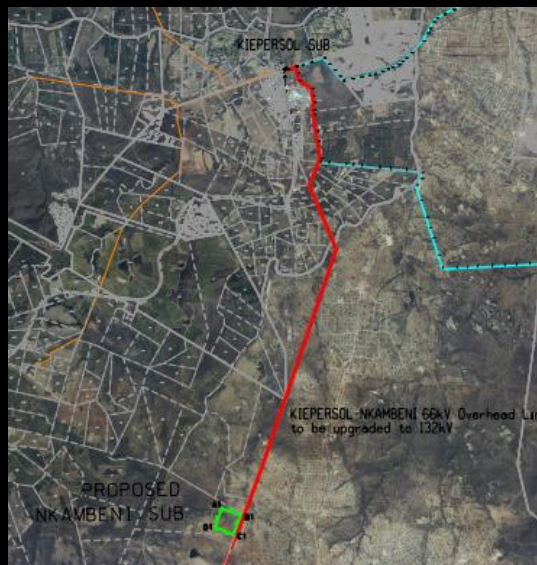




**Application for Amendment
(Part 2)
Amendment of Environmental
Authorisation for the
Proposed Establishment of
the 2 X 20 MVA 132/22 KV
Nkambeni Substation
DEA REF NO: 14/14/16/3/3/1/1603**



AMENDMENT REPORT

IN TERMS OF A

Amendment of Environmental Authorisation Reg No:

14/12/16/3/3/1/1603

Prepared for

ESKOM HOLDINGS SOC LIMITED

Date

3 December 2018

Prepared by



EcoPartners

Report No.: ESK1803ECT

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DOCUMENT DETAILS

| | |
|--------------------------|--|
| Document Number | ESK1803ECT |
| Document Title | Part 2 Amendment Report |
| Revision Number | 01 |
| Document Author | Jansie Cornelius |
| Document Reviewer | San Oosthuizen (EAP) |
| Project Team | San Oosthuizen Pr. Sci. Nat Jansie Cornelius Kahmani Gouden Pr. Sci. Nat |
| Disclaimer | <p>This disclaimer governs the use of this Amendment Assessment report. This report is compiled as part of submission for an amendment application to amend an approved environmental authorisation. The report is presented to registered Interested and Affected Parties (I&APs), stakeholders and the competent authority for comment. The scope and content of this report is within the extent of works as stipulated in regulation 31 and 32 of the Environmental Impact Assessment Regulations, 2014 as amended in 2017.</p> <p>The contents of this report present the policy and legislative context within which the activity is located as well as the need and desirability of the activity and identifies, assesses, and rank the impacts that the activity will impose on the site. Suitable measures to avoid, manage or mitigate identified impacts and the residual risks that need to be managed and monitored, are presented in the report.</p> <p>Information contained in this report is based on data supplied by the applicant. Data supplied by the applicant or other external sources is assumed to be correct unless otherwise stated. No responsibility is accepted by EcoPartners for incomplete or inaccurate data supplied by others.</p> <p>EcoPartners will not be liable to the reader in respect of any losses arising out of any event or events beyond it's reasonable control. EcoPartners will not be liable to the applicant or reader in respect of any business losses, including without limitation loss of or damage to profits, income, revenue, use, production, anticipated savings, business, contracts, commercial opportunities or goodwill.</p> |

Revision History

| Revision Number | Date | Comment |
|-----------------|-------------------|--|
| 0 | 20 September 2018 | Report for Comment |
| 01 | 3 December 2018 | Report for Comment updated - Findings of new Heritage study included |

ACRONYMS AND ABBREVIATIONS

| Acronym / Abbreviation | Description / Full text |
|------------------------|--|
| % | Percent |
| ° | Degrees |
| °C | Degrees Celsius |
| CA | Competent Authority |
| dB | Decibel |
| EA | Environmental Authorisation |
| EAP | Environmental Assessment Practitioner |
| EMF | Electric and Magnetic Field |
| EMPr | Environmental Management Programme |
| FEPA | Freshwater Priority Areas |
| GN | Government Notice |
| HIA | Heritage Impact Assessment |
| I&APs | Interested & Affected Parties |
| km | Kilometres |
| km ² | Square Kilometres |
| m ² | Square metres |
| mm | Millimetres |
| NEMA | National Environmental Management Act |
| PPP | Public Participation Process |
| SACNASP | South African Council for Natural Scientific Professions |

DOCUMENT ROADMAP

| Submit to the competent authority a report, reflecting | | Report reference |
|--|--|--------------------------|
| (i) | An assessment of all impacts related to the proposed change; | Section 4 |
| (ii) | Advantages and disadvantages associated with the proposed change; and | Section 5 |
| (iii) | Measures to ensure avoidance, management and mitigation of impacts associated with such proposed change; and | Section 4 |
| (iv) | Any changes to the EMPr; | Section 7 and Appendix E |

EXECUTIVE SUMMARY

Section updated 3 December 2018

The Environmental Authorisation (EA DEA Reference: 14/12/16/3/3/1/1603), approved 28 October 2016, authorised the construction of a 2 x 20 MVA 132/22kV substation and 20 m 132 loop in and loop out lines of an extent of approximately 150 m x 150 m on the Remaining Extent of the farm Nkambeni 950 JU (the Preferred Site Alternative S1). The substation is required because Eskom will be upgrading an existing 66kV line to a 132 kV line. The line will run from the substation area to the existing Kiepersol substation in Hazyview, Mbombela Local Municipality, Ehlanzeni District, Mpumalanga Province.

Application is hereby made to amend the EA to authorise Site Alternative S2. Due to the existence of possible heritage sites on this location Eskom will also like to extend the area allocated for Alternative S2 to 400 m x 400 m.

The change in site alternative is required because the tribal authority does not condone the construction of the substation on the Preferred Alternative Site S1. Application is thus made to authorise Site Alternative S2 which was also assessed during the EIA process. During the EIA the heritage specialist identified possible heritage sites on the 150 m x 150 m area earmarked as Site Alternative S2. The extension of Site Alternative S2 is required so that Eskom can determine the best position for the substation in the extended area without disturbing the possible heritage sites.

The heritage resources significant impact rating will change from medium to low impact as the identified heritage sites can be avoided in the new proposed footprint area. The extended area also provides ample space to avoid the additional heritage sites that were identified during a new Phase 1 Heritage Impact Assessment.

The proposed amendment in terms of the location will not increase the level of risk. Mitigation measures proposed during the initial EIA remains valid. The MTPA has no objection to the proposal of changing the position of the substation from preferred alternative 1 to the preferred alternative 2 site.

It is the EAP's opinion that the amendment should be authorised provided that Environmental Management Programme (proposed mitigation measures) be implemented.

TABLE OF CONTENTS

| | |
|--|----|
| TABLE OF CONTENTS | vi |
| 1 INTRODUCTION | 8 |
| 1.1 EAP Details And Expertise | 8 |
| 2 ACTIVITY And Location DESCRIPTION | 10 |
| 2.1 Reason for Amendment Application..... | 11 |
| 3 APPLICABLE LEGISLATION AND GUIDELINES | 13 |
| 3.1.1 National Environmental Management Act (Act 107 of 1998)..... | 13 |
| 4 ENVIRONMENTAL IMPACT ASSESSMENT OF THE PROPOSED AMENDMENT | 14 |
| 4.1 Impact Assessment (Before Amendment) | 14 |
| 4.2 Assessment of possible Impacts of Proposed Amendment | 19 |
| 4.2.1 Agricultural Impacts..... | 19 |
| 4.2.2 Archaeological and Cultural Heritage Impact | 22 |
| 4.2.3 Terrestrial Biodiversity Impact | 26 |
| 4.2.4 Topography | 27 |
| 4.2.5 Aviation Impact..... | 28 |
| 4.2.6 Impact Assessment Summary for Site Alternative S2 | 30 |
| 4.3 Mitigation Measures..... | 32 |
| 5 Advantages and Disadvantages of Proposed Amendment..... | 32 |
| 6 PUBLIC PARTICIPATION PROCESS..... | 33 |
| 6.1 Notification of I&APs | 33 |
| 6.1.1 Initial Project Notification | 33 |
| 6.2 Summary of issues raised by the I&APS | 34 |
| 7 CONCLUSION AND RECOMMENDATION..... | 35 |
| 8 ENVIRONMENTAL MANAGEMENT PROGRAMME..... | 35 |
| 9 REFERENCES | 36 |

