **N/A**	
Alternative A3 (if any) **N/A**	

b) Indicate the size of the alternative sites or servitudes (within which the above footprints will occur):

Alternative:	**Size of the site/servitude:**
Alternative A1 (preferred activity alternative)	**32m**
Alternative A2 (if any) **N/A**	
Alternative A3 (if any) **N/A**	

4. SITE ACCESS

Does ready access to the site exist? If NO, what is the distance over which a new access road will be built	✓ **YES**

Describe the type of access road planned:

- **There are existing farm access roads which provide access to the existing route**
- **Existing access roads and tracks shall be used during construction as far as possible.**
- **Access roads on privately owned land and farms shall be used with the permission of the landowners.**
- **In instances where no access is available, an access road will be created.**
- **Access to the site is present through a well-maintained gravel road at the Umfolozi substation (western end of the power line). An existing access road running parallel to the railway line to the Eqwasha passenger railway station serves as an access point to the eastern end of the power line. Access roads along the power line may require upgrading or construction where no access roads are present.**
- **The potential impacts associated mitigation measures with the creation of access roads are addressed in the EMPr (Appendix G).**
- **The exact position of the access roads cannot be determined until the power line positions have been confirmed through the servitude negotiation process. It is therefore recommended that the final road and power line alignments are submitted to the competent authority once these are confirmed and prior to construction.**

Include the position of the access road on the site plan and required map, as well as an indication of the road in relation to the site.

5. LOCALITY MAP

An A3 locality map must be attached to the back of this document, as Appendix A. The scale of the locality map must be relevant to the size of the development (at least 1:50 000. For linear activities of more than 25 kilometres, a smaller scale e.g. 1:250 000 can be used. The scale must be indicated on the map.). The map must indicate the following:

- an accurate indication of the project site position as well as the positions of the alternative sites, if any;

- indication of all the alternatives identified;
- closest town(s;)
- road access from all major roads in the area;
- road names or numbers of all major roads as well as the roads that provide access to the site(s);
- all roads within a 1km radius of the site or alternative sites; and
- a north arrow;
- a legend; and
- locality GPS co-ordinates (Indicate the position of the activity using the latitude and longitude of the centre point of the site for each alternative site. The co-ordinates should be in degrees and decimal minutes. The minutes should have at least three decimals to ensure adequate accuracy. The projection that must be used in all cases is the WGS84 spheroid in a national or local projection).

A locality map is included in Appendix A.

6. LAYOUT/ROUTE PLAN

A detailed site or route plan(s) must be prepared for each alternative site or alternative activity. It must be attached as Appendix A to this document.

The site or route plans must indicate the following:

- the property boundaries and numbers of all the properties within 50 metres of the site;
- the current land use as well as the land use zoning of the site;
- the current land use as well as the land use zoning each of the properties adjoining the site or sites;
- the exact position of each listed activity applied for (including alternatives);
- servitude(s) indicating the purpose of the servitude;
- a legend; and
- a north arrow.

A Site Layout map indicating the route alignment is included Appendix A.

7. SENSITIVITY MAP

The layout/route plan as indicated above must be overlain with a sensitivity map that indicates all the sensitive areas associated with the site, including, but not limited to:

- watercourses;
- the 1:100 year flood line (where available or where it is required by DWA);
- ridges;
- cultural and historical features;
- areas with indigenous vegetation (even if it is degraded or infested with alien species); and
- critical biodiversity areas.

The sensitivity map must also cover areas within 100m of the site and must be attached in Appendix A.

Various sensitivity maps for the proposed site are included in Appendix A.

8. SITE PHOTOGRAPHS

Colour photographs from the centre of the site must be taken in at least the eight major compass directions with a description of each photograph. Photographs must be attached under Appendix B to this report. It must be supplemented with additional photographs of relevant features on the site, if applicable.

Site Photographs taken along the proposed route corridor for the power line are included in Appendix B. Key features of the site are depicted in the site photographs.

9. FACILITY ILLUSTRATION

A detailed illustration of the activity must be provided at a scale of at least 1:200 as Appendix C for activities that include structures. The illustrations must be to scale and must represent a realistic image of the planned activity. The illustration must give a representative view of the activity.

A schematic drawings of the proposed tower types is included in Appendix C.

10. ACTIVITY MOTIVATION

Motivate and explain the need and desirability of the activity (including demand for the activity):

1. Is the activity permitted in terms of the property's existing land use rights?	**✓YES**	
The current land use of the area is natural and forestry. The proposed power line is a rebuild of an existing line for which the land use permits the activity.		
2. Will the activity be in line with the following?		
(a) Provincial Spatial Development Framework (PSDF)	**✓YES**	
The KwaZulu-Natal PSDF (2011) indicates in Section 1 Introduction, that the PSDF (2011) serves as a spatial expression to the **Provincial Growth and Development Strategy (PGDS) (2011)**. The PGDS (2011) states under **3.7.2 Strategic Objective 4.2.: Development of Road and Rail Networks** that *"Freight will continue to be transported via a combination of road and rail…The development of nodes in the interior of the Province and the enhancement of rail, airfields and corridors will be crucial in this development."* The Coal Rail Link is identified as one of the existing infrastructures that "greatly complement and expand existing opportunities for manufacturing and trade" if upgraded and further developed. The proposed Umfolozi-Eqwasha Power line is considered an upgrade of the Coal Link railway line by improving the electrical infrastructure. This will ensure the operational capacity of the railway line. The Strategic Objectives of the PGDS (2011) are directly in line with the 18 identified Strategic Integrated Projects (SIP) of the South African National Infrastructure Plan (2012). The proposed Coal Link Upgrade project is considered a SIP project and satisfies the conditions of SIP 2 and SIP 10 (refer to question 14 in this section for more information).		
(b) Urban edge / Edge of Built environment for the area		**✓NO**
The existing structures are not situated in close proximity to the urban area of Ulundi.		

(c) Integrated Development Plan (IDP) and Spatial Development Framework (SDF) of the Local Municipality (e.g. would the approval of this application compromise the integrity of the existing approved and credible municipal IDP and SDF?).	**✓YES**	
The IDP and SDF for the municipality focuses on achieving the following goals: - Increased efficiency of area infrastructure - Ensure environmental sustainability - Develop a global partnership for development As such, the proposed rebuild of the existing power line will be in line with the Ulundi Municipality IDP and SDF.		
(d) Approved Structure Plan of the Municipality		**✓NO**
N/A – Approved Structure Plans do not exist for the area in question.		
(e) An Environmental Management Framework (EMF) adopted by the Department (e.g. Would the approval of this application compromise the integrity of the existing environmental management priorities for the area and if so, can it be justified in terms of sustainability considerations?)	**✓YES**	
An EMF is not available for this area however reference is made to the Zululand District Municipality Environmental Management Plan (2006) where in Section 4.13 Alien Invasive Weeds it states alien vegetation invasion as a major environmental and fire hazard and that "all new developments with the municipal area should be required to submit an EMPr in which the alien invasive plant removal plan / policy is outlined." The Power line corridors can be used as effective conservation corridors as alien vegetation is cleared and selective vegetation removal is only conducted when vegetation encroaches the safety clearance area. The Power line corridors can therefore encourage ecological connectivity between biodiversity corridors and, indirectly, contribute to prevent the further loss of biodiversity in the area while controlling alien vegetation on a local scale. Please refer to the EMPr (Appendix G) for vegetation management.		
(f) Any other Plans (e.g. Guide Plan)		**✓NO**
N/A – no other plans are available for the Ulundi area.		

3. Is the land use (associated with the activity being applied for) considered within the timeframe intended by the existing approved SDF agreed to by the relevant environmental authority (i.e. is the proposed development in line with the projects and programmes identified as priorities within the credible IDP)?	**✓YES**	
The proposed project consists of a rebuild of the existing power line. This will in turn assist in the Ulundi Municipality's vision of a liveable, economically progressive municipality by 2030. The power line will also contribute to economic progression through job creation during the construction and operational phase as well as providing opportunities for transport and trade etc. The Provincial Growth and Development Strategy (PGDS) (2011) as the supporting document of the KwaZulu-Natal PSDF (2011) identifies enhancement of rail infrastructure as a crucial development. The proposed Umfolozi-Eqwasha power line would enhance the Coal Link railway traversing the province, within the specified timeframes, by providing additional electricity capacity to increase the function of the railway line. Further, the proposed development is part of the SIP's which are of national importance, providing large capital input and economic growth on a local, regional and national level by increasing the national export capacity within the South African coal mining sector. This will provide employment opportunities throughout construction and operation of the proposed development. The proposed Coal Link Umfolozi-Eqwasha Power line are considered within the timeframe of the SIP's as per the South African National Infrastructure Plan (2012).		
4. Does the community/area need the activity and the associated land use concerned (is it a societal priority)? (This refers to the strategic as well as local level (e.g. development is a national priority, but within a specific local context it could be inappropriate.)		**✓NO**
The proposed Umfolozi-Eqwasha Power line is not a societal priority, however the proposed development, as part of the overall Coal Link Upgrade, will contribute substantially to increase the national revenue, which will benefit all citizens. Additionally, the proposed development may create job opportunities on a local and regional level.		

5. Are the necessary services with adequate capacity currently available (at the time of application), or must additional capacity be created to cater for the development? (Confirmation by the relevant Municipality in this regard must be attached to the final Basic Assessment Report as Appendix I.)	**✓YES**	
The proposed development will require a limited amount of water and electricity, however these services will be supplied through portable water and diesel-powered generators. The only municipal service required will be waste disposal. Construction waste will be generated during the construction phase. Construction waste which is not suitable for re-use (approximately 10m3) will be disposed at a licensed landfill site. Hazardous material generation is not anticipated. All relevant local and district municipalities were provided with the opportunity to comment on the proposed development as well as the DBAR. Confirmation from the Municipality will be forwarded to the DEA upon receipt. Proof of request for comments from the Municipality have been included as an Appendix to the FBAR		
6. Is this development provided for in the infrastructure planning of the municipality, and if not what will the implication be on the infrastructure planning of the municipality (priority and placement of services and opportunity costs)? (Comment by the relevant Municipality in this regard must be attached to the final Basic Assessment Report as Appendix I.)	**✓YES**	
Transnet need to upgrade their power supply to their various traction substations between Ermelo and Richards Bay to facilitate the introduction of the new, larger locomotives that will be added to increase the volume of coal being transported and exported. The municipality will have improved access to the railway lines and the development will not have an impact on other infrastructure planning within the municipality.		
7. Is this project part of a national programme to address an issue of national concern or importance?		**✓NO**
This project forms part of a suite of projects throughout Mpumalanga and Kwazulu-Natal, collectively known as the Ermelo-Richards Bay Coal Link Upgrade Project. This project will significantly increase the volume of coal that South Africa can export, meeting the international demand for South African coal. This suite of projects are further considered to form part of the National Strategic Infrastructure Projects and falls within the parameters of **SIP 2** and **SIP 10,** thus this proposed development is considered to be of national importance. The proposed development is further in line with the **National Spatial Development Perspective** which states that "South Africa will become a nation in which investment in infrastructure…support government's growth and development objectives: by focusing economic growth…in areas where it is most effective and sustainable; by fostering development on the basis of local potential…".		

8. Do location factors favour this land use (associated with the activity applied for) at this place? (This relates to the contextualisation of the proposed land use on this site within its broader context.)	**✓YES**	
The existing Umfolozi to Eqwasha power line and the Umfolozi to Dabula power line run through relatively steep mountainous terrain which slopes down toward the White Mfolozi River. Lower lying terrain prevails within the steep valley created by the White Mfolozi River and in the eastern part of the study area where the White Mfolozi River connects with the Mhlahlane River. Therefore the location of the existing power line does favour the land use.		
9. Is the development the best practicable environmental option for this land/site?	**✓YES**	
The activity being applied for is the rebuild of an existing line. Given that the line is already there, it is the best practicable environmental option. The environmental impact on any new sites with no past disturbance would have more of an impact.		
10. Will the benefits of the proposed land use/development outweigh the negative impacts of it?	**✓YES**	
The negative impacts of the proposed development are low due to the location in a rural area on low grade agricultural land as well as the presence of an existing servitude. Any residual environmental impacts will be mitigated based on the EMPr (Appendix G). The proposed project is necessary to increase the electricity capacity of the Transnet railway between Richards Bay and Mpumalanga to respond to increased coal transport demands. This project is designated as part of a "Strategic Infrastructure Project" to aid in the continued development of the mining and export industry of South Africa. Therefore, this project will impact positively on the local, provincial and national economies and ensure that South Africa continues to improve its national transport system, hereby increasing economic output and revenue.		
11. Will the proposed land use/development set a precedent for similar activities in the area (local municipality)?		**✓NO**
The proposed project aims to increase the electricity supply to the various existing traction substations as part of Transnet's goal to increase the volume of coal that is being transported between the Mpumalanga coal fields and the Richard's Bay Coal Terminal. The negative impacts associated with the proposed development are generally low. However, no precedent is set for future development as the proposed development will increase electrical input into the existing Transnet railway line to transport coal for export.		
12. Will any person's rights be negatively affected by the proposed activity/ies?		**✓NO**
The line is a rebuild of an existing line and is therefore already in constructed. There will be no additional negative affect on any individual rights.		
13. Will the proposed activity/ies compromise the "urban edge" as defined by the local municipality?		**✓NO**
The location of the existing lines to be upgraded are not in close proximity to an urban area and will require no additional urban services other than the formalisation of existing dirt roads.		

