



**BASIC ASSESSMENT PROCESS ASSOCIATED WITH THE CONSTRUCTION
TOWER FOOTINGS WITHIN WATER COURSES FOR PHASE 3 OF THE BRAVO
INTEGRATION PROJECT IN THE MPUMALANGA PROVINCE**

DRAFT BASIC ASSESSMENT REPORT

AUGUST 2016

DEA REFERENCE:

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environmental affairs

Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA

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Basic assessment report in terms of the Environmental Impact Assessment Regulations, 2014, 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, 2014 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 **08 December 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.

PROJECT DETAILS

- Title** : Basic Assessment Process associated with the construction tower footings within water courses for phase 3 of the Bravo Integration Project in the Mpumalanga Province.
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- Client** : Eskom Holdings SOC Ltd
- Report Status** : Draft Basic Assessment Report for Public Review
- Review Period** : 1 August 2016 – 1 September 2016

DETAILS OF THE ENVIRONMENTAL ASSESSMENT PRACTITIONER (EAP)

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EAP Qualifications	BSc (Hons) Botany		
EAP Registrations/ Associations	Registered with the South African Council for Natural Scientific Professions (No: 400049/12)		

Details of the EAP's expertise to carry out Basic Assessment procedures

Envirolution Consulting Pty Ltd was appointed by Eskom as the independent environmental assessment practitioner to undertake the Environmental Basic Assessment process for the proposed project. Envirolution Consulting Pty Ltd is not a subsidiary of or affiliated to Eskom. Furthermore, Envirolution Consulting does not have any interests in secondary developments that may arise out of the authorisation of the proposed project.

The EAP's from Envirolution Consulting who are responsible for this project are ([Refer to Appendix H1 & H2 for CVs](#)):

- Gesam Govender – The principle environmental assessment practitioner (EAP) for this project is a registered Professional Natural Scientist and holds an Honours Degree in Botany. He has over 15 years of experience within the field of environmental management. His key focus is on strategic environmental assessment and advice; management and co-ordination of environmental projects, which includes integration of environmental studies and environmental processes into larger engineering-based projects and ensuring compliance to legislation and guidelines; compliance reporting; the identification of environmental management solutions and mitigation/ risk minimising measures; and strategy and guideline development. He is currently responsible for the project management of EIA's for several diverse projects across the country.
- Andrishva Govender –the principle author of this Draft Basic Assessment Report holds a BSc. Environmental Science degree from the University of KwaZulu - Natal. She has a year's experience of consulting in the environmental field. Her key focus is on strategic environmental assessment

and advice; management and co-ordination of environmental projects, which includes integration of environmental studies and environmental processes into larger engineering-based projects and ensuring compliance to legislation and guidelines; environmental auditing and compliance reporting; the identification of environmental management solution and mitigation/ risk minimising measures; environmental auditing, monitoring and reporting compliance. Andrisha is currently a Project Manager and Environmental Consultant at Envirolution Consulting Pty Ltd.

ABREVIATIONS

BAR	Basic Assessment Report
DEA	Department of Environmental Affairs
DoE	Department of Energy
EAP	Environmental Assessment Practitioner
EMPr	Environmental Management Programme
EIA	Environmental Impact Assessment
ERA	Electricity Regulation Act (No. 4 of 2006)
GN	Government Notice
Ha	Hectares
HIA	Heritage Impact Assessment
I&AP's	Interested and Affected Parties
IPP	Independent Power Producer
MW	Megawatts
NEMA	National Environmental Management Act (No. 107 of 1998) (as amended)
NHRA	National Heritage Resources Act (No. 25 of 1999)
NWA	National Water Act (No 36 of 1998)
SAHRA	South African Heritage Resources Agency
SDF	Spatial Development Framework

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SECTION A: ACTIVITY INFORMATION

Has a specialist been consulted to assist with the completion of this section? NO ✓

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

1.1 Background Information

The growing demand for electricity is placing increasing pressure on Eskom's existing power generation and transmission capacity. Eskom Holdings SOC is committed to implementing a Sustainable Energy Strategy that complements the policies and strategies of National Government. Eskom aims to improve the reliability of electricity supply to the country, and in particular to provide for the growth in electricity demand in the Gauteng and Mpumalanga provinces. For this reason, Eskom obtained environmental authorisation from Department of Environmental Affairs to construct the new 400 kV Bravo (Kusile) coal-fired Power Station located between Bronkhorstspuit and Witbank in 2007. Construction of the Kusile power station has already commenced. Due to this construction, the new Bravo Power Station has reached a stage where it needs to be integrated with the existing Eskom electricity infrastructure. As such Eskom also obtained environmental authorization on 09 October 2009 from the Department of Environmental Affairs (DEA) for the construction of a new 400 kV power line from the Kusile Power Station (Mpumalanga), to the existing Lulamisa substation near Diepsloot in Gauteng Province (DEA Reference No. 12/12/20/1094) (See Figure 1 below). This line will be approximately 120 km's in length and will cover an area from Witbank in the east, to Diepsloot in the west. The construction of this proposed 400 kV power line is aimed to ensure sufficient electricity supply to the Diepsloot and Johannesburg North areas, where currently frequent electricity shortages are experienced.

Following approval by DEA in 2009, it has been identified that certain tower footings associated with the power lines may impact on watercourse crossings and drainage lines thus requiring Environmental Authorisation in terms of the National Environmental Management Act (NEMA) (Act 107 of 1998). Activities identified in Listing Notice 1 of General Notice Regulations (GN R.) 983 and Listing Notice 3 of GN R. 985 are triggered by the proposed project and thus a Basic Assessment (BA) process is being undertaken.

Specialist Ecological (Flora and Fauna), Avifauna, Wetland, Social and Heritage Assessments were undertaken during the Basic Assessment and their reports are attached as Appendices to this BAR. Eskom has appointed Envirolution Consulting as independent environmental assessment practitioners, to undertake the Basic Assessment and Environmental Management Programme (EMPr) processes. The main objective of the Basic Assessment and EMPr is to identify and assess potential environmental impacts associated with the proposed project, and to compile appropriate mitigation measures.

A Water Use Licence or a General Authorisation Application with the Department of Water and Sanitation may be required in terms of the National Water Act No. 36 of 1998 for the following water uses:

- Section 21 (c): impeding or diverting the flow of water in a watercourse; and
- Section 21 (i): altering the bed, banks, course or characteristics of a watercourse.

The Water use Licence Application will be undertaken as a separate application and will be submitted to the Department of Water and Sanitation.

A detailed description of the proposed development is highlighted in **Section 1.3 of this report**. This Basic Assessment Report (BAR) covers the findings of the site assessment and impacts identified for the tower footings associated with the power lines that may impact on watercourse crossings and drainage lines

1.2 Locality

The power line route falls within the jurisdiction of Victor Khanye (Delmas) in Mpumalanga, City of Tshwane, City of Johannesburg and Ekurhuleni Metropolitan Municipalities, by – passing various suburbs/ towns namely; Delmas, Botleng, Olifantsfontein, Diepsloot , Bronkhorstspuit, Pretoria Rural, Centurion (Figure 1 below).

1.3 Project Description

A 400 kV power line of approximately 120km in length, will start approximately 20km south-east of bronkhorstspuit at the Kusile Power Station and end approximately 3km south of Diepsloot at the Lulamisa Substation. This line (green line in Figure 1 above) is referred to as Bravo 3(Kusile) – Lulamisa.

The purpose of this line is to integrate the new Bravo (Kusile) Power Station into the Eskom grid to supply additional electricity to the Diepsloot and the Johannesburg north area which in turn will contribute to the reliable electricity supply of the country. The powerline crosses 6 Quaternary Catchments (A21C, A21B, A21A, A23A, B20D and B20F). Several perennial and non-perennial watercourses are crossed by the proposed powerline ([See Appendix A3](#)). The majority of the water drains in two main directions. The central to western parts of the line drain northwest towards the Hartbeespoort Dam and the Crocodile River. This section of the lines falls in the 3rd, Crocodile West, Marico Water Management Area. The remainder drains towards the northeast into the Olifants River and falls within the 4th (Olifants) Water Management Area.

Important rivers crossed by the line, from west to east are: Jukskei River; Rietvlei River; Hennops. A total of 31 watercourses are crossed by the proposed line. The total amount of wetlands can be broken down into 8 floodplain wetlands, 20 unchannelled valley bottom wetlands, 2 depression wetlands and one riparian area which may subsequently be affected by the tower footings. Each tower footing will be variable to comply with local conditions (Wetland, water source type, drainage, soils,) in order to minimise potential impacts. As part of the new 400kV power lines there is a footing

that is proposed after approximately every 400m therefore a total of approximately 468 tower footings of which there are 86 towers that are existing and 382 proposed new towers.

The following types of towers have been recommended for this project:

- Cross rope suspension tower
- Compact cross rope suspension tower
- Guyed-V suspension tower;
- Self-supporting suspension tower; and
- Self-supporting strain tower.

Please refer to Appendix C for Facility Illustrations

Different towers may be used along different sections of the routes to comply with the local conditions including, the terrain, ground clearance requirements, topology and geology. It is assumed that each tower would be erected on concrete footings with dimensions of 2 x 2 x 2 m (area = 4 m² and volume = 8 m³) for each concrete footing. The number of foundations will be dependent on the type of tower chosen. The installation of the foundations will take place under supervised conditions. All towers will be assembled simultaneously in stages, that is, bottom structures will be assembled for all towers in the first phase (phase 1), middle structures for all towers will be assembled simultaneously in the second phase (phase 2) and so on.



Figure 1: Locality Map indicating the Power Line Route

Servitudes

The operation and construction servitudes will be 55m (i.e. 27.5 m on either side of the centre line) The Eskom Standard and specifications for vegetation clearance and invasive alien plant management for new power line construction specifications (See Appendix J1) have been incorporated into the EMPr, which will guide the construction, operational and maintenance phases of the project.

Establishment of Construction Camps

The establishment of construction camps will be done in accordance to the stipulations of the final Environmental Management Programme and negotiations with the affected landowners. The construction contractor would need to set up at least one site camp but this does not necessarily need to be near the power line route. The contractor may however prefer to use a fully serviced site at another location. The contractor will be encouraged to utilise already disturbed areas for construction camp purposes, in order to minimise cumulative impacts. It is likely that a number of construction camps would need to be established for the construction period

Water

Water will be required for potable use and in the construction of the foundations for the towers. The water will be sourced from municipality points at locations closest to the area of construction.

Sewerage

A negligible sewage flow is anticipated for the duration of the construction period. The Contractor is to provide portable toilet facilities for the use of his workforce at all work sites, and the contractor will ensure regular treatment of these facilities. . The toilets will be serviced regularly, as specified by the final site specific EMPr.

Roads

Existing roads will be utilised as far as possible during construction and operation. No roads that trigger NEMA Regulations Listed Activities will be required. The use of roads on landowner property is subject to the provisions of an EMPr and will be determined based on discussions with landowners should it be necessary.

Solid Waste Disposal

Eskom has a strong commitment to waste minimisation and recycling. All solid waste will be collected at a central location at each construction site, and will be disposed at the registered waste site or stored temporarily until removal for recycling or disposal at an appropriately permitted landfill site in the vicinity of the construction site.

Foundations

The excavations shall be kept covered or barricaded in a manner accepted by the Supervisor to prevent injury to people or livestock. Failure to maintain proper protection of excavations may result in the suspension of excavation work until proper protection has been restored.

Concrete Batching

Concrete batching will be required for the foundations of the tower footing. The following guidelines are contained in the Eskom specification for the Transmission Line Towers and Line Construction:

- a) The Contractor shall be responsible for negotiating the site of his batching plant (if required) and the conditions under which it may be established, with the landowner. The Contractor shall be responsible for the proper management of the batching plant.
- b) Upon completion of works, the ground of the batching plant area shall be rehabilitated and the site cleaned and left as it was found and to the satisfaction of the Supervisor and landowner.
- c) The use of local water for concrete must first be negotiated with the landowner and the appropriate authorities. Such water is to be analysed and accepted by the Project Manager before use.

Stringing

Once towers have been erected, cables will be strung between the towers. Stringing will be undertaken in accordance with Eskom's stringing procedure.

Bird Flight Diverters

Bird flight deflectors will be fitted on the structures during the construction phase.

Electricity

Diesel generators will be utilised for the provision of electricity where electricity connection is not readily available during construction.

Anti – Climbing Devices

Anti-climbing devices shall be designed for each tower. These are to be attached at a height of approximately 3m, but not less than 2,5m above ground level.

1.4 Construction Process

It is estimated that the construction period for this project will be 18-24 months.

Generally, the construction of the power line is expected to consist of the following sequential phases, all of which has been approved under the existing authorisation for the power line (EIA DEA Reference No. 12/12/20/1094):

Step 1: Feasibility and identification of line alternatives.

Step 2: Basic Assessment input and environmental permitting.

Step 3: Negotiation of final route with affected landowners.

Step 4: Survey of the proposed route.

Step 5: Selection of structures suited to the terrain and ground conditions.

Step 6: Final design of the distribution line and placement of towers.