LIST OF FIGURES

Figure 2-1: Location Map 10

Figure 2-2: Extended S2 location in relation with S1 & S2 assessed in EIA 11

Figure 4-1: Historic Arial Images 20

Figure 4-2 Agricultural Activities 22

Figure 4-3 Location of identified heritage sites 23

Figure 4-4: Contour Map 28

Figure 4-5 Civil Aviation Sensitivity 29

LIST OF TABLES

Table 1-1: EAP Details 8

Table 1-2: Holder of Authorisation Details 9

Table 2-1: Site Location Co-Ordinates 10

Table 3-1: Legislation and guidelines 13

Table 4-1: Results of sensitivity analysis 19

Table 5-1 Advantage and Disadvantages of the Proposed Amendment 32

Table 6-1 Newspapers where the notices were placed 33

LIST OF APPENDICES

Appendix A: Details and CV of EAP

Appendix B: Maps

Appendix C: Impact Register

Appendix D: Public Participation Appendix

Appendix E: Environmental Management Programme

Appendix F: APAC Phase 1 HIA

1 INTRODUCTION

The Environmental Authorisation (EA DEA Reference: 14/12/16/3/3/1/1603), approved 28 October 2016, authorised the construction of a 2 x 20 MVA 132/22kV substation and 20 m 132 loop in and loop out lines of an extent of approximately 150 m x 150 m on the Remaining Extent of the farm Nkambeni 950 JU (the Preferred Site Alternative S1). The substation is required because Eskom will be upgrading an existing 66kv line to a 132 kV line. The line will run from the substation area to the existing Kiepersol substation in Hazyview, City of Mbombela Local Municipality, Ehlanzeni District, Mpumalanga Province.

Application is hereby made to amend the EA to authorise Site Alternative S2. Due to the existence of possible heritage sites on this location Eskom will also like to extent the area allocated for Alternative 2 to 400 m x 400 m to allow the 150m x150m substation area to avoid identified heritage sites.

1.1 EAP DETAILS AND EXPERTISE

The EAP: San Oosthuizen (Pr. Sci. Nat.)

Extensive working knowledge and understanding of environmental policies, principles and legal and other requirements as applicable to South Africa.

More than 20 years' experience in the compilation of Environmental Impacts Assessment Reports and Mine Environmental Management Plans (EMPs). San is registered as a Professional Natural Scientist with SACNASP. See Curriculum vitae attached in Appendix A.

Table 1-1: EAP Details

| Details | | | |
|-------------------------------|--|--------------|--------------|
| Company name (if any): | EcoPartners Pty Ltd | | |
| Company Registration | 2005/028736/07 | | |
| Physical address: | 177 Weltevreden Road, Berario, 2195 | | |
| Postal address: | PO Box 73513, Fairland | | |
| Postal code: | 2030 | Cell: | 0723914679 |
| Telephone: | 011 431 2251 | Fax: | 086 539 6127 |
| Email Address | san@ecopartners.co.za | | |

Table 1-2: Holder of Authorisation Details

| Details | |
|-------------------------------|--|
| Company name (if any): | Eskom Holdings SOC Ltd |
| Contact Person | Mr Josiah Zungu |
| Postal address: | PO Box 1567, Nelspruit |
| Postal code: | 1200 |
| Telephone: | 013 755 9655 |
| Email Address | ZunguJ@eskom.co.za |

For Comment

2 ACTIVITY AND LOCATION DESCRIPTION

The activity is located in Mpumalanga Province, in the village of Mahushu. Mahushu village is situated between the towns of White River and Hazyview, approximately 40 km North-East of Nelspruit and approximately 10km from Hazyview within the City of Mbombela Local Municipality.

Proposed Site Alternative 2 (S2): (see Figure 2-1 below).

Proposed property description is, The farm Burgers Hall 21 JU Portion 115 - SG Code T0JU0000000002100115.

Table 2-1: Site Location Co-Ordinates

| 400m x 400m WG31 | | Longitude Latitude HH94 (Deg) (cm) | | | |
|------------------|--------------------------|------------------------------------|---|--------------|---------------|
| A1 | X=11710.87 Y=-2779169.52 | A1 | = | 31° 6' 58.0" | -25° 7' 6.1" |
| B1 | X=12084.64 Y=-2779311.99 | B1 | = | 31° 7' 11.4" | -25° 7' 10.7" |
| C1 | X=11942.17 Y=-2779685.76 | C1 | = | 31° 7' 6.3" | -25° 7' 22.8" |
| D1 | X=11568.40 Y=-2779543.29 | D1 | = | 31° 6' 53.0" | -25° 7' 18.2" |

Figure 2-1: Location Map



Source: Google Earth Maps, 2018

Figure 2-2: Extended S2 location in relation with S1 & S2 assessed in EIA



Source: Google Earth imagery & Eskom, 2018

2.1 REASON FOR AMENDMENT APPLICATION

The Environmental Authorisation (EA) authorised the construction of a 2 x 20 MVA 132/22kV substation and 20m 132 kV loop in and loop out lines of an extent of approximately 150 m x 150 m on the Remaining Extent of the farm Nkambeni 950 JU (the Preferred Site Alternative S1). The land belongs to the Government and the Mahushu trust has submitted a land claim on the property. The tribal authority does not want to give permission to Eskom for the construction of the substation on that area because it is being utilised by the community. Application is hereby made to amend the EA to authorise Site Alternative S2. Due to the existence of possible heritage sites on this location Eskom will also like to extent the area allocated for Alternative S2 to 400 m x 400 m.

The change in site alternative is required because the tribal authority does not condone the construction of the substation on the Preferred Alternative Site S1. Application is thus made to authorise Site Alternative S2 which was also assessed during the EIA process. During the EIA the heritage specialist identified possible heritage sites on the 150 m x 150 m area earmarked as Site Alternative S2. The extension of Site Alternative S2 is required so that Eskom can determine the best position for the substation in the extended area without disturbing the possible heritage sites.

For Comment

3 APPLICABLE LEGISLATION AND GUIDELINES

The following legislation and guidelines are applicable for this application

Table 3-1: Legislation and guidelines

| Legislation | Administering Authority | Type Permit/ license/ authorisation/ comment | Date (if already obtained): |
|--|---|--|---|
| National Environmental Management Act, Act 107 of 1998 (NEMA) as amended & NEMA EIA Regulations, 2014: GN R982 and R983, 2014 amended 2017 | Department of Environment (National) | Authorisation | 28 October 2016 14/12/16/3/3/1/1603 |
| National Heritage Resources Act, 1999 (Act No. 25 of 1999): | Provincial heritage resources authority | Permit | Before disturb any graves |
| National Forest Act, 1998 (Act No. 84 of 1998), List of Protected Tree Species | Department of Agriculture, Forestry and Fisheries | Licence or exemption | Will be required before the disturbance of any protected trees (<i>Sclerocarya birrea</i> has been identified on site) |
| POLICY/ GUIDELINES | | ADMINISTERING AUTHORITY | |
| Public Participation Guidelines | | Department of Environmental Affairs | |

3.1.1 National Environmental Management Act (Act 107 of 1998)

In terms of Regulation 31 and 32 of the NEMA Environmental Impact Assessment (EIA) Regulations, 2014 as amended Eskom is applying for an amendment to the EA issued. Regulation 31 (Part 2) of the 2014 NEMA EIA Regulations states that:

“An environmental authorisation may be amended by following the process prescribed in this Part if the amendment will result in a change to the scope of a valid environmental authorisation where such change will result in an increased level or nature of impact where such level or nature of impact was not (a) assessed and included in the initial application for environmental authorisation; or (b) taken into consideration in the initial environmental authorisation; and the change does not, on its own, constitute a listed or specified activity.”

As per sub-regulation (b) the proposed application for the amended site alternative to S2 for the substation location were considered as part of the initial EIA but the footprint area for the proposed location has increased, therefore these (potential) impacts need to be assessed according to the change in level or nature of impact.