14. Will the proposed activity/ies contribute to any of the 17 Strategic Integrated Projects (SIPS)?	**✓YES**	
The proposed development **<u>will contribute</u>** to two (2) SIP namely: **SIP 2** on "strengthening the logistics and transport corridor between SA's main industrial hubs" and **SIP 10:** Electricity Transmission and Distribution for all – *"Align the 10-year transmission plan, the services backlog, the national broadband roll-out and the freight rail line development to leverage off regulatory approvals, supply chain and project development capacity."*		
15. What will the benefits be to society in general and to the local communities?	**✓ Please explain**	
This proposed development will increase South Africa's national capacity to export coal internationally, increasing national revenue and benefitting all South African Citizens including the local communities. Local communities will further benefit during the construction and operational phases of the proposed development through an increase in employment opportunities within the area. This will assist in alleviating the high unemployment levels found within the affected local municipal areas.		
16. Any other need and desirability considerations related to the proposed activity?	**✓ Please explain**	
No, all need and desirability aspects have been considered in this report.		
17. How does the project fit into the National Development Plan for 2030?	**✓ Please explain**	
The proposed project aims to increase the electricity supply to the various existing traction substations as part of Transnet's goal to increase the volume of coal that is being transported between the Mpumalanga coal fields and the Richard's Bay Coal Terminal. This will assist in increasing the amount of coal being exported, which supports economic development and in turn prosperity through equity and job creation.		

18. Please describe how the general objectives of Integrated Environmental Management as set out in section 23 of NEMA have been taken into account.

a) *Promote the integration of the principles of environmental management set out in section 2 into the making of all decisions which may have a significant effect on the environment;*

- **This BA process takes into account all the general objectives of Integrated Environmental Management. The social, economical, cultural and biophysical impacts have been considered and evaluated. The impacts will be mitigated and managed according to a detailed Environmental Management Programme.**

b) *Identify, predict and evaluate the actual and potential impact on the environment, socio-economic conditions and cultural heritage, the risks and consequences and alternatives and options for mitigation of activities, with a view to minimising negative impacts, maximising benefits and promoting compliance with the principles of environmental management set out in section 2;*

- **Impacts associated with the proposed development (construction and operational phases and decommissioning where applicable) have been identified, assessed and mitigation measures provided (detailed in Section D of this BAR).**

c) *Ensure that the effects of activities on the environment receive adequate consideration before actions are taken in connection with them;*

- **This Application is being undertaken in accordance with the NEMA EIA Regulations (2010), the provisions of which themselves take into account the general objectives of Integrated Environmental Management in Section 23 of the NEMA**
- **Please also refer to the attached Environmental Management Programme (Appendix G)**

d) *Ensure that adequate and appropriate opportunity for public participation in decisions that may affect the environment;*

- **This Application has been undertaken in accordance with the Public Participation Requirements (and proposed deviations) set out in the NEMA EIA Regulations (2010).**
- **Please refer to Section C of this BAR for details relating to PPP.**

e) *Ensure the consideration of environmental attributes in management and decision-making which may have a significant effect on the environment; and*

- **This BA process takes into account all the general objectives of Integrated Environmental Management. The social, economical, cultural and biophysical impacts have been considered and evaluated. The impacts will be mitigated and managed according to a detailed Environmental Management Programme.**

f) *Identify and employ the modes of environmental management best suited to ensuring that a particular activity is pursued in accordance with the principles of environmental management set out in section*

- **This BA process takes into account all the general objectives of Integrated Environmental Management. The social, economical, cultural and biophysical impacts have been considered and evaluated. The impacts will be mitigated and managed according to the detailed Environmental Management Programme attached at Appendix G.**

19. Please describe how the principles of environmental management as set out in section 2 of NEMA have been taken into account.
The principles of environmental management as set out in section 2 of the NEMA require that environmental management must place people and their needs at the forefront of development and that development must be socially, environmentally and economically sustainable. As described above; these principles have been taken into account by undertaking a thorough PPP in order to ensure that all Interested and Affected Parties (I&APs) are given the opportunity to be involved in the BA process and ultimately that their comments are taken into consideration by the DEA when reviewing the application. Several specialist studies were also undertaken to ensure that the development is sustainable and that disturbance to the environment is avoided were possible, minimised through appropriate mitigation measures and remedied via appropriate measures.

11. APPLICABLE LEGISLATION, POLICIES AND/OR GUIDELINES

List all legislation, policies and/or guidelines of any sphere of government that are applicable to the application as contemplated in the EIA regulations, if applicable:

Title of legislation, policy or guideline	Applicability to the project	Administering authority	Date
National Environmental Management Act, 107 of 1998. NEMA EIA Regulations (Government Notices 543; 544; 546)	Identification of activities triggered by the proposed project for a BA/Environmental Authorisation	Department of Environmental Affairs	1998 2010
National Water Act, 36 of 1998	A General Authorisation may be required for the altering or temporary impedance of watercourses during the construction phase.	Department of Water Affairs	1998
National Heritage Act, 25 of 1999	Authorisation from Amafa for commencement of construction and for a permit if required	Amafa	1999
DEA&DP Guideline on Public Participation (March 2013)	Used as a guide to inform of the public participation process.	DEA&DP	2013
DEA&DP Guideline on Alternatives (March 2013)	Used as a guide to inform on the use and presentation of alternatives in the IA process.	DEA&DP	2013
DEA&DP Guideline on Need & Desirability (March 2013)	Used as a guide to inform on the need and desirability of the upgrade in conjunction with the above mentioned SDF's and IDP's.	DEA&DP	2013
Zululand District Municipality Environmental Management Plan Municipal Wide Analysis (May 2006)	Identifies the environmental feasibility of electrical infrastructure development.	Zululand District Municipality	2006

The Vegetation of South Africa, Lesotho and Swaziland. Mucina & Rutherford (2006). SANBI, Pretoria	Utilised as a reference guide for the identification of upgrade-specific environmental information.	SANBI	2006

12. WASTE, EFFLUENT, EMISSION AND NOISE MANAGEMENT

a) Solid waste management

Will the activity produce solid construction waste during the construction/initiation phase? **✓YES**

If YES, what estimated quantity will be produced per month? **10m³**

How will the construction solid waste be disposed of (describe)?

Solid waste (minimal construction waste and regular household waste) will be collected by independent contractors and disposed of at a registered licensed municipal landfill site with proof of safe disposal required.

Where will the construction solid waste be disposed of (describe)?

Solid waste (construction waste and builders rubble) will be collected by independent contractors and disposed of at the registered licensed municipal landfill site with proof of safe disposal required.

Will the activity produce solid waste during its operational phase? **✓NO**

If YES, what estimated quantity will be produced per month? **N/A** m³

How will the solid waste be disposed of (describe)?

N/A

If the solid waste will be disposed of into a municipal waste stream, indicate which registered landfill site will be used.

N/A

Where will the solid waste be disposed of if it does not feed into a municipal waste stream (describe)?

N/A

If the solid waste (construction or operational phases) will not be disposed of in a registered landfill site or be taken up in a municipal waste stream, then the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

Can any part of the solid waste be classified as hazardous in terms of the NEM:WA? **✓NO**

If YES, inform the competent authority and request a change to an application for scoping and EIA. An application for a waste permit in terms of the NEM:WA must also be submitted with this application.

Is the activity that is being applied for a solid waste handling or treatment facility? **✓NO**

If YES, then the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA. An application for a waste permit in terms of the NEM:WA must also be submitted with this application.

b) Liquid effluent

Will the activity produce effluent, other than normal sewage, that will be disposed of in a municipal sewage system?		✓NO
If YES, what estimated quantity will be produced per month? **N/A**		m^3
Will the activity produce any effluent that will be treated and/or disposed of on site?		✓NO

If YES, the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

Will the activity produce effluent that will be treated and/or disposed of at another facility?		✓NO

If YES, provide the particulars of the facility:

Facility name:	**N/A**		
Contact person:	**N/A**		
Postal address:	**N/A**		
Postal code:	**N/A**		
Telephone:	**N/A**	**Cell:**	**N/A**
E-mail:	**N/A**	**Fax:**	**N/A**

Describe the measures that will be taken to ensure the optimal reuse or recycling of waste water, if any:

N/A

c) Emissions into the atmosphere

Will the activity release emissions into the atmosphere other that exhaust emissions and dust associated with construction phase activities?		✓NO
If YES, is it controlled by any legislation of any sphere of government? **N/A**	YES	NO

If YES, the applicant must consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

If NO, describe the emissions in terms of type and concentration:

N/A

d) Waste permit

Will any aspect of the activity produce waste that will require a waste permit in terms of the NEM:WA?		✓NO

If YES, please submit evidence that an application for a waste permit has been submitted to the competent authority

e) Generation of noise

Will the activity generate noise?	✓YES	
If YES, is it controlled by any legislation of any sphere of government?		✓NO

Describe the noise in terms of type and level:

Noise, during normal working hours associated with the construction phase of the project is anticipated. Any equipment used during the construction or operational phase will not exceed a noise level of 80 decibel amperes (dbA).

13. WATER USE

Please indicate the source(s) of water that will be used for the activity by ticking the appropriate box(es):

✓Municipal	Water board	Groundwater	River, stream, dam or lake	Other	The activity will not use water

If water is to be extracted from groundwater, river, stream, dam, lake or any other natural feature, please indicate the volume that will be extracted per month:	litres
Does the activity require a water use authorisation (general authorisation or water use license) from the Department of Water Affairs?	**✓YES**

If YES, please provide proof that the application has been submitted to the Department of Water Affairs.

No comments were received from the Department of Water and Sanitation (DWS) on the Draft BAR to confirm if a water use authorisation is required for construction activities at/near watercourses. Should an application be necessary, proof of submission to DWS will be provided in due course. A minimal amount of water may be required during the construction phase, this water will be supplied by the Municipality and will be trucked to the site. The amount of water is assumed to be negligible and only required for the foundations. The Municipality will be consulted in this regard through the Public Participation Process.

14. ENERGY EFFICIENCY

Describe the design measures, if any, which have been taken to ensure that the activity is energy efficient:

The proposed development does not have specific energy efficient measures implemented.

Describe how alternative energy sources have been taken into account or been built into the design of the activity, if any:

The proposed development does not contain any alternative energy sources, as the development is an electricity transmission and distribution infrastructure.

SECTION B: SITE/AREA/PROPERTY DESCRIPTION

Important notes:

1. For linear activities (pipelines, etc.) as well as activities that cover very large sites, it may be necessary to complete this section for each part of the site that has a significantly different environment. In such cases please complete copies of Section B and indicate the area, which is covered by each copy No. on the Site Plan.

Section B Copy No. (e.g. A): ☐

2. Paragraphs 1 - 6 below must be completed for each alternative.

3. Has a specialist been consulted to assist with the completion of this section? ✓YES

If YES, please complete the form entitled "Details of specialist and declaration of interest" for each specialist thus appointed and attach it in Appendix I. All specialist reports must be contained in Appendix D.

Property description/physical address:

Province	KwaZulu Natal	
District Municipality	Zululand District Municipality	
Local Municipality	Ulundi Local Municipality	
Ward Number(s)	13	
Farm name and number	Please refer to full list in Appendix E	
Portion number	Please refer to full list in Appendix E	
SG Code	Please refer to full list in Appendix E	

Where a large number of properties are involved (e.g. linear activities), please attach a full list to this application including the same information as indicated above.

Current land-use zoning as per local municipality IDP/records:

Agriculture

In instances where there is more than one current land-use zoning, please attach a list of current land use zonings that also indicate which portions each use pertains to, to this application.

Is a change of land-use or a consent use application required? ✓NO

1. GRADIENT OF THE SITE

Indicate the general gradient of the site.

