AMENDED DRAFT BASIC ASSESSMENT REPORT

FOR THE

THE PROPOSED HIGHVELD NORTH-WEST AND LOWVELD STRENGTHENING PROJECT: EQUIPPING OF EXISTING BORUTHO AND SILIMELA SUBSTATIONS AND DEVELOPMENT OF BORUTHO-SILIMELA 150KM 400KV TRANSMISSION LINE AND ASSOCIATED INFRASTRUCTURE, WITHIN THE CAPRICORN, SEKHUKHUNE AND WATERBERG DISTRICT MUNICIPALITIES, LIMPOPO PROVINCE

DRAFT FOR PUBLIC COMMENTS

DFFE Ref No.: 14/12/16/3/3/1/2979

August 2024

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DOCUMENT CONTROL

Version Control

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PURPOSE OF THE REPORT

National Transmission company of South Africa (NTCSA), a subsidiary of Eskom Holdings SOC Limited has appointed NTC Group (Pty) Ltd as an independent Environmental Consultant to undertake a Basic Assessment Process for the proposed construction of the Borutho-Silimela 400kV power line and its associated infrastructure. The length of the power line is approximately 150km. The proposed power line is located between the Borutho Substation on farm Gillimberg 861 in Mokopane and runs south to the proposed Silimela substation on farm Loskop Noord 12, near Marble Hall within the Lepelle-Nkumpi, Mogalakwena, Modimolle-Mookgophong and Ephraim Mogale Local Municipalities, Limpopo Province. The construction of the power line will aid NTCSA in strengthening the power supply within Limpopo Province.

The proposed project falls within the Electricity Grid Infrastructure (EGI) corridor and as such there no alternative route considered as the servitude route is pre negotiated, negotiation is being finalised for the few outstanding servitudes. The project therefore triggers the Basic Assessment Process in terms of the Environmental Impact Assessment Regulations, 2014 (as amended) promulgated in terms of Chapter 5 of the National Environmental Management Act, 1998 (Act No 107 of 1998).).

Public participation is an essential and regulatory requirement for an environmental authorisation process and is guided by Regulations 41 of the EIA Regulations 2014 (GN R982) (as amended). The objectives of the Public Participation Process (PPP) are to provide information to the public, identify key issues and concerns at an early stage, respond to the issues and concerns raised, provide a review opportunity, and to document the process properly.

As part of the PPP, The draft BAR was made available for public from the the April 2024 to the 27 May 2024. Subsequent to the release of the initial Draft BAR the powerline route was slightly amended. The amendment entailed the deviation/relocation of the powerline from the Farm Bokpoort 328KR Portion 1 to Portions 2 and 4 of the Farm Gegund 332 KR, Remainder Portion of the Farm Doelen 327 KR and Portion 8 of the Farm Blinkwater 331 KR. Please note that Portions 2 and 4 of the Farm Gegund 332 KR, Remainder Portion of the Farm Doelen 327 KR and Portion 8 of the Farm Blinkwater 331 KR did not form part of the initial scope of work. Please note that all amendments to the report have been underlined for ease of reference. This is considered as a change in the scope of work and therefore the Amended Draft Basic Assessment Report will be made available for public review from the 05 August 2024 to the 05 September 2024 following venues and platforms:

- NTC Group website: www.ntcgroup.co.za
- Mokopane Local Library;
- Mogalakwena Local Municipality;
- Ephraim Mogale Local Municipality;
- Ga-Sekhaoelo Tribal Authority House; and

- On request from NTC.

To register as an interested and/or affected party (I&AP) and/or obtain additional information, please submit your name, contact details (telephone number, postal address and/or email address) and the interest which you have in the application to NTC Group as per the details below:

- NTC Group website: www.ntcgroup.co.za
- ppp@ntcgroup.co.za / projects@ntcgroup.co.za

In terms of the Protection of the Personal Information Act, 2013 (Act 4 of 2013) as amended, you hereby declare and confirm that you as an interested and affected party providing information, consent for your information to be gathered, stored and distributed for the purpose of this application. Please note that contact details provided will not be distributed for public review, i.e. contact details will be concealed, however, all contact details will only be included in the Draft BAR and Final BAR which will be submitted only to the competent authority, which in this case is the Departmnet of Foresry, Fisheries and Environment (DFFE).

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REGULATORY REQUIREMENTS FOR THE BASIC ASSESSMENT REPORT

NTC has compiled a table (refer to Table 1 below) which outlines the Regulatory requirements as outlined in Appendix A of the EIA Regulations, 2014 as amended, and where in the DBAR the requirements have been addressed within this report for ease of reference.