<p>Step 7: Issuing of tenders and eventually appointment of contractors for the project.</p> <p>Step 8: Vegetation clearance and construction of access roads (if required).</p> <p>Step 9: Pegging of structures.</p> <p>Step 10: Construction of foundations.</p> <p>Step 11: Assembly and erection of structures.</p> <p>Step 12: Stringing of conductors.</p> <p>Step 13: Rehabilitation of disturbed areas and protection of erosion sensitive areas.</p> <p>Step 14: Testing and commissioning.</p> <p>Step 15: Operation and routine maintenance.</p> <p>Operation Phase</p> <ul style="list-style-type: none"> • Vegetation will be maintained by Eskom in the operational phase of the project (Refer to Appendix J1) • Regular checks and maintenance of servitude, keep access road as informal as possible and use existing roads as far as possible to limit construction of new roads

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

Listed activity as described in GN R 983, 984 and 985	Description of project activity that triggers listed activity
<p><u>GNR 983: 2014 (Listing Notice 1) Activity 12</u></p> <p>The development of –</p> <p>(xii) infrastructure and structures with a physical footprint of 100 square metres or more;</p> <p>Where such development occurs -</p> <p>(a) within a watercourse; or</p> <p>(c) within 32 metres of a watercourse, measured from the edge of a watercourse.</p>	<p>Due to the footprint of all tower footings crossing a watercourse and within 32 metres of a watercourse, this activity is applicable. As part of the new 400kV power lines there is a footing that is proposed after approximately every 400m therefore a total of approximately 468 tower footings of which there are 86 towers that are existing and 382 proposed new towers. Due to the footprint of all tower footings crossing a watercourse and within 32 metres of a watercourse, this activity is applicable</p>
<p><u>GNR 983: 2014 (Listing Notice 1) Activity 19</u></p> <p>The infilling or depositing of any material of more than 5 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells grit, pebbles or rock of more than 5 cubic metres from -</p> <p>(i) a watercourse.</p>	<p>It is assumed that each tower would be erected on concrete footings with dimensions of 2 x 2 x 2 m (area = 4 m² and volume = 8 m³) for each concrete footing. The number of foundations will be dependent on the type of tower chosen. To ensure the towers is built according to safe building standards there will have to be excavations and trenching, laying the foundation and other intrusive construction activities within the water courses that will trigger this activity.</p>
<p><u>GNR 985: 2014 (Listing Notice 3) Activity 14</u></p> <p>The development of –</p>	<p>Conservation status as indicated by the National Biodiversity Assessment (SANBI, 2011) shows that areas in the west are endangered and Critically</p>

<p>(xii) infrastructure or structures where the physical footprint is of 10 square metres or more; Where such development occurs –</p> <ul style="list-style-type: none"> (a) within a watercourse; (b) in Gauteng; (vi) sensitive areas identified in an environmental management framework adopted by relevant environmental authority. 	<p>Endangered (with little Least Concern) while the eastern area is mainly classified as Vulnerable .Tower footings which are positioned within /within the 32m buffer zone of a watercourse and in sensitive areas(critically endangered or endangered) will trigger this activity</p>
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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 Appendix 1 (3)(h), Regulation 2014. 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.

Please note that authorisation (DEA Reference No. 12/12/20/1094) has already been acquired for the preferred project, route, technology and design alternatives that were a part of the full scoping EIA completed by Zithole Consulting in 2009. The current authorisation required is for the tower footings that fall within a watercourse or within the 32m buffer zone of the watercourse as this activity was previously omitted in the Environmental Authorisation Application done in 2009.

a) Site alternatives

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

In the case of linear activities:

Please note that authorisation (DEA Reference No. 12/12/20/1094) has already been acquired for the preferred transmission line route and therefore no site alternatives can be proposed for this activity.

Powerline :

Latitude (S):

Longitude (E):

Powerline 1 (preferred)

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

Kusile to Lulamisa	25° 54' 44.771" S	28° 54' 50.700" E
Kusile to Lulamisa	25° 52' 31.027" S	28° 28' 59.712" E
Kusile to Lulamisa	25° 57' 48.295" S	28° 0' 39.395" E

Alternative S2 (if any)

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

Alternative S3 (if any)

- 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 of this form.

b) Lay-out alternatives

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

c) Technology alternatives

Alternative 1 (preferred alternative)
Alternative 2
Alternative 3

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

Design alternative 1(Preferred)

Please note that authorisation (DEA Reference No. 12/12/20/1094) has already been acquired for the preferred transmission line route. Tower footings were assessed in the previous specialist studies included in the EIA done in 2009 and tower designs have been approved. Therefore no design alternatives that can be proposed for this activity.

The following types of towers were assessed for the project:

Cross rope suspension tower;

A larger version of the compact cross-rope tower, these structures are characterised by two steel vertical legs and a cross-rope forming the horizontal arm from which the conductors are suspended. Stay wires are used to securely anchor the structure. The tower configuration is approximately 38m high and 21m wide (excluding the anchors). The distance between the anchors at the base of the structure can be up to 80m.

Compact cross rope suspension tower;

The compact cross rope suspension tower (including stays wires) is approximately 49m wide and 38m high. The conductors are suspended in a triangular configuration and the tower resembles a V-type structure with the top width being 19m wide.

Guyed-V suspension tower;

This structure was developed by Eskom for optimal use with the quad zebra configuration. The guyed-V towers have one large foundation and four guys therefore four smaller foundations. Guyed-V towers provide the best protection from lightning impulses due to the groundwire and cross arm configuration. Tower cross bar helps with the live line maintenance. Problems with guyed - V towers are that they limited to relatively flat terrains and helicopters are needed when cranes restricted.

Self-supporting suspension tower; and

The self-supporting towers consist of a number of steel components that are joined together to form a steel-intensive structure. The tower is approximately 30m high and 20m wide at the apex. The base of the tower is approximately 8.8m wide.

Self-supporting strain tower.

These suspension towers consist of a number of steel components that are joined together to form a steel-intensive structure. The tower is approximately 30m high and 22.5m. These types of structures are typically used at bend point on a transmission line alignment.

e) **No-go alternative**

Authorisation has already been acquired (DEA Reference Number: 12/12/20/1094) for the transmission lines which the tower footing are associated with. This option is therefore ruled out because it would neither supply the projected demand for electricity nor optimise the existing infrastructure on the network.

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:

Alternative A1¹ (preferred activity alternative)

Alternative A2 (if any)

Alternative A3 (if any)

Size of the activity:

<p>The power line route which has already been authorised is approximately 120km long. The tower footings associated with the power lines will occur approximately every 400m along the 120km transmission line. The route transects 31 watercourse crossings and drainage lines.</p>

or, for linear activities:

Power lines:

Route 1 (preferred)

Alternative A2 (if any)

Alternative A3 (if any)

Length of the activity:

<p>The power line route which has already been authorised is 120000m/120km long</p>

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

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

Power lines:

Route 1 (preferred)
 Alternative A2 (if any)
 Alternative A3 (if any)

Size of the site/servitude:

120000m x 55m

4. SITE ACCESS

Does ready access to the site exist?

YES ✓	

If NO, what is the distance over which a new access road will be built

Describe the type of access road planned:

Maximum use of both the existing servitudes and the existing roads shall be made. All access roads on the servitude must be in accordance to Eskom’s Transmission Specifications – Transmission Line and Towers and Line Construction that was covered under EIA done in 2009 DEA Reference No. 12/12/20/1094.

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).

Please find attached in Appendix A1.

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.

Please find attached in Appendix A2.

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 DWS);
- 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.

Please find attached in Appendix A3.

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.

Please find attached in Appendix B.

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.

Please find attached 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 ✓		Please explain
The power line route has already been approved by DEA (Reference No. 12/12/20/1094). The tower footings are an integral component in construction of the power line. Most of the proposed route passes through privately owned agricultural farm areas. Once in place, the power line is unlikely to significantly disrupt farming activities. Eskom has acquired all servitudes and affected property owners will be permitted to use areas underneath the lines for farming.			
2. Will the activity be in line with the following?			
(a) Provincial Spatial Development Framework (PSDF)	YES ✓		Please explain
The purpose of this line is to integrate the new Bravo Power Station into the Eskom grid to supply additional electricity to the Diepsloot and the Johannesburg north area. Accommodation for the expansion of the population has been set out as a priority in Gauteng. Electricity infrastructure will be a necessity in order for this to occur.			
(b) Urban edge / Edge of Built environment for the area	YES ✓	NO	Please explain
Majority of the urban area falls within the Gauteng province. The approval for the application will not compromise the City of Johannesburg, City of Tshwane and Ekurhuleni Metropolitan Municipality’s Environmental Management Framework (IDP 2015/16). Mitigation measures are proposed for areas of concern which are classified by the Gauteng Conservation Plan (C-Plan).			

<p>(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?).</p>	<p>YES ✓</p>		<p>Please explain</p>
<p>Although the development will occur in Mpumalanga, the benefits of the project will be felt in Gauteng The City of Joburg IDP (2015/2016) has identified the shortage of electricity supply to urban and residential areas of the municipality and addressing electrification backlogs as some of the core challenges. There is inadequate electricity bulk supply and the impact on service delivery and development remains a challenge for these areas. The local municipalities in which the development falls was not taken into consideration as the proposed development will be of little significance to them.</p>			
<p>(d) Approved Structure Plan of the Municipality</p>			<p>Please explain</p>
<p>The proposed project entails electricity infrastructure and is therefore not applicable.</p>			
<p>(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?)</p>	<p>YES ✓</p>		<p>Please explain</p>
<p>One of the objective's of Gauteng's EMF is "to use Ecological Support Area's (as defined in municipal bioregional plans) in spatial planning of urban open space corridors and links within urban areas". The GEMF also states that "From an environmental perspective, power line servitudes create corridors of open space through which linkages to open space nodes can be established". In this regard the powerline route is in line with the EMF adopted by the department.</p>			

<p>(f) Any other Plans (e.g. Guide Plan)</p>	<p>YES ✓</p>		<p>Please explain</p>
<p>The proposed development is aligned with Eskom’s Integrated Strategic Electricity Planning (ISEP) process, which is intended to provide strategic projections of supply-side and demand-side options to be implemented in order to meet long-term load forecasts. It provides the framework for Eskom to investigate a wide range of new supply-side and demand-side technologies with a view to optimising investments and returns.</p>			
<p>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. the proposed development in line with the projects and programmes identified as priorities within the credible IDP)?</p>	<p>YES ✓</p>		<p>Please explain</p>
<p>The proposed development is in line with the National Development Plan. The power line with which the tower footings are associated will only supply additional electricity to the Diepsloot and the Johannesburg north area. Thus the SDF of the Local Municipalities in which the proposed development falls was not taken into consideration as the proposed development will be of little significance to these Municipalities.</p>			
<p>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.)</p>			<p>Please explain</p>
<p>The benefits of the project will be felt in Gauteng, specifically in Diepsloot and the Johannesburg North Area. The City of Joburg IDP (2015/2016) has identified the shortage of electricity supply to urban and residential areas of the municipality and addressing electrification backlogs as some of the core challenges. There is inadequate electricity bulk supply and the impact on service delivery and development remains a challenge for these areas. The local municipalities in which the development falls was not taken into consideration as the proposed development will be of little significance to them</p>			
<p>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.)</p>	<p>YES ✓</p>		<p>Please explain</p>
<p>Authorisation for the power line which this application is associated with, has already acquired (DEA Reference Number: 12/12/20/1094) thus additional capacity be created to cater for the development. Furthermore, construction and operation of tower footings and associated power line will not require any capacity increase for services such as water and sanitation from relevant Municipalities.</p>			

<p>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.)</p>	<p>YES ✓</p>		<p>Please explain</p>
<p>Authorisation for the power line which this application is associated with has already been acquired (DEA Reference Number : 12/12/20/1094) thus this development should not affect the infrastructure planning of the municipality The proposed project is the construction of tower footing associated with the already approved power lines which is aimed at improving the quality of supply. It will not require any capacity for services such as water and sanitation from relevant Municipalities. It will however improve the quality of supply.</p>			
<p>7. Is this project part of a national programme to address an issue of national concern or importance?</p>	<p>YES ✓</p>		<p>Please explain</p>
<p>The upgrading of the electricity network and infrastructure especially the substations and transmission and distribution lines is a strategic priority towards addressing the shortage of electricity in South Africa.</p>			
<p>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.)</p>	<p>YES ✓</p>		<p>Please explain</p>
<p>Although the proposed development traverses privately owned agricultural lands, the location of the sites is strategically selected so that it is within or next to the centre of the load demand identified by Eskom</p>			
<p>9. Is the development the best practicable environmental option for this land/ site?</p>	<p>YES ✓</p>		<p>Please explain</p>
<p>The powerline with which the tower footings are associated has already been approved (DEA Reference Number: 12/12/20/1094). Most of the proposed route passes through privately owned farm land. Once in place, the power line is unlikely to significantly disrupt farming or other activities. Eskom will acquire all servitudes, affected property owners will be permitted to use areas underneath the lines for farming. No buildings and tall structures or tall trees may be allowed below the lines.</p>			
<p>10. Will the benefits of the proposed land use/development outweigh the negative impacts of it?</p>	<p>YES ✓</p>		<p>Please explain</p>
<p>The main negative impacts of the proposed development are the visual impacts and potential impacts on avifauna. The negative impacts of the proposed development are low. The long-term, regional benefits of reliable power supply will outweigh the negative impacts of the proposed tower footings associated with the power lines.</p>			

11. Will the proposed land use/development set a precedent for similar activities in the area (local municipality)?	YES ✓		Please explain
The placement of power lines in the area will set a precedent for the development of more power line connections and service infrastructure as this power line with which the tower footing are associated form part of a bigger project by Eskom known as the Bravo integration Project.			
12. Will any person's rights be negatively affected by the proposed activity/ies?		NO ✓	Please explain
This activity will not negatively affect any person's rights. The servitude rights for the line have been acquired by Eskom and negotiations with landowners are complete. Financial compensation has been paid to all affected parties/landowners. Authorisation for the power line has already been acquired (DEA Reference Number : 12/12/20/1094).			
13. Will the proposed activity/ies compromise the "urban edge" as defined by the local municipality?		NO ✓	Please explain
The proposed project takes place in an area outside the urban edge. The urban edge will not be compromised.			
14. Will the proposed activity/ies contribute to any of the 17 Strategic Integrated Projects (SIPS)?	YES ✓		Please explain
<p>The project will conform to the objectives of the following SIP:</p> <p><u>SIP 6: Integrated Municipal Infrastructure Project</u> Develop a national capacity to assist the 23 least resourced districts (17 million people) to address all the maintenance backlogs and upgrades required in water, electricity and sanitation bulk infrastructure.</p> <p><u>SIP 10: Electricity transmission and distribution for all</u> Expand the transmission and distribution network to address historical imbalances, provide access to electricity for all and support economic development. 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.</p>			
15. What will the benefits be to society in general and to the local communities?	Please explain		
Although the development will occur in Mpumalanga, the benefits of the project will be felt in Gauteng. The benefits of the project will be felt in Gauteng, specifically in Diepsloot and the Johannesburg North Area. The benefit includes the provision of a reliable electricity network and provision of capacity for new and existing users, allowing for further growth and development in these areas. The project will also provide electricity to the informal settlements surrounding the Diepsloot area and will serve in addressing current inequalities in access to electricity.			