4 ENVIRONMENTAL IMPACT ASSESSMENT OF THE PROPOSED AMENDMENT

4.1 IMPACT ASSESSMENT (BEFORE AMENDMENT)

In terms of the impact assessment done for Site Alternative 1 (S1) and Alternative 2 (S2) the following impacts were identified:

| CONSTRUCTION PHASE | | | |
|--|--|--------------|---|
| Activity | Impact summary | Significance | Proposed mitigation |
| <i>Direct impacts</i> | | | |
| Increased soil erosion due to the removal of vegetation | Soil erosion and land degradation | Very Low | <ul style="list-style-type: none"> Undertake vegetation clearing during the dry season; Only clear vegetation where absolutely necessary; Stockpile areas will be decided and approved by the Project Manager and appointed ECO before construction commences on site and should not be located within drainage lines. |
| Surface water contamination and degradation due to oil and fuel leaks from construction vehicles | Surface water contamination and degradation | Very Low | <ul style="list-style-type: none"> All construction vehicles should be kept in good working condition; All construction vehicles should be parked in demarcated areas when not in use, and the soil in this area should be rehabilitated(if required); Drip trays should be placed under construction vehicles when not in use; to collect any spillages/leaks if necessary; No vehicles, machinery, personnel, construction material, cement, fuel, oil or waste should be allowed outside of the demarcated working areas; No fuel storage, refuelling, vehicle maintenance or vehicle |
| | | | <ul style="list-style-type: none"> depots should be allowed within 30m of the edge of any wetlands or drainage lines; Vehicles and machinery should not be washed within 30m of the edge of any wetland or drainage line; No effluents or polluted water should be discharge into any drainage lines or wetland areas; If construction areas are to be pumped of water (e.g. after rains), this water should be pumped into an appropriate storage area, and not allowed to flow straight into any drainage lines or wetland areas. If hydrocarbon spillage occurs, clean it up immediately and dispose of at an appropriate registered landfill site. |
| Floral destruction and faunal displacement due to vegetation clearance activities. | Loss of flora and fauna due to construction activities | Very low | <ul style="list-style-type: none"> Use existing access roads as far as possible; Vegetation clearance should be conducted systematically from the start to the end of the route to allow fauna to move away; Vegetation should be removed only where construction is to take place; Sequential construction should occur in order to allow faunal species to move away from the area of disturbance; |

Part 2 Amendment Report

| CONSTRUCTION PHASE | | | |
|---|--|--------------|--|
| Activity | Impact summary | Significance | Proposed mitigation |
| | | | <ul style="list-style-type: none"> Construction activities should be restricted to daylight hours when the majority of faunal species are inactive; No animals may be snared, captured or wilfully killed; Species such as tortoises and porcupines should be removed to surrounding areas if encountered on site and not collected as this is illegal. Earth wires of the power line must be marked with a suitable anti collision marking device according to Eskom Transmission guidelines. |
| Increased noise generation due to construction activities and the movement of construction vehicles | The construction activities will cause an increase in the ambient noise levels | Very Low | <ul style="list-style-type: none"> Construction time must be restricted to working hours (07:00-17:00) Monday to Friday excluding public holidays (unless prior permission is obtained from the landowners); All noise and sounds generated during the proposed activity must comply with the relevant SANS codes and standards; All construction equipment or machinery should be switched off when not in use; Construction equipment must be kept in good working condition; Plant and vehicles must be in good working order and inspected daily. Use silencers on all equipment, where appropriate. |
| Increased dust generation due to the clearing of vegetation, construction activities and earthworks | Construction activities will cause an increase in ambient dust levels for a short period of time | Very Low | <ul style="list-style-type: none"> Water to be used sparingly and only where no water restrictions are in effect; The soil must be dampened with water during/ after vegetation removal (where practical); The clearing of vegetation must be kept to the minimal; Avoid unnecessary movement of construction vehicles on site and outside demarcated areas. |
| Increased occurrence of fires due to unmanaged fires and its increased severity due to human interference | Increased risk of damage due to unmanaged fires | Very Low | <ul style="list-style-type: none"> The safety officer should control on-site fires; Firefighting equipment to be kept on site and serviced regularly; No fires to be lit on site and smoking to occur in designated areas only |
| Increase in traffic volumes and associated congestion due to the transportation and construction vehicles travelling to and from the construction site. | Increase in traffic congestion due to the construction vehicles | Very Low | <ul style="list-style-type: none"> Limit construction vehicle movement during peak periods. |
| Soil contamination due to spillage of hazardous substances, oil and fuel leaks at the construction site from the transportation and construction vehicles as well as accidental spillages | Degradation of the soil due to spillages | Low | <ul style="list-style-type: none"> Provide staff with hazardous materials training; Chemical toilets to be used on site, grey water should be disposed of off-site at a licensed waste treatment works; Concrete mixing should be undertaken in a mixing trays/pans. No mixing of cement/concrete should take place within 30m of aquatic features or in natural vegetation; No servicing or repair of vehicles on site (unless absolutely necessary); No concrete mixing on site unless on a mortar board; |

Part 2 Amendment Report

| CONSTRUCTION PHASE | | | |
|--|--|-----------------|---|
| Activity | Impact summary | Significance | Proposed mitigation |
| | | | <ul style="list-style-type: none"> Water used to clean concrete off from machinery should be treated as grey water and disposed of at a licensed water treatment works; Construction vehicles should be maintained on a regular basis so as to prevent oil spills/leaks; Drip trays should be placed under vehicles when not in use. |
| Increased domestic waste generation (solid waste) and left unmanaged on site to attract vermin | Unightly litter on site | Low | <ul style="list-style-type: none"> Keep waste in vermin proof bins with lids (as needed); Waste to be removed from site on a regular basis. |
| Increased risk of alien invasion for vegetation species due to unmanaged vegetation clearing activities taking place on site | Increase in alien invasive species due to vegetation clearing activities | Low | <ul style="list-style-type: none"> An alien management plan must be implemented as directed by the ECO. The plan should limit vegetation clearing to the servitude of the powerline and no more. This plan must be developed prior to construction. |
| Temporary job creation during the construction of the proposed powerline and associated infrastructure | Unskilled labour force may be required for construction activities | Positively high | <ul style="list-style-type: none"> Local communities should be given first priority when it comes to employment. |

| CONSTRUCTION PHASE | | | |
|--|---|--------------|---|
| Activity | Impact summary | Significance | Proposed mitigation |
| Storm water management | Water resource pollution and Contamination | Medium | <ul style="list-style-type: none"> A proper storm water drainage system must be able to divert runoff from maximum expected flood events. Storm water must be diverted away from areas of possible pollution. Internal storm water reticulation is to be constructed early on in the development period in order to significantly reduce storm water during construction. |
| Indirect impacts: | | | |
| Potential increase in HIV/ AIDS in the area due to construction workers (migrant labour) associated with the proposed development | Due to the increase in workforce within the town, there may potentially be an increase in sexually transmitted diseases | Very Low | HIV & AIDS awareness talks should be given to the workers on a regular basis by the relevant personnel. |
| Impacts on agriculture potential and expansion due to the placement of the substation structures in existing potential farm lands resulting in the minor loss of arable land or potential expansion of farming activities. | Due to the location of pylon structures and the servitude restrictions, farming activities may be compromised | | <ul style="list-style-type: none"> Locate pylon structures within natural fire breaks within the currently farmed areas (where possible). Compensate farmers for the loss of arable land / servitude restrictions. |

Part 2 Amendment Report

| Operational phase | | | |
|---|--|-----------------|---|
| Activity | Impact summary | Significance | Proposed mitigation |
| <i>Direct impacts:</i> | | | |
| Economic growth and development in the surrounding area due to the strengthening of the existing electricity network to a point where it is stable and reliable and allowing future development and expansion of operations in the area | Due to the substation and associated powerline development- economic benefits will be realised | Medium Positive | Continue with the proposed development and ensure that the line is maintained |
| Increased theft and vandalism of the distribution line and associated infrastructure resulting in the occurrence of potential deaths, interruption in electricity supply and the increased maintenance intervals | Increase in theft of electrical cables | Very low | Access control at the substation needs to be implemented |
| Increased risk of alien invasion for vegetation species due to the disturbance in the landscape during operational and maintenance activities | Increase in alien invasive species | Very low | <ul style="list-style-type: none"> • Areas disturbed due to maintenance activities should be rehabilitated as quickly as possible; • Soil stockpiles should not be trans-located from areas with alien plants into the site; • Within the site, alien plants on stockpiles must be controlled so as to avoid the development of a solid seed bank of alien plants within the stock-piled soil; • Any alien plants must be immediately controlled to avoid establishment of a soil seed bank; and • Create an integrated alien invasive management programme to be implemented during maintenance activities. |
| Floral destruction and faunal displacement due to clearing or trimming of natural vegetation located within the servitude of the powerline as part of routine maintenance operations | Maintenance activities resulting in the loss of flora and fauna | Very low | <ul style="list-style-type: none"> • Maintenance impacts must be contained within the footprint of the substation structures and / or the servitude routes of the powerline; • Ensure that unnecessary impacts on natural vegetation do not occur; • Vegetation clearance should be conducted systematically from the start to the end of the route to allow fauna to move away; • Maintenance activities should be restricted to daylight hours when the majority of faunal species are inactive; and • No animals may be snared, captured or killed. |