Alternative S1:

Flat	**✓1:50 – 1:20**	1:20 – 1:15	1:15 – 1:10	1:10 – 1:7,5	1:7,5 – 1:5	Steeper than 1:5

Alternative S2 (if any): N/A

Flat	1:50 – 1:20	1:20 – 1:15	1:15 – 1:10	1:10 – 1:7,5	1:7,5 – 1:5	Steeper than 1:5

Alternative S3 (if any): N/A

Flat	1:50 – 1:20	1:20 – 1:15	1:15 – 1:10	1:10 – 1:7,5	1:7,5 – 1:5	Steeper than 1:5

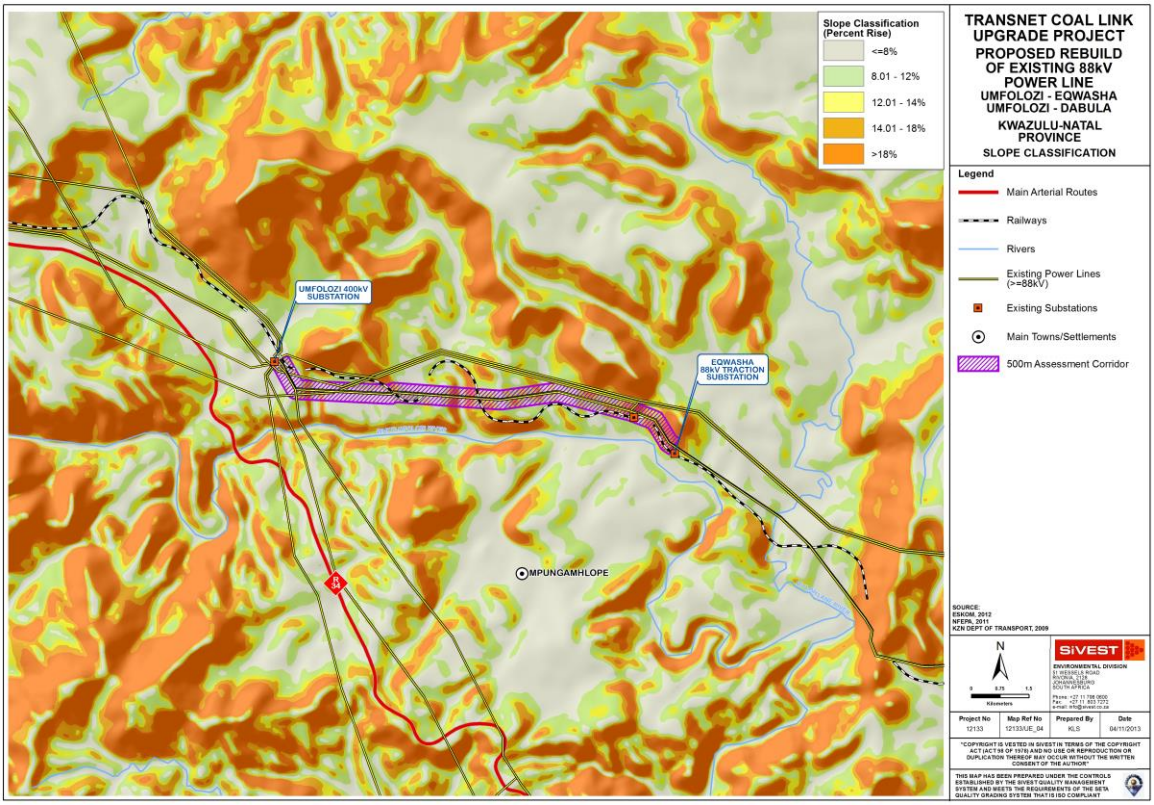

Figure 4: Slope classification Map

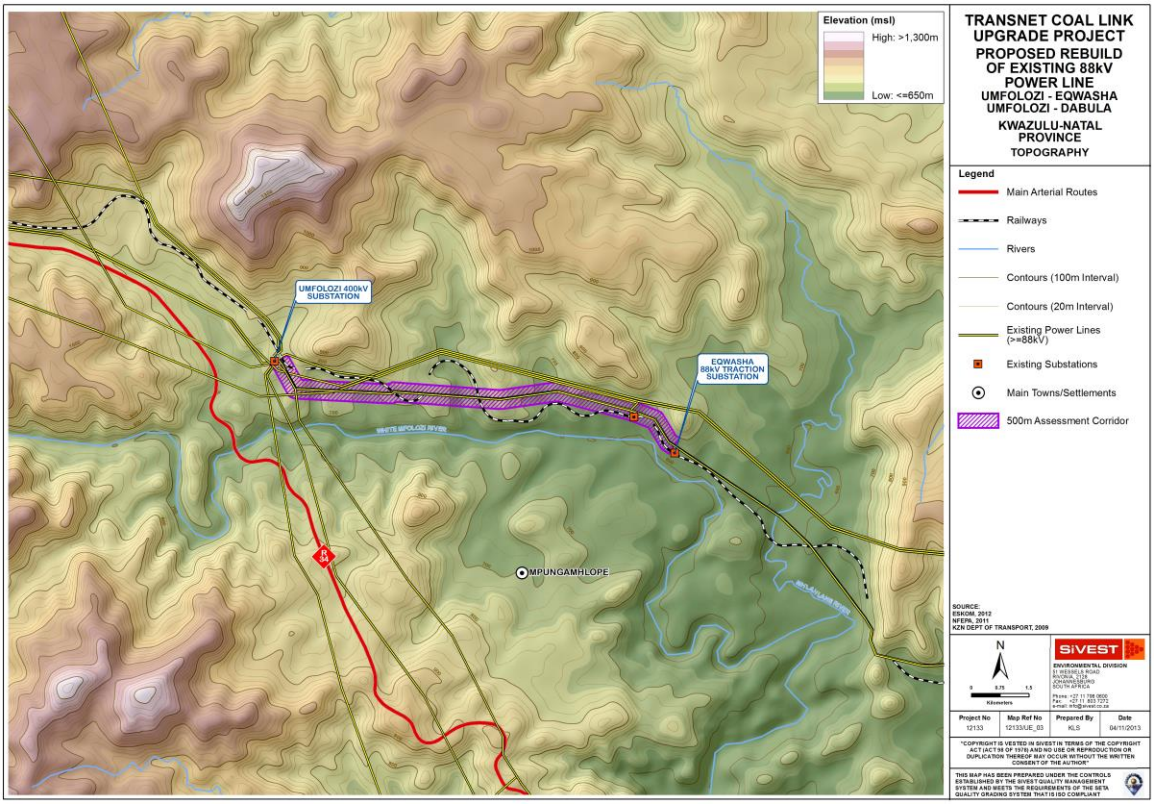

Figure 5: Topography Map

2. LOCATION IN LANDSCAPE

Indicate the landform(s) that best describes the site:

2.1 Ridgeline		2.4 Closed valley		**2.7 Undulating plain / low hills**	✓
2.2 Plateau		2.5 Open valley		2.8 Dune	
2.3 Side slope of hill/mountain		2.6 Plain		2.9 Seafront	
2.10 At sea					

3. GROUNDWATER, SOIL AND GEOLOGICAL STABILITY OF THE SITE

Is the site(s) located on any of the following?

	Alternative S1:		**Alternative S2 (if any): N/A**		**Alternative S3 (if any): N/A**	
Shallow water table (less than 1.5m deep)		✓**NO**	YES	NO	YES	NO
Dolomite, sinkhole or doline areas		✓**NO**	YES	NO	YES	NO
Seasonally wet soils (often close to water bodies)		✓**NO**	YES	NO	YES	NO
Unstable rocky slopes or steep slopes with loose soil		✓**NO**	YES	NO	YES	NO
Dispersive soils (soils that dissolve in water)		✓**NO**	YES	NO	YES	NO

Soils with high clay content (clay fraction more than 40%)		✓NO	YES	NO	YES	NO
Any other unstable soil or geological feature		✓NO	YES	NO	YES	NO
An area sensitive to erosion	✓YES		YES	NO	YES	NO

If you are unsure about any of the above or if you are concerned that any of the above aspects may be an issue of concern in the application, an appropriate specialist should be appointed to assist in the completion of this section. Information in respect of the above will often be available as part of the project information or at the planning sections of local authorities. Where it exists, the 1:50 000 scale Regional Geotechnical Maps prepared by the Council for Geo Science may also be consulted.

4. GROUNDCOVER

Indicate the types of groundcover present on the site. The location of all identified rare or endangered species or other elements should be accurately indicated on the site plan(s).

✓Natural veld - good condition[E]	Natural veld with scattered aliens[E]	Natural veld with heavy alien infestation[E]	Veld dominated by alien species[E]	Gardens
Sport field	**✓Cultivated land**	Paved surface	Building or other structure	Bare soil

If any of the boxes marked with an "[E] "is ticked, please consult an appropriate specialist to assist in the completion of this section if the environmental assessment practitioner doesn't have the necessary expertise.

5. SURFACE WATER

Indicate the surface water present on and or adjacent to the site and alternative sites?

Perennial River	✓YES	
Non-Perennial River	✓YES	
Permanent Wetland		✓NO
Seasonal Wetland		✓NO
Artificial Wetland		✓NO
Estuarine / Lagoonal wetland		✓NO

If any of the boxes marked YES or UNSURE is ticked, please provide a description of the relevant watercourse.
Reference is made to the Surface Water Assessment attached in Appendix D.

Two watercourses were identified that are tributaries of the White Mfolozi River. Both flowed in a southward direction into the White Mfolozi. The surrounding terrain is characterised by low mountains and moderately undulating topography. As a consequence, the watercourses are bound by higher landscape adjacent to the banks limiting the width of the channels. Additionally, bedrock influence limits the depth of the watercourses during normal flows. The in-stream vegetation and that of the riparian habitat comprised of a number of tree, shrub and grass species very similar to those identified for the drainage lines. Notable vegetation species identified included Acacia caffra, Acacia schweinfurthii, Acacia sieberiana Acacia tortilis, Berchemia zeyheri, Clerodendrum glabrum, Combretum appendiculatum, Cussonia natalensis, Englerophytum magalismontanum, Euclea daphnoides, Euclea natalensis subsp. magutensis, Euphorbia tirucalli, Ficus burkei, Ficus ingens, Ficus sur, Heteropyxis natalensis, Hippobromus pauciflorus, Juncus oxycarpus, Juncus sp., Maerua angolensis subsp. angolensis, Maerua caffra, Phoenix reclinata, Psidium guajava and Typha capensis.

6. LAND USE CHARACTER OF SURROUNDING AREA

Indicate land uses and/or prominent features that currently occur within a 500m radius of the site and give description of how this influences the application or may be impacted upon by the application:

✓Natural area	Dam or reservoir	Polo fields
Low density residential	Hospital/medical centre	Filling station [H]
Medium density residential	School	Landfill or waste treatment site
High density residential	Tertiary education facility	Plantation
Informal residential[A]	Church	**✓Agriculture**
Retail commercial & warehousing	Old age home	River, stream or wetland
Light industrial	Sewage treatment plant[A]	Nature conservation area
Medium industrial [AN]	Train station or shunting yard [N]	Mountain, koppie or ridge
Heavy industrial [AN]	**✓Railway line [N]**	Museum
Power station	Major road (4 lanes or more) [N]	Historical building
Office/consulting room	Airport [N]	Protected Area
Military or police base/station/compound	Harbour	Graveyard
Spoil heap or slimes dam[A]	Sport facilities	Archaeological site
Quarry, sand or borrow pit	Golf course	Other land uses (describe)

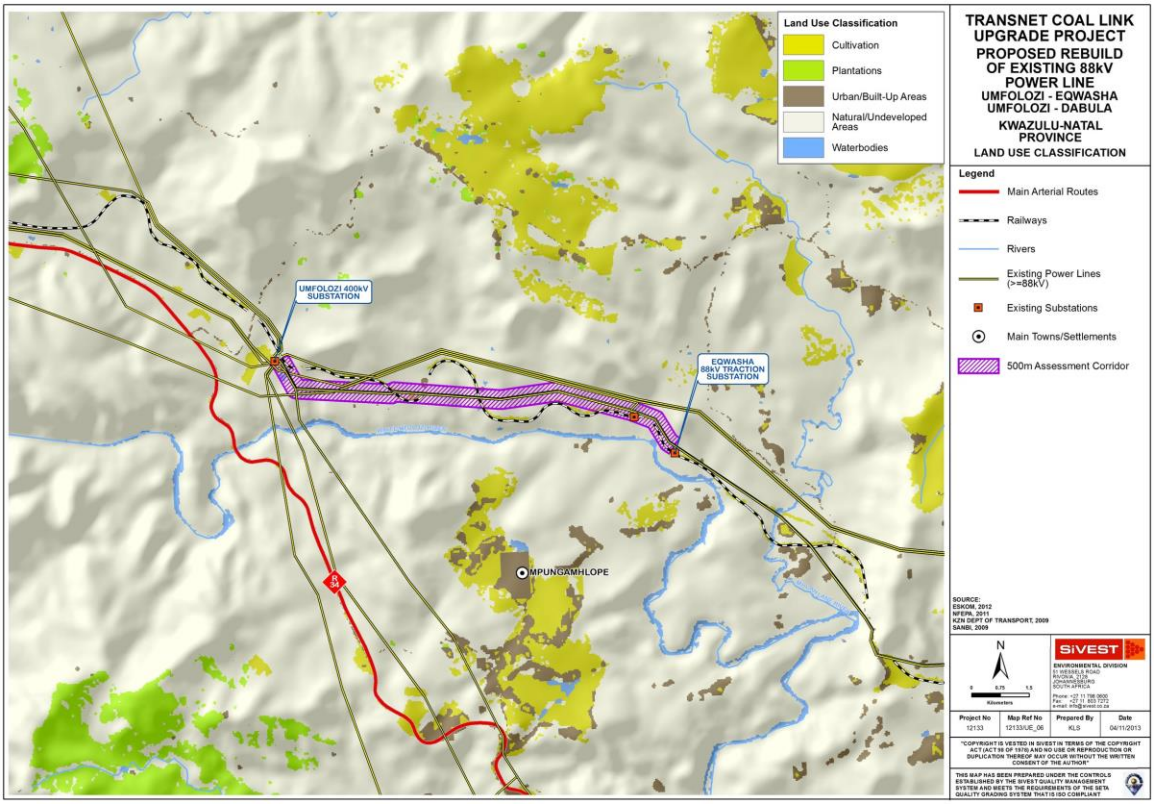

Figure 7: Land use Map

If any of the boxes marked with an "N "are ticked, how will this impact / be impacted upon by the proposed activity? Specify and explain:

There will be no impact on the Railway line as the project activities include the upgrade of an existing line.