16. Any other need and desirability considerations related to the proposed activity?	Please explain
<p>The purpose of the line with which this application is associated is to integrate the new Bravo Power Station into the Eskom grid to supply additional electricity to the Diepsloot and the Johannesburg north area which are consistently facing development pressures. One of the aspects that do place pressure on these areas are the existence of informal settlements in Diepsloot and other areas within Johannesburg North, which means that pressure begins to emerge for the formalisation of these informal settlements into formal townships. A number of housing initiatives are already underway in these areas which in turn require the development of supporting social facilities such as the provision of electricity.</p>	
17. How does the project fit into the National Development Plan for 2030?	Please explain
<p>Chapter 4 of the National Development Plan 2030 on Economic Infrastructure has outlined how the proportion of people with access to the electricity grid should rise to at least 90 percent by 2030, with non-grid options available for the rest.</p> <p>Action 20 of The National Development Plan also considers the Ring-fencing the electricity distribution businesses of the 12 largest municipalities (which account for 80 percent of supply), resolve maintenance and refurbishment backlogs and develop a financing plan, alongside investment in human capital.</p>	
18. Please describe how the general objectives of Integrated Environmental Management as set out in section 23 of NEMA have been taken into account.	
<p>The general objective of the Integrated Environmental Management has been taken into consideration for this Basic Assessment Report by means of identifying, predicting evaluating the actual and potential impacts on the environment, social economic conditions and cultural heritage component. The risks, consequences and alternatives as well as option for mitigation of activities have also been considered with a view to minimise negative impacts, maximise benefits, and promote compliance with the principles of environmental management.</p>	

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 NEMA have been taken into account. The principles pertinent to this activity are discussed below:

- The development is socially, economically and environmentally sustainable in that the proposed project will create job opportunities, therefore helping in meeting some of the social needs.
- Development must be socially, environmentally and economically sustainable. Where disturbance of ecosystems, loss of biodiversity, pollution and degradation, and landscapes and sites that constitute the nation’s cultural heritage cannot be avoided, are minimised and remedied. Although the activity has little to no impact on these, they have been considered, and mitigation measures have been put in place.
- Where waste cannot be avoided, it is minimised and remedied through the implementation and adherence to the EMPr.
- The negative impacts on the environment and on people’s environmental rights have been anticipated and prevented, and where they cannot be prevented, are minimised and mitigated.
- The interests, needs and values of all interested and affected parties have been taken into account in any decisions through the Public Participation Process.
- The social, economic and environmental impacts of the activity have been considered, assessed and evaluated, including the disadvantages and benefits.

The effects of decisions on all aspects of the environment and all people in the environment have been taken into account, by pursuing what is considered the best practicable environmental option.

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
<p>The National Environmental Management Act (NEMA), (Act No 107 of 1998)</p>	<p>The requirement to obtain environmental authorisation for certain development proposals or projects is legislated in NEMA. Any activity which is listed in Listing Notice 1 - Listing Notice 3 of these EIA Regulations is subject to environmental authorisation. The proposed project triggers activities in Listing Notice 1 and is subject to Basic Assessment. Chapter 5 of NEMA focuses on promoting</p>	<p>Department of Environmental Affairs (DEA)</p>	<p>1998</p>

	<p>the use of appropriate environmental tools, primarily environmental and social impact assessment procedures, as a means to achieve the goal of integrated environmental management. The EIA Regulations, made under section 24 of NEMA, are intended to integrate and facilitate environmental impact management with development activities or processes, in line with sustainable development objectives. They provide a method for the investigation, assessment and communication of the potential consequences or impacts of listed activities</p>		
<p>Environmental Impact Assessment Regulations of 2014 (Government Notice No. R. 982,983,984 and 985 as amended</p>	<p>The purpose of the EIA Regulations is to ensure that the impacts of activities for which environmental authorisations are necessary are properly assessed; so that the positive environmental impacts are enhanced; the activities which may have an unacceptable, negative effect on the environment are not authorised and those which are suitable for authorisation are approved, with conditions to avoid or mitigate possible detrimental effects. The proposed project triggers activities in Listing Notice 1 of GN 983.</p>	<p>Department of Environmental Affairs (DEA)</p>	<p>2014</p>
<p>Constitution of the Republic of South Africa Act No. (106 of 1996)</p>	<p>The Constitution is the supreme Law in South Africa. Chapter 2 of the Constitution contains the Bill of Rights including section 24 which provides that: "Everyone has the right- (a) to an environment that is not harmful to their health or</p>	<p>South African Government</p>	<p>1996</p>

	<p>well-being; and (b) to have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that- (i) prevent pollution and ecological degradation; (ii) promote conservation; and (iii) secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development." Other rights protected by the Constitution relevant to an application for environmental authorisation include the right to administrative justice and to information, and rights, known as "socio-economic rights", such as access to adequate power supply. The right to administrative justice is relevant to applications for environmental authorisations because decisions made by the competent authority in the course of the EIA process (such as the decision to accept a basic assessment report) as well as a final decision on the application fall into the definition of "administrative action"</p>		
<p>The National Water Act, 1998 (Act No 36 of 1998)</p>	<p>The National Water Act, 1998 (Act No. 36 of 1998) mandates the Minister of Water Affairs to ensure that water is protected, used, developed, conserved, managed and controlled in a sustainable and equitable manner for the benefit of all persons. For this project the DWs would, make the decision based on matters directly</p>	<p>Department of Water and Sanitation</p>	<p>1998</p>

	related to water resources as the tower footing are on watercourse crossings and drainage lines . The NWA will provide guidance as to the management and protection of the a water crossings and drainage pathways on site in adherence to the standards set by the Department of Water and Sanitation.		
National Heritage Resources Act (Act 25 of 1999)	In the construction phase of the proposed project has potential for cultural and heritage resources to be uncovered, SAHRA’s would need to be contacted to assist to identify, manage, protect, preserve and conserve heritage resources that have significance.	SAHRA	1999
Occupational Health and Safety Act, 1993 (Act No. 85 of 1993)	This Act will be enforced during the construction and it serves to mitigate any potentially negative impacts the proposed project may have on any of the labour force.	Department of Labour	1993
Noise Regulations 1182 and 1183 under the Environment Conservation Act (Act 73 of 1989)	The construction phase is likely to result in noise generation and limits set under this regulation should be adhered to	National Department of Environmental Affairs (DEA)	1989

12. WASTE, EFFLUENT, EMISSION AND NOISE MANAGEMENT

a) Solid waste management

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

YES ✓	
	1000m ³

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

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

Construction rubble/ solid waste will be temporarily stored on site in designated waste skips and then removed by an appropriate waste contractor appointed by the main construction contractor to an approved landfill site. Soil excavated from trench and earth works during the grading of the power line will be used as backfill.

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

General waste removed from site will be disposed of at the nearest registered Landfill Site. Safe disposal certificates will be obtained and kept on site for the duration of the construction phase.

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

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

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

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

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

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?

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:	[Redacted]		
Contact person:	[Redacted]		
Postal address:	[Redacted]		
Postal code:	[Redacted]		
Telephone:	Cell:	[Redacted]	
E-mail:	Fax:	[Redacted]	

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

[Redacted]

c) Emissions into the atmosphere

Will the activity release emissions into the atmosphere other than exhaust emissions and dust associated with construction phase activities? NO

If YES, is it controlled by any legislation of any sphere of government?

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:

[Redacted]

d) Waste permit

[Redacted] 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 NO

If YES, is it controlled by any legislation of any sphere of government? YES NO

Describe the noise in terms of type and level:

While no noise will be generated by the activity during the operational phase, noise will be generated by construction activities. Construction activities will be temporary and will take place between the hours of 7h30 and 18h00 to avoid noise disturbance. All construction equipment will be maintained and kept in good working order to minimise associated noise impacts. If required, adequate noise suppression measures (i.e. screens, etc.) may be erected around the point source of construction and/or operational noise pollution to reduce noise to an acceptable level

13. WATER USE

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

Municipal <input checked="" type="checkbox"/>			
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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:

Does the activity require a water use authorisation (general authorisation or water use license) from the Department of Water Affairs?

YES <input checked="" type="checkbox"/>	

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

A Water Use License will be submitted with the Final Basic Assessment Report.

14. ENERGY EFFICIENCY

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

The power line does not use energy. Diesel generators will be utilised for the provision of electricity where electricity connection is not readily available.
Fuel and Oil - Delivery Vehicles and other construction equipment will use petrol, diesel and oil. Use and number of such vehicles and machinery will be restricted to that which is absolutely necessary for the construction activities and deliveries. Following construction, only small quantities of fuel and oil will be used for periodic inspections and maintenance

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

SECTION B: SITE/AREA/PROPERTY DESCRIPTION

Important notes:

- 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):

Authorisation already acquired for the power line route (DEA Reference number: 12/12/20/1094). The tower footings within a watercourse are the areas being assessed in this Basic Assessment and therefore the site will be similar in nature along the route.

- 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 NO

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.

The powerline spans over Mpumalanga and Gauteng Province, [Please refer to Appendix J2](#) for the list of Farm names, numbers, portion numbers and SG21 Codes

Property description/physical address:

Province	Gauteng and Mpumalanga
District/Metropolitan Municipality	Gauteng: City of Tshwane, City of Johannesburg, Ekurhuleni Mpumalanga: Nkangala District Municipality
Local Municipality	Mpumalanga: Victor Khanye (Delmas)
Ward Number(s)	Victor Khanye (Delams) – 9 City of Tshwane – 48, 65, 77, 91, 101, 102, 105 City of Johannesburg – 92, 96, 112, 113 Ekurhuleni – 1, 89
Farm name, number and Portion number	Please refer to Appendix J2
SG Code	Please refer to Appendix J2

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:

cultivated fields (maize), grazed grasslands, urban centres, coal mines and power stations

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? YES NO

1. GRADIENT OF THE SITE

Indicate the general gradient of the site.

Powerline Route 1:

Flat ✓	1:50 – 1:20 ✓					
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Applicable across the line route

Alternative S2 (if any):

--	--	--	--	--	--	--

Alternative S3 (if any):

--	--	--	--	--	--	--

2. LOCATION IN LANDSCAPE

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

Applicable across the line route

2.1 Ridgeline	<input type="checkbox"/>	2.4 Closed valley	<input type="checkbox"/>	2.7 Undulating plain / low hills	<input checked="" type="checkbox"/>
2.2 Plateau	<input type="checkbox"/>	2.5 Open valley	<input type="checkbox"/>	2.8 Dune	<input type="checkbox"/>
2.3 Side slope of hill/mountain	<input type="checkbox"/>	2.6 Plain	<input type="checkbox"/>	2.9 Seafront	<input type="checkbox"/>
2.10 At sea	<input type="checkbox"/>				

3. GROUNDWATER, SOIL AND GEOLOGICAL STABILITY OF THE SITE

Applicable across the line route

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

	Powerline Route A1:	Alternative S2 (if any):	Alternative S3 (if any):
Shallow water table (less than 1.5m deep)	NO ✓	YES NO	YES NO
Dolomite, sinkhole or doline areas	YES ✓	YES NO	YES NO

Seasonally wet soils (often close to water bodies)	YES ✓		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%)	YES ✓		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.