Basic assessment process	**Section where information can be found**
(a) determine the policy and legislative context within which the proposed activity is located and how the activity complies with and responds to the policy and legislative context;	Refer to Section 3 of the report.
(b) identify the alternatives considered, including the activity, location, and technology alternatives;	Refer to Section 2.4.3 of the report.
(c) describe the need and desirability of the proposed alternatives;	Refer to Section 2.3 of the report.
(d) through the undertaking of an impact and risk assessment process, inclusive of cumulative impacts which focused on determining the geographical, physical, biological, social, economic, heritage, and cultural sensitivity of the sites and locations within sites and the risk of impact of the proposed activity and technology alternatives on these aspects to determine- (i) the nature, significance, consequence, extent, duration, and probability of the impacts occurring to; and (ii) the degree to which these impacts- (aa) can be reversed;	Refer to Section 6 of the draft BAR and Appendix E to Appendix M of the report: Appendix E: Terrestrial Assessment Report Appendix F: Avifaunal Assessment Report Appendix G: Wetland Assessment Report Appendix H: Soil and Agricultural Potential Assessment Report Appendix I: Social Assessment Report Appendix J: Visual Assessment Report Appendix K: Heritage Impact Assessment Report Appendix L: Palaeontological Assessment Report Appendix M: Civil Aviation Sensitivity Report

(bb) may cause irreplaceable loss of resources; and (cc) can be avoided, managed or mitigated; and	
(e) through a ranking of the site sensitivities and possible impacts the activity and technology alternatives will impose on the sites and location identified through the life of the activity to- (i) identify and motivate a preferred site, activity and technology alternative; (ii) identify suitable measures to avoid, manage or mitigate identified impacts; and (iii) identify residual risks that need to be managed and monitored.	Refer to Section 6 of the DBAR. No alternatives were assessed - The route that is being studied is 250m wide and the servitude route is pre-negotiated, negotiation is being finalised for the few outstanding servitudes. The servitude for the proposed powerline will not be more than 90m wide and is located within the 250m wide proposed route/preferred route. The reason for studying a 250 wide route was to ensure that should there be a need to shift the powerline position, there would be room for movement. Therefore, no site, layout or technology alternatives have been considered in the DBAR. Refer to Section 2.4 of the DBAR. Mitigation Measures have been included in Section 6 and 7 of the DBAR. Please refer to Appendix O for the EMPr's. Refer to Section 6 of the DBAR.
Scope of assessment and content of basic assessment reports	**Section where information can be found**

(a) details of- (i) the EAP who prepared the report; and (ii) the expertise of the EAP, including a curriculum vitae;	Refer to Section 1.3 of the DBAR. Refer to Appendix A for the EAP's CV.
(b) the location of the activity, including: (i) the 21 digit Surveyor General code of each cadastral land parcel; (ii) where available, the physical address and farm name; (iii) where the required information in items (i) and (ii) is not available, the coordinates of the boundary of the property or properties;	Refer to Section 2.2 and Table 3 of the DBAR.
(c) a plan which locates the proposed activity or activities applied for as well as associated structures and infrastructure at an appropriate scale; or, if it is- (i) a linear activity, a description and coordinates of the corridor in which the proposed activity or activities is to be undertaken; or (ii) on land where the property has not been defined, the coordinates within which the activity is to be undertaken;	Refer to Section 2.2, Table 3 and Figure 2 of the DBAR.
(d) a description of the scope of the proposed activity, including- (i) all listed and specified activities triggered and being applied for; and	Refer to Section 3.7 of the DBAR, the listed activities triggered by the proposed development and the description of the activities have been included in Table 5.

(ii) a description of the activities to be undertaken including associated structures and infrastructure-	
(e) a description of the policy and legislative context within which the development is proposed including- (i) an identification of all legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks, and instruments that are applicable to this activity and have been considered in the preparation of the report; and (ii) how the proposed activity complies with and responds to the legislation and policy context, plans, guidelines, tools frameworks, and instruments;	Refer to Section 3 of the DBAR for the Environmental Legal Framework.
(f) a motivation for the need and desirability for the proposed development including the need and desirability of the activity in the context of the preferred location; -	Refer to Section 2.3 of the Draft BAR.
(g) a motivation for the preferred site, activity and technology alternative;	Refer to Section 2.4 of the DBAR.
(h) a full description of the process followed to reach the proposed preferred alternative within the site, including- (i) details of all the alternatives considered;	No alternatives were assessed - The route that is being studied is 250m wide and the servitude route is pre-negotiated, negotiation is being finalised for the few outstanding servitudes. The servitude for the proposed powerline will not be more than 90m

