



**BASIC ASSESSMENT PROCESS ASSOCIATED WITH THE CONSTRUCTION
TOWER FOOTINGS WITHIN WATER COURSES FOR PHASE 5 OF THE BRAVO
INTEGRATION PROJECT IN THE MPUMALANGA PROVINCE**

FINAL BASIC ASSESSMENT REPORT

AUGUST 2016

DEA REFERENCE: 14/12/16/3/3/1/1610

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environmental affairs

Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA

(For official use only)

File Reference Number:

1.1.1

Application Number:

1.1.2

Date Received:

1.1.3

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 5 of the Bravo Integration Project in the Mpumalanga Province.
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- Client** : Eskom Holdings SOC Ltd
- Report Status** : Final Basic Assessment Report for Competent Authority Review

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.
- Andrisha Govender –the principle author of this 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. Andrishia is currently a Project Manager and Environmental Consultant at Enviolution 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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Appendix J: Additional Information

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.

Eskom obtained an environmental authorization on 09 October 2009 from the Department of Environmental Affairs (DEA) for the construction of a new 400 kV overhead power line, by-passing the existing Duvha Substation, to form a new Bravo-Vulcan line near Emahlaheni, Mpumalanga. (DEA Reference No. 12/12/20/1097) This by-pass line is planned to be approximately 260m in length. The area investigated for this by-pass line is located in the existing Duvha Substation. (See Figure 1 below). 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 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 license was lodged with the Department of Water and Sanitation and subsequently approved on 25 August 2015, License No.04/B11H/CI/3011 and File No. 27/2/2/B811/6/2 (See Appendix J2). 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 eMalahleni Local Municipality at the Duvha Power Station in Mpumalanga. The Duvha Power Station is located approximately 15 km East of Witbnk; North East of Ogies and South East of eMalahleni. The Witbank Dam is situated 5km North of the Duvha Power Station.

1.3 Project Description

A 400 kV Duvha bypass overhead power line of approximately 260m in length is located in the Duvha power Station. 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 study site falls within Quaternary Catchment B11G with several water bodies close to the proposed infrastructure, although they are not natural. The powerline falls within the Olifants Water Mangement area in Quaternary Catchment B11G and drains towards the Olifants River. This site further falls within the DWS Olifants Water Management Area, nr 4. 19 Water Management areas (WMA) were established by, and their boundaries defined in, Government Notice No. 1160 on 1st October 1999. Quaternary Catchment B11G is located in the third water management area known as the Olifants WMA. In this WMA the major rivers include the Elands, Wilge, Steelpoort and Olifants Rivers. As part of the new 400kV Duvha bypass overhead power line there is a footing that is proposed after approximately every 90m therefore a total of 4 tower footings of which all 4 towers are impacting on watercourse crossings and drainage lines.

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. The proposed structures are approximately 10m high (**please refer to Appendix C for details and profiles of the proposed towers**). 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.

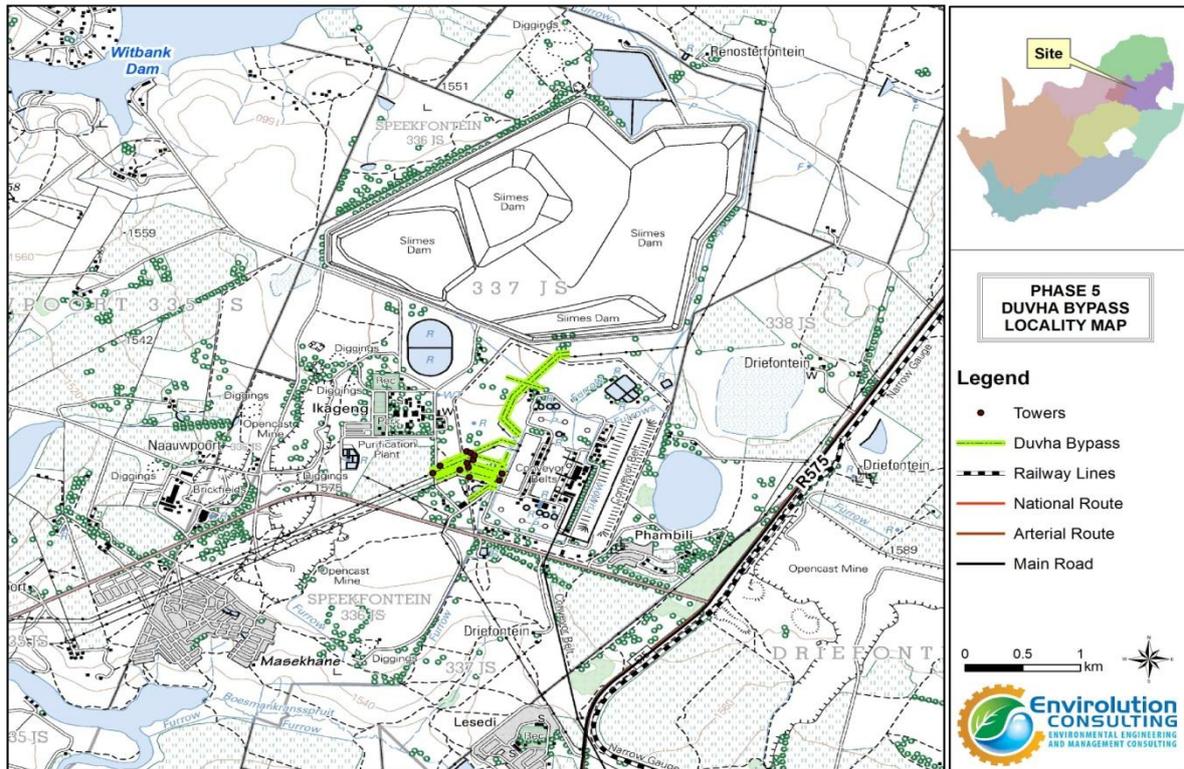


Figure 1: Locality Map indicating the Power Line Route

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 EMP, 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 Diverter