If any of the boxes marked with an "An" are ticked, how will this impact / be impacted upon by the proposed activity? Specify and explain:

N/A

If any of the boxes marked with an "H" are ticked, how will this impact / be impacted upon by the proposed activity? Specify and explain:

N/A

Does the proposed site (including any alternative sites) fall within any of the following:

Critical Biodiversity Area (as per provincial conservation plan)	**✓YES**	
Core area of a protected area?		**✓NO**
Buffer area of a protected area?		**✓NO**
Planned expansion area of an existing protected area?		**✓NO**
Existing offset area associated with a previous Environmental Authorisation?		**✓NO**
Buffer area of the SKA?		**✓NO**

If the answer to any of these questions was YES, a map indicating the affected area must be included in Appendix A.

7. CULTURAL/HISTORICAL FEATURES

Are there any signs of culturally or historically significant elements, as defined in section 2 of the National Heritage Resources Act, 1999, (Act No. 25 of 1999), including Archaeological or paleontological sites, on or close (within 20m) to the site? If YES, explain:		✓NO
		Uncertain
N/A		

If uncertain, conduct a specialist investigation by a recognised specialist in the field (archaeology or palaeontology) to establish whether there is such a feature(s) present on or close to the site. Briefly explain the findings of the specialist:

Mr Frans Prins from Active Heritage cc. undertook a Heritage Impact Assessment dated 7 January 2014. It was concluded that no sites of Heritage significance lie within the proposed development footprint.

Will any building or structure older than 60 years be affected in any way?		✓NO
Is it necessary to apply for a permit in terms of the National Heritage Resources Act, 1999 (Act 25 of 1999)?		✓NO

If YES, please provide proof that this permit application has been submitted to SAHRA or the relevant provincial authority.

Refer to above and the specialist report in Appendix D.

8. SOCIO-ECONOMIC CHARACTER

a) Local Municipality

Level of unemployment:

Ulundi Local Municipality (reference made to Ulundi Municipality IDP 2013-2014)

- The unemployment rate in Ulundi Municipality lies at 49.45% (2011) which excludes "discouraged workers". The total number of employed persons is 15'136 (2011) and 14'805 unemployed individuals.

Employment Status (15yrs – 65yrs)(2011)

STATUS (2011)	NO	%
Employed	15136	50.55%
Unemployed	14805	49.45%
Total Economically Active	**29941**	**28.80%**

Economic profile of local municipality:

Ulundi Local Municipality (reference made to Ulundi Municipality IDP 2013-2014)

- Agriculture forms a major economic sector of the municipality in terms of employment and food security. Tourism is an up-and-coming sector, that is being developed due to the region's rich heritage history.

Reference is made to the Ulundi Municipality IDP (June 2013)

"There has been a slight reduction of the number of people, from 1996 to 2011, that are aged between 0 and 14 years. The decrease is, however, not significant. What is of significance is the increase in the functional group of 15 to 64 years, i.e. the economic population, between 1996 and 2001 and again between 2001 and 2011. The potential economic active group is becoming larger. This is placing increasing pressure on job creation within the Municipal Area"

Age Cohort	Gender	1996	2001	2011
0-14	Male	38,169	40,432	37,692
	Female	38,559	40,529	37,918
15-64	Male	34,150	41,466	44,759
	Female	49,307	56,784	59,220
+65	Male	2,504	2,703	2,611
	Female	5,385	6,671	6,116

Level of education:

Ulundi Local Municipality (reference made to Ulundi Municipality IDP 2013-2014)

- 57% of primary school age pupils are enrolled at a school while 38% of secondary- and high school level are enrolled at a school.

Education Ward	Primary School	High School	Combined School	Total Pupils
Ceza	7 772	4 296	825	12 893
Makhosini	6 361	4 504	155	11 020
Mashona	7 449	4 562	323	12 334
Okhukho	6 800	4 065	209	11 074
Ondini	10 162	8288	910	19 360
Total	**38 544**	**25 715**	**2 422**	**66 681**

Reference is made to the Ulundi Municipality IDP (June 2013)

Less than 10% of the population have achieved the minimum Grade 12 qualification.

Level of Education	Percentage of Population
Children under age of 5 years	11.40%
No Schooling	13.41%
Some Primary	31.62%
Complete Primary	5.59%
Some Secondary	28.14%
Grade 12 / Standard 10	6.23%
Higher	3.59%

b) Socio-economic value of the activity

What is the expected capital value of the activity on completion?	**Unknown**	
What is the expected yearly income that will be generated by or as a result of the activity?	**Transnet will be able to increase their export tonnage**	
Will the activity contribute to service infrastructure?	**✓YES**	
Is the activity a public amenity?		**✓NO**
How many new employment opportunities will be created in the development and construction phase of the activity/ies?	**Unknown at this stage**	
What is the expected value of the employment opportunities during the development and construction phase?	**Unknown**	
What percentage of this will accrue to previously disadvantaged individuals?	**80%**	
How many permanent new employment opportunities will be created during the operational phase of the activity?	**Unknown at this stage**	
What is the expected current value of the employment opportunities during the first 10 years?	**Unknown at this stage**	
What percentage of this will accrue to previously disadvantaged individuals?	**80%**	

9. BIODIVERSITY

Please note: The Department may request specialist input/studies depending on the nature of the biodiversity occurring on the site and potential impact(s) of the proposed activity/ies. To assist with the identification of the biodiversity occurring on site and the ecosystem status consult http://bgis.sanbi.org or BGIShelp@sanbi.org. Information is also available on compact disc (cd) from the Biodiversity-GIS Unit, Ph (021) 799 8698. This information may be updated from time to time and it is the applicant/ EAP's responsibility to ensure that the latest version is used. A map of the relevant biodiversity information (including an indication of the habitat conditions as per (b) below) and must be provided as an overlay map to the property/site plan as Appendix D to this report.

a) Indicate the applicable biodiversity planning categories of all areas on site and indicate the reason(s) provided in the biodiversity plan for the selection of the specific area as part of the specific category)

Systematic Biodiversity Planning Category	If CBA or ESA, indicate the reason(s) for its selection in biodiversity plan

✓Critical Biodiversity Area (CBA)	Ecological Support Area (ESA)	Other Natural Area (ONA)	No Natural Area Remaining (NNR)	FEATURE_1 *Doratogonus falcatus* FEATURE_2 Ithala Quartzite Sourveld FEATURE_3 Paulpietersburg Moist Grassland FEATURE_4 Northern Zululand Sourveld FEATURE_5 Eastern Temperate Wetlands FEATURE_6 *Transvaaliana draconis* FEATURE_7 *Whitea alticeps*

b) Indicate and describe the habitat condition on site

Habitat Condition	Percentage of habitat condition class (adding up to 100%)	Description and additional Comments and Observations (including additional insight into condition, e.g. poor land management practises, presence of quarries, grazing, harvesting regimes etc).
Natural	70%	The northern portion of the site is considered to be in good condition, with the grassland areas well preserved and the woody vegetation maintained within the incised valley lines.
Near Natural (includes areas with low to moderate level of alien invasive plants)	25%	These areas were more common around the Umfolozi S/S where livestock grazing and poor veld management had facilitated woody vegetation encroachment onto the grassland areas.
Degraded (includes areas heavily invaded by alien plants)	0%	
Transformed (includes cultivation, dams, urban, plantation, roads, etc)	5%	Some subsistence agricultural field conversion has taken place. In addition, dwellings, road and rail infrastructure are also prevalent.

c) Complete the table to indicate:

(i) the type of vegetation, including its ecosystem status, present on the site; and

(ii) whether an aquatic ecosystem is present on site.

Terrestrial Ecosystems **Ithala Quartzite Sourveld[1]** **Northern Zululand Sourveld[2]**		**Aquatic Ecosystems**						
Ecosystem threat status as per the National Environmental Management: Biodiversity Act (Act No. 10 of 2004)	Critical Endangered **✓Vulnerable** **✓Least Threatened**	Wetland (including rivers, depressions, channelled and unchanneled wetlands, flats, seeps pans, and artificial wetlands)			Estuary		Coastline	
		✓YES	NO	UNSURE	YES	**✓NO**	YES	**✓NO**

d) Please provide a description of the vegetation type and/or aquatic ecosystem present on site, including any important biodiversity features/information identified on site (e.g. threatened species and special habitats)

The vegetation is of a significant standard, particularly outside of the current servitude, where the impacts of clearing on a regular basis are not evident. The vegetation within the drainage lines is in good condition. The grassland areas on the northerly side of the railway line are of a good quality and worthy of conservation.

SECTION C: PUBLIC PARTICIPATION

1. ADVERTISEMENT AND NOTICE

Publication name	Sowetan Newspaper	
	Ermelo Tribune	
	Zululand Observer	
	Paulpietersburg Advertiser	
Date published	27th March 2015	
	31st March 2015	
	27th March 2015	
	02nd April 2015	
Site notice position	**Latitude**	**Longitude**
	S 28° 18' 1.5"	E 31° 25' 40.9"
	S 28° 17' 59.5"	E 31° 25' 31"
	S 28° 17' 8.6"	E 31° 27' 43.8"
	S 28° 12' 55.5"	E 31° 11' 21.1"
	S 28° 13' 42.6"	E 31° 16' 58.8"
Date placed	Site Notices were placed between the 23rd March – 3rd April 2015	

Include proof of the placement of the relevant advertisements and notices in Appendix E1.

2. DETERMINATION OF APPROPRIATE MEASURES

Provide details of the measures taken to include all potential I&APs as required by Regulation 54(2)(e) and 54(7) of GN R.543.

Key stakeholders (other than organs of state) identified in terms of Regulation 54(2)(b) of GN R.543:

Title, Name and Surname	Affiliation/ key stakeholder status	Contact details (tel number or e-mail address)
Refer to Appendix E for all key stakeholder information.		

Include proof that the key stakeholder received written notification of the proposed activities as Appendix E2. This proof may include any of the following:

- e-mail delivery reports;
- registered mail receipts;
- courier waybills;
- signed acknowledgements of receipt; and/or
- or any other proof as agreed upon by the competent authority.

3. ISSUES RAISED BY INTERESTED AND AFFECTED PARTIES

Summary of main issues raised by I&APs	Raised by	Summary of response from EAP
Mentioned that the DAFF deals with the National Forest Act (NFA) and questioned how the proposed developments will affect the forestry and	Ayanda Mnyunwla	SiVEST can send through shape files of the proposed alignments and corridors to

protected species.	KZN - DAFF	DAFF (these were sent on the 17th April 2015). Additionally, the forest areas have been avoided, and are following existing servitudes as far as possible. **Kelly Tucker - SiVEST**
The DBAR for the Umfolozi Application dated the 26th March 2015 and received by this District Municipality on 31st March 2015 refers: Based on the information submitted, this District has the following comments: 1. The National Environmental Management Principles, inter alia, state that "Environmental management must be integrated, acknowledging that all elements of the environment are linked and interrelated, and it must take into account the effects of decisions on all aspects of the environment and all people in the environment by pursuing the selection of the best practicable environmental option" (Section 2(4)(b) of the National Environmental Management Act, 1998, Act 107 of 1998, as amended ("NEMA")). The NEMA defines the "best practicable environmental option" as "the option that provides the most benefit or causes the least damage to the environment as a whole, at a cost acceptable to society, in the long term as well as in the short-term". Taking these principles into consideration: 1.1 The 'no-go' option must at all times include the consideration of the 'no-go' option as a baseline against which all other alternatives must be measured. The option of not implementing the activity must always be assessed and to the same level of detail as the other feasible and reasonable alternatives. 1.2 In Addition, alternatives identified should not only be limited to site. Alternatives may include design, layout and other alternatives.	Mr. JH De Klerk Municipal Manager Zululand District Municipality	Comments noted. All recommendations have been included in the EMPr and Recommendations section below. The No-go alternative has been extensively considered in the DBAR and FBAR. The principle of NEMA have been applied throughout the BA Process. **Kelly Tucker - SiVEST**
Mentioned that DAFF may request a site visit just to confirm and to assist them in making informed comments and decisions regarding the proposed developments.	Ayanda Mnyunwla KZN - DAFF	SiVEST would gladly undertake a site visit with DAFF representatives. Please notify SiVEST whether this is indeed needed and this will be set up. (no further correspondence has been received from DAFF at the time that this C&R was finalised for the FBAR). **Kelly Tucker / Jenny Barnard - SiVEST**
DAFF appreciates the opportunity given to review and comment on the Draft Basic Assessment Report (DBAR) for the above mentioned project. DAFF through the Directorate Forestry Regulations and Support is mandated to regulate activities affecting natural forests and tree species protected in terms of the National Forests Act, 1998 (Act No. 84 of 1998). Based on the information provided in the BA and	Mr. Jeffery Maivha DAFF Forestry Regulations and Support - KZN	Comment noted. The recommendations provided have been included in the EMPr and recommendation section below. **Kelly Tucker - SiVEST**