	wide and is located within the 250m wide proposed route/preferred route. The reason for studying a 250 wide route was to ensure that should there be a need to shift the powerline position, there would be room for movement. Therefore no site, layout or technology alternatives have been considered in the DBAR. Refer to Section 2.4 of the DBAR.
(ii) details of the public participation process undertaken in terms of regulation 41 of the Regulations, including copies of the supporting documents and inputs;	Refer to Section 4 of the DBAR and Appendix D.
(iii) a summary of the issues raised by interested and affected parties, and an indication of the manner in which the issues were incorporated, or the reasons for not including them;	Refer to Section 4.1.4 of the BAR Appendix D-9 for the Comment and Responses Report.
(iv) the environmental attributes associated with the alternatives focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects;	Refer to Section 5 of the DBAR.
(v) the impacts and risks identified for each alternative, including the nature, significance, consequence, extent, duration and probability of the impacts, including the degree to which these impacts-	Refer to Section 6 of the DBAR. Mitigation Measures have been included in Section 6 and 7 of the DBAR. Please refer to Appendix O for the EMPr's.
(aa) can be reversed;	Refer to Section 6 of the DBAR. The concluding Statement has been included in Section 7.5 of the Draft BAR.

(bb) may cause irreplaceable loss of resources; and (cc) can be avoided, managed or mitigated; (vi) the methodology used in determining and ranking the nature, significance, consequences, extent, duration and probability of potential environmental impacts and risks associated with the alternatives; (vii) positive and negative impacts that the proposed activity and alternatives will have on the environment and on the community that may be affected focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects; (viii) the possible mitigation measures that could be applied and level of residual risk; (ix) the outcome of the site selection matrix; (x) if no alternatives, including alternative locations for the activity were investigated, the motivation for not considering such; and (xi) a concluding statement indicating the preferred alternatives, including preferred location of the activity;	
(i) a full description of the process undertaken to identify, assess and rank	Refer to Section 6 of the DBAR.

the impacts the activity will impose on the preferred location through the life of the activity, including- (i) a description of all environmental issues and risks that were identified during the environmental impact assessment process; and (ii) an assessment of the significance of each issue and risk and an indication of the extent to which the issue and risk could be avoided or addressed by the adoption of mitigation measures;	
(j) an assessment of each identified potentially significant impact and risk, including- (i) cumulative impacts; (ii) the nature, significance and consequences of the impact and risk; (iii) the extent and duration of the impact and risk; (iv) the probability of the impact and risk occurring; (v) the degree to which the impact and risk can be reversed; (vi) the degree to which the impact and risk may cause irreplaceable loss of resources; and (vii) the degree to which the impact and risk can be avoided, managed or mitigated;	Refer to Section 6 of the DBAR.
(k) where applicable, a summary of the findings and impact management	Refer to Section 7.1 of the DBAR for the summary of findings and proposed mitigation measures.

measures identified in any specialist report complying with Appendix 6 to these Regulations and an indication as to how these findings and recommendations have been included in the final report;	
(l) an environmental impact statement which contains- (i) a summary of the key findings of the environmental impact assessment; (ii) a map at an appropriate scale which superimposes the proposed activity and its associated structures and infrastructure on the environmental sensitivities of the preferred site indicating any areas that should be avoided, including buffers; and (iii) a summary of the positive and negative impacts and risks of the proposed activity and identified alternatives;	Refer to Section 7 of the DBAR.
(m) based on the assessment, and where applicable, impact management measures from specialist reports, the recording of the proposed impact management outcomes for the development for inclusion in the EMPr;	Refer to Section 6 of the DBAR. Mitigation Measures have been included in Section 6 and 7 of the DBAR. Please refer to Appendix O for the EMPr's.
(n) any aspects which were conditional to the findings of the assessment either by the EAP or specialist which are to be included as conditions of authorisation;	Refer to Section 7.1 of the BAR.
(o) a description of any assumptions, uncertainties, and gaps in knowledge	Section 1.4 outline the EAP and the respective specialists assumptions and limitations.