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. 12/12/20/1097):

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.

Step 7: Issuing of tenders and eventually appointment of contractors for the project.

Step 8: Vegetation clearance and construction of access roads (if required).

Step 9: Pegging of structures.

Step 10: Construction of foundations.

Step 11: Assembly and erection of structures.

Step 12: Stringing of conductors.

Step 13: Rehabilitation of disturbed areas and protection of erosion sensitive areas.

Step 14: Testing and commissioning.

Step 15: Operation and routine maintenance.

<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 400kV power line there is a footing that is proposed after every 90m and a total of 4 tower footings that are impacting on watercourse crossings and drainage lines. 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>

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.

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. 12/12/20/1097) 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

Duvha By - Pass	25°57'40.14"S	29°19'56.44"E
Duvha By - Pass	25°57'36.11"S	29°19'56.83"E
Duvha By - Pass	25°57'32.34"S	29°19'55.77"E



The Duvha By-Pass line is approximately 260m with 4 towers that are impacting on a watercourse. Please see image above for the tower footing coordinates, as well as the middle point of the activity.

Tower Footings	Latitude	Longitude
KU-VU 1	25°57'40.14\"S	29°19'56.44\"E
KU-VU 2	25°57'37.20\"S	29°19'56.22\"E
KU-VU 3	25°57'34.91\"S	29°19'57.50\"E
KU-VU 4	25°57'32.34\"S	29°19'55.77\"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)
<p>Please note that authorisation (DEA Reference No. 12/12/20/1097) 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 (Please refer to Appendix C for the facility Illustrations). Therefore no design alternatives that can be proposed for this activity.</p> <p>The following types of towers were assessed for the project:</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>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.</p>

e) No-go alternative

Authorisation has already been acquired (DEA Reference Number: 12/12/20/1097) 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)

Size of the activity:

<p>The power line route which has already been authorised is approximately 260m long. The tower footings associated with the power lines will occur approximately every 90m along the 260m overhead by – pass line. 4 of these footings impact on watercourse crossings and drainage lines. Each tower footings have an area of about 4m² each. Thus the combined number of footings per tower impacting on watercourse crossings and drainage lines (4 x 4m²) means that the physical size of one tower would be 16m². Physical size of the activity will therefore be 16m² x 4(towers).</p>

Alternative A2 (if any)

Alternative A3 (if any)

or, for linear activities:

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

Power lines:

Route 1 (preferred)

Alternative A2 (if any)

Alternative A3 (if any)

Length of the activity:

The power line route which has already been authorised is 260m long

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

Power lines:

Route 1 (preferred)

Alternative A2 (if any)

Alternative A3 (if any)

Size of the site/servitude:

260m 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. 12/12/20/1097.
--

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. 12/12/20/1097). The tower footings are an integral component in construction of the power line. The proposed route is located within Eskom’s Duvha Power Station.			
2. Will the activity be in line with the following?			
(a) Provincial Spatial Development Framework (PSDF)	YES ✓		Please explain
Even though the activity is occurring in Mpumalanga, the proposed development will be of little significance to the Mpumalanga Province because 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.			

<p>(b) Urban edge / Edge of Built environment for the area</p>	<p>YES ✓</p>		<p>Please explain</p>
<p>The site is located in the Duvha Power Station. The site is located in a built environment and the natural habitat of the area is transformed due to other developments (powerlines) in the same vicinity.</p>			
<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, 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 municipality 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>The project area does not fall into an area with high ecological sensitivity. The site is located in the Duvha Power Station which is mainly transformed, i.e. No Natural Habitat Remaining</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 Municipality in which the proposed development falls was not taken into consideration as the proposed development will be of little significance to this Municipality</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>Although the development will occur in Mpumalanga, 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 municipality 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: 12/12/20/1097) 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 Municipality.</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 : 12/12/20/1097) 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 Municipality 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>Since the site is located within Eskom’s Duvha Power Station where existing towers and powerlines are present and therefore location factors will favour this land use.</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: 12/12/20/1097). The site is located within Eskom’s Duvha Power Station where existing towers and power lines are present.</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 potential impacts on wetlands, avifauna, fauna, vegetation and social. 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>			
<p>11. Will the proposed land use/development set a precedent for similar activities in the area (local municipality)?</p>	<p>YES ✓</p>		<p>Please explain</p>
<p>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.</p>			

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 falls within the Eskom's Duvha Power Station. Authorisation for the power line has already been acquired (DEA Reference Number : 12/12/20/1097)			
13. Will the proposed activity/ies compromise the "urban edge" as defined by the local municipality?		NO ✓	Please explain
The proposed project takes place within a Power Station.			
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		
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		
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.			