Vegetation Assessment Report, the site proposed for the upgrade does not constitute a natural forest, although sections of the site comprised drainage lines with associated woody vegetation. It is also noted from the Vegetation Assessment Report that Sclerocarya birrea subsp. Caffra (Marula trees) protected in terms of the National Forest Act, 1998 (Act No 84 of 1998) were recorded along the entire route alignment, however, species was not recorded within the powerline servitude. The report further indicates that the protected trees could occur where the powerline clearance was such that it would not impact on the power line even at its full height, i.e. where power lines spanned valley lines. It is brought to your attention that given the above, DAFF has no objection to the development provided that the following recommendations are made conditions of Environmental Authorisation: • A botanist must be appointed to assess and select the final route for the powerline and access roads construction which should avoid protected trees as much as possible. • Power line construction servitude should clearly be demarcated and aligned to avoid protected trees should they occur within the route alignment. • Power line should span the entire drainage line to avoid negative impacts on woody riparian vegetation. • Should protected trees be encountered and cannot be avoided, a license must be obtained from DAFF offices in Pietermaritzburg prior to any activity affecting protected trees commences. • An offset ratio of 5 trees for each trees lost should apply as compensation for the protected trees lost during construction activities. Trees should be re-planted within the corridor during the rehabilitation phase. • This letter does not exempt you from considering other environmental legislations.		
Informed SiVEST that he has reviewed the DBARs that he has received and has comments but we should note that it will be his own individual comments and not those of Ezemvelo KZN Wildlife. He will however report back to the Ezemvelo KZN Wildlife Committee and then send through the final official Ezemvelo KZN Wildlife comments to DEA and then to SiVEST.	Dominic Wieners (DW) Ezemvelo KZN Wildlife	Comment was noted. **Kelly Tucker - SiVEST**
Agreed with the specialist's recommendations of		Comment was noted

replacing the senstive flora with a 5:1 strategy, however but after reading the biodiversity review and recommendation report. Also agrees that the specialist walk down need to happen at the correct time of the year and that sensitive flora need to be avoided as far as possible. This will be determined through the walk-down phase. Requested for the names of the case officers for the applications at the DEA. The final official Ezemvelo KZN Wildlife comments to DEA and then to SiVEST. There is surface water sensitivity in this area but feels that the preferred alternatives do acknowledge this and reduce the impact on the surface water. The area is primarily Grass Land.		**Kelly Tucker - SiVEST** Sent DEA Case officer details on the the 30 April 2015. **Veronique Evans - SiVEST**
The Draft Basic Assessment report for the Umfolozi application has been reviewed by the Ezemvelo KZN Wildlife (EKZNW) IEM Planning Committee. Ezemvelo KZN Wildlife is satisfied that the proposed development should not result in significant impacts upon local biodiversity, provided that: • Recommendations of the specialists are adhered to, and are included in the final EMPr, including inter alia: • Relevant permits to be obtained by the applicant for translocation of listed and protected plant species in the affected footprint. A walk-through will need to be undertaken by a suitably qualified vegetation specialist prior to construction in order to give final confirmation of these species. It would be Ezemvelo's preference for the footprints of any pylons to rather avoid the requirement to relocated sensitive species, and the final placement to be adjusted to avoid red listed or protected plant species, rather than risk their demise by translocation. • No development of new roads through any wetlands, dongas or drainage lines. Existing roads crossing such will need to have adequate storm-water protection put in place should they be required for ongoing maintenance, and any erosion will need to be curtailed by suitable mitigatory measures. • RP3 raptor protectors must be fitted to the conductors / insulators, according to the Eskom standard. In addition, all bird electrocutions identified during routine maintenance patrols are to be reported by the applicant in order to monitor the effectiveness of the mitigatory measures. • The final EMPr is in place and adhered		Comment was noted. The recommendations provided have been included in the EMPr and recommendation section below. **Kelly Tucker - SiVEST**

to.		
Your Letter dated 26 March 2015 refers, the application was received on 16 April 2015. You are advised that the application is in the process of being investigated and that you will be advised accordingly of this Department's comments.	Mr R Ryan / Mrs J Reddy KZN Department of Transport, Infrastructure and Regional Services	Comment noted. No further comments were received. **Kelly Tucker - SiVEST**
Comments and issues raised by Interested and Affected Parties, as well as responses sent by the EAP during the Public Participation Process have been incorporated into the Final Basic Assessment Report and the Comments and Responses chapter (Appendix E3) for review by all registered stakeholders and for submission to the Department of Environmental Affairs.		

4. COMMENTS AND RESPONSE REPORT

The practitioner must record all comments received from I&APs and respond to each comment before the Final BAR is submitted. The comments and responses must be captured in a comments and response report as prescribed in the EIA regulations and be attached to the Final BAR as Appendix E3.

5. AUTHORITY PARTICIPATION

Authorities and organs of state identified as key stakeholders:

Authority/Organ of State	Contact person (Title, Name and Surname)	Tel No	Fax No	e-mail	Postal address
Please refer to Appendix E4.					

Include proof that the Authorities and Organs of State received written notification of the proposed activities as appendix E4.

In the case of renewable energy projects, Eskom and the SKA Project Office must be included in the list of Organs of State.

6. CONSULTATION WITH OTHER STAKEHOLDERS

Note that, for any activities (linear or other) where deviation from the public participation requirements may be appropriate, the person conducting the public participation process may deviate from the requirements of that sub-regulation to the extent and in the manner as may be agreed to by the competent authority.

Proof of any such agreement must be provided, where applicable. Application for any deviation from the regulations relating to the public participation process must be submitted prior to the commencement of the public participation process.

A list of registered I&APs must be included as appendix E5.

Copies of any correspondence and minutes of any meetings held must be included in Appendix E6.

SECTION D: IMPACT ASSESSMENT

The assessment of impacts must adhere to the minimum requirements in the EIA Regulations, 2010, and should take applicable official guidelines into account. The issues raised by interested and affected parties should also be addressed in the assessment of impacts.

1. IMPACTS THAT MAY RESULT FROM THE PLANNING AND DESIGN, CONSTRUCTION, OPERATIONAL, DECOMMISSIONING AND CLOSURE PHASES AS WELL AS PROPOSED MANAGEMENT OF IDENTIFIED IMPACTS AND PROPOSED MITIGATION MEASURES

Provide a summary and anticipated significance of the potential direct, indirect and cumulative impacts that are likely to occur as a result of the planning and design phase, construction phase, operational phase, decommissioning and closure phase, including impacts relating to the choice of site/activity/technology alternatives as well as the mitigation measures that may eliminate or reduce the potential impacts listed. This impact assessment must be applied to all the identified alternatives to the activities identified in Section A(2) of this report.

Activity	Impact summary	Significance	Proposed mitigation
Biodiversity	***Direct impacts:***		
	Impact on rare and endemic plant species	Medium Negative	- In the event that a protected, rare or endemic plant is encountered during the construction of the power line or access roads, then the plants will be identified and uplifted and replaced in areas adjacent the disturbance. - Obtain a permit for the upliftment or damage, destruction of the plants. - Roads may be re-directed if required. - Tower positions can be moved to accommodate these species if so determined by the specialist or CA.
	Impact on Natural Vegetation	Low negative	- Placement of the new line within the existing servitude will not result in any sensitive vegetation being impacted upon. - Access to the new line will be quite challenging in places, as most roads don't extend into the servitude and thus we would propose that the towers be walked in and constructed in their final position. - Roads may be re-directed if required, however, we recommend that no roads be created particularly on the northern side of the railway line to prevent damage during construction and prevent the added access opportunities post construction. - No development of roads must occur through wetland areas, and where possible new roads - Depending on the availability of supply it may be possible to decommission the existing 88 kV power line and feed the Dubula and Eqwasha S/S from an alternate supply for the duration of a rebuild, which would utilise the existing towers or rebuild towers in the existing positions if required.
	Impact on Sensitive vegetation types	Low negative	- Try to maintain the power line within the original alignment and servitude through double circuiting and temporary line building. - Don't create new access roads, utilise existing roads - Should the need arise to obtain permits, this process needs to be undertaken
	Impact on natural systems	Low negative	- Power lines and other linear infrastructural features exist; therefore replacing of said feature through a rebuild within the

Activity	Impact summary	Significance	Proposed mitigation
	and their potential fragmentation		existing servitude will not impact on the landscapes and its fragmentation.
	Impact on Conservation Areas	Low negative	- Maintenance of the power line within the predefined corridor will result in the power line not impacting any conservation areas.
	Indirect impacts:		
	Impact of maintenance activities on sensitive environments and vegetation	Low negative	- Utilise helicopters and camera technology to check the power lines. - Maintain an alien free servitude
	Impact resulting from rehabilitation	Medium Negative	- Rehabilitation utilizing plant species indigenous to the surrounding area, following removal of roads. - Removal of an ongoing disturbance as a result of the roads removal.
	Impact associated with potential alien plant species infestations	Medium Negative	- The control and management of alien invasive plant species through a management plan to be created, once the decision to decommission is made. - Provide budget to manage the alien plant species for a period of no less than 5 yrs post decommissioning - Set aside a budget to rehabilitate areas with natural vegetation as a preventative measure to stop alien infestations and establishment. - Prevent livestock form entering areas where infrastructure has been decommissioned. - Should the need arise to obtain permits, this process needs to be undertaken
	Cumulative impacts:		
	None identified**.**		
Desktop Faunal	***Direct impacts:***		
	Vegetation clearing, disturbance and the use of heavy machinery and human presence along the power line route during construction is likely to negatively affect resident fauna directly and through habitat loss.	Medium Negative	- Construction staff should undergo environmental induction to ensure that they are aware of fauna-related issues and that no fauna are harmed during construction. This pertains especially to fauna such as snakes which are persecuted regardless of the threat they may or may not pose. - The footprint of the development in the vicinity of the rivers should be kept as low as possible and existing access roads should be used wherever possible so that new river crossings are not required. - All hazardous materials should be stored in the appropriate manner to prevent contamination of the site. Any accidental chemical, fuel and oil spills that occur at the site should be cleaned up in the appropriate manner as related to the nature of the spill. - No fires should be allowed within the site as there is a risk of runaway veld fires. - If any parts of site such as construction camps must be lit at night, this should be done with low-UV type lights (such as most LEDs), which do not attract insects and which should be directed downwards. - An ECO should be present during construction to ensure compliance as well as ensure that any affected fauna can be removed to safety. - Any active burrows within the footprint should be checked for fauna before construction commences and should it not be possible to adjust the footprint to avoid such features, then the

Activity	Impact summary	Significance	Proposed mitigation
			resident fauna should be relocated or excluded from the burrows so that they are not impacted by construction activtities. - All construction vehicles should adhere to a low speed limit (30 km/h) to avoid collisions with susceptible species such as snakes and tortoises. - Regular dust suppression during construction, especially along access roads which are used frequently. - No activity should be allowed at the site between sunset and sunrise. - Any dangerous fauna (snakes, scorpions etc.) that are encountered during construction should not be handled or molested by the construction staff and the ECO or other suitably qualified persons should be contacted to remove the animals to safety. - Holes and trenches should not be left open for extended periods of time and should only be dug when needed for immediate construction. Trenches that may stand open for some days, should have places where the loose material has been returned to the trench to form an escape ramp present at regular intervals to allow any fauna that fall in to escape.
	Indirect impacts:		
	None identified.		
	Cumulative impacts:		
	None Identified		
Surface Water	***Direct impacts:***		
	Construction Lay-down Area Potential Impacts: Drainage Line and Watercourse Riparian Habitat Degradation	Medium Negative	- Seasonal scheduling of the construction process: It is important that construction activities must be scheduled to take place over the dry winter season when there is little rainfall and flows are low (June/July/August). - Location of the lay-down area: The location of the lay-down area is not to be within 100m of a drainage line, watercourse or the associated buffer zone. All materials, machinery and vehicles are to be kept in a designated area that is located outside and at least 100m away from the identified surface water resources and the associated buffer zones.
	Towers in Surface Water Resources and Removal of Vegetation for the Stringing of Power lines through Watercourse Riparian Habitat: Drainage Line and Watercourse Riparian Habitat Loss	High Negative	- Avoid Riparian Habitat. To prevent this potential impact, all delineated watercourses and the associated riparian habitat must be avoided as far as possible to minimise riparian habitat loss. This can be achieved to some extent by the careful and strategic placement of the proposed power line and towers out of the highly sensitive areas. However, many of the watercourses (including drainage lines) span the width of the corridor and will need to be crossed, thereby potentially resulting in the need for the clearance of tall vegetation for the proposed power lines. - Establishment of "Right of Way" Construction Areas. Should the relevant environmental authorisation and water use license/general authorisations be obtained for construction in the watercourses (including drainage lines) and the associated riparian habitat, a single access route or RoW is to be established to the desired construction area. The width of the RoW must be limited to the width of the vehicles required to enter the watercourse and the associated riparian habitat (no more than a 3m width). An area around the location where the tower will need to be placed will also