Part 2 Amendment Report

| <i>Indirect impacts:</i> | | | |
|---|---|---------------------|---|
| Increased soil erosion due to the deterioration of access roads to the powerline servitude for operation and routine maintenance activities | Soil erosion due to maintenance activities | Very low | <ul style="list-style-type: none"> • Apply the appropriate erosion protection measures where erosion is identified; • Regular maintenance of the identified access roads as and when required; • Improve the access of the identified access roads to ensure suitable passage for equipment, erosion control and maintenance of proper drainage. |
| <i>Cumulative impacts:</i> | | | |
| Activity | Impact summary | Significance | Proposed mitigation |
| Stimulation and growth of the local economy due to the provision of a stable electricity. | Taking into consideration the future infrastructural upgrades that will occur, the local economy will increase. | High Positive | Infrastructure maintenance should be prioritised to ensure that the provision of stable electricity is not interrupted and future upgrades along this corridor should be encouraged. |
| <i>Decommissioning Phase</i> | | | |
| Please note that due to the nature of the project and the fact that the project is an infrastructural project, decommissioning is not envisaged. However should decommissioning occur, the following impacts may be applicable: | | | |
| Waste generation in the forms of generating metal and concrete waste during decommissioning activities | Solid waste generation due to decommissioning activities. | Very low | <ul style="list-style-type: none"> • Waste generation must be managed according to Eskom's guidelines and standards; and • All materials that can be recycled must be recycled where possible. The rest of the rubble must be disposed of at an appropriate landfill site |
| Watercourse and Soil contamination due to hydrocarbon spills which may occur from vehicles to be used to carry out various decommissioning activities | Soil and watercourse degradation due to decommissioning activities | Very low | <ul style="list-style-type: none"> • Contaminated soil must be removed and disposed of at an appropriate registered landfill site; • Heavy vehicles must be service and maintained regularly; • No fuel storage, refuelling, vehicle maintenance or vehicle depots should be allowed within 30m of the edge of any wetlands or drainage lines; • No effluents or polluted water should be allowed to discharge into any drainage lines or wetland areas; and • The construction footprint along the watercourse must be limited to as small a footprint as possible. |

Source: Basic Assessment Report, Naledzi Environmental Consultants, 2016

The proposed impacts for the construction, operational and decommissioning phase will be the same for Site Alternative 2 (S2). A medium impact during the construction phase was identified because of possible graves located on site alternative S2.

| Alternative 2 | | | |
|--|---|--------|---|
| THE PROPOSED IMPACTS WILL BE THE SAME AS THAT FOR ALTERNATIVE 1 INCLUDING THE FOLLOWING: | | | |
| Construction Phase | | | |
| Destruction of heritage sites (grave sites and ruins) identified along various sections of the proposed new substation and associated lines. | Loss of heritage resources constituting a high local significance | Medium | <ul style="list-style-type: none"> If any palaeontological materials (such as dense bone accumulations) are uncovered during the course of development then work in the immediate area should be halted. The find should need to be reported to the heritage authorities and may require inspection by an appropriate specialist. Such heritage is the property of the state and may require excavation and curation in an approved institution. |
| Operational Phase | | | |
| THE PROPOSED IMPACTS WILL BE THE SAME AS THAT FOR ALTERNATIVE 1 | | | |
| Decommissioning Phase | | | |
| THE PROPOSED IMPACTS WILL BE THE SAME AS THAT FOR ALTERNATIVE 1 | | | |

Source: Basic Assessment Report, Naledzi Environmental Consultants, 2016

4.2 ASSESSMENT OF POSSIBLE IMPACTS OF PROPOSED AMENDMENT

Even though the physical area allocated for the substation will increase, the disturbance caused by the substation itself will still be approximately 150 m x 150 m. The substation will just be positioned to avoid impacts on the possible heritage sites and protected trees that were identified during the environmental impact assessment process.

The National Environmental Screening Tool made available by the Department of Environment has been used to identify any environmental sensitivities for Site Alternative S2. The results of the sensitivity report are summarised below.

Table 4-1: Results of sensitivity analysis

| Theme | Very High sensitivity | High sensitivity | Medium sensitivity | Low sensitivity |
|--|-----------------------|------------------|--------------------|-----------------|
| Agriculture Theme | X | | | |
| Aquatic Biodiversity Theme | | | | X |
| Archaeological and Cultural Heritage Theme | | | X | |
| Civil Aviation Theme | | X | | |
| Defence Theme | | | | X |
| Terrestrial Biodiversity Theme | | | | X |

Source: Sensitivity Report, 31 Aug 2018

4.2.1 Agricultural Impacts

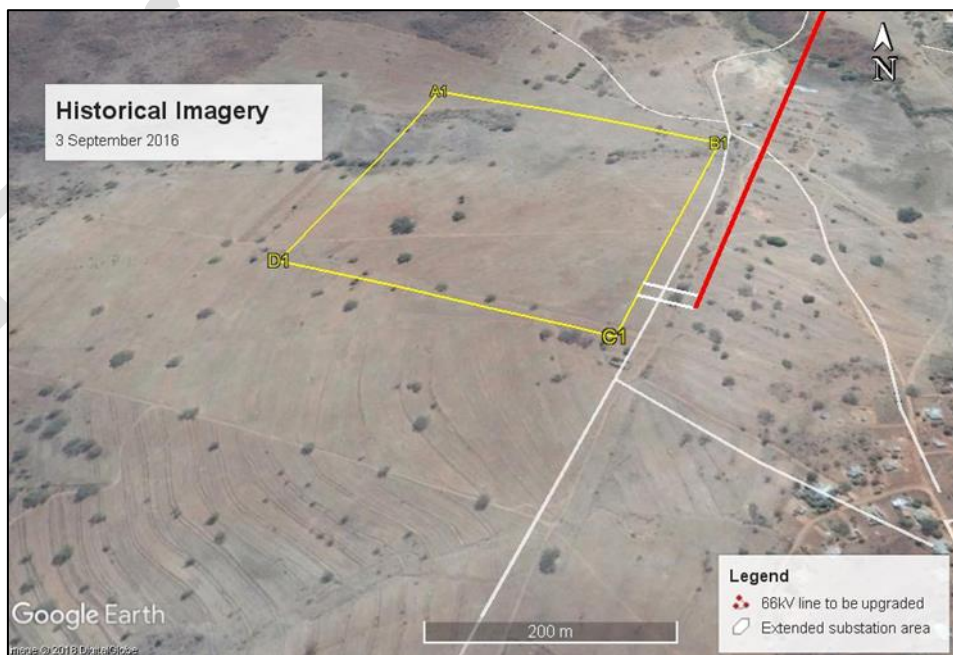
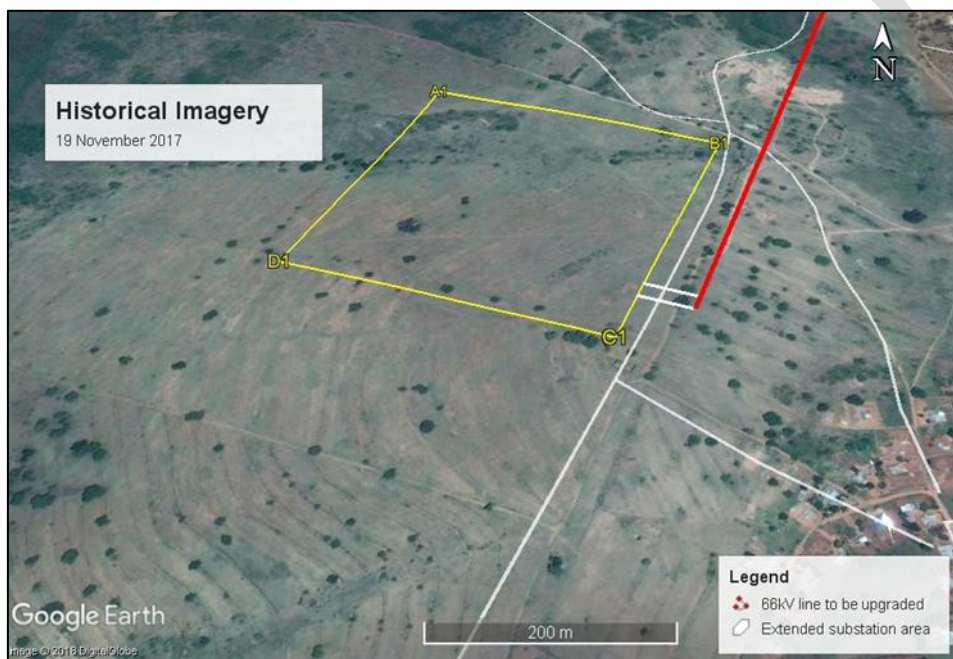
A very high agricultural sensitivity has been identified in terms of National Environmental Screening tool.