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.	
	<p>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:</p> <ul style="list-style-type: none"> • 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. <p>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.</p>

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 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>Department of Environmental Affairs (DEA)</p>	<p>1998</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</p>	<p>Department of Environmental Affairs (DEA)</p>	<p>2014</p>

	<p>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>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 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</p>	<p>South African Government</p>	<p>1996</p>

	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"		
The National Water Act, 1998 (Act No 36 of 1998)	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 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.	Department of Water and Sanitation	1998
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	The construction phase is	National Department of	1989

1183 under the Environment Conservation Act (Act 73 of 1989)	likely to result in noise generation and limits set under this regulation should be adhered to	Environmental Affairs (DEA)	
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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:			
Contact person:			
Postal address:			
Postal code:			
Telephone:	Cell:		
E-mail:	Fax:		

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

[Redacted area]

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 area]

d) Waste permit

[Redacted area]	<input type="checkbox"/> NO ✓
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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?

Describe the noise in terms of type and level:

Short term noise impacts are anticipated during the construction phase of the project Duvha By – pass overhead powerline and associated towers. It is however, anticipated that the noise will be localised and contained within the construction site (Duvha Power Station) and its immediate surroundings. No noise will be generated during the operational phase of the development.

13. WATER USE

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

Municipal ✓					
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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 ✓	

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

A water use license was lodged with the Department of Water and Sanitation and subsequently approved on 25 August 2015. (Please refer to Appendix J2)

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:

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

Section B Copy No. (e.g. A):

Authorisation already acquired for the power line route (DEA Reference number: 12/12/20/1097). 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 which is approximately 260m in length.

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

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

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

Property description/physical address:

Province	Mpumalanga
District Municipality	Nkangala District Municipality
Local Municipality	eMalahleni
Ward Number(s)	19
Farm name, number and Portion number	Duvha Kragstasie 337 – 0
SG Code	TOJR00000000033700000

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:

Power Station (Duvha)

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

Is a change of land-use or a consent use application required?

NO ✓

1. GRADIENT OF THE SITE

Indicate the general gradient of the site.

Powerline Route 1:

Flat ✓	1:50 – 1:20 ✓					
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Applicable to all 4 tower footings

Alternative S2 (if any):

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Alternative S3 (if any):

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

2. LOCATION IN LANDSCAPE

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

Applicable to all 4 tower footings

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 to all 4 tower footings

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	NO ✓	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 of the study area is characterised by arenite (shale, sandstone or mudstone) of the Madzaringwe Formation (Karoo Supergroup) (Figure 2 below). The Ba land type occurs here in the southern portion of the site. Arenite weathers to form the main agricultural red and brown soils. In the northern part the soils are shallow and represents the Fa land type.



Figure 2: Geology.

4. GROUNDCOVER

Applicable to all 4 tower footings

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

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

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

The 4 proposed towers that are impacting on the watercourses/wetland areas, falls within the disturbed Grassland inside Power Station security fence mapping unit (See Figure 3 Below).