Activity	Impact summary	Significance	Proposed mitigation
			need to be established. This too must be limited to the smallest possible area (no bigger than 20m²) to prevent unnecessary degradation. The RoW must be clearly demarcated and all areas of the riparian habitat and watercourses (including drainage lines) are to be considered no-go areas. - The number and type of permissible vehicles or machinery into or near to the sensitive areas must be limited to the bare minimum. Preferably light vehicles are to be utilised where possible.
	Human Degradation Impacts: Surface Water Resource Fauna and Flora Physical Degradation	Medium Negative	- Minimising Human Physical Degradation. Construction workers are not allowed in the demarcated wetland and the associated buffer zone areas unless it is in the authorised RoW areas. - Preventing Loss or Harm to Fauna and Flora. No animals are to be hunted, captured, trapped, removed, injured, killed or eaten. Additionally, no wetland vegetation is to be removed, harvested or damaged. Should any party be found guilty of such offences, stringent penalties should be imposed. The appointed ECO is to be contacted should the possible removal of any fauna be required during the construction phase. - Preventing the Usage of Wetlands for Sanitation Purposes. No "long drop" or chemical toilets are allowed in the wetlands and the associated buffer zones. Wetlands may also not be allowed to be used for sanitation purposes. Suitable temporary chemical sanitation facilities are to be provided. Temporary chemical sanitation facilities must be placed at least 100 meters from any of the wetlands and the associated buffer zones. Temporary chemical sanitation facilities must be placed over a bunded or a sealed surface area and adequately maintained to prevent pollution impacts. - Preventing Water Extraction from Wetlands. No water is to be extracted unless a water use license is granted for specific quantities and access into wetlands has been granted within the environmental authorisation and/or the water use license.
	Service Road Establishment and Subsequent Vehicle Degradation Impacts to Riparian Habitats	High Negative	- Preventing Vehicle Degradation Impacts. Service roads must not be planned through wetlands unless it is to the permitted tower locations. In this instance, access roads may only be permissible to the tower locations and not entirely through the surface water resources. Alternative routes must be planned and established that circumvent surface water resources completely as far as possible. No bridges or culverts are to be constructed within and through wetlands.
	Indirect impacts:		
	Vehicle and Machinery Impacts: Drainage Line and Watercourse Compaction and Degradation	Medium Negative	- Prevention of Vehicles and Machinery in Riparian Habitats. To prevent this potential impact, the existing road that follows in the general direction of the corridor that must be utilised. Depending on the location of the towers, various access routes from the existing access road may need to be established. New access routes must not be established in the watercourses (including drainage lines) and the associated riparian habitats. Should access be required to towers either side of a drainage line or watercourse, the surface water resources are to be circumvented. Access will

Activity	Impact summary	Significance	Proposed mitigation
			therefore need to be established around the delineated watercourses (including drainage lines) and the associated riparian habitats. Similarly, no machinery is to be brought into or allowed to operate in watercourses (including drainage lines) and the associated riparian habitats. All watercourses (including drainage lines) and the associated riparian habitats within close proximity (200m) of construction areas are to be demarcated as "highly sensitive" areas and must avoided. The only exception will be where towers will not be able to span riparian habitats and towers will need to be located within the watercourses (including drainage lines) and the associated riparian habitats. In this instance, a "Right of Way" (Row) will need to be established. This will only be allowed where the relevant environmental authorisation and water use license/general authorisation has been obtained. - Establishment of "Right of Way" Construction Areas. Should the relevant environmental authorisation and water use license/general authorisations be obtained for construction in the watercourses (including drainage lines) and the associated riparian habitat, a single access route or RoW is to be established to the desired construction area. The width of the RoW must be limited to the width of the vehicles required to enter the watercourse and the associated riparian habitat (no more than a 3m width). An area around the location where the tower will need to be placed will also need to be established. This too must be limited to the smallest possible area (no bigger than 20m²) to prevent unnecessary degradation. The RoW must be clearly demarcated and all areas of the riparian habitat and watercourses (including drainage lines) are to be considered no-go areas. - The number and type of permissible vehicles or machinery into or near to the sensitive areas must be limited to the bare minimum. Preferably light vehicles are to be utilised where possible. - Preventing Soil Contamination. All vehicles and machinery are to be checked for oil, fuel or any other fluid leaks before entering the construction areas (RoW). All vehicles and machinery must be regularly serviced and maintained before being allowed to enter the construction areas. No fuelling, re-fuelling, vehicle and machinery servicing or maintenance is to take place in the highly sensitive areas. The construction site is to contain sufficient safety measures throughout the construction process. These include, but are not limited to, oil spill kits and fire extinguishers. Fuel, oil or hazardous substances storage areas must be bunded to prevent oil or fuel contamination of the ground and/or wetlands or associated buffer zones. - Prevention of Hazardous Materials in Riparian Habitats. No hazardous materials are to be stored in or brought into the highly sensitive areas. Should a designated storage area be required, the storage area must be placed at the furthest location from the highly sensitive areas. Appropriate safety measures as stipulated above must be implemented.
	Erosion, Increased Run-off and	Medium Negative	- Preventing Increased Run-off and Sedimentation Impact: Vegetation clearing is to take place in a phased manner, only clearing areas that will require construction

Activity	Impact summary	Significance	Proposed mitigation
	Sedimentation to Surface Water Resources		immediately. - Adequate structures must be put into place (temporary or permanent where necessary in extreme cases) to deal with run-off and sediment volumes. The use of silt fencing and potentially sandbags or hessian "sausage" nets can be used to prevent erosion in susceptible construction areas near wetlands. - All impacted construction areas near and in surface water resources are to be adequately sloped to prevent the onset of erosion.
	Vehicle Degradation Impacts: stringing of power lines through surface water resources	Low negative	- Preventing Vehicle Degradation Impacts: Previously, recommendations to prohibit vehicle access into wetlands must be upheld. For the stringing process specifically, stringing of the power lines must be undertaken by hand and a maximum of fifteen (15) workers are allowed to cross through surface water resources. Once this has been undertaken, access must be strictly prohibited in the highly sensitive areas unless a RoW has been established allowing limited access during the construction phase only. The ECO must be on site to observe the stringing process through the surface water resources to ensure that potential impacts are minimised and where required, adequate mitigation measures to address impacts are undertaken.
	Cumulative impacts:		
	Wetland Reliant Avifauna Power Line Collision and Electrocution Impacts	High negative	- Preventing Avifauna Collisions and Electrocutions. During the construction phase, it is critical that the stretches of power lines that are within or in close proximity (approximately 200m) to any riparian habitat are fitted with flight deviators or bird anti-collision devices (whichever is more appropriate – refer to Avi-fauna Specialist Study) to prevent impacts to avi-fauna. The fitment of the devices or deviators must take place on the ground before stringing the power lines takes place. Sufficient insulation must also be fitted to the towers structures to prevent electrocution. Finally, bird friendly tower structures as per Eskom's designs can be considered to further mitigate collision and electrocution impacts
Geographical and physical Aspects	***Direct Impacts***		
	None identified.		
	Indirect Impacts		
	Soil erosion through vegetation clearance and soil compaction by heavy duty construction vehicles	Low negative	Refer to EMPr attached in Appendix G: - All vehicles to remain within the designated vehicle tracks; and - Minimum / no movement in areas already eroded.
	Contamination of soils through indiscriminate disposal of construction waste and accidental spillage of petroleum products.	Low negative	Refer to EMPr in Appendix G: - Storage of any materials shall not take place within 32m of any watercourses or sensitive environments. - Fuel, oil and any other hazardous substances and harmful materials shall be stored in suitable containers within adequately bunded areas (with 110% of the capacity of the volume of the container) in a dry, secure environment, with concrete or sealed flooring. - Material Safety Data Sheets shall be kept for all hazardous materials and substances and a copy of the Material Safety

Activity	Impact summary	Significance	Proposed mitigation
			Data sheets shall be made available to all workers to ensure that the required safe handling and necessary precautions are taken when suing the materials. - The PC will ensure that materials storage facilities are cleaned/ maintained on a regular basis, and that leaking containers are disposed of in a manner that allows no spillage onto the bare soil or surface water.
	Cumulative Impact		
	None identified.		
Agricultural Potential and Soils	***Direct impacts:***		
	Loss of agricultural land and / or production as a result of the proposed power line construction	Low Negative	- Due to the overarching site characteristics and the nature of the proposed development viable mitigation measures are limited and will most likely revolve around erosion control: - Clearing activities should be kept to a minimum. - In the unlikely event that heavy rains are expected activities should be put on hold to reduce the risk of erosion. - If additional earthworks are required, any steep or large embankments that are expected to be exposed during the 'rainy' months should either be armoured with fascine like structures. - If earth works are required then storm water control and wind screening should be undertaken to prevent soil loss from the site - Interact with landowners during the routing process. - The utilisation of existing towers will further reduce potential impacts. - Following the existing servitude as far as possible is highly recommended due to the existing impacts associated with these areas.
	Indirect impacts:		
	None identified.		
	Cumulative impacts:		
	None identified.		
Avifauna Impacts	***Direct impacts:***		
	Collision of birds with overhead power line cables, in particular the earth wire.	Medium negative	- It will be important for a suitably qualified avifaunal specialist to conduct an avifaunal walk through assessment just before construction in order to identify the exact spans of line requiring collision mitigation measures. The high risk areas have been roughly identified by this report but this should be refined when final tower/pylon positions are available. - High risk sections of line should be fitted with the best Eskom approved anti bird collision line marking device available at the time of construction. These devices should be installed on the earth wire according to Eskom standards. - It will be important for Eskom to report all bird collisions detected during maintenance line patrols, so that the significance of this impact and the effectiveness of mitigation can be accurately evaluated.
	Electrocution of birds on pylons/towers	Medium Negative	- It is essential that the lattice tower used provides at least 2 000mm of clearance between phase-phase and phase-earth. There is no doubt that White-backed Vultures in particular and large eagles will perch on the towers/pylons and will be at risk of electrocution if these clearances are smaller. - It will be important for Eskom to report all bird electrocutions detected during maintenance line patrols, so that the significance of this impact and the effectiveness of mitigation can be accurately evaluated.

Activity	Impact summary	Significance	Proposed mitigation
	Indirect impacts:		
	Disturbance of birds in the area during construction of the proposed project	Medium negative	- It will be important for a suitably qualified avifaunal specialist to conduct an avifaunal walk through assessment just before construction in order to determine whether any Red-Listed bird species are breeding on the servitude. This could include breeding on the existing power line tower structures. If such breeding birds are identified case specific management recommendations will be developed by the specialist. - In addition to the above exercise, general environmental best practices should suffice for reducing the disturbance as far as possible. These include; strict management of staff, vehicles and machinery on site; and completing construction within the shortest possible time.
	Destruction and alteration of habitat available to birds in the area during construction of the proposed project	Medium negative	- All of the natural vegetation along the servitude should be protected as far as possible, although it is acknowledged that some removal is inevitable. It is recommended that vegetation removal is kept to an absolute minimum however. - In addition to the above exercise, general environmental best practices should suffice for reducing the disturbance of vegetation as far as possible. These include; strict management of staff, vehicles and machinery on site
	Cumulative impacts:		
	None Identified		
Heritage	***Direct impacts:***		
	None Identified. No heritage sites occur on or near footprint		
	Indirect impacts: None Identified. No heritage sites occur on or near footprint		
	Cumulative impacts:		
	None Identified. No heritage sites occur on or near footprint		
Visual	***Direct Impacts***		
	Large construction vehicles and equipment during the construction phase may change the visual character of the study area and expose sensitive receptors to visual impacts associated with the construction phase.	Low Negative **(Umfolozi SS to Eqwasha TSS power line)** Low Negative **(turn-in power line)**	- Carefully plan to reduce the construction period. - Locate construction camp and storage areas in zones of low visibility i.e. behind tall trees or in lower lying areas. - Minimise vegetation clearing and rehabilitate cleared areas as soon as possible. - Maintain a neat construction site by removing rubble and waste materials regularly. - Make use of existing gravel access roads where possible.
	Indirect impacts:		
	None Identified		
	Cumulative impacts:		
	Change to the visual character of the surrounding area and visual impact on potentially sensitive visual receptors that may perceive the power line to be an unwelcome intrusion.	Low Negative **(Umfolozi SS to Eqwasha TSS power line)**	- Avoid crossing areas of high elevation, especially ridges, koppies or hills. - Avoid areas of natural wooded vegetation where possible
		Medium negative**(turn-in power**	- None

Activity	Impact summary	Significance	Proposed mitigation
		line)	
Socio-economic	***Direct Impacts***		
	Positive economic impacts as a result of higher coal export tonnage, as well as temporary and permanent employment opportunities, thereby contributing positively to the expansion and strengthening of local economic activities.	High Positive	N/A: Mitigation not required.
	Indirect impacts:		
	None identified.		
	Cumulative impacts:		
	None identified.		
Dust	***Direct impacts:***		
	None identified.		
	Indirect impacts:		
	Dust impacts on surrounding environment associated with construction activities	Low negative	- Generation of dust shall be minimised and dust nuisance for the surrounding areas shall be kept to a minimum wherever possible. - Dust from exposed soil surfaces shall be minimised at all times, only using water spray during extremely windy conditions - Reasonable measures must be undertaken by the contractor to ensure that any exposed areas and material stockpiles are adequately protected against the wind. - Dust screens of a suitable height should be erected wherever required and possible. - All exposed surfaces should be minimised in terms of duration of exposure to wind and stormwater.
	Cumulative impacts:		
	None identified.		
Noise	***Direct impacts:***		
	None identified.		
	Indirect impacts:		
	Noise impacts on surrounding environment associated with construction activities (Construction vehicles and equipment)	Low Negative	- The contractor shall adhere to the local by-laws and regulations regarding the noise and associated hours of operations. - The contractor shall limit noise levels (e.g. install and maintain silencers on machinery). The provisions of sans 1200a sub-clause 4.1 regarding "built-up" area shall apply to all areas within audible distance of residents whether in urban, peri-urban or rural areas. - Construction and demolition activities generating output of 85db or more, shall be limited to normal working hours and not allowed during weekends. - Should the contractor need to work outside normal working hours, any affected individuals shall be informed prior to the work taking place. - No amplified music shall be allowed on site.
	Cumulative impacts:		
	None identified.		
Waste	***Direct impacts:***		

Activity	Impact summary	Significance	Proposed mitigation
	None identified.		
	Indirect impacts:		
	Generation of additional waste/ litter and building rubble/hazardous material during the construction phase	Medium Negative	Waste management mitigation measures as detailed in the EMPr (attached in Appendix G) includes: - Solid waste (construction waste and builders rubble) will be collected by independent contractors and disposed of at the registered licensed municipal landfill site in with proof of safe disposal as required. - The contractor shall ensure that all litter is collected daily from the work area. Similarly, all bins shall be emptied daily and the waste disposed of at a permitted landfill site. - The contractor shall ensure that the construction site, working and eating areas are maintained in a clean, hygienic and orderly state. - Separate bins should be provided for various materials to facilitate recycling. The bins should have liner bags for easy control and safe disposal of waste. - The excavation and use of rubbish pits on site is forbidden. - The burning of waste is forbidden. - All vehicles and equipment must be maintained in a good condition in order to minimise the risk of leakage and possible contamination of the soil or storm water by fuels, oils and hydraulic fluids. - Sufficient quantities of suitable hydrocarbon absorption or remediation materials must be present on site at all times.
	Cumulative impacts:		
	None identified.		
No-go option			
Socio-economic	***Direct impacts:***		
	Socio - Economic	High Negative	Negative socio-economic impacts as a result of inadequate supply of electricity to the Transnet railway system thereby preventing an increased export tonnage of coal. This will prevent job creation in the Ulundi area and hinder South Africa's economic growth in the coal export sector
	Indirect impacts:		
	None identified.		
	Cumulative impacts:		
	None identified.		