The geology towards the western section of the proposed power lines, including the Lulamisa substation, is dominated by Archean granite, Meinhardskraal granite, Sand River gneiss and gneiss of the Halfway House granite. The central part of the route overlies large sections of dolomite. The geology of the central section of the proposed power lines includes formations of the Transvaal, Rooiberg and Griqualand-West super groups and groups, while the eastern section of the of the proposed power lines is dominated by formations of the Dwyka group (DDPLG, 2002).

4. GROUND COVER

Applicable across the line route

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 ✓				
	Cultivated land ✓			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.

Several plant species of conservation concern were previously recorded from the grids 2628BB, 2629 AC and 2629 CA, listed by SANBI. This is because the powerline is long and crosses several vegetation types and habitats. Leucadendron and Encaphalartos sp were probable noted from gardens, as these species do not occur in this area, Encephalartos lanatus occurs in the Middelburg area but not within the study area transect. Species that were recorded include Boophone disticha and Hypoxis hemerocallidea. It is however possible that more species are present in the general area, but less

probable within the narrow servitude of the powerline. There is suitable habitat on the site for many of these species. The Declining species (*Hypoxis hemerocallidea* and *Boophone disticha*) has not yet reached a threshold of concern and therefore limited loss of habitat may be permitted. (Driver et al., 2009).

No Nationally Protected tree (National Forests Act 1998) or NEMBA plant species (Government Notice No. 2007, National Environmental Management: Biodiversity Act, 2004) occur within the area.

[Please refer to Appendix D4 for the Vegetation specialist report](#)

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	YES ✓		
Seasonal Wetland	YES ✓		
Artificial Wetland	YES ✓		
Estuarine / Lagoonal wetland		NO ✓	

If any of the boxes marked YES or UNSURE is ticked, please provide a description of the relevant watercourse.

The powerline crosses 6 Quaternary Catchments (A21C, A21B, A21A, A23A, B20D and B20F). Several perennial and non-perennial watercourses are crossed by the proposed powerline (See Figure 2 below). The majority of the water drains in two main directions. The central to western parts of the line drain northwest towards the Hartbeespoort Dam and the Crocodile River. This section of the lines falls in the 3rd, Crocodile West, Marico Water Management Area. The remainder drains towards the northeast into the Olifants River and falls within the 4th (Olifants) Water Management Area. Important rivers crossed by the line, from west to east are: Jukskei River; Rietvlei River; Hennops River; Pienaars River; Honde River; Bronkhortspruit and the Wilge River.

A total of 31 watercourses are crossed by the proposed line. The total amount of wetlands can be broken down into 8 floodplain wetlands, 20 unchannelled valley bottom wetlands, 2 depression wetlands and one riparian area.

Present Ecological State

The Present Ecological State (PES) was calculated for all of the wetlands likely to be impacted by the proposed construction of the powerline. Some other wetlands occurring within the 500 m corridor of the proposed powerline have been delineated but no PES score has been calculated as it either deemed unlikely to be impacted or is artificial. All of the wetlands recorded on site have been impacted to some degree. PES scores calculated in this assessment ranged from B – High to D – Low/Marginal. The predominant land use is generally small holdings and related activities as well as some small scale farming. Urbanisation is the main cause of vegetation and hydrological degradation and thus changes in the run-off characteristics of the landscape and thus the hydrology characteristics of wetlands in this region. The majority of the wetlands continue to support hydrological and biodiversity functions to varying degrees. It is important to note that in general wetlands and riparian areas are important ecological corridor and breeding habitat for numerous faunal species.

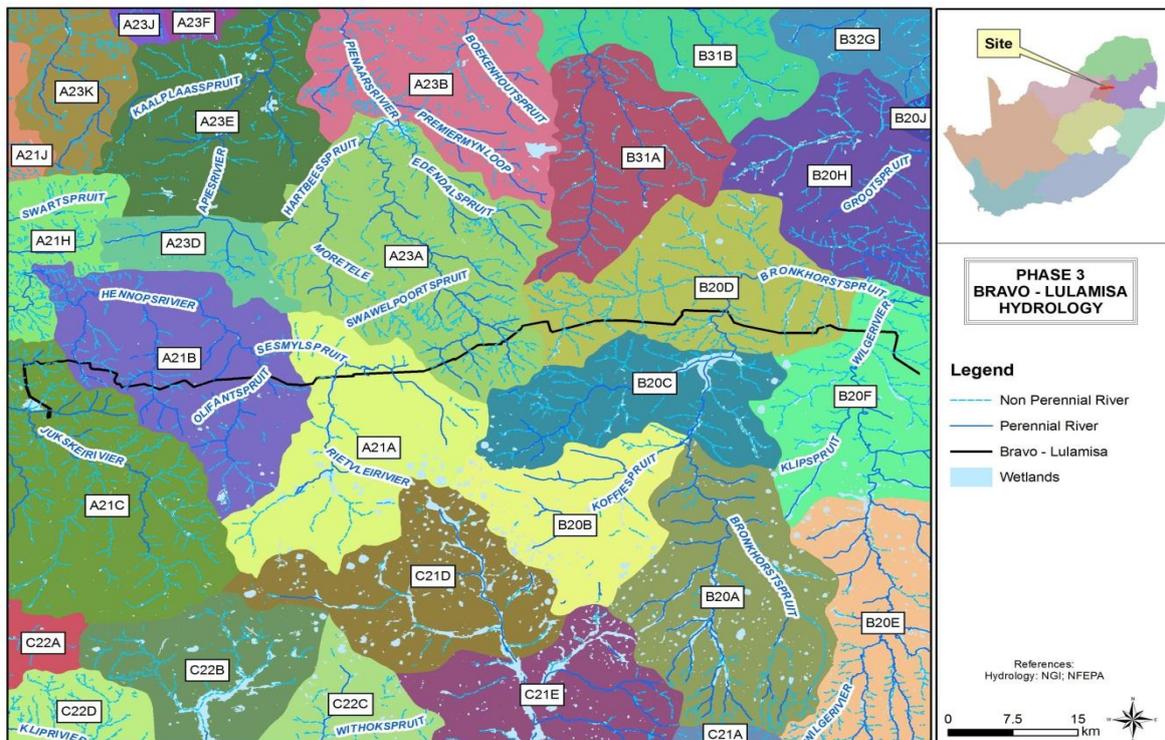


Figure 2: Hydrology of the study site and surrounds as per existing spatial layers.

6. LAND USE CHARACTER OF SURROUNDING AREA

Applicable across the line route

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)

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:

Railway line: The powerline spans over a railway track in Pinedene and Kleinsonderhout. Pointsmen and/or construction vehicle control mechanisms are will have to be utilised during construction.

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:



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:



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

Applicable across the line route

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 ✓

The line runs along a section of the border of the Diepsloot Nature Reserve and crosses the Rietvlei Nature Reserve. The Gauteng Conservation Plan (CPlan v 3.3, GDARD 2011) and the Mpumalanga Biodiversity Conservation plan: Critical Biodiversity Areas (Terrestrial) Map show the line traversing

primarily areas with intermediate to low sensitivity although areas classified as Important/Highly Significant, Ecological Support Areas and Important and Necessary are relevant (Figure 3 below).

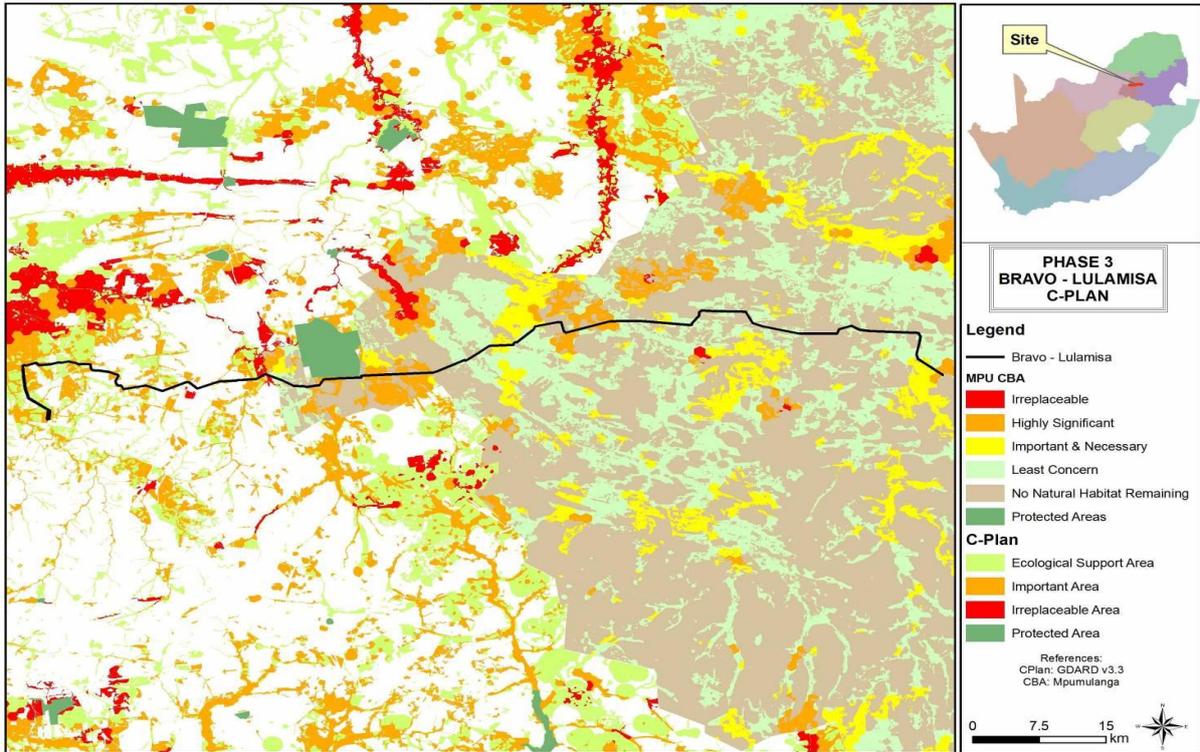


Figure 3: C-Plan of the Bravo 3 Line Route

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:

YES ✓	

According to the heritage specialist studies a large number of sites are known to exist in the study area. However, only those that were within 600m of the proposed power line are presented as it is viewed that the line would probably not deviate that much from the proposed route. Some informal burial places as well as old settlement sites (homesteads) occur in close proximity of the proposed power line route. These should either be avoided or professionally investigated prior to the construction of the power line.

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:

The heritage specialist identified that the region does have a high potential for heritage sites:

- Only a few sites dating to the Stone Age have been documented in the region; no reports of substantial surface finds of stone tools are known;
- Iron Age settlement took place on a large scale, mostly situated in the mountain ranges, e.g. Magaliesberg and Bronberg. These sites are characterised by stone walling and mostly date to the Late Iron Age.
- As the region is densely populated, a wide range of heritage dating to the recent past occurs in the region. These include farmsteads, formal and informal burial sites as well as elements of infrastructure development, e.g. bridges.

During the field survey it was determined that a significant number of heritage sites and features that were identified in the past, has since disappeared, mostly due to development that took place in its vicinity.

It is recommended by the heritage specialist that the proposed development be allowed to continue on acceptance of the proposed mitigation measures outlined in Appendix D2. Should archaeological sites or graves be exposed during construction work, it must immediately be reported to a heritage practitioner so that an investigation and evaluation of the finds can be made. Authorisation has been acquired DEA Reference No. 12/12/20/1094

[Please Refer to Appendix D2 for Heritage Specialist Report](#)

Will any building or structure older than 60 years be affected in any way?

	NO ✓
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Is it necessary to apply for a permit in terms of the National Heritage Resources Act, 1999 (Act 25 of 1999)?

	NO ✓
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If YES, please provide proof that this permit application has been submitted to SAHRA or the relevant provincial authority.

8. SOCIO-ECONOMIC CHARACTER

a) Local Municipality

Please provide details on the socio-economic character of the local municipality in which the proposed site(s) are situated.