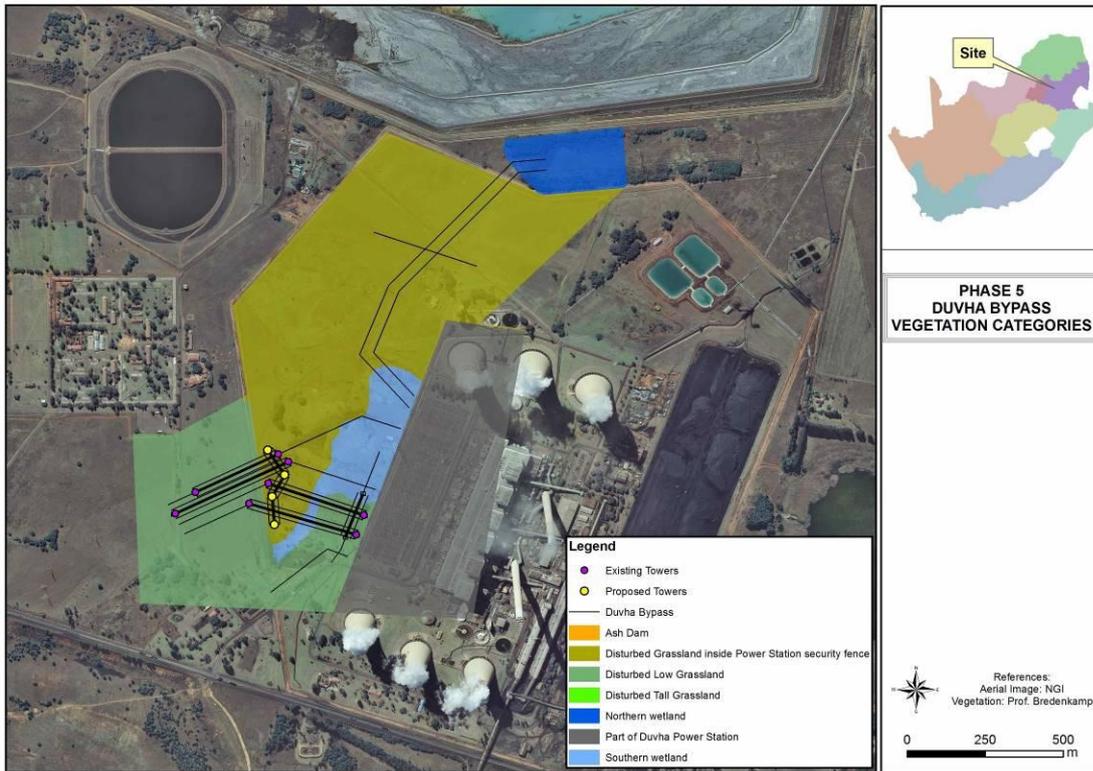


Figure 3: Vegetation Categories of the study site with the position of the powerline and pylons

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 study site falls within Quaternary Catchment B11G with several water bodies close to the proposed infrastructure, although they are not natural. The powerline falls within the Olifants Water Management area in Quaternary Catchment B11G and drains towards the Olifants River. This site further falls within the DWS Olifants Water Management Area, nr 4. 19 Water Management areas (WMA) were established by, and their boundaries defined in, Government Notice No. 1160 on 1st October 1999. Quaternary Catchment B11G is located in the third water management area known as the Olifants WMA. In this WMA the major rivers include the Elands, Wilge, Steelpoort and Olifants Rivers

One wetland and one dam were recorded on the study area. The wetland area was classified as a seepage wetland.

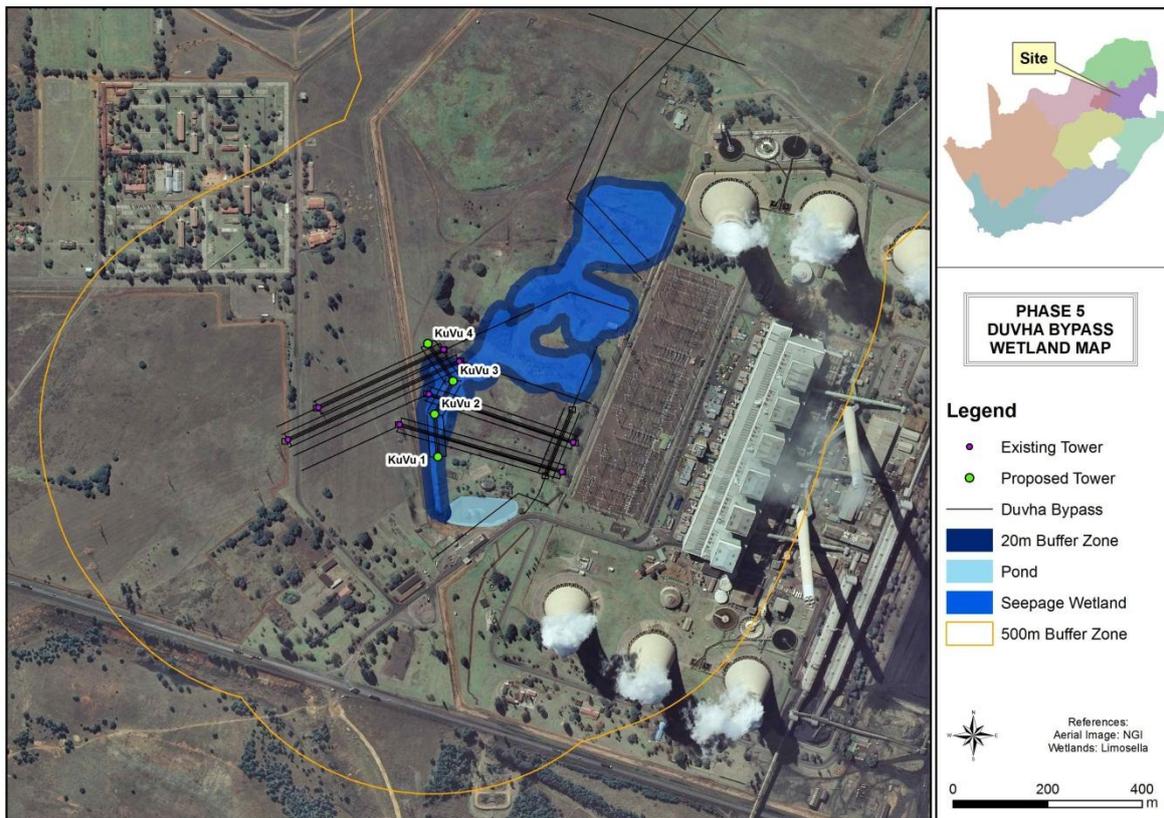


Figure 4: Wetland/Riparian areas associated with the proposed powerlines and associated infrastructure.