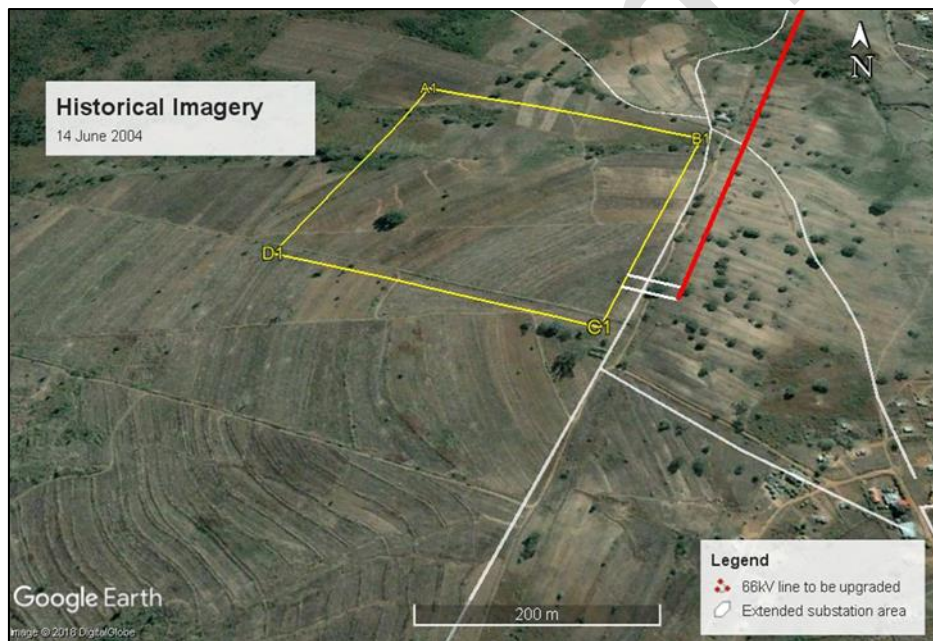
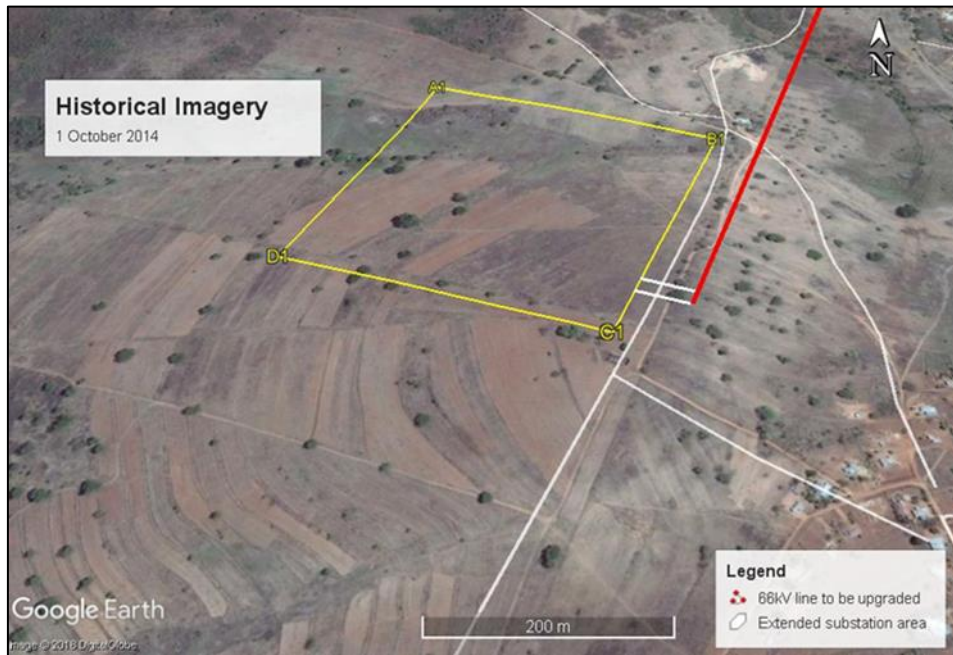
The area was being utilised for agricultural activities and grazing by community live stock. During the initial impact assessment process, the community indicated that Site Alternative S2 is not be used by the community any more, but that Site Alternative 1 is being utilised.

Should it be required, agricultural activities will be able to continue around the substation area after construction has been completed. The area lost will be the 150 m x 150 m footprint area.

Evidence of the decreasing use for agricultural activities over the last years on the site is visible in the historical google earth images below.

Figure 4-1: Historic Arial Images

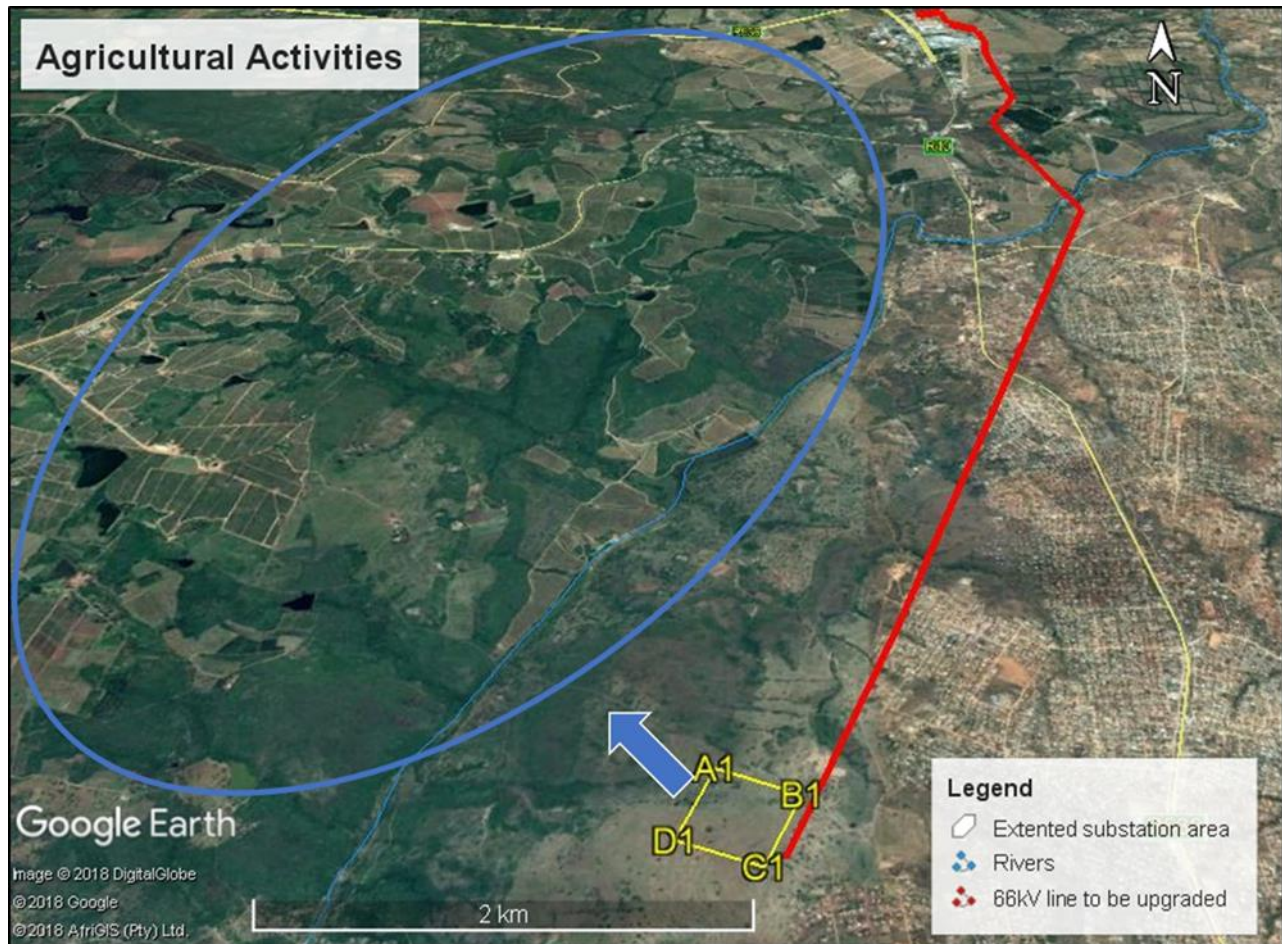




Source: Google Earth Imagery

More intense and active agricultural areas are located north west of the proposed site, please refer to Google Earth Image below.

Figure 4-2 Agricultural Activities



Source: Google Earth Image, 2018

4.2.1.1 Agricultural Impact Mitigation Measures

The area was utilised for agriculture. After construction the area servitude can still be used for agricultural activities.