[Please refer to Appendix D6 for the Social Specialist Report](#)

Level of unemployment:

<p>City of Johannesburg</p>	<p>Census 2011 quotes an official unemployment rate in South Africa of 29.8% and, at the expanded definition at 40%. The highest unemployment rate is among black Africans – the expanded definition of the unemployment gave a rate of 52.9% for African women and 39.8% for African men. The unemployment rate amongst coloured women was 34.4% and for Indian women it was 23%. In contrast, the expanded unemployment rate among white men was 8.1% and 12.5% among white women. These national statistics also reflect similar challenges in the City of Johannesburg.</p>
<p>City of Tshwane</p>	<p>Unemployment figures in Tshwane in the past 10 years reveal that unemployment peaked in 2002, reaching 321 478 unemployed people, and eventually dropped down to the lowest figures in 2008. For a number of reasons including the 2008/2009 recession, the number of unemployed people increased from 212 671 in 2008 to 272 450 in 2010, representing a 28.1% increase over that period. However, the City recorded the lowest unemployment rate of 14% in 2010 when compared to other municipalities in the Province.</p>
<p>Ekurhuleni</p>	<p>There are 319 000 economically active people (employed or unemployed but looking for work) and, of these, 109 000 people are unemployed. (Stats SA, 2011).</p>

<p>Victor Khanye (Delmas) Local Municipality</p>	<p>The overall employment levels within the Local Municipality are relatively high (71.8%), of which the total employment increase by 14.3% from 57.5% in 2001 to 71.8% in 2011. Similarly, unemployment decreased from 42.5% in 2001 to 28.2% in 2011. This is a good indication of a positive local economy. It is important to note that Victor Khanye contributes 10% of the daily work force commuting between Mpumalanga and Gauteng. Of the commuting population, 75% work in the neighbouring Ekurhuleni Metro. The EAP segment of the Victor Khanye LM is approximately 59.7% of which 71.8% is employed. The Eloff has the lowest EAP segment of approximately 54.2% and the highest employment level (85.6%).</p>
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Economic profile of local municipality:

<p>City of Johannesburg</p>	<p>The contribution of each metro to the national economy has remained fairly constant since 1997. However, CoJ and CoT are the only metros that have managed to increase their shares in the national economy since 1997. It is projected that CoJ's share will increase to 17.2% in the mid-term. CoJ contributes the most to national output.</p>
<p>City of Tshwane</p>	<p>Domestically, the City of Tshwane is one of the eight metropolitan municipalities. It is the second wealthiest municipality in terms of GDP per capita. Tshwane's regional output at constant prices was valued around R200 billion in 2013 contributing about 28% of Gauteng's output and about 10% of South Africa's output that year. Tshwane was only outstripped by the City of Johannesburg, which contributed 17% to South Africa's output that same year. The City's economy is services and finance driven. A breakdown by activity in 2012 reveals that, given the high concentration of government departments in Tshwane, about 30% of the economy was engaged in the government, social and community services sector. This is followed by finance and business services (23,7%). Wholesale and retail trade, as well as manufacturing activity further make important contributions to the City's economic output, accounting for 15, 4% and 11, 2% respectively.</p>
<p>Ekurhuleni</p>	<p>The finance sector is the largest contributor to the economy in Ekurhuleni, with the manufacturing and</p>

	<p>community services sector in second place. However, the construction sector has the fastest growth rate, followed by the finance and transport sector.</p> <p>The economic sector that recorded the largest employment number in 2012 was the trade sector with a total of 32 400 or 21.5% of the total employment. The finance sector, with a total of 27 400 (18.2%) employed the second highest relative to the rest of the sectors. The mining sector with 616 (0.4%) employed the least number of people, just less than the electricity sector with 938 (0.6%) people employed.</p>
<p>Victor Khanye (Delmas) Local Municipality</p>	<p>According to the Victor Khanye IDP (2016/17) the Municipality Gross Domestic Product (GDP) is forecast to grow by 3.4% per annum over up to and including 2016, although this is lower than the District and Province projections. The forecast is very optimistic if we consider that the historic growth rate in the period 1996-2011 remained relatively low at 2.0% per annum.</p> <p>Agriculture, transport, community services, finance and mining will be the main contributors to the Victor Khanye Local Municipality economic growth in the period up to 2016. The municipality is a major maize producing area. Annual maize production is calculated at between 230 000 and 250 000 metric tons. Mining activities are concentrated on coal and silica. About 3 million metric tons of coal and 2 million metric tons of silica are mined annually in the municipal area.</p> <p>With respect to Gross Value Added (GVA) - a measure in economic terms of the value of goods and services produced in an area, industry or sector of an economy - the Victor Khanye Local Municipality contribution to the Mpumalanga province is reflected at 2,0% in 2011 at an estimated value of 3,4 billion.</p>

Level of education:

<p>City of Johannesburg</p>	<p>The most rapidly growing and most flooded category is the matric-only category, which implies that most individuals manage to complete their secondary education. In 1996, 7.8% of CoJ's population had no schooling at all and by 2011, the proportion had fallen</p>
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	to only 2.9%, which shows an improvement in the level of education. Functional illiteracy indicates the number of people who have not completed their primary education (Grade 7) and are thus deemed functionally illiterate. Functionally illiterate persons are assumed to have no reading and writing skills, thus they are classified as not being able to manage daily life and employment (Stats SA, 2013c). Most individuals in this category are skilled in manual labour. There was an increase in persons who cannot read or write in Region A from 1996 to 2011. Most individuals in these areas are from previously disadvantaged homes and they come to the city at very tender ages to seek employment. Very few return to school and most will work in low income jobs for survival
City of Tshwane	As per the 2011 Census estimates, 25 per cent of Tshwane’s population are matriculants; whilst 3,7 per cent of the population has no education.
Ekurhuleni	Of those aged 20 years and older, 3,3% have completed primary school, 35,3% have some secondary education, 35,5% have completed matric and 14,6% have some form of higher education (Statssa, 2011).
Victor Khanye (Delmas) Local Municipality	Victor Khanye Local Municipality experienced an increase in the highest level of education from 2001 to 2011 in the categories Secondary (Grade 8-12) (from 30.1% in 2001 to 46.2% in 2011) and Higher (3.1% in 2001 to 5.5% in 2011). For the same time period the following education categories declines; Primary (grade 1-7) (from 35.1% in 2001 to 25.2% in 2011) and no Schooling (from 19.5% in 2001 to 8.6% in 2011).

b) Socio-economic value of the activity

- What is the expected capital value of the activity on completion?
- What is the expected yearly income that will be generated by or as a result of the activity?
- Will the activity contribute to service infrastructure?
- Is the activity a public amenity?

Unknown	
Unknown	
YES ✓	
YES ✓	

<p>How many new employment opportunities will be created in the development and construction phase of the activity/ies?</p>	<p>Eskom undertakes an open tendering process to employ suitable contractors to carry out the construction phase of the development. Contractors are required to employ local unskilled labourers for non-specialized work</p>
<p>What is the expected value of the employment opportunities during the development and construction phase?</p>	<p>This can only be established once the contractor is appointed</p>
<p>What percentage of this will accrue to previously disadvantaged individuals? How many permanent new employment opportunities will be created during the operational phase of the activity?</p>	<p>+80% None. Eskom will maintain the power line once constructed</p>
<p>What is the expected current value of the employment opportunities during the first 10 years?</p>	<p>Nil</p>
<p>What percentage of this will accrue to previously disadvantaged individuals?</p>	<p>Nil</p>

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.

Please refer to Appendix D4 and D5 for the Vegetation and Fauna Specialist Report respectively

- 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)	The majority of the proposed lines in Gauteng are located on areas classified as 'Ecological Support Areas' and 'Important Areas' as well as several sections that is not currently classified. The line runs along a section of the border of the Diepsloot Nature Reserve and crosses the Rietvlei Nature Reserve. The Gauteng Conservation Plan (CPlan v 3.3, GDARD 2011) and the Mpumalanga Biodiversity Sector Plan (Lotter et al, 2015) show the line traversing primarily areas with intermediate to low sensitivity although areas classified as Important/Highly Significant, Ecological Support Areas and Important and Necessary are relevant.

- 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).
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<p>Natural</p>	<p>50%</p>	<p>The entire servitude within which the tower footing will be constructed is located within 7 regional vegetation types, namely; Egori Granite Grassland, Carletonville Dolomite Grassland, Rand Highveld Grassland, Andesite Mountain Bushveld, Marikana Thornveld, Gold Reef Mountain Bushveld, Eastern Highveld Grassland (See Appendix A2)</p>
<p>Near Natural (includes areas with low to moderate level of alien invasive plants)</p>	<p>%10</p>	<p>Some alien woody plants were found on the site. Locally, especially along the spruit and in developed areas, alien invader trees are present. Species listed as declared invasive plants (Henderson 2001) that should be removed and controlled (Conservation of Agricultural Resources Act (Act 43 of 1983) include:</p> <ul style="list-style-type: none"> • Eucalyptus sp • Acacia mearnsii / Acacia dealbata • Populus x canescens • Populus alba • Solanum mauritianum <p>The ever present Tagetes minuta, Bidens bipinnata and a few other weeds were recorded from the site.</p>
<p>Degraded (includes areas heavily invaded by alien plants)</p>	<p>0%</p>	
<p>Transformed (includes cultivation, dams, urban, plantation, roads, etc)</p>	<p>%40</p>	<p>The site is dominant of cultivated land, grazed grasslands, urban centres, coal mines and power stations due to the farming practices that occur along the route. The route also traverses numerous farm portions, Hence, transformation of the area.</p>

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		Aquatic Ecosystems			
Ecosystem threat status as per the National Environmental Management: Biodiversity Act (Act No. 10 of 2004)	Critical ✓	Wetland (including rivers, depressions, channelled and unchannelled wetlands, flats, seeps pans, and artificial wetlands)	Estuary	Coastline	NO ✓
	Endangered ✓				
	Vulnerable ✓				
	Least Threatened ✓				
YES ✓				NO ✓	NO ✓

Conservation status as indicated by the National Biodiversity Assessment (SANBI, 2011) shows that areas in the west are endangered and Critically Endangered (with little Least Concern) while the eastern area is mainly classified as Vulnerable (See Figure 4 below).

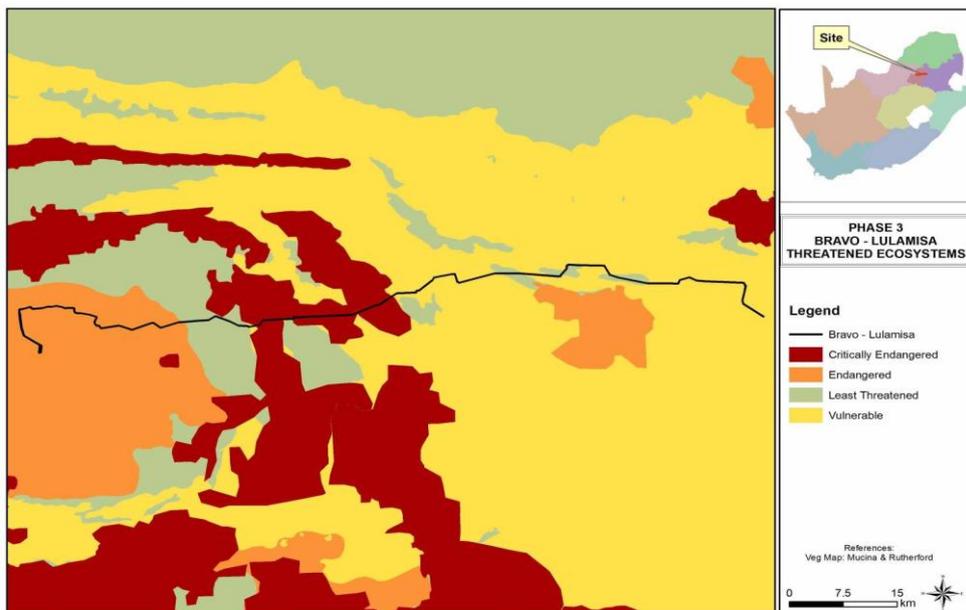


Figure 4: Threatened Ecosystems along the proposed power line transect

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)

Vegetation

The regional vegetation classification (Mucina & Rutherford, 2006) indicated that 7 different vegetation types could potentially be influenced by the powerline development (see figure 5 below). These vegetation types and their conservation status are listed below:

Vegetation Type	Conservation Status
Egoli Granite Grassland	Endangered
Carletonville Dolomite Grassland	Vulnerable
Rand Highveld Grassland	Endangered
Andesite Mountain Bushveld	Least Threatened
Marikana Thornveld	Endangered
Gold Reef Mountain Bushveld	Least threatened
Eastern Highveld Grassland	Endangered

Eleven mapping units were identified along the transect, namely:

- Spruit and Wetland vegetation
- Rand Highveld Grassland
- Hyparrhenia Grassland on granite
- Disturbed Grassland
- Agriculture
- Transformed Areas
- Small Holdings transformed / disturbed grassland
- Mixed Grassland on dolomite
- Mountain Bushveld on andesite
- Bushveld in Tierpoort valley
- Grassland on quartzite ridges

Several plant species of conservation concern were previously recorded from the grids 2628BB, 2629 AC and 2629 CA, listed by SANBI. This is because the powerline is long and crosses several vegetation types and habitats. *Leucadendron* and *Encaphalartos* sp were probable noted from gardens, as these species do not occur in this area, *Encephalartos lanatus* occurs in the Middelburg area but not within the study area transect. Species that were recorded include *Boophone disticha* and *Hypoxis hemerocallidea*. It is however possible that more of the above species are present in the general area, but less probable within the narrow servitude of the powerline. There is suitable habitat on the site for many of these species. The Declining species (*Hypoxis hemerocallidea* and *Boophone disticha*) has not yet reached a threshold of concern and therefore limited loss of habitat may be permitted. (Driver et al., 2009). No Nationally Protected tree (National Forests Act 1998) or NEMBA plant species (Government Notice No. 2007, National Environmental Management: Biodiversity Act, 2004) occur within the area. No further plant provincially protected by the Mpumalanga Nature Conservation Act, 1998 (Act No. 10 of 1998), were recorded during the survey.

The significance of the impact of the proposed power line on the natural vegetation will be low to medium, as the only areas to be disturbed are the footprints of the pylons. The chances that protected, rare or red data plant

species will be lost or affected are very small and highly improbable. It is usually found that natural grassland vegetation and therefore the plant species are well protected within Eskom’s servitude, under the power lines, as this area is excluded from other developments that can destroy the vegetation. The impact of the proposed power line on the vegetation of the area is considered to be quite low, especially if mitigation measures are implemented (See Appendix J1 for Eskom’s vegetation management).