which relate to the assessment and mitigation measures proposed;	
(p) a reasoned opinion as to whether the proposed activity should or should not be authorised, and if the opinion is that it should be authorised, any conditions that should be made in respect of that authorisation;	Refer to Section 7.1 for the summary of impacts and proposed mitigation measures to be included in the EA. Refer to Section 7.5 for the EAPs recommendations.
(q) where the proposed activity does not include operational aspects, the period for which the environmental authorisation is required, the date on which the activity will be concluded, and the post construction monitoring requirements finalised;	Section 7.5 for the EAPs recommendations and the period for which the environmental authorisation is required.
(r) an undertaking under oath or affirmation by the EAP in relation to- (i) the correctness of the information provided in the reports; (ii) the inclusion of comments and inputs from stakeholders and I&APs; (iii) the inclusion of inputs and recommendations from the specialist reports where relevant; and (iv) any information provided by the EAP to interested and affected parties and any responses by the EAP to comments or inputs made by interested and affected parties; an	Refer to Appendix A of the DBAR.
(t) any specific information that may be required by the competent authority; and	N/A

(u) any other matters required in terms of section 24(4)(a) and (b) of the Act.	N/A

EXECUTIVE SUMMARY

National Transmission Company of South Africa (NTCSA), a subsidiary of Eskom Holdings SOC Limited has appointed NTC Group (Pty) Ltd as an independent Environmental Consultant to undertake a Basic Assessment Process for the proposed construction of the Borutho-Silimela 400kV power line and its associated infrastructure. The length of the power line is approximately 150km. The proposed power line is located between the Borutho Substation on farm Gillimberg 861 in Mokopane and runs south to the proposed Silimela substation on farm Loskop Noord 12, near Marble Hall within the Lepelle-Nkumpi, Mogalakwena, Modimolle-Mookgophong and Ephraim Mogale Local Municipalities, Limpopo Province. The construction of the power line will aid NTCSA in strengthening the power supply within Limpopo Province (refer to Figure 1 below). A detailed description of the project is provided in Section 2 of this report.

The scope of work entails:

- Equip 1 x 400kV feeder bay at Borutho Substation for Silimela Line 1.
- Equip 1 x 400kV feeder bay at Silimela Substation for Borutho Line 1.
- Build approximately 150km 400kV line from Borutho Substation to Silimela Substation, with associated extensions at the terminal substations.

The proposed project is located within the Electricity Grid Infrastructure (EGI) Corridor referred to as the International Corridor, therefore triggers the Basic Assessment Process in terms of the Environmental Impact Assessment Regulations, 2014 (as amended) promulgated in terms of Chapter 5 of the National Environmental Management Act 1998 (Act No 107 of 1998).