4.2.2 Archaeological and Cultural Heritage Impact

Whole Section updated 3 December 2018

Archaeological and Cultural Heritage Sensitivity has been rated as being a medium sensitivity for the proposed area during the initial EIA.

In terms of the Heritage Impact Assessment done for the original EIA, 2 possible graves have been identified in the 150m x 150m footprint area (see Figure 4-3).

The extended area considered has previously been utilised for agricultural activities including cultivation and it is highly unlikely that any other heritage resources remained. A new Heritage study was commissioned to determine the presence of heritage sites of importance in the extended area.

Figure 4-3 Location of identified heritage sites

Source: GA Heritage Report (2016) & Google Earth Image, 2018

4.2.2.1 Findings of new Phase 1 Heritage Impact Assessment conducted in 2018

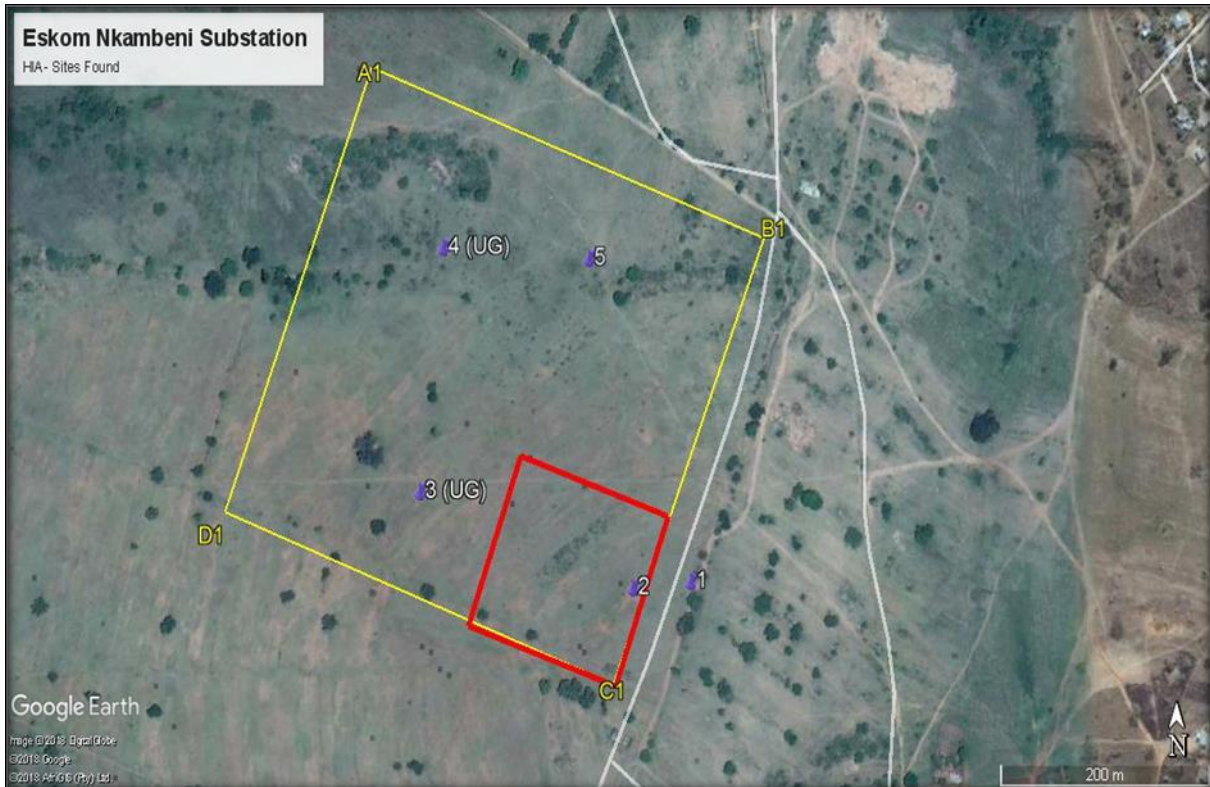
The Phase 1 Heritage Impact Assessment Report is available in Appendix F. The field assessment identified some sites & features of cultural heritage (archaeological/historical) origin in the study area. Most of these are however individual scatters of material (pottery, grinding stones) and of very low cultural heritage (archaeological and/or historical) significance. There is however a few with higher significance (APAC, 2018).

The area has been ploughed over the years, and as a result if any sites did occur here it would have been extensively disturbed or destroyed. Individual pieces and small scatters of undecorated pottery were noticed across the area, while out of context upper grinding stones were also identified. This is of course evidence of earlier settlement in the area that has all but been destroyed. Traces of this settlement can however still be present underground. Pieces of building material (cement/concrete) found is also further evidence of this, while the communal grinding hollows found on the rocky outcrop (Site 5) in the area substantiates this (APAC, 2018).

Sites 1, 3 & 4 are of low significance and no further mitigation is required. Site 1 is a scatter of undecorated pottery located just outside the area (on its boundary), while 2 & 3 are upper grinders.

Site 2 contains a fairly dense scatter of undecorated pottery, metal, porcelain and glass objects, located on an open area that could possibly denote an old refuse midden close to homestead (no physical evidence for the homestead remains). What makes this site very significant however is the scatter of metal slag (evidence for metal smelting and working). A fragment of a clay blow pipe (used in the metal smelting furnaces) was also found on the site. The age of these remains possibly date to the Late Iron Age (LIA), with some later historical settlement on the site as well. A stone cairn found close by (initially thought to be a possible grave is more likely a granary platform. Similar open patches were noticed in the study area, but very little material was found at these locations except for one or two pieces of pottery. It is possible that these open areas could be evidence of earlier homesteads that has been destroyed by recent farming activities (APAC, 2018)

Site 5 is located on a low rocky (granite) outcrop in the area and contains some fixed grinding hollows on the rocks and other evidence of grinding scattered across it. A stone cairn (possible granary stand) was also identified in close proximity. This site is further evidence of earlier (LIA) settlement and activity in the study area (APAC, 2018).

Figure 4-4: Heritage sites identified during the November 2018 assessment

Source: APAC Phase 1 HIA, 2018

4.2.2.2 Mitigation Measures

In terms of the approved Environmental Management Programme (EMPr) the mitigation measure to be implemented include:

- a) Positioning of a substation should in as far as possible avoid damage to heritage and archaeological resources.
- b) The contractor must stop work immediately upon discovery of heritage or archaeological objects.
- c) The find should need to be reported to the heritage authorities and may require inspection by an appropriate specialist.
- d) Heritage resources are not to be moved or destroyed without the necessary permits in place.
- e) In terms of the Phase 1 HIA done by APAC in 2018 the following is recommended:
 - i. It is recommended that Site 2 should be investigated archaeologically if it cannot be avoided by the proposed development. Should the site be demolished an archaeological excavation permit will be required from SAHRA.
 - ii. It is recommended that Site 5 and the rocky outcrop be avoided by the proposed development, but if it cannot then the site needs to be

investigated archaeologically and mapped in detail before demolition. A SAHRA permit (together with the one for Site 2) will be required.

- iii. Another possibility is to put a buffer zone of approximately 20m around the sites (from their outer perimeters) and to leave the sites in situ. If this is done a Cultural Heritage Management Plan should also be drafted and implemented.

From a Cultural Heritage point of view the development should be allowed to continue once the above recommended mitigation measures have been implemented (APAC, 2018).

4.2.3 Terrestrial Biodiversity Impact

In terms of the vegetation assessment done for Site Alternative S2 the land cover and land use assessment concluded:

“The study area is covered with permanently modified natural vegetation which has been subject to detrimental human intervention in the form of intensive cultivation, subsistence grazing and other forms of resource harvesting for as long as could be determined. There are no formal conservation areas in close proximity to the study area.”

The previous assessment identified *Sclerocarya birrea* (Maroela trees) on site. Should the footprint of the substation disturb any Maroela tree permits must be obtained from DAFF for removal of protected tree species if necessary.

Section below added 3 December 2018

Comments were received from the Mpumalanga Tourism and Parks Agency (MTPA) on the 22nd of October 2018. In the letter MTPA states that the Agency has no objection to the proposal of changing the position of the substation from preferred alternative 1 to the preferred alternative 2 site. The MTPA furthermore specified that the assessment of the terrestrial and freshwater maps of the Mpumalanga Biodiversity Sector Plan indicates that there are no biodiversity concerns. They furthermore acknowledge that the MBSP terrestrial biodiversity map indicates that the proposed 400m x 400m area on a portion of portion 115 has been degraded through previous agricultural activities.