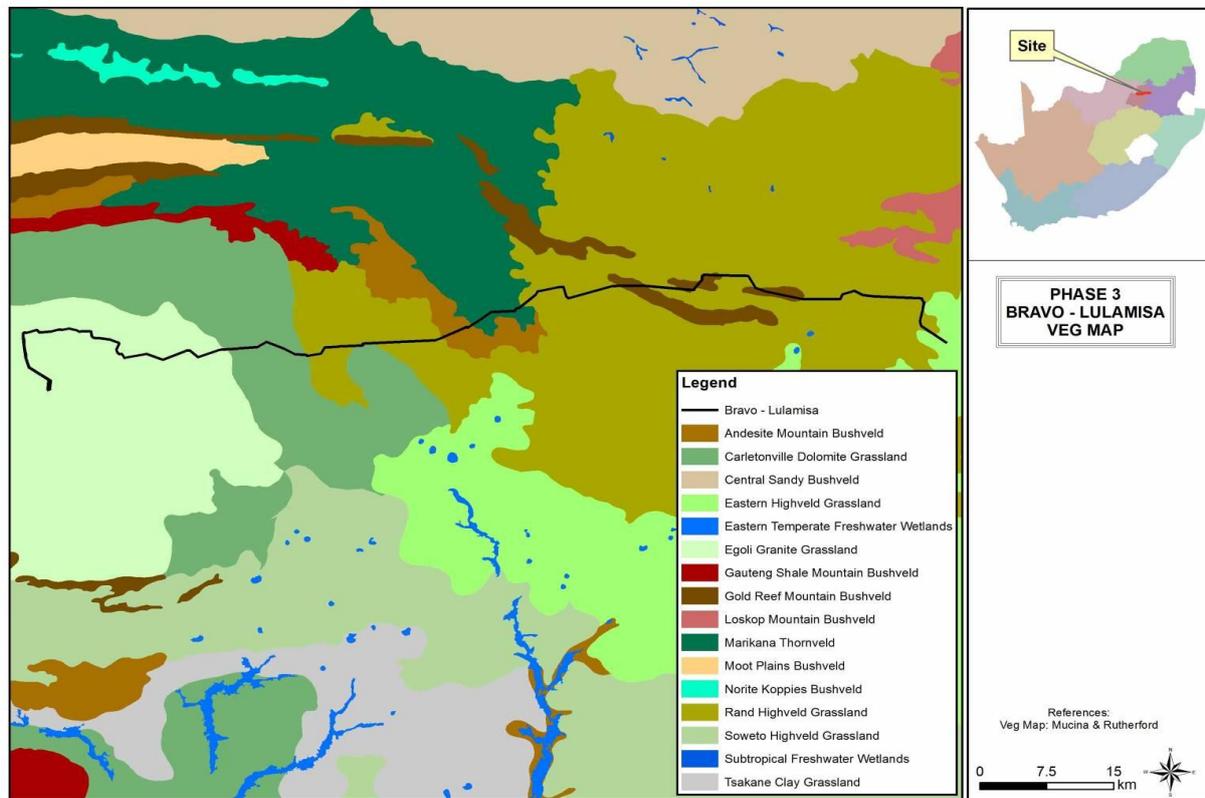


Figure 5: Regional vegetation (Mucina & Rutherford 2006)

Wetland

The powerline crosses 6 Quaternary Catchments (A21C, A21B, A21A, A23A, B20D and B20F). Several perennial and non-perennial watercourses are crossed by the proposed powerline. The majority of the water drains in two main directions. The central to western parts of the line drain northwest towards the Hartbeespoort Dam and the Crocodile River. This section of the lines falls in the 3rd, Crocodile West, Marico Water Management Area. The remainder drains towards the northeast into the Olifants River and falls within the 4th (Olifants) Water Management Area.

Important rivers crossed by the line, from west to east are: Jukskei River; Rietvlei River; Hennops River; Pienaars River; Honde River; Bronkhortspruit and the Wilge River.

A total of 31 watercourse are crossed by the proposed line. The total amount of wetlands can be broken down into 8 floodplain wetlands, 20 unchannelled valley bottom wetlands, 2 depression wetlands and one riparian area.

Due to the length of the proposed line numerous impacts were recorded for various wetlands. The main impacts that were recorded during the site visits include farming and farming related impacts on the wetlands, anthropogenic activities such as urbanisation including infrastructure and exotic vegetation. Headcuts were numerous in some of the unchannelled and channelled valley bottom wetlands. Erosion and sedimentation was also abundant in the unchannelled valley bottom wetlands as well as the rivers.

SECTION C: PUBLIC PARTICIPATION

1. ADVERTISEMENT AND NOTICE

Publication name	Die Beeld(National), Witbank News (Regional), Midrand Reporter(Regional)& Centurion Record(Regional)	
Date published	28 April 2016	
Site notice position	Latitude	Longitude
	25°51'42.60"S	28°51'21.42"E
	25°51'16.08"S	28°41'27.96"E
	25°54'15.90"S	28°31'32.64"E
	25°57'16.57"S	28°14'39.61"E
	25°55'30.35"S	28°26'19.36"E
	25°53'48.63"S	28°26'48.66"E
	25°57'37.71"S	28°22'4.89"E
	25°52'20.34"S	28°56'31.20"E
	25°54'59.71"S	28° 9'48.44"E
	25°55'52.95"S	28° 7'23.85"E
	25°55'27.89"S	28° 7'53.55"E
	25°54'36.65"S	28° 6'3.85"E
	25°55'0.31"S	28° 2'54.97"E
	25°54'6.55"S	28° 2'5.77"E
	25°54'13.59"S	28° 1'25.80"E
	25°54'18.58"S	28° 0'40.29"E
25°53'59.53"S	28° 1'36.39"E	
25°55'59.39"S	27°59'51.18"E	
25°55'34.71"S	27°59'12.62"E	
25°55'22.57"S	28° 0'41.81"E	
Date placed	28 April 2016	

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

Site notices (English and Afrikaans) were placed on 28 April 2016 at the coordinate points provided above. A copy of the advertisement provided in [Appendix E1](#) was placed on 28 April 2016 in Die Beeld, Witbank News, Midrand Reporter & Centurion Record newspapers. Proof of the site notice placement and advertisement is provided in [Appendix E1](#).

2. DETERMINATION OF APPROPRIATE MEASURES

Provide details of the measures taken to include all potential I&APs as required by Regulation 41(2)(e) and 41(6) of GN 982.

The Methodology that has been adopted to ensure a highly consultative and interactive public participation process is outlined below.

Identification of Interested and Affected Parties (I&APs)

The interested and affected parties (I&APs) in and around the study area have been identified and a dedicated stakeholder database for the project has been developed. The stakeholder database has been split in two, i.e. one for the landowners and the other for the various I&APs, NGOs, Government departments, etc. A dedicated stakeholder database for the project is fundamental to the ultimate success of the consultation process.

The proposed project and its BAR processes were announced in the study area in the following ways:

Media Announcements

An English newspaper advertisement was compiled and placed in Die Beeld on 22 April 2016 and an Afrikaans newspaper advertisement was placed in the Witbank News to inform stakeholders about the proposed project and inviting them to participate and register as interested and affected parties ([Please refer Appendix E1](#)).

Land Owner Notification Letters

Letters to land owners introduced the project provided the rationale for the project, the BAR and public participation processes to be followed in the project, etc. The information was available in English and Afrikaans. ([Please refer Appendix E2 for Letters & Distribution List](#)).

Notice boards

English and Afrikaans site notices were fixed at various conspicuous areas along the Power Line route ([Please refer Appendix E1 for Proof of Site Notices](#)).

Key stakeholders (other than organs of state) identified in terms of Regulation 41(2)(b) of GN

982

Title, Name and Surname	Affiliation/ key stakeholder status	Contact details (tel number or e-mail address)
MR MDUDUZI JOSEPH KUNENE	LANDOWNER	013-9320853 082-6872779
HFC VENTER	LANDOWNER	079-2981638
MRS ANNEMARIE VAN NIEKERK	LANDOWNER	082-5779260

MR JOHANNES THEODORUS JANSEN VAN RENSBURG	LANDOWNER	082-8573796
MR ANDRIES PETRUS OLIVIER	LANDOWNER	082-8722469
Please refer to Appendix E5 for the complete IA&P Database		

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.

[Please refer to Appendix E2](#)

3. ISSUES RAISED BY INTERESTED AND AFFECTED PARTIES

Summary of main issues raised by I&APs	Summary of response from EAP
This will be included in the Final BAR	

4. COMMENTS AND RESPONSE REPORT

The practitioner must record all comments received from I&APs and respond to each comment before the Draft 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.

[Please refer to Appendix E3 for Comments received during the invitation to comment and register period.](#)

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
Victor Khanye Local Municipality	Mr Mahlangu	(013) 665 6000	(013) 665 2913	palessam@victorkhanyelm.gov.za	P O Box 6 Delmas 2210
Nkangala District Municipality	Mr Charles Makola	(013) 249 2000	(013) 249 2087	nkosimm@nkangaladm.org.za	P O Box 437 Middelburg 1050
City of Johannesburg	Mr Etienne Alliers	011 355 1434		EtienneA@joburg.org.za	P O Box 1049, JOHANNESBURG, 2000
City of Tshwane	Ms Rudzani Mukheli	012 358 8731		rudzanim@tshwane.gov.za	PO Box 440 or PO Box 6338 Pretoria 0001
Ekurhuleni	Mr Stewart Green	(011) 999 3316/3171		cecilia.rakgoale@ekurhuleni.gov.za or Lillian.kwakwa@ekurhuleni.gov.za	PRIVATE BAG X1069, GERMISTON , 1400

Include proof that the Authorities and Organs of State received written notification of the proposed activities as appendix E4. **Please refer to 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. **Please refer to 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, 2014 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.

Impacts Associated with Kusile – Lulamisa Power Line			
CONSTRUCTION PHASE			
Activity	Impact summary	Significance (after mitigation)	Proposed mitigation
<i>Ecological Impacts: Changes in water flow regime</i>	Direct Impacts: Changing the quantity and fluctuation properties of the watercourse by for example stormwater input, or restricting water flow. The sources of this impacts include the compaction of soil, the removal of vegetation, surface water redirection and construction of infrastructure.	Moderate	<ul style="list-style-type: none"> No activities should take place in the watercourses and associated buffer zone. Where the above is unavoidable, only a pylon footprint and no access roads can be considered. This is subjected to authorization by means of a water use license. Construction in and around watercourses should be restricted to the dry season. A temporary fence or demarcation must be erected around the works area to prevent access to sensitive environs. The works areas generally include the servitude, construction camps, areas where material is stored and the actual footprint of the tower/pylon Prevent pedestrian and vehicular access into the wetland and buffer areas as well as riparian areas. Consider the various methods of stringing and select whichever method(s) that will have the least impact on watercourses e.g. shooting a pilot cable and pull cables with a winch, or flying cables over Stringing should preferably not make use of vehicles in watercourses. If unavoidable, plan stringing activities in wetlands areas to take place within the drier winter months
	Indirect Impacts: Impacts to the flow characteristics of wetlands and riparian areas are likely to be permanent unless rehabilitated.	Moderate	
	Cumulative impacts: Construction activities may result in cumulative impact to the watercourses within the local catchments and beyond. It is very important that protective measures should be put into place and monitored.	Moderate	

			<p>and use equipment with the smallest possible footprint e.g. quad bikes</p> <ul style="list-style-type: none"> • Plan stringing through watercourses to take place at pre-determined points such as where the wetland width (and thus area to be impacted) is the smallest • Access roads and bridges should span the wetland area, without impacting on the permanent or seasonal zones • Formalise access roads and make use of existing roads and tracks where feasible, rather than creating new routes through naturally vegetated areas. • Management of on-site water use and prevent stormwater or contaminated water directly entering the watercourse • Management of point discharges • Planning of construction site must include eventual rehabilitation / restoration of indigenous vegetative cover • Alien plant eradication and follow-up control activities prior to construction, to prevent spread into disturbed soils, as well as follow-up control during construction • The amount of vegetation removed should be limited to the least amount possible • Rehabilitation of damage/impacts that arise as a result of construction must be implemented immediately upon completion of construction • Maintenance activities should not take place within watercourses or buffer zones. Where unavoidable, the footprint needed for maintenance must be kept to a minimum. This is subjected to authorization by means of a water use license. • Where possible, maintenance within watercourses must be restricted to the drier winter months • Maintenance activities should not impact on rehabilitated areas • Maintenance workers should respect and also maintain fences that are in place to prevent livestock from entering rehabilitated areas, until such time that monitoring found that rehabilitation is successful and the fences removed • Maintenance should not impact on natural vegetation • Maintenance vehicles must stay on dedicated roads/ servitudes
<p><i>Ecological Impacts: Changes in sediment entering and exiting the system.</i></p>	<p>Direct Impacts: Changing the amount of sediment entering water resource and associated change in turbidity (increasing or decreasing the amount). Construction activities will result in earthworks and soil disturbance as well as the removal of natural vegetation. This could result in the loss of topsoil, sedimentation of the wetland and increase the turbidity of the water.</p>	<p>Moderate</p>	<ul style="list-style-type: none"> • Water may seep into trenching and earthworks. It is likely that water will be contaminated within these earthworks and should thus be cleaned or dissipated into a structure that allows for additional sediment input and slows down the velocity of the water thus reducing the risk of erosion. Effective sediment traps should be installed. • Construction in and around watercourses must be restricted to the dryer winter months where possible. • Retain vegetation and soil in position for as long as possible, removing it immediately