[See Appendix D1 for the Wetland Specialist Report](#)

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:

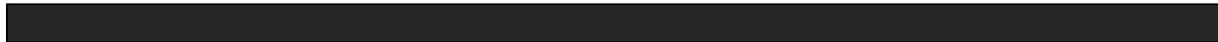
Natural area	Dam or reservoir ✓	Polo fields
Low density residential	Hospital/medical centre	Filling station ^H
Medium density residential	School	Landfill or waste treatment site
High density residential	Tertiary education facility	Plantation
Informal residential ^A	Church	Agriculture
Retail commercial & 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)
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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:



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)		NO ✓
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 Mpumalanga Biodiversity Conservation Plan: Critical Biodiversity Areas (Terrestrial) Map shows that most of the site is located where No Natural Habitat Remained. In the northern part of the site sensitivity range from Highly Significant to Important (Figure 5 below), but all these areas have been totally transformed by the Eskom operation of the Duvha Power Station.

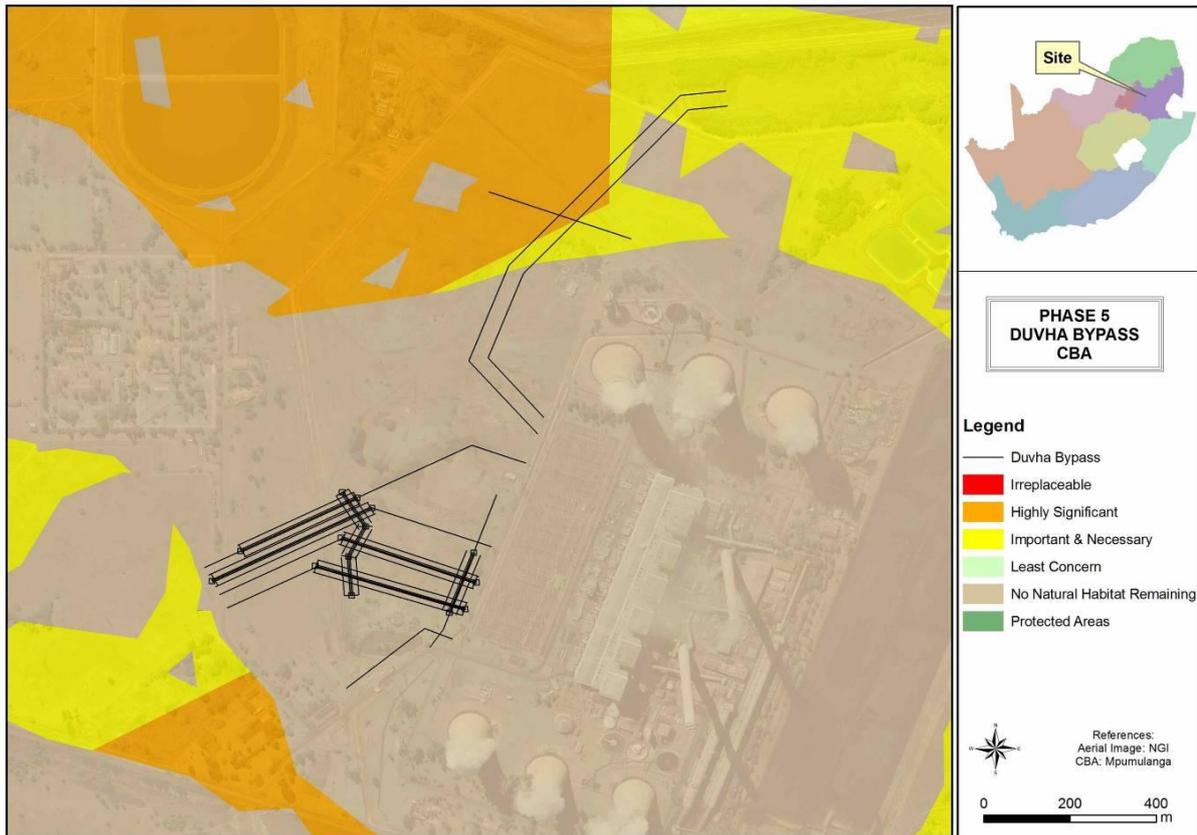


Figure 5: The Mpumalanga Critical Biodiversity Areas

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

7. CULTURAL/HISTORICAL FEATURES

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

NO ✓

According to the heritage specialist studies no sites, features or objects of cultural significance are known to exist in the development area.

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:

As no sites, features or objects of cultural significance are known to exist in the development area, there would be no impact as a result of the proposed development.

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. 12/12/20/1097

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

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

	NO ✓
	NO ✓

Is it necessary to apply for a permit in terms of the National Heritage Resources Act, 1999 (Act 25 of 1999)?

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>eMalahleni Local Municipality</p>	<p>The Emalahleni Local Municipality experienced an increase in the total number of jobs – from 61.7% to 72.7% in 2001 and 2011 respectively. Unemployment declined from 38.3% in 2001 to 27.3% in 2011. This is a good indication of a positive local economy. According to the 2011 profile the Emalahleni LM has a relatively high unemployment rate namely 27.3%, which is well above the national unemployment rate of 25.2% (as recorded for the fourth quarter of 2014, the worst rate of joblessness seen since the first labour force survey in 2008).</p>
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Economic profile of local municipality:

<p>eMalahleni Local Municipality</p>	<p>According to the Emalahleni IDP (2015/16) the Municipality is expected to record a Gross Domestic Product (GDP) growth of 3.3% per annum over the period 2011-2016. Emalahleni Local Municipality contributed a significant 17.9% to the provincial economy in 2011. The municipal Gross Value Add (GVA) in 2011 was R40.5 billion at current prices and R19.9 billion at constant 2005 prices, making it the third largest economy in Mpumalanga Province. Employment growth has been greater in some sectors than others. All sectors, other than agriculture have grown – the decline in the energy sector may be an anomaly given this sector’s contribution to GVA. While the mining and manufacturing sectors have grown substantially, the trade and hospitality sector has almost doubled as has the business and finance sector. Employment in the public services (public service, education and health) has also increased significantly. The leading industry in terms of employment is Emalahleni Municipality is Mining (representing 24.11% of job opportunities) followed closely by Manufacturing (16.75%). Energy is responsible for only 3.76% of the employment opportunities.</p>
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Level of education:

<p>eMalahleni Local Municipality</p>	<p>The overall level of education improved within the Emalahleni LM as the total number of no schooling declined significantly from 12.6% in 2001 to 4.8% in 2011. Furthermore, the total number of secondary</p>
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	<p>education (grade 8-12) increased from 43.0% in 2001 to 51.2% in 2011 and the total number of individuals with a higher education increased from 5.0% to 11.0% for the same period. It is positive to note that within the Emalahleni Rural area, no schooling declined significantly from 17.6% in 2001 to 8.1% in 2011, whilst secondary education (grade 8 to 12) increased from 35.5% in 2001 to 47.9% in 2011. The 2011 highest level of education profile, indicates a large proportion of individuals within the local municipality (49.8%) have at least a secondary (Grade 8-12) level of education. Emalahleni East (24.6%) has the highest number of individuals with a higher education, while the highest level of 'no schooling' is namely in the Rural parts of the Municipality</p>
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b) Socio-economic value of the activity

What is the expected capital value of the activity on completion?	Unknown
What is the expected yearly income that will be generated by or as a result of the activity?	Unknown
Will the activity contribute to service infrastructure?	YES ✓
Is the activity a public amenity?	YES ✓
How many new employment opportunities will be created in the development and construction phase of the activity/ies?	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
What is the expected value of the employment opportunities during the development and construction phase?	This can only be established once the contractor is appointed
What percentage of this will accrue to previously disadvantaged individuals?	+80%

How many permanent new employment opportunities will be created during the operational phase of the activity?	None. Eskom will maintain the power line once constructed
What is the expected current value of the employment opportunities during the first 10 years?	Nil
What percentage of this will accrue to previously disadvantaged individuals?	Nil

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
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Critical Biodiversity Area (CBA)	Ecological Support Area (ESA)	Other Natural Area (ONA)	No Natural Area Remaining (NNR) ✓	
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b) Indicate and describe the habitat condition on site

Habitat Condition	Percentage of habitat condition class (adding up to 100%)	Description and additional Comments and Observations (including additional insight into condition, e.g. poor land management practises, presence of quarries, grazing, harvesting regimes etc).
Natural	0%	
Near Natural (includes areas with low to moderate level of alien invasive plants)	0%	
Degraded (includes areas heavily invaded by alien plants)	0%	
Transformed	%100	The general condition of the vegetation at the proposed site is degraded and transformed. The area of the site at the Duvha Power Station is mainly transformed, i.e. No

<p>(includes cultivation, dams, urban, plantation, roads, etc)</p>		<p>Natural Habitat Remaining</p>
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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 unchanneled wetlands, flats, seeps pans, and artificial wetlands)	Estuary	Coastline	NO ✓			
	Endangered							
	Vulnerable ✓							
	Least Threatened							
		YES ✓				NO ✓		NO ✓

The vegetation types (Mucina & Rutherford 2006) that are represented along the transect of the powerline. These are:

- The Eastern Highveld Grassland in the north and
- The Rand Highveld Grassland in the south.

The 4 towers that are impacting on the watercourse fall within the Eastern Highveld Grassland vegetation type.

Both these vegetation types are listed as Vulnerable by the National Biodiversity Assessment (SANBI, 2011).



Figure 6: Regional vegetation (Mucina & Rutherford 2006)

- 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 2 different vegetation types could potentially be influenced by the powerline development (see figure 6 above). These are: the Eastern Highveld Grassland in the north and the Rand Highveld Grassland in the south. The area of concern falls within the Eastern Highveld grassland. The Eastern Highveld Grassland is associated with arenite, mostly shale and this area is coal-bearing. The Area of the site at the Duvha Power Station is mainly transformed, i.e. No Natural Habitat Remaining.

Six mapping units and there sensitivities were identified and are listed below

Mapping units / Plant Community	Sensitivity
1. Wetland 1a Northern wetland 1b Southern wetland	Low
2. Disturbed Tall Grassland	Low
3. Disturbed Low Grassland	Low
4. Disturbed Grassland inside Power Station security fence	Low
5. Part of Duvha Power Station	Low
6. Ash Dam	Low

No species of conservation concern (Raimondo et al. 2009) were listed in the database and no species were recorded from the specific site.