4.2.3.1 Mitigation Measures

In terms of the EMPr the mitigation measures to be implemented include:

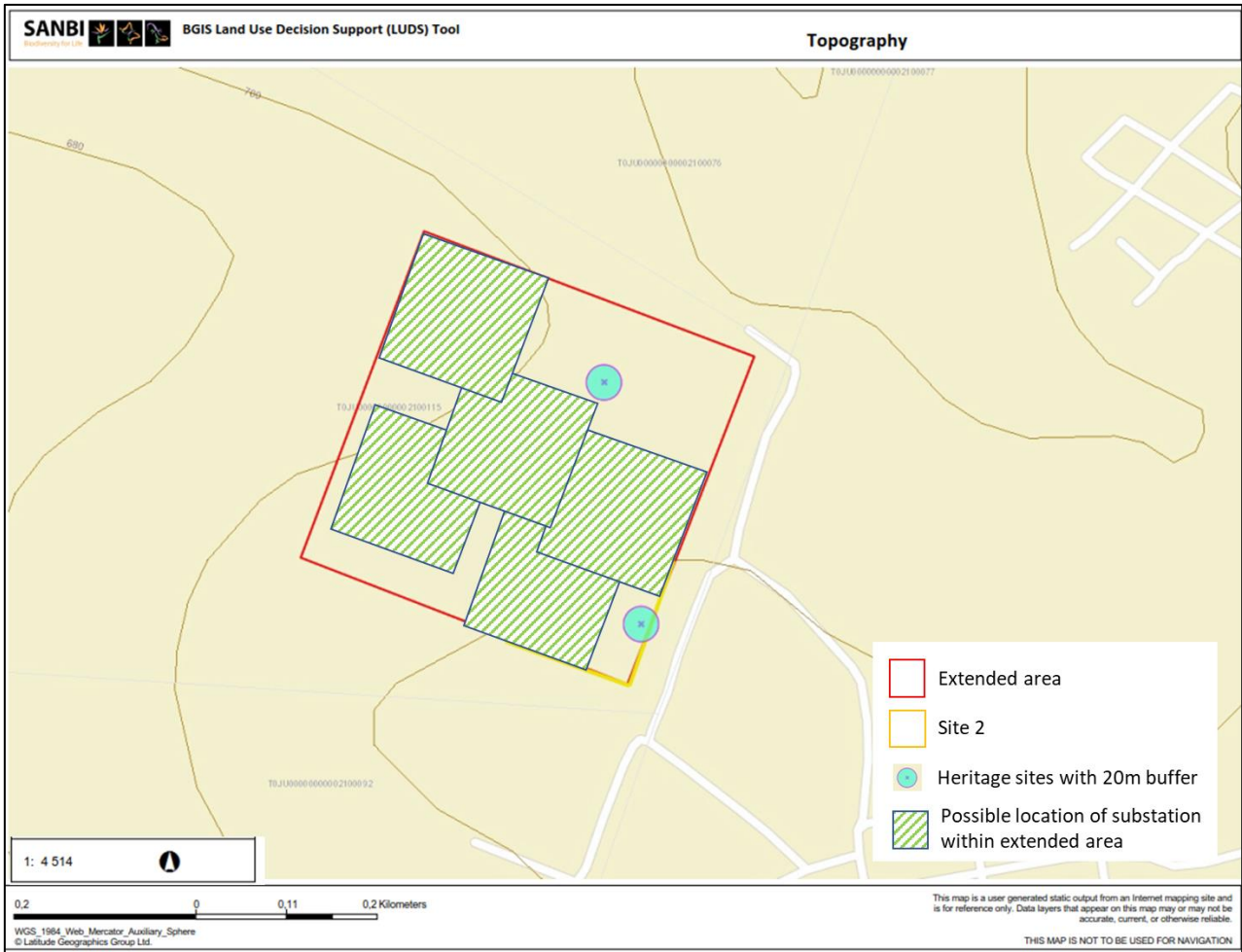
- a) Minimal disturbance to vegetation where such vegetation does not interfere with construction and operation of the line
- b) No unnecessary destruction to surrounding vegetation
- c) Protection of or endangered plant species
- d) Minimisation of vehicular movement in especially sensitive areas. Optimal utilisation of existing access roads
- e) Environmental awareness training to be conducted prior to commencement of construction activities through focus should be given to the aspect of flora species
- f) Selective cutting and trimming should be used in as far as applicable. Any vegetation cleared on construction site shall be re-moved or flattened and not be pushed to form an embankment around the site
- g) Checks must be carried out at regular intervals to identify areas where erosion is occurring. Appropriate remedial action, including rehabilitation of the eroded areas should be undertaken
- h) Open fires are strictly prohibited and only allowed at designated areas
- i) No protected species may be removed, or even partially cut or trimmed without the necessary permit from the provincial Forestry Department (*Sclerocarya birrea* is nationally protected trees which were identified within the study area)
- j) Rehabilitation of disturbed areas using species endemic to the area (continual monitoring of progress of re-vegetation is recommended)
- k) Removal of invasive alien plants
- l) **Added 3 December 2018:** Recommendations from MTPA: - The portion lie within the 10km ESA protected area buffer of the Kruger National Park and if any conservation important plant species is found on the site, the developer must ensure that the necessary permits to rescue it must be obtained from the MTPA.

4.2.4 Topography

Site Alternative S2 is sloped, and this may have an impact on the final footprint of the proposed 150m x 150m substation area within the 400m x 400m extended area. Please see map below. From the map it is clear that there is a large area in the extended site that is quite flat. Enough relative flat terrain will be present in the extended area to accommodate the substation without compromising the heritage sites identified on the

area. The map below provides an illustration only of where the substation could be located within the extended area. The exact location will be determined by Eskom based on their operational requirements and the location of the Maroela trees on site (See Section 4.3.2). Also refer to Appendix B for A3 copy of the sensitivity map.

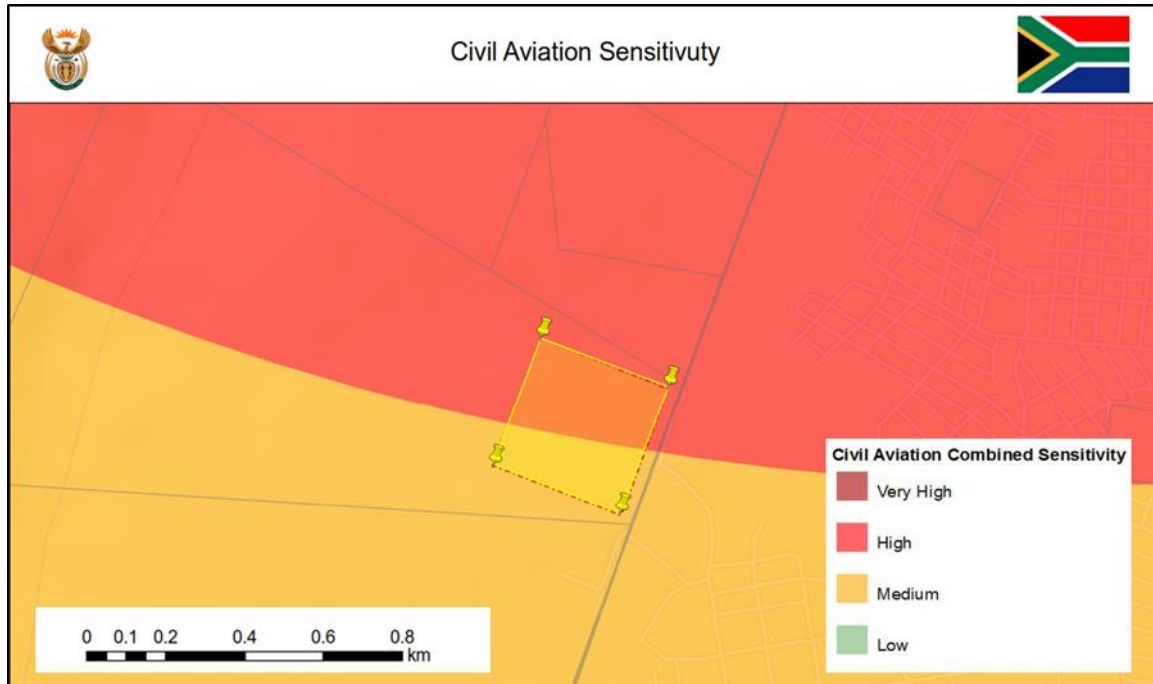
Figure 4-5: Contour Map (updated 3 Dec 18)



Source: SANBI, BGIS Map, 2018

4.2.5 Aviation Impact

In terms of civil aviation sensitivity more than 50% of the northern portion of the proposed area falls in a high sensitivity the rest of the area is rated a medium sensitivity, please refer to Figure 4-6 below.