A complete impact assessment in terms of Regulation 22(2)(i) of GN R.543 must be included as Appendix F.

2. ENVIRONMENTAL IMPACT STATEMENT

Taking the assessment of potential impacts into account, please provide an environmental impact statement that summarises the impact that the proposed activity and its alternatives may have on the environment after the management and mitigation of impacts have been taken into account, with specific reference to types of impact, duration of impacts, likelihood of potential impacts actually occurring and the significance of impacts.

On-site and off-site alternatives have also not been assessed. The main reasons for not evaluating on-site and off-site alternatives include:

The property on which or location where it is proposed to undertake the activity:
No site alternatives for this project are being considered due to the placement of the proposed power line being dependent on several technical factors, all of which are favourable at the proposed site location. These include the existing operational power lines in the area, grid connections, existing substations and access to the site. In addition, Transnet also identified traction substations and associated power lines that need to be upgraded in order to facilitate the high demand for coal exports which directly places increased demand on the countries energy supply.

Considering that the proposed development is a power line rebuild the proposed development site is the only feasible option as it is a minor section of the existing line that will be upgraded. The project site also has advantageous grid connection potential through the existing Umfolozi Substation and Eqwasha Substation. The site is also easily accessible from the existing well-maintained gravel road at the Umfolozi substation (western end of the existing power line). An existing access road running parallel to the railway line to the Eqwasha railway station also serves as an access point to the eastern end of the proposed power line. Access roads along the power line may require upgrading or construction where no access roads are present. The existing power line corridor is therefore considered highly suitable for the proposed development and no other locations or corridors are being considered. It must be noted that the 500m wide corridor forms part of the assessment of the proposed power line rebuild to allow for some manoeuvrability where required.

The type of activity to be undertaken:
No feasible and reasonable activity alternative exists therefore activity alternatives cannot be considered. The proposed activity is the rebuild of an existing power lines in order to meet the energy required by Transnet to increase their coal output. The proposed development is activity specific in that power lines are required to transmit and distribute electricity.

The design or layout of the activity:
Various environmental specialists have assessed the site within the 500m assessment corridor and have included the identification of sensitive areas. The identified sensitive areas will be used to guide the exact location of the power line rebuild in conjunction with, landowner negotiations and technical constraints. Additionally, there are various monopole tower types being considered for the proposed development. Each tower design type will have very little to no variation in environmental impacts between the different tower design types, as they will occupy relatively the same footprint size and have the same tower height. Additionally, the type of towers to be used will be determined by technical constraints and ultimately determined by the engineers. Therefore no feasible or reasonable design or layout alternatives were assessed in this BA.

The technology to be used in the activity;
There are four (4) construction strategies being applied for in this BA. The technology options include a servitude swap; line bypass, line section bypass or a servitude widening. The choice of technology used will ultimately be determined by the land owner / servitude negotiations process and technological constraints at a later stage. As it is envisaged that any power line rebuild may warrant a combination off all four construction strategies based on the land owner / servitude negotiation process and technical constraints. It is therefore important to note that the environmental authorisation should not limit any of the above options. It is noted that all four construction strategies would need to be considered within the environmental considerations / constraints occurring within the 500m corridor. Such constraints can be managed via the site specific EMPr and implemented by an environmental control officer. The selection of the four construction strategies will be informed by the public participation process and the land owner negotiations. Therefore no technology alternatives were assessed as part of this BA.

The operational aspects of the activity; and
The proposed development is operationally specific in that the operation of power lines are required for the proposed development

-

The option of not implementing the activity.
The option of not implementing the activity, or the **'no-go' alternative, has been considered in this BA**. The No-Go Alternative refers to the option of not implementing the proposed infrastructure development and ultimately the continuation of the current *status quo*. In order for Transnet to accomplish the increased demand for coal and the associated mining activities they need to upgrade their power supply to their various traction substations between Ermelo and Richards Bay. This will facilitate the introduction of the new, larger locomotives that will be added to increase the volume of coal being transported and exported. Should this development not proceed, this will result in the electricity demands I not being met. This would be detrimental as South Africa is under immense pressure to provide electricity to meet the currently growing electricity demand in the country. Although the potential environmental issues, such as habitat destruction, would not occur if the project did not go ahead, the socio economic benefit of the proposed project should not be overlooked. The project would assist in achieving South Africa's goals in terms of energy security which in turn would promote local economic development.

Conclusion:
Given the above motivation, no feasible and reasonable alternatives other than *'(f) the option of not implementing the activity'* could be proposed for assessment. However, a 500m corridor was provided to specialists for assessment. The reason being, that it is likely that the proposed power line may need to be shifted for the final route selection due to environmental, social and technical reasons. The "No-go" option has however been assessed, but due to the need of the proposed project this has been ruled out.

Ultimately, the following impacts for each phase of the proposed development are likely to take place but the severity has been limited in most instances, should the proposed mitigation measures be implemented.

Power Line

Botanical	Given that the proposed power line will be rebuilt within the existing servitude, the impact will be less than having to create a whole new servitude. The vegetation in this area is quite well preserved, particularly north of the railway line away from any local communities. Access is limited and thus the vegetation is still relatively intact. The nature of the rebuild will determine the impacts that are to be associated with this proposed project. The simple re-stringing construction strategy is the preferred option as many of the construction related impacts will not be realized. The rebuilding using new towers and thus new tower positions will result in significantly higher impacts and at a larger scale than the restringing construction strategy and it is for this reason that it is not preferred. The need for a permit to remove protected tree species will potentially be required and this must be resolved and obtained prior to any construction commencing. The cumulative impact of construction strategy 2 would be of high significance as grassland areas containing sensitive vegetation may be transformed. Further the woody vegetation removal may result in the establishment of alien infestations as well as increase the chances of erosion occurring. Access will be required and this may have far reaching consequences in

	so much as the area will be opened" up and allow human interference as well as impacts associated with livestock grazing. Permits to remove protected tree species will be required. There will be a need for a botanist to be on site to establish the best possible access routes as well as to undertake a walk-through of the power line prior to finalization and construction to ascertain the presence and the abundance of Protected tree and herbaceous plant species protected under National and Provincial legislation. This information will need to be assimilated and permits applied for.
Fauna	The Umfolozi-Equsha line rebuild site is considered potentially sensitive for mammals and reptiles, but potential impacts on the species of conservation concern would be minimised through using the option of utilising the existing servitude for the construction of the new line. As a result, this option is strongly recommended as the preferred construction approach as this would minimise the potential faunal impacts associated with the development. Provided that the existing servitude can be used, then the overall footprint of the development will be low and it is not likely that the development would generate a significant long-term negative impact on any of the listed species. The most important mitigation measures would be to ensure that the development footprint is maintained at the low level and to ensure that disturbance and human impact during construction is avoided as much as possible.
Surface Water	Ultimately, it was found that the desktop results needed major refinement and there weren't any wetlands *per se*. Rather, thirty seven (37) watercourses were identified within the proposed development corridor which included thirty four (34) drainage lines, one (1) man-made impoundment, and two (2) watercourses. All watercourses (including drainage lines) were associated with riparian habitat. Foreseen potential negative impacts in terms of the pre-construction, construction, operation and decommissioning phases of the proposed development were identified and assessed. The impacts for each phase of the proposed development are summarised as follows:

PRE-CONSTRUCTION PHASE		
Site Specific Impacts	**Pre-mitigation Rating**	**Pre-mitigation Rating**
Construction Lay-down Area	Medium – Low	Low
CONSTRUCTION PHASE		
Generic Impacts	**Pre-mitigation Rating**	**Pre-mitigation Rating**
Drainage Line and Watercourse Riparian Habitat Loss	- High	- Low
Site Specific Impacts	**Pre-mitigation Rating**	**Pre-mitigation Rating**
Vehicle and Machinery Degradation	- Medium	- Medium/Low
Human Degradation of Riparian Flora and Fauna	- Medium	- Low
Erosion, Increased Run-off and Sedimentation	- Medium	- Low
Stringing Power Lines through Riparian Habitat	- Medium	- Low
OPERATION PHASE		
Impact	**Pre-mitigation Rating**	**Pre-mitigation Rating**

	Service Roads through Riparian Habitat	- High	- Low
	Site Specific Impacts	**Pre-mitigation Rating**	**Pre-mitigation Rating**
	Power Line Collision and Electrocution Impacts to Avi-fauna	- High	- Low
	Decommissioning of the existing power line will be required during the construction phase. The same impacts identified for the construction phase of the proposed development can be anticipated. This includes riparian habitat loss, vehicle and machinery degradation to riparian habitats, human degradation of riparian flora and fauna, degradation and removal of riparian soils and vegetation, as well as increased run-off, erosion and sedimentation impacts to riparian habitats. Similar impacts are expected to occur and the stipulated mitigation measures where relevant must be employed as appropriate to minimise impacts. This will also be applicable should future decommissioning of the new proposed power line will be required.		
Agricultural Potential and Soils	- The results of the desktop study, field verification and agricultural assessment indicate that agriculture (unimproved grazing and subsistence cultivation) is the dominant land use but that high value agricultural resources are absent from the assessment area. Essentially the Umfolozi Sub-Project does not influence any important or high value agricultural areas. This fact allows for easier and a low impact agricultural routing. - The majority of land influenced by the 500 m power line corridors is classified, at best, as moderate value grazing land. While the larger subsistence fields, classified as having moderate agricultural value, can easily be avoided. - There are no centre pivots, irrigation schemes or active agricultural fields which will be influenced by the proposed developments, and as such, there are no fatal flaw areas for the assessment corridors. - Due to current agricultural value and practices the crossing of agricultural land by the power line will have a minor impact on agricultural production as normal crop production / grazing can continue take place under the power lines. This is due to the fact that most of the land is used for grazing and where subsistence cultivation is taking place the crops grown are under dry land conditions, and are all below 4 m in height at maturity. This type of activity is permitted in power line servitudes. - The post mitigation significance impact scores for both power line rebuilds is classified as low negative. If the recommendations and mitigation measures outlined in this report are implemented then the proposed developments will have a very limited impact on agricultural production.		
Heritage	- No heritage sites occur on or near footprint - Therefore there are no major concerns or preferences.		
Avifauna	The proposed project is situated in an area with a high diversity of habitats and hence bird species, many of which could frequent the site. Fortunately with a combination of correct placement of the infrastructure, and on site mitigation for collision and electrocution, the risk of these impacts can be mitigated to acceptable levels. From an avifaunal perspective, construction strategy 3 would be most preferred as there would be no new impact on a new servitude. This would reduce the habitat destruction impact as well as ensuring that there is very little nett new impact. Construction strategy 2 would be the least preferred. Construction strategy 1 is acceptable only if the mitigation recommended in this report is installed on or applied to the temporary bypass line in addition to the final line. It is concluded that if the recommendations contained in this report are implemented, the project should		

	be allowed to proceed.
Visual	The overall significance of the visual impacts as a result of the proposed power line was assessed according to SiVEST's impact rating matrix. The assessment revealed that from a visual perspective the significance of the impact would be low, as rebuilding the existing 88kV power line would impact the area in a way that is barely perceptible as the rebuilt line would either be routed to follow the existing alignment or it would be aligned within relatively close proximity to the existing power line within the 500m wide corridor.
Socio-Economic	N/A

No-go alternative (compulsory)

Socio - Economic	Negative socio-economic impacts as a result of inadequate supply of electricity to the Transnet railway system thereby preventing an increased export tonnage of coal. This will prevent job creation in the Ulundi area and hinder South Africa's economic growth in the coal export sector.