	<p>Indirect Impacts: Changes made to the bed or banks of watercourse channels will cause unstable channel conditions causing erosion, meandering, increased potential for flooding and movement of bed material, which will result in property damage adjacent to and downstream of the construction site.</p>	Moderate	<p>ahead of construction / earthworks in that area (DWAF, 2005).</p> <ul style="list-style-type: none"> Remove only the vegetation where essential for construction and do not allow any disturbance to the adjoining natural vegetation cover. Rehabilitation plans must be submitted and approved for rehabilitation of damage during construction and that plan must be implemented immediately upon completion of construction. Cordon off areas that are under rehabilitation as no-go areas using danger tape and steel droppers. If necessary, these areas should be fenced off to prevent vehicular, pedestrian and livestock access. During the construction phase measures must be put in place to control the flow of excess water so that it does not impact on the surface vegetation. Protect all areas susceptible to erosion and ensure that there is no undue soil erosion resultant from activities within and adjacent to the construction camp and work areas. Runoff from the construction area must be managed to avoid erosion and pollution problems. Implementation of best management practices Source-directed controls Buffer zones to trap sediments Monitoring should be done to ensure that sediment pollution is timeously dressed
	<p>Cumulative Impacts: Should mitigation measure not be implemented and changes made to the bed or banks of watercourses, unstable channel conditions may result causing erosion, meandering, increased potential for flooding and movement of bed material. Reversing this process is unlikely and should be prevented in the first place. Refer to the accompanying General Monitoring and Rehabilitation report.</p>	Moderate	
<p><i>Ecological Impacts: Changes in water quality due to foreign materials and increased nutrients impact ratings.</i></p>	<p>Direct impacts: Construction activities will result in the discharge of solvents and other industrial chemicals, leakage of fuel/oil from vehicles and the disposal of sewage resulting in the loss of sensitive biota in the wetlands/ rivers and a reduction in wetland function as well as human and animal waste. Could possibly impact on groundwater</p>	Low	<ul style="list-style-type: none"> Provision of adequate sanitation facilities located outside of the wetland area or its associated buffer zone. Implementation of appropriate stormwater management around the excavation to prevent the ingress of run-off into the excavation and to prevent contaminated runoff into the watercourse. Provision of adequate sanitation facilities located outside of the wetland area or its associated buffer zone The development footprint must be fenced off from the wetland and no related impacts may be allowed into the watercourse e.g. water runoff from cleaning of equipment, vehicle access etc. After construction, the land must be cleared of rubbish, surplus materials, and equipment, and all parts of the land shall be left in a condition as close as possible to that prior to use. Maintenance of construction vehicles / equipment should not take place within the watercourse or watercourse buffer. Control of waste discharges
	<p>Indirect impacts: Pollution and reduction of water quality which will have an impact on the faunal and floral communities.</p>	Low	
	<p>Cumulative impacts: Once in the system it may take many years for some toxins to be eradicated. This impact should be avoided at all cost</p>	High	

			<ul style="list-style-type: none"> • Maintenance of buffer zones to trap sediments with associated toxins • Ensure that no operational activities impact on the watercourse or buffer area. This includes edge effects. • Control of waste discharges and do not allow dirty water from operational activities to enter the watercourse • Ensure that no operational activities impact on the watercourse or buffer area. This includes edge effects. • Control of waste discharges and do not allow dirty water from operational activities to enter the watercourse • Regular independent water quality monitoring should form part of operational procedures in order to identify pollution • Treatment of pollution identified should be prioritized accordingly.
<p><i>Ecological Impacts:</i> Loss and disturbance of wetland/riparian habitat and fringe vegetation</p>	<p>Direct Impacts: Direct development within wetland/riparian areas. Loss and disturbance of wetland/riparian habitat and fringe vegetation due to direct development on the wetland as well as changes in management, fire regime and habitat fragmentation.</p>	Low	<ul style="list-style-type: none"> • The pylon positions should be designed around current wetland boundaries and buffers. • Where this is not possible, effective rehabilitation should be done (refer to the accompanying General Rehabilitation and Monitoring report) • Other than approved and authorized structure, no other development or maintenance infrastructure is allowed within the delineated watercourse or associated buffer zones. • Demarcate the watercourse areas and buffer zones to limit disturbance, clearly mark these areas as no-go areas • Weed control in buffer zone • Monitor rehabilitation and the occurrence of erosion twice during the rainy season for at least two years and take immediate corrective action where needed. • Monitor the establishment of alien invasive species within the areas affected by the construction and take immediate corrective action where invasive species are observed to establish • Operational activities should not take place within watercourses or buffer zones, nor should edge effects impact on these areas • Operational activities should not impact on rehabilitated or naturally vegetated areas
	<p>Indirect Impacts: Loss of indigenous vegetation.</p>	Low	
	<p>Cumulative Impacts: Habitat fragmentation.</p>	Moderate	
<p><i>Ecological Impacts:</i> Introduction and spread of alien vegetation.</p>	<p>Direct impacts: The moving of soil and vegetation resulting in opportunistic invasions after disturbance and the introduction of seed in building materials and on vehicles. Invasions of alien plants can impact on hydrology, by reducing the quantity of water entering a wetland, and outcompete natural vegetation, decreasing the</p>	Moderate	<ul style="list-style-type: none"> • Weed control • Retain vegetation and soil in position for as long as possible, removing it immediately ahead of construction / earthworks in that area and returning it where possible afterwards. • Monitor the establishment of alien invasive species within the areas affected by the construction and maintenance and take immediate corrective action where invasive

	natural biodiversity. Once in a system alien invasive plants can spread through the catchment. If allowed to seed before control measures are implemented alien plants can easily colonise and impact on downstream users.		species are observed to establish. <ul style="list-style-type: none"> Rehabilitate or revegetate disturbed areas
	Indirect impacts: Change in species diversity.	Moderate	
	Cumulative impacts: Construction areas within the watercourses along the proposed road upgrade can experience an increased invasion if mitigation is not implemented or implemented correctly. Regular monitoring should be implemented during construction, rehabilitation including for a period after rehabilitation is completed.	Moderate	
<i>Ecological Impacts: Loss of indigenous vegetation due to clearing of the footprint area</i>	Direct impacts: The area of the footprint for every pylon will be cleared of vegetation, while woody vegetation will be cleared all along the line. This may result in the loss of indigenous plant species, especially woody species, disturbance of plant species and the fragmentation of plant communities. The removal of vegetation will also expose soil increasing the risk of erosion.	Low	<ul style="list-style-type: none"> The clearing of vegetation must be kept to a minimum and remain within the footprint of the pylon; Disturbed areas must be rehabilitated immediately after construction has been completed in that area by sowing appropriate indigenous grass species; During the construction phase workers must be limited to areas under construction and access to the undeveloped areas must be strictly controlled; Woody plants should only be cut shorter if absolutely necessary Rehabilitated areas must be monitored to ensure the establishment of re-vegetated areas.
	Indirect impacts: Loss of indigenous vegetation.	Low	
	Cumulative impacts: Habitat fragmentation.	Low	
<i>Ecological Impacts: Direct Impact terrestrial vertebrate communities</i>	Direct impacts: An Eskom powerline is an imposing structure. However, its effect on terrestrial vertebrate species is limited to the collective surface area of four feet and anchor points typical of the more common towers (see the image on the cover page). This impact is no more than that of rocks or termitaria that may be present in the vicinity. The majority of mammals	Moderate	<ul style="list-style-type: none"> A powerline per se is deemed harmless to terrestrial vertebrates, but the servitude will have an effect. It must be noted that an Eskom servitude act as a valuable conservation asset, such as inter alia a seedbank and often as prime terrestrial habitat. A powerline is normally served by way of an access dirt tract along the servitude. It is important that this asset is managed to not cause erosion. Woody plants are generally removed to reduce the impact of 'hot' fires. Since fires

	<p>and all herpetofauna are terrestrial, and as such they are NOT prone to collisions or electrocution. Bats are indeed volant but they seldom hawk for prey at the average height of a powerline (30 meters) and have highly echolocation capabilities to navigate and avoid obstacles. The development can be reversed with human intervention, and recovered materials can be recycled. No irreplaceable loss or even reduction of ecological resources is anticipated. Mitigation the impacts is standard procedure for Eskom developments.</p>		<p>represent a catastrophic event for terrestrial vertebrates, this modus operandus is concluded to be positive.</p> <ul style="list-style-type: none"> • Mature stands of grass develop along servitudes and serve as excellent refuge and nourishment. However mature stands of grass are mowed to reduce the impact of accidental fires and this deprive most terrestrial vertebrates of refuge and nourishment. This cannot realistically be mitigated and must thus be left to the devices of ecological processes.
	<p>Indirect impacts: Loss of species diversity.</p>	<p>Moderate</p>	
	<p>Cumulative impacts: Movement of species from one area into another.</p>	<p>Low</p>	
<p><i>Ecological Impacts: Loss of faunal habitat and ecological structure</i></p>	<p>Direct impacts: The physical structure of the development will not detract from optimizing habitat maintenance. The management of the servitude of the Bravo 3 Powerline may, however, result in negligible loss of pristine mammal, reptile and amphibian habitats, but this is counterbalanced by seasonal lush grass cover that are irregularly mowed to reduce the intensity of fires. It would appear that cut grass are left in situ, which will enhance the build-up of the surface detritus layer. Preservation of vegetation generally affects nutrient cycles, built-up of the organic litter layer and mostly results in habitat refuges. The minimal loss of habitat due to development can be reversed with human intervention. However, leaving ecological succession to its own devices will mostly result to lush basal cover. No irreplaceable loss of resources is anticipated. Mitigation the impacts is standard procedure for</p>	<p>Moderate</p>	<ul style="list-style-type: none"> • None other than the standard precautionary measures incorporated in Eskom best-practice development protocol along a servitude. • It is strongly recommend that alien weeds are actively removed / destroyed. • It is suggested to leave cut grass in situ. This will ameliorate the habitat alteration by cutting a high stand of grass, will not detract from the maintenance of a seed bank, and will combat erosion. • Eskom modus operandus for storm water management will suffice.

	ESKOM developments.		
	Indirect impacts: Loss of species diversity.	Moderate	
	Cumulative impacts: Limited impact on ecological diversity in the vicinity.	Low	
<i>Avifaunal Impacts: Habitat Loss</i>	Direct impacts: Avian habitats will be lost in the areas cleared for the construction of the ~350 towers involved in this project. Whereas the individual footprint of each tower is small, the cumulative impact of the area cleared for power lines can be significant. In the case of the Bravo 3 line, this impact is made less severe by the fact that lines run immediately adjacent to existing lines, and therefore the area cleared will at worst involve the widening of existing servitudes. Additional habitat loss may occur during the construction phase, because of areas cleared for the construction of the towers and lines, new access roads, and clearing vegetation from the servitude under the line	Low	<ul style="list-style-type: none"> • Minimise areas cleared for towers, construction activities and access roads, and as far as possible use existing roads • Restrict construction activities to area directly below power line • Minimise width of servitude cleared for power line • Ensure that no towers are placed in habitat potentially suitable for African Grass-owl
	Indirect impacts: None	N/A	
	Cumulative impacts: further loss of natural habitat in an area that is already heavily transformed	Low	
<i>Avifaunal Impacts: Disturbance</i>	Direct impacts: The presence of vehicles and personnel during construction will create disturbance for birds along the route of the proposed line. This disturbance will be most likely manifested through increased stress levels modulated by the avian stress hormone corticosterone, with consequences for breeding success, immune function and foraging. Further disturbance will occur during the operational phase as a consequence of routine maintenance, but the magnitude of this impact will be lower than during the construction phase.	Low	<ul style="list-style-type: none"> • Construction of the proposed power line should take place during winter, outside the breeding season of most birds and when migrants are absent. • Construction workers must be instructed to minimise disturbance of birds at all times. • Illegal hunting of birds must be strictly prevented • During construction, any threatened species breeding along the route should be identified by the Environmental Control Officer, and the author of this report contacted for advice on how to proceed. • All construction and maintenance should take place as per Eskom Transmission's environmental best practice standards.
	Indirect impacts: None	N/A	