Figure 4-6 Civil Aviation Sensitivity

Source: Sensitivity Map, National Screening Tool, 31 Aug 2018

The proposed site is located approximately 30 km north of the Kruger Mpumalanga International Airport. In terms of the proposed height of the infrastructure (18m) it is highly unlikely to have an impact on civil aviation.

The electric and magnetic field (EMF) levels decrease rapidly with distance from the transformers and other electrical equipment. Most of the time, EMF levels drop to the same as surrounding background levels at a distance of 90 to 100 meters from the substation area (Public Service Commission of Wisconsin). It is also therefore unlikely that the EMF generated by the substation on the extended Site Alternative S2 could influence civil aviation instrumentation.

4.2.6 Impact Assessment Summary for Site Alternative S2

| Activity | Phase | Impact Summary | Impact Significance (after mitigation) | Mitigation Measure |
|---|--------------|---|--|--|
| Destruction of heritage sites (grave sites and ruins) identified along various sections of the proposed new substation (S2) | Construction | Possible impact of heritage resources | Medium | <p>If any palaeontological materials (such as dense bone accumulations) are uncovered during the course of development then work in the immediate area should be halted.</p> <p>The find should need to be reported to the heritage authorities and may require inspection by an appropriate specialist.</p> |
| Destruction of heritage sites (grave sites and ruins) identified along various sections of the proposed new substation (S2 and extension) | Construction | Possible impact of heritage resources | Low | <p>Manage footprint of development to avoid the identified heritage resources.</p> <p>If any palaeontological materials (such as dense bone accumulations) are uncovered during the course of development then work in the immediate area should be halted. The find should need to be reported to the heritage authorities and may require inspection by an appropriate specialist.</p> |
| Clearance of site (S2 and extension) | Construction | <p>Agricultural activities may be compromised</p> <p>Loss of agricultural land</p> <p>Potential of disturbance to</p> | Medium | <p>Construction activities should be communicated and finalized with the affected property owners, and adhered to. Should this not be possible, the landowner should be informed and consulted about alternative arrangements prior to the activities commencing;</p> <p>The negotiation process should be largely participatory</p> |

| Activity | Phase | Impact Summary | Impact Significance (after mitigation) | Mitigation Measure |
|-----------------------|-------------|--|--|--|
| | | agricultural practices as a result of construction activities. Erosion and clearing of topsoil. | | and a grievances procedure should be put in place to address any grievances should they arise; Where necessary, mitigation measures should be implemented to avoid any interactions with domestic animals (e.g. fencing off the construction area and any dug up areas during construction). Minimise vegetation clearance and disturbance to the environment surrounding private properties |
| Operation of activity | Operational | Agricultural activities may be compromised | Medium | Minimise vegetation clearance and disturbance to the environment surrounding private properties |

** Please refer to **Appendix C** for the full impact assessment

By extending the area for Site Alternative S2 the impact on heritage resources changed from medium to low.

4.3 MITIGATION MEASURES

The proposed mitigation measures of the EMPr will still be effective for Site S2 and for the proposed extended area.

5 ADVANTAGES AND DISADVANTAGES OF PROPOSED AMENDMENT

The advantages and disadvantages of amending the authorisation to an extended Site Alternative 2 are described in the table below:

Table 5-1 Advantage and Disadvantages of the Proposed Amendment

| Advantages | Disadvantages |
|---|--|
| The preferred site of the tribal authority as the area is not utilised | The area is sloped |
| Identified heritage resources can be avoided. | Some heritage sites (possible graves) have been identified that will have to be avoided by the development footprint |
| No increase in significance of impacts | |
| Mitigation measures proposed in EIA and EMPr remains valid | Maroela trees may be disturbed if it cannot be avoided by the proposed development footprint |
| No delay in construction and distribution of electricity to areas where it is required | Loss of agricultural land |
| The proposed project will ensure that economic growth continues in the Region | |
| The area has been disturbed previously in the form of intensive cultivation, subsistence grazing and other forms of resource harvesting | |
| <u>Added 3 December 2018</u> Opportunity to investigate 2 heritage sites of medium/high significance and add to cultural knowledge of the area. | |

6 PUBLIC PARTICIPATION PROCESS

The Public Participation Process (PPP) mainly comprises the engagement with Interested and Affected Parties (I&APs) and is of utmost importance in any assessment process.

The PPP, inter alia, involves the following:

- a. Inform, raise awareness and increase understanding of environmental issues or any other issues that might be affected by the mining process.
- b. Establish lines of communication between stakeholders, I&APs and the project team.
- c. Provide opportunity to all parties for the exchange of information and expression of views and concerns.
- d. Obtain contributions of stakeholders and I&AP and ensure that all views, issues, concerns and queries are documented.
- e. Identify the significant issues associated with the proposed project.

EcoPartners (Pty) Ltd was appointed by Eskom as the consultant to handle the amendment application, including PPP. I&APs need to be notified and consulted with, in accordance with Regulation 42 of the NEMA Regulations 2014, as amended in 2017.

6.1 NOTIFICATION OF I&APs

6.1.1 Initial Project Notification

A newspaper notice was placed in a newspaper that circulates in the area; for this project the notice was placed in the Lowvelder. This notice serves to notify those people who might have an interest in the project and also for those individuals whose contact details could not be obtained or has changed. The newspaper notice contained the details of the project as well as details of where additional information can be found. Please refer to Appendix D for copy of the newspaper notification.

Table 6-1 Newspapers where the notices were placed

| NEWSPAPER | DISTRIBUTION AREAS | COPIES | LANGUAGE OF NOTICE | DATE PUBLISHED |
|-----------|--|--------|--------------------|------------------|
| Lowvelder | Nelspruit, White river, Barberton, Umjindini, Badplaas, Kanyamazane, Pienaar, Matsulu, Thokwane North & South, Legazi, Emonyeni, Daantjie, Msogwaba, Lydenburgh, Sabie, Graskop, Belfast, Machadodorp, Watervalboven, Watervalonder, | 19,500 | English | 7 September 2018 |

| NEWSPAPER | DISTRIBUTION AREAS | COPIES | LANGUAGE OF NOTICE | DATE PUBLISHED |
|-----------|---|--------|--------------------|----------------|
| | Schagen, Ngodwana, Alkmaar, Shongwe, Hectorspruit, Marloth park, Komatipoort, Tonga, Langloop, Mangweni, Masibekel, Naas, Sidlafama, Schoemansdal, Hazyview, Makukhlu, Kruger park gate, Skukuza, Bushbuckridge, Hoedspruit, Acornhoek, Meriti, Dwarsloop, Thulamashash, Malelane, Lows creek & Kaapmuiden. | | | |

Source: Lowvelder Correspondence (2018)

Site notices were put up in the area of the substation and the 132 kv line upgrade area and the surrounding areas. Three A2 notices and four A3 notices were put up, on and around the property. The public participation Appendix (Appendix D) contains the location of the site notices and pictures from the places the notices were affixed.

6.2 SUMMARY OF ISSUES RAISED BY THE I&APS

EcoPartners is keeping a register of Registered I&APs and stakeholders. The I&AP Register is available in the Public Participation Appendix D, Section 4.

7 CONCLUSION AND RECOMMENDATION

Section updated 3 December 2018

Should the amendment be granted Eskom will be able to avoid the possible heritage sites that were identified during the impact assessment phase as well as the additional sites that were identified in the extended area. Eskom will also be able to proceed with the upgrade of the existing 66kV line to a 132 kV line which will provide much needed electricity to the surrounding communities.

If the EA is not amended to authorise the activity on Site Alternative S2, then it will delay the upgrade of the 66kV line to a 132 kV line and the distribution of electricity to the areas where the electricity are needed. If Site Alternative S2 is not extended the construction of the substation could lead to the destruction of possible heritage sites identified during the initial impact assessment process as well as the during the new Phase 1 HIA.

The proposed amendment in terms of the location will not increase the level of risk. Mitigation measures proposed during the initial EIA remains valid.

The MTPA has no objection to the proposal of changing the position of the substation from preferred alternative 1 to the preferred alternative 2 site. The extended area also provides ample space to avoid the additional heritage sites that were identified during a new Phase 1 Heritage Impact Assessment.

It is the EAP's opinion that the amendment should be authorised provided that Environmental Management Programme (proposed mitigation measures) be implemented.

8 ENVIRONMENTAL MANAGEMENT PROGRAMME

The Environmental Management Programme is available as Appendix E. An Addendum has been included to update the site location description.

Added 3 December 2018

The recommendations received from the MTPA and the heritage specialist is also included in the Addendum to the EMPr.

9 REFERENCES

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- The National Environmental Management Act (NEMA) (Act No. 107 of 1998) as amended
- The National Forest Act (Act 84 of 1998)
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