The following species of conservation concern were previously recorded from the Grid 2529CC (SANBI, POSA website):

Species	Status
<i>Aspidoglossum validum</i> Kupicha	Threatened
<i>Callilepis leptophylla</i> Harv.	Declining
<i>Frithia humilis</i> Burgoyne	EN

These species do not occur on the site, as there is no suitable habitat or the vegetation is too transformed. The grassland habitat at this site is suitable for *Hypoxis hemerocallidea* and *Boophone disticha*, but they were not found on the site. It is concluded that no species of conservation concern currently occur on the site. No Nationally protected tree species or provincially protected plant species were found on the site. No TOPS protected plant species are present on the site (The National Environmental Management Biodiversity Act, 2004. (Act 10 Of 2004)). The invasive alien woody plants found on the site include *Eucalyptus* sp, *Acacia meansii*, *Solanum mauritianum*, *Melia azedarach*.

The general condition of the vegetation at the proposed site is degraded and transformed. The species richness is low, and many weed species are present. Even the indigenous forb species are regarded as pioneers or weeds. The area of this plant community represents transformed vegetation with low sensitivity, and has no threatened species of conservation concern. Rubble was dumped over a large portion of the site.

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](#)).

Wetland

The site is situated in the Quaternary Catchment B11G. In this catchment, the precipitation rate is lower than the evaporation rate with a Mean Annual Precipitation (MAP) to Potential Evapotranspiration (PET) of 0.32. Consequently, watercourses in this area are sensitive to changes in regional hydrology, particularly where their catchment becomes transformed and the water available to sustain them becomes redirected.¹⁹ Water Management areas (WMA) were established by, and their boundaries defined in, Government Notice No. 1160 on 1st October 1999. Quaternary Catchment B11G is located in the third water management area known as the Olifants WMA. In this WMA the major rivers include the Elands, Wilge, Steelpoort and Olifants Rivers. Surface water spatial layers such as the National Freshwater Ecosystems Priority Areas (NFEPA) Wetland Types for South Africa (SANBI, 2010) reflect the presence of scattered wetlands some of which have been identified as ash dams and other artificial waterbodies

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°57'40.91"S	29°20'20.26"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 along the fences outside the Duvha Power Station 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 Witbank News. 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. **(The affected towers are within the Duvha Power Station and therefore no private Landowners are listed as I&AP's).**

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)
The affected towers are within the Duvha Power Station and therefore no private Landowners are listed as I&AP's		

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

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

3. ISSUES RAISED BY INTERESTED AND AFFECTED PARTIES

Summary of main issues raised by I&APs	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.

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
Mpumalanga DEDAT	Mr M Mkhize	013 766 4004	013 766 4614	thobelam@mpg.gov.za	Private Bag X11215, Nelspruit 1200
eMalahleni Local Municipality	Mr T. Van Vuuren	(013) 690 6208	(011) 690 6479	mbethefak@emalahleni.gov.za	
Nkangala District Municipality	Mr Charles Makola	(013) 249 2000	(013) 249 2087	nkosimm@nkangaladm.org.za	P O Box 437 Middelburg 1050

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 Duvha By – Pass Overhead Power Line			
CONSTRUCTION PHASE			
Activity	Impact summary	Significance (after mitigation)	Proposed mitigation
<p><i>Wetland Impacts:</i> Changes in sediment entering and exiting the system.</p>	<p>Direct Impacts: Changing the amount of sediment entering the wetland. Construction and operational 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. Possible sources of the impacts include:</p> <ul style="list-style-type: none"> • Earthwork activities during road construction • Clearing of surface vegetation will expose the soils, which in rainy events would wash through the watercourse, causing sedimentation. In addition, indigenous 	<p>Low</p>	<ul style="list-style-type: none"> • Retain vegetation and soil in position for as long as possible, removing it immediately ahead of construction / earthworks in that area (DWAF, 2005). • 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. • Runoff from the construction area must be managed to avoid pollution. • Implementation of best management practices • Source-directed controls

	<p>vegetation communities are unlikely to colonise eroded soils successfully and seeds from proximate alien invasive species can spread easily into these eroded soil.</p> <ul style="list-style-type: none"> Disturbance of soil surface <p>Disturbance of slopes through creation of roads and tracks adjacent to the wetland</p>		
	<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>	Low	
	<p>Cumulative Impacts: Expected to be low since the wetland is not hydrologically connected to a watercourse. Refer to the accompanying General Monitoring and Rehabilitation report.</p>	Low	
<p><i>Wetland Impacts: Loss and disturbance of wetland/riparian habitat and fringe vegetation</i></p>	<p>Direct Impacts: 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"> 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. 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 impact on rehabilitated or naturally vegetated areas
	<p>Indirect Impacts: Loss of indigenous vegetation.</p>	Low	
	<p>Cumulative Impacts: Habitat fragmentation. Expected to be moderate and can be effectively rehabilitated</p>	Moderate	
<p><i>Wetland Impacts: Introduction and spread of alien vegetation.</i></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 outcompeting natural vegetation and decreasing the natural biodiversity.</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 species are observed to establish. Rehabilitate or revegetate disturbed areas
	<p>Indirect impacts: Change in species diversity.</p>	Moderate	
	<p>Cumulative impacts: Expected to be moderate</p>	Moderate to Low	