	Cumulative impacts: Construction activities, and to a lesser extent maintenance activities thereafter, will increase overall levels of human disturbance along the power line route.	Low	
<i>Avifaunal Impacts: Collisions</i>	Direct impacts: Avian mortalities and injuries as a result of birds colliding with power lines while in flight.	Low	<ul style="list-style-type: none"> • Wherever possible, the new power line should be placed as close to the existing lines as possible, so as to minimise the spatial extent of the collision risk • Bird flight diverters should be fitted to the line in areas where the risk of collision is considered significant. Specifically, “Bird flappers” or double-loop flight diverters developed by the Eskom / Endangered Wildlife Trust (EWT) Strategic Partnership should be fitted to the line during initial construction. These devices must be attached to the centre 60% of the line between each pair of pylons, with the flappers 5 m apart in a staggered configuration. • Spans requiring flight diverters should identified at the start of the construction phase by engaging a suitable ornithologist to accompany Eskom staff along the entire route. At this stage, spans that can be identified as requiring flight diverters on the basis of satellite imagery are listed in Table 5b, Appendix D3.
	Indirect impacts: None	N/A	
	Cumulative impacts: Collisions caused by power lines have had devastating impacts on the populations of a number of threatened bird species, and it is critical that this impact of the new Bravo 3 line be mitigated to the greatest extent possible.	Low	
<i>Avifaunal Impacts: Electrocutation</i>	Direct impacts: Avian mortalities and injuries as a result of birds creating short circuits between live wires, or between live wire and tower. Risk generally low for 400 kV lines.	Low	<ul style="list-style-type: none"> • Electrocutations are extremely unlikely on 400 kV towers. However, in the interests of preventing short circuits caused by excreta, it is recommended that standard Eskom Bird Guards be fitted to all towers in the vicinity of water.
	Indirect impacts: None	N/A	
	Cumulative impacts: Electrocutations are unlikely to be a cause of avian mortality	Low	
<i>Avifaunal Impacts: Electromagnetic fields</i>	Direct impacts: There is some evidence that the electromagnetic fields generated by power lines have negative effects on avian breeding, as well as the ability of migrants to navigate	Low	<ul style="list-style-type: none"> • None necessary beyond installation of insulators and shielding following Eskom’s standard guidelines for best practise.
	Indirect impacts: None	N/A	
	Cumulative impacts: Will contribute to widespread EMFs generated by electrical infrastructure. Evidence of negative impacts is limited.	Low	
<i>Heritage Impacts:</i>	Direct impacts: A large number of sites are known to exist in the study area. However, only	Low	<ul style="list-style-type: none"> • Should archaeological sites or graves be exposed during construction work, it must

	those that were within 600m of the proposed power line are presented here as it is viewed that the line would probably not deviate that much from the proposed route. Only 4 sites were identified with a high impact rating, majority of the sites were low.		immediately be reported to a heritage practitioner so that an investigation and evaluation of the finds can be made.
	Indirect impacts: None	N/A	
	Cumulative impacts: None	N/A	
<i>Dust Impacts</i>	Direct impacts: Construction machinery and heavy vehicles which are likely to make use of the existing farm roads to transport equipment and material to the construction site, are likely to generate dust which is likely to be perceptible by adjacent residents. Trucks may potentially distribute dust along internal access roads	Low	<ul style="list-style-type: none"> • Continuous watering of the site should be carried out to prevent dust pollution during windy and dry conditions. • A continuous dust monitoring process needs to be undertaken during construction. • Speed restriction of 20km/h must be implemented for all construction vehicles. • All vehicles transporting friable materials such a sand, rubble etc must be covered by a tarpaulin or wet down. • Construction work to be undertaken during weekdays as far as practical.
	Indirect impacts: None identified.	N/A	
	Cumulative impacts: None identified.	N/A	
<i>Noise Impacts</i>	Direct impacts: Vehicles transporting materials to and from the site will potentially cause an additional noise burden to adjacent residents as well as along internal access roads.	Moderate	<ul style="list-style-type: none"> • The contractor must ensure that noise levels remain within acceptable limits • Construction activities must be limited to normal working hours and according to municipal bylaws, i.e. working hours must be limited to weekdays as far as possible. • If construction is required on the weekend; permission from adjacent landowners will be required prior to construction.
	Indirect impacts: None identified	N/A	
	Cumulative impacts: None identified	N/A	
<i>Impacts on traffic and local roads</i>	Direct impacts: Traffic will be congested as a result of construction activities. In addition, traffic increase can lead to road damage, erosion, accidents and even traffic delays Construction machinery and heavy vehicles are likely to generate dust which is likely to be perceptible by adjacent residents. Trucks may	Moderate	<ul style="list-style-type: none"> • Vehicular movement beyond the property boundaries may not occur during peak hour traffic times (07h30 – 08h30 and 16h00 – 17h00). • It must be ensured that a backlog of traffic does not develop at the access points during peak hours through the upgrade to the road system and the implementation of an efficient and effective access control system. • Speed restriction of 20km/h must be implemented for all construction vehicles. • Implement dust suppression measures (wetting or application of soil binding

	potentially distribute dust along internal access roads.		compound) in all areas that will be affected by construction <ul style="list-style-type: none"> activities and where dust will be generated
	Indirect impacts: None identified	N/A	
	Cumulative impacts: None identified	N/A	
<i>Impact on socio-economics</i>	Direct impacts: Impact on nearby residential areas - Influx of workers in the area may raise concerns from neighbouring residents	Moderate	<ul style="list-style-type: none"> All adjacent landowners must be informed of the construction processes prior to commencement of construction activities. Adjacent land owners must be informed timeously of any service stoppages in their areas. Notification must include possible timeframes for stoppages. Consequences of such stoppages must be clearly indicated to all surrounding/affected land owners. Affected land owners must be timeously informed of any/all maintenance of the bulk water services supply which may result in service stoppages to their properties. Again this must include possible timeframes so alternatives can be provided.
	Indirect impacts: None identified	N/A	
	Cumulative impacts: None identified	N/A	
<i>Possible influx of unemployed job seekers and temporary workers</i>	Direct Impacts: influx of unemployed job seekers and temporary workers	Low	<ul style="list-style-type: none"> Maximise local employment according to strategies outlined previously. The number of job opportunities available as part of the proposed project and the recruitment process should be clearly communicated. The communication strategy should ensure that unrealistic employment expectations are not created. Access to the construction site should be controlled. Have clear rules and regulations for access to the construction camp to control loitering. The use of local labour should be maximised through contractual conditions set for the sub-contractors. Construction workers should be clearly identifiable by wearing proper construction uniforms displaying the logo of the construction company. Construction workers must also be provided with identification tags.
	Indirect Impacts: None Identified	N/A	
	Cumulative Impacts: <ul style="list-style-type: none"> The influx of job seekers or temporary workers could lead to the expansion of informal settlements. The more an informal settlement continues to grow, the more socio-economic conditions will continue to deteriorate and the more the quality of life of other local (neighbouring) residents will be affected. Added pressure on service delivery and the existing infrastructure with resultant additional socio-economic burdens for the local municipalities and surrounding property owners should the jobseekers come from outside the study area, but permanently remain in the area after the construction period has ceased. 	Low	
OPERATIONAL PHASE			
Activity	Impact summary	Significance	Proposed mitigation

		(after mitigation)	
Hardening of surface(access roads)	Direct impacts: <i>Compaction of soils and erosion</i>	High	<ul style="list-style-type: none"> Regular checks and maintenance of servitude, keep access road as informal as possible and use existing roads as far as possible to limit construction of new roads
	Indirect impacts: Loss of indigenous vegetation.	Moderate	
	Cumulative impacts: <i>Preferential flow paths</i>	Moderate	
Ecological Impact:: Proliferation of Alien [Plant] Species	Direct impacts: Alien invasive species will quickly encroach into disturbed areas, particularly adjacent to drainage areas.	Low	<ul style="list-style-type: none"> An alien invasive management programme must be incorporated into the Environmental Management Programme (see appendix J1); Ongoing alien plant control must be undertaken along the power line servitude route; Areas which have been disturbed will be quickly colonised by invasive alien species. An ongoing management plan must be implemented for the clearing/eradication of alien species. Monitor all sites disturbed by construction activities for colonisation by exotics or invasive plants and control these as they emerge. Annual checks of invasive vegetation, to be controlled and removed before seeding
	Indirect impacts: Loss of indigenous vegetation.	Low	
	Cumulative impacts: Habitat fragmentation	Low	
Avifaunal impacts during the operational phase (Power lines)	Direct impacts: Electrocutation of birds on associated overhead power lines is an important cause of mortality for a variety of bird species particularly storks, cranes and raptors in South Africa. The impact assessment found the impact of electrocution to be of moderate significance after the mitigation in the form of bird friendly structures.	Moderate	<ul style="list-style-type: none"> All relevant perching surfaces should be fitted with bird guards and perch guards as deterrents A "Bird Friendly" monopole structure, with a bird perch (as per standard Eskom guidelines) should be used for the tower structures.
	Indirect impacts: Effect on nesting birds outside the vicinity of the site.	Low	
	Cumulative impacts: Moderate as there is a high level of existing disturbance in the vicinity.	Low	
DECOMMISSIONING PHASE			
Decommissioning and closure phase has not been considered as part of this application as the end use of the site and required decommissioning activities are not known at this time; it is therefore not possible to predict the potential environmental impacts. If decommissioning phase is considered in future, the developer will undertake the required actions as prescribed by the legislation at the time and comply with all relevant requirements administered by any relevant authority and competent authority at that time			

A complete impact assessment in terms of Regulation 19(3) of GN 982 must be included as Appendix F. [Please refer to 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.

The proposed activities assessed within this Basic Assessment Report are required to provide essential information associated with the tower footings that may impact on the relevant watercourse crossing of the Kusile - Lulamisa lines. In summary, the Basic Assessment has assessed potential impacts and identified appropriate management and mitigation measures. No environmental fatal flaws and no significant negative impacts have been identified to be associated with the tower footings and the relevant watercourse crossings. The Impact Assessment section of this report indicates that the identified environmental impacts associated can be effectively mitigated to have a low significance impact rating provided the recommended mitigation and management measures are implemented.

There are no Negative Impacts pre or post mitigation which should warrant the project from not proceeding or should warrant further specialist investigation. The potential negative environmental impacts associated with the development are mainly associated with the construction phase of this project and these include

- Soil erosion, sedimentation of drainage systems and degradation of wetland areas
- Pollution of watercourses and soil
- Proliferation of Alien invasive species
- Loss of indigenous vegetation due to clearing of the footprint area
- Loss of faunal habitat and ecological structure
- Direct impact on terrestrial vertebrate communities
- Avifaunal Impacts: Habitat Loss, Disturbance, Collisions, Electrocution, Electromagnetic Fields
- Dust and Noise Pollution

These impacts can easily be managed through the implementation of the mitigation measures contained in the Environmental Management Programme in [Appendix G](#).

The key impacts identified for operation phase include:

- Hardened of surface, risk to erosion and preferential flow paths due to road for maintenance within servitude.
- Increased alien invasive vegetation due to disturbed soils; and
- Avifaunal Impacts: Electrocution

A number of mitigation and monitoring measures have been identified which would allow for the minimisation and management of potential environmental impacts associated with the proposed development, which have been incorporated into an EMP for the project, which will be further developed during the detailed planning and construction phase of the project.

Alternative B

No alternatives have been considered as the area has previously been assessed by specialist in the

EIA (2009). The line route has been approved. Environmental Authorisation has been acquired DEA reference no 12/12/20/1094

Alternative C

No-go alternative (compulsory)

By not taking any action, the status quo will remain the same exacerbating the shortage of electricity supply thus the no-go alternative is not preferred. Should Eskom rely on the existing network to supply future demand, it is highly likely that present supply will be compromised due to the increased load on the network. Authorisation has already been acquired for the transmission line which is associated with the tower footings that form part of this application (DEA Reference Number: 12/12/20/1094)

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 ✓	
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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.

A number of mitigation and monitoring measures have been identified which would allow for the minimisation and management of potential environmental impacts associated with the proposed development. These have been incorporated into [Appendix G](#).

This Report has identified and assessed the potential impacts on the watercourse associated with the tower footings. It is therefore proposed that authorisation is granted.

The project will result in some unavoidable environmental impacts during construction but this is not a fatal flaw, the nature of the project, has been planned in such a way that the landscape will not be greatly altered and that there are minimal negative environmental impacts. None of these adverse impacts are considered unacceptably significant and all can be managed to acceptable levels through the effective implementation of the recommended mitigation measures. In addition, the project will provide benefits to the society. Based on the assumption that Eskom is committed to ensuring that the footings is constructed and effectively maintained and achieved through implementation of the recommended mitigation measures and on-going monitoring of performance, Envirolution believes through effective implementation of the stipulated mitigation measures, the adverse impacts can be reduced. Fortunately with our proposed mitigation measures, the DEA will agree that the project’s benefits outweigh the potential negative impacts.

General Recommendations

We recommend that preferred route be approved with the following general recommendations:

1. Implementing the EMPr to guide construction and operational activities to provide a framework for the on-going assessment of environmental performance.
2. Have construction take place in the drier months and adhere strictly to the construction schedule in order to minimize the duration of impacts during the construction phase.
3. Ensure that all alterations to the drainage pathways and water course are kept to a minimum by implementing Recommendation 2.
4. Maximise the employment of local people and the procurement of local resources during the construction and operational phases to ensure maximum benefit to the provincial/local economy.
5. Implement the recommendations made in the specialist studies and EMPr.
6. The EMPr should form part of the contractor’s tender documentation

From the impact assessment, it is evident that prior to mitigation, impacts associated with the proposed development are generally moderate. Thus, based on specialists’ recommendations, it is the opinion the EAP that the project be considered favourably and environmental authorisation granted for the proposed activities, provided the essential and recommended mitigation measures as defined in this report are strictly adhered to.

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.

ANDRISHA GOVENDER

NAME OF EAP

SIGNATURE OF EAP

SECTION F: APPENDIXES

The following appendixes must be attached:

Appendix A: Maps

Appendix B: Photographs

Appendix C: Facility illustration(s)

Appendix D: Specialist reports (including terms of reference)

Appendix E: Public Participation

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