SECTION E. RECOMMENDATION OF PRACTITIONER

Is the information contained in this report and the documentation attached hereto sufficient to make a decision in respect of the activity applied for (in the view of the environmental assessment practitioner)?	✓YES

If "NO", indicate the aspects that should be assessed further as part of a Scoping and EIA process before a decision can be made (list the aspects that require further assessment).

If "YES", please list any recommended conditions, including mitigation measures that should be considered for inclusion in any authorisation that may be granted by the competent authority in respect of the application.

Recommendations of the Biodiversity Specialist

- In the event that a protected, rare or endemic plant is encountered during the construction of the power line or access roads, then the plants will be identified and uplifted and replaced in areas adjacent the disturbance.
- Obtain a permit for the upliftment or damage, destruction of the plants.
- Roads may be re-directed if required.
- Tower positions can be moved to accommodate these species if so determined by the specialist or CA.
- Placement of the new line within the existing servitude will not result in any sensitive vegetation being impacted upon.
- Access to the new line will be quite challenging in places, as most roads don't extend into the servitude and thus we would propose that the towers be walked in and constructed in their final position.
- Roads may be re-directed if required, however, we recommend that no roads be created particularly on the northern side of the railway line to prevent damage during construction and prevent the added access opportunities post construction.
- No development of roads must occur through wetland areas, and where possible new roads
- Depending on the availability of supply it may be possible to decommission the existing 88 kV power line and feed the Dubula and Eqwasha S/S from an alternate supply for the duration of a rebuild, which would utilise the existing towers or rebuild towers in the existing positions if required.
- Try to maintain the power line within the original alignment and servitude through double circuiting and temporary line building.
- Don't create new access roads, utilise existing roads
- Power lines and other linear infrastructural features exist; therefore replacing of said feature through a rebuild within the existing servitude will not impact on the landscapes and its fragmentation.
- Maintenance of the power line within the predefined corridor will result in the power line not impacting any conservation areas.
- Utilise helicopters and camera technology to check the power lines.
- Maintain an alien free servitude
- Rehabilitation utilizing plant species indigenous to the surrounding area, following removal of a substation and or roads.
- Removal of an ongoing disturbance as a result of the roads removal.
- The control and management of alien invasive plant species through a management plan to be created, once the decision to decommission is made.
- Provide budget to manage the alien plant species for a period of no less than 5 yrs post

decommissioning

- Set aside a budget to rehabilitate areas with natural vegetation as a preventative measure to stop alien infestations and establishment.
- Prevent livestock form entering areas where infrastructure has been decommissioned.

Recommendations of the Surface Water Specialist:

- The overarching recommendation is that the final proposed power line route is to avoid all watercourses (including drainage lines) and the associated riparian habitat as far as possible to prevent towers being placed within these features. However, this will most likely be unavoidable since several watercourses (including drainage lines) will need to be crossed which extends further than the spanning length of the power lines. These are likely to include (but are not limited to) watercourse 1 and drainage line 10, watercourse 2, drainage line 29 and 28. In this case, the mitigation measures stipulated in this report must be implemented and enforced.
- Since it will be required that the various watercourses (including drainage lines) will have some degree of potential impact, consultation with the Department of Water and Sanitation will be required to determine the need for any authorisations (for example, a General Authorisation) or licenses (for example, a Water Use License) once the final tower positions have been determined.
- In terms of EIA Regulations promulgated under NEMA (1998), the proposed development is likely to trigger Activity 11 and 18 as listed in Government Notice R. 544 (Listing Notice 1) should any towers need to be within 32 metres of the edge of a watercourse or five cubic metres of material from the watercourse be deposited or removed, thereby requiring Environmental Authorization. With regards to the NWA (1998), a WUL or a GA may be required once the final location of the power line route (along with tower positions) have been determined. The above however, should be confirmed in consultation with the DEA and DWA.

Recommendations of the Agricultural Potential and Soils Specialist

- Storage of any materials shall not take place within 32m of any watercourses or sensitive environments.
- Fuel, oil and any other hazardous substances and harmful materials shall be stored in suitable containers within adequately bunded areas (with 110% of the capacity of the volume of the container) in a dry, secure environment, with concrete or sealed flooring.
- Material Safety Data Sheets shall be kept for all hazardous materials and substances and a copy of the Material Safety Data sheets shall be made available to all workers to ensure that the required safe handling and necessary precautions are taken when suing the materials.
- The PC will ensure that materials storage facilities are cleaned/ maintained on a regular basis, and that leaking containers are disposed of in a manner that allows no spillage onto the bare soil or surface water.
- Due to the overarching site characteristics and the nature of the proposed development viable mitigation measures are limited and will most likely revolve around erosion control:
- Clearing activities should be kept to a minimum.
- In the unlikely event that heavy rains are expected activities should be put on hold to reduce the risk of erosion.
- If additional earthworks are required, any steep or large embankments that are expected to be exposed during the 'rainy' months should either be armoured with fascine like structures.
- If earth works are required then storm water control and wind screening should be undertaken to prevent soil loss from the site
- Interact with landowners during the routing process.
- The utilisation of existing towers will further reduce potential impacts.
- Following the existing servitude as far as possible is highly recommended due to the existing

impacts associated with these areas.

Recommendations of the Avifauna Specialist

- It will be important for a suitably qualified avifaunal specialist to conduct an avifaunal walk through assessment just before construction in order to determine whether any Red-Listed bird species are breeding on the servitude. This could include breeding on the existing power line tower structures. If such breeding birds are identified case specific management recommendations will be developed by the specialist.
- All of the natural vegetation along the servitude and on the substation site should be protected as far as possible, although it is acknowledged that some removal is inevitable. It is recommended that vegetation removal is kept to an absolute minimum however.
- In addition to the above exercise, general environmental best practices should suffice for reducing the disturbance of vegetation as far as possible. These include; strict management of staff, vehicles and machinery on site.
- It will be important for Eskom to report all bird electrocutions detected during maintenance line patrols, so that the significance of this impact and the effectiveness of mitigation can be accurately evaluated.
- Within the substation yard there are numerous hardware components which could electrocute birds. However due to the complexity of this hardware, and the species likely to frequent substation yards (mostly non Red-Listed) it is recommended that mitigation only be considered if a problem is detected once the substation is operational.

Recommendations of the Heritage Specialist

- No heritage resources were found within the proposed development footprint
- The proposed development may proceed from a heritage perspective as no sites or features are threatened on the footprint. However, the KwaZulu-Natal Heritage Act requires that any operations exposing archaeological and historical residues should cease immediately pending an evaluation by the heritage authorities.

Recommendations of the Visual Specialist

- Carefully plan to reduce the construction period.
- Locate construction camp and storage areas in zones of low visibility i.e. behind tall trees or in lower lying areas.
- Minimise vegetation clearing and rehabilitate cleared areas as soon as possible.
- Maintain a neat construction site by removing rubble and waste materials regularly.
- Make use of existing gravel access roads where possible.
- Avoid crossing areas of high elevation, especially ridges, koppies or hills.
- Avoid areas of natural wooded vegetation where possible.

General Recommendations of DAFF

- A botanist must be appointed to assess and select the final route for the powerline and access roads construction which should avoid protected trees as much as possible.
- Power line construction servitude should clearly be demarcated and aligned to avoid protected trees should they occur within the route alignment.
- Power line should span the entire drainage line to avoid negative impacts on woody riparian vegetation.
- Should protected trees be encountered and cannot be avoided, a license must be obtained from DAFF offices in Pietermaritzburg prior to any activity affecting protected trees commences.
- An offset ratio of 5 trees for each trees lost should apply as compensation for the protected trees lost during construction activities. Trees should be re-planted within the corridor during the rehabilitation phase.
- This letter does not exempt you from considering other environmental legislations.

General Recommendations of the Zululand District Municipality

- The National Environmental Management Principles, inter alia, state that "Environmental management must be integrated, acknowledging that all elements of the environment are linked and interrelated, and it must take into account the effects of decisions on all aspects of the environment and all people in the environment by pursuing the selection of the best practicable environmental option" (Section 2(4)(b) of the National Environmental Management Act, 1998, Act 107 of 1998, as amended ("NEMA")). The NEMA defines the "best practicable environmental option" as "the option that provides the most benefit or causes the least damage to the environment as a whole, at a cost acceptable to society, in the long term as well as in the short-term". Taking these principles into consideration:
- The 'no-go' option must at all times include the consideration of the 'no-go' option as a baseline against which all other alternatives must be measured. The option of not implementing the activity must always be assessed and to the same level of detail as the other feasible and reasonable alternatives.
- In Addition, alternatives identified should not only be limited to site. Alternatives may include design, layout and other alternatives.

General Recommendations of Ezemvelo KZN Wildlife:

- Recommendations of the specialists are adhered to, and are included in the final EMPr, including inter alia:
- Relevant permits to be obtained by the applicant for translocation of listed and protected plant species in the affected footprint. A walk-through will need to be undertaken by a suitably qualified vegetation specialist prior to construction in order to give final confirmation of these species. It would be Ezemvelo's preference for the footprints of any pylons to rather avoid the requirement to relocated sensitive species, and the final placement to be adjusted to avoid red listed or protected plant species, rather than risk their demise by translocation.
- No development of new roads through any wetlands, dongas or drainage lines. Existing roads crossing such will need to have adequate storm-water protection put in place should they be required for ongoing maintenance, and any erosion will need to be curtailed by suitable migratory measures.
- RP3 raptor protectors must be fitted to the conductors / insulators, according to the Eskom standard. In addition, all bird electrocutions identified during routine maintenance patrols are to be reported by the applicant in order to monitor the effectiveness of the migratory measures.
- The final EMPr is in place and adhered to.

General Recommendations of the EAP

- All feasible mitigation measures recommended by the various specialists should be strictly implemented, where applicable to the authorised power line alignment.
- A Final Site-Specific EMPr should be approved by DEA prior to construction, which will need to include detailed specialist reports and mitigation measures for the authorised powerline corridor, including the positioning of the structures and the substation.
- It is recommended that a five (5) year validity period be granted for the Environmental Authorisation

Is an EMPr attached? **✓YES**

The EMPr must be attached as Appendix G.

The details of the EAP who compiled the BAR and the expertise of the EAP to perform the Basic Assessment process must be included as Appendix H.

If any specialist reports were used during the compilation of this BAR, please attach the declaration of interest for each specialist in Appendix I.

Any other information relevant to this application and not previously included must be attached in Appendix J.

Jenny Barnard - **SiVEST (Pty) Ltd**

NAME OF EAP

JBarnard.

SIGNATURE OF EAP

11 June 2015

DATE

SECTION F: APPENDIXES

The following appendixes must be attached:

Appendix A: Maps
Appendix B: Photographs
Appendix C: Facility illustration(s)
Appendix D: Specialist reports
- Appendix D1: Biodiversity Impact Assessment
- Appendix D2: Desktop faunal Review
- Appendix D3: Surface Water Impact Assessment
- Appendix D4: Agricultural Potential and Soils Assessment
- Appendix D5: Avifauna
- Appendix D6: Heritage Impact Assessment
- Appendix D7: Visual Impact Assessment

Appendix E: Public Participation
- Appendix E1: Proof of Advertisements and Site Notices
- Appendix E2: Proof of Written Notification to Stakeholder
- Appendix E3: Comments and Response Report **(To be included in the FBAR)**
- Appendix E4: Proof of Written Notification to Authorities and Organs of State
- Appendix E5: I&APs Database
- Appendix E6: Correspondence and Meeting Minutes **(To be included in the FBAR)**

Appendix F: Impact Assessment
Appendix G: Environmental Management Programme (EMPr)
Appendix H: Details of EAP and expertise
Appendix I: Specialist's declaration of interest
Appendix J: Additional Information
- Appendix J1: Competent Authority Consultation
- Appendix J2: Coordinate Spreadsheets
- Appendix J3: Eskom Guideline Documents

List of abbreviations

BA	Basic Assessment
BAR	Basic Assessment Report
BSA	Basic Social Assessment
C&RR	Comments and Response Report
CBA	Critical Biodiversity Area
ESA	Ecological Support Area
DAFF	Department of Agriculture, Forestry and Fisheries
DBAR	Draft Basic Assessment Report
DS	Distribution Station
DWA	Department of Water Affairs
EMF	Electric and Magnetic Fields
EMPr	Environmental Management Programme
FBAR	Final Basic Assessment Report
GIS	Geographic Information System
GN	Government Notice
HIA	Heritage Impact Assessment
I&AP	Interested and Affected Party
IDP	Integrated Development Plan
kV	Kilovolt
MTS	Main Transmission Substation
NCDTEC	Northern Cape Department of Environmental Affairs and Nature Conservation
NEMA	National Environmental Management Act, 1998 (Act No.107 of 1998)
NEMBA	National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004)
NFA	National Forests Act, 1998 (Act No. 84 of 1998)
NHRA	National Heritage Resources Act, 1999 (Act No. 25 of 1999)
NNR	No Natural Area Remaining
NPAES	National Protected Area Expansion Strategy
NWA	National Water Act, 1998 (Act No. 36 of 1998
ONA	Other Natural Area
PPP	Public Participation Process
PV	Photovoltaic
REIPPP	Renewable Energy Independent Power Producer Programme
SAHRA	South African Heritage Resources Agency
SANBI	South African National Biodiversity Institute

SANRAL	South African National Roads Agency SOC Limited
SDF	Spatial Development Framework
SG	Surveyor General
SOC	State Owned Company