	to low. Regular monitoring should be implemented during construction, rehabilitation including for a period after rehabilitation is completed. Refer to the accompanying General Rehabilitation and Monitoring Report		
<i>Vegetation Impacts: Loss of indigenous vegetation or indigenous plant species due to clearing of the footprint area</i>	Direct impacts: The area of the footprint for every pylon will be cleared of vegetation. This may result in the loss of indigenous species, but the grassland are all already severely disturbed. 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; • Rehabilitated areas must be monitored to ensure the establishment of re-vegetated areas.
	Indirect impacts: Loss of vegetation or indigenous vegetation.	Low	
	Cumulative impacts: Expected to reduce and fragment the natural grassland in the area to a limited extent.	Low	
<i>Vegetation Impacts: Increase of alien invasive plant species</i>	Direct impacts: Alien invasive plant species will encroach into disturbed areas.	Low	<ul style="list-style-type: none"> • An alien invasive management programme must be incorporated into the Environmental Management Programme; • Ongoing alien plant control must be undertaken; • 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.
	Indirect impacts: Change in species diversity		
	Cumulative impacts: Moderate, should mitigation measure not be implemented. Alien invader plant species pose an ecological threat as they alter habitat structure; lower biodiversity, change ecosystem services and processes e.g. change nutrient cycling and productivity, and modify food webs.	Moderate	
<i>Faunal Impacts: Direct Impact terrestrial vertebrate communities</i>	Direct impacts: At the commencement of construction the power plant was secured for a number of safety reasons. The precautions were intended to exclude humans without authorization from the site, but are equally effective against terrestrial vertebrate species. Zoologically the net effect is virtually a matter of what is outside, remains outside and what survived inside, remain inside.	Moderate	<ul style="list-style-type: none"> • The development will be on terrain that has previously been entirely transformed and managed for the purpose it was designed for. Nature preservation was not amenable to the objective and was thus not a consideration.
	Indirect impacts: Loss of species diversity.	Moderate	

	Cumulative impacts: Former developments intentionally transformed a small portion of Highveld grassland to build and operate a high security and sensitive facility. The transformation was complete and no further damage to prime environmental assets can be inflicted and should be accepted as a <i>fete d'accomple</i> .	Low	
<i>Faunal Impacts: Loss of faunal habitat and ecological structure</i>	Direct impacts: The initial development transformed the campus and surrounds. In the interim a regeneration of secondary grassland developed inside the compound and at critical places is mowed to curb fire hazards. Away from the substation grass is grazed by zebras but few other (if any) herbivores.	Moderate	<ul style="list-style-type: none"> • None possible due to former blanket transformation. Secondary habitats evolved will not be affected.
	Indirect impacts: Loss of species diversity.	Moderate	
	Cumulative impacts: None	N/A	
<i>Avifaunal Impacts: Habitat Loss</i>	Direct impacts: Avian habitats will be lost in the areas cleared for the construction of the 4 towers involved in this project. In the case of the Bravo 5 line, this impact will be minimal on account of the small area involved and highly transformed nature of this site. Additional habitat loss may occur during the construction phase.	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
	Indirect impacts: None		
	Cumulative impacts: minimal loss of habitat as the area is already highly transformed	Low	
<i>Avifaunal Impacts: Disturbance</i>	Direct impacts: Construction activities, and to a lesser extent maintenance activities, will cause disturbance to birds along the route of the proposed power line. This impact will be most severe if it affects breeding birds, although this is unlikely given the small area involved.	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 • 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 and maximise visibility of the line.
	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, but the risk posed by the Bravo 5 line in this regard is very low.	Low	
<i>Avifaunal Impacts: Electrocutions</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"> Electrocutions 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: Electrocutions 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: As no sites, features or objects of cultural significance are known to exist in the development area, there would be no impact as a result of the proposed development.	Low	<ul style="list-style-type: none"> 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.

	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 as 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 potentially distribute dust along internal access roads.	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 compound) in all areas that will be affected by construction • activities and where dust will be generated
	Indirect impacts: None identified	N/A	
	Cumulative impacts: None identified	N/A	
<i>Impact on socio-</i>	Direct impacts:	Moderate	<ul style="list-style-type: none"> • All adjacent landowners must be informed of the construction processes prior to

<i>economics</i>	Impact on nearby residential areas - Influx of workers in the area may raise concerns from neighbouring residents		commencement of construction activities. <ul style="list-style-type: none"> • 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 (after mitigation)	Proposed mitigation
<i>Ecological Impact:: Proliferation of Alien [Plant] Species</i>	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;
	Indirect impacts:	Low	

	Loss of indigenous vegetation.		<ul style="list-style-type: none"> • 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
	Cumulative impacts: Habitat fragmentation	Low	
<i>Avifaunal impacts during the operational phase (Power lines)</i>	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 Duvha By – Pass overhead 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

- Changes in sediment entering and exiting the system
- Soil erosion, sedimentation of drainage systems and degradation of wetland areas
- 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, Electrocutation, Electromagnetic Fields
- Dust and Noise Pollution
- Impacts on socio – economics: Influx of unemployed job seekers and temporary workers

These impacts are typical of construction activities and as such 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:

- Increased alien invasive vegetation due to disturbed soils; and
- Avifaunal Impacts: Electrocutation

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 EMPr 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 12/12/20/1097

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: 12/12/20/1097)

SECTION E. RECOMMENDATION OF PRACTITIONER

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

YES ✓

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

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

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 ✓	
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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