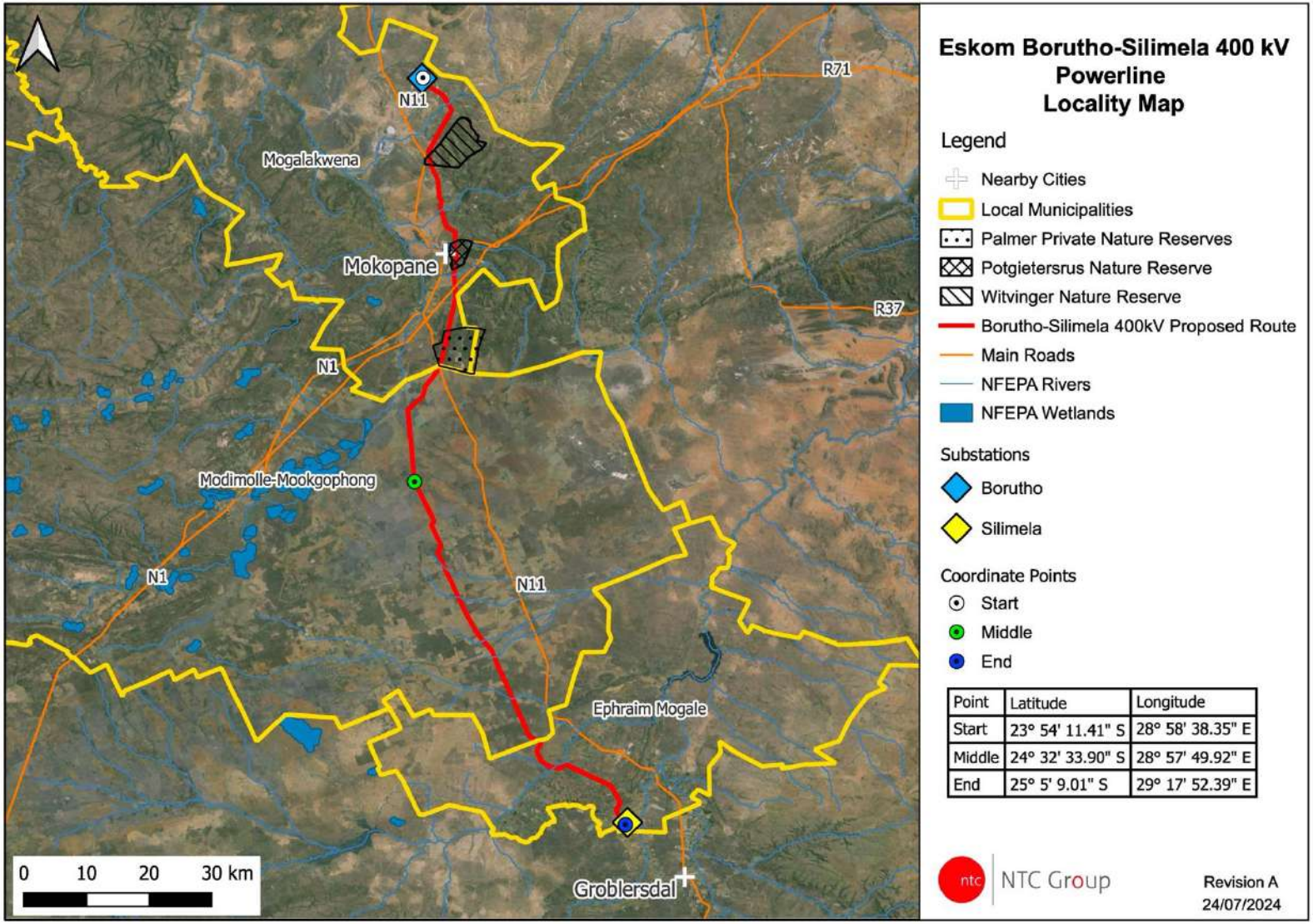

Figure 1: Locality Map

SUMMARY OF THE FINDINGS AND RECOMMENDATIONS

The preceding chapters of this report together with the specialist studies contained within Appendices **E-L** provide a detailed assessment of the potential impacts that may result from the construction of the 400kV power line and associated infrastructure. A summary of the recommendations and conclusions for the proposed project is provided in this Section of the report.

In so doing, it draws on the information gathered as part of the BA process, the knowledge gained by the environmental specialists and the EAP, and presents a combined and informed opinion of the environmental impacts associated with the project.

No environmental fatal flaws or unacceptable impacts were identified in the detailed specialist studies conducted, provided that the recommended mitigation measures are implemented. These measures include, amongst others, the avoidance of sensitive features within the development footprint and the undertaking of the construction and operational bird and bat monitoring, as specified by the specialists.

The potential environmental impacts associated with the construction of the 400kV power line and the associated infrastructure identified and assessed through the BA process include:

- Impacts on ecology, flora and fauna.
- Impacts on freshwater resources.
- Impacts on avifauna.
- Impacts on land use, soils and agricultural potential.
- Impacts on heritage resources, including archaeology and palaeontology the cultural landscape.
- Positive and negative socio- economic impacts.

The environmental sensitivities identified by the relevant specialists for the project site are illustrated in Figure 3 The development footprint, as assessed, has been overlain with the relevant environmental sensitivities in Figure 8.

Terrestrial Biodiversity Assessment

The impacts assessment ratings will be mostly Negative medium impact to Negative low impact from a specialist perspective. However, considering the aforementioned conservation status of the footprint bioregion and the recommended mitigations are not implemented, the project will drastically have an overall Negative high impact which should be avoided by the applicant.

Important recommendations for the conservation of the current vegetation structure

- The proponent must be committed to a conservation approach of practice and the actual footprint of disturbance must be kept to a minimum.
- As much of the natural environment must be conserved, there should be minimal vegetation clearing.
- Relocation of important species, identification and demarcation of specimens and sub habitats not to be disturbed will have to be done beforehand by a specialist.
- Important species (flora) that will be threatened by the development must be relocated to safer habitats by suitable specialists.
- Preventative erosion control measures to be put in place.
- Conduct alien invasive species monitoring on an annual basis.

Important recommendations for conservation of fauna species

- The proponent must be committed to a conservation approach of practice and the actual footprint of disturbance must be kept to a minimum.
- Relocation of important species, identification and demarcation of specimens and sub habitats not to be disturbed will have to be done beforehand by a specialist.
- Important species (fauna) that will be threatened by the development must be relocated to safer habitats by suitable specialists.
- Preventative erosion control measures to be put in place.

Specific conditions recommended for the EA from a biodiversity perspective

1. Implement mitigation controls during the construction phase as specified in the mitigation requirements. Monitor and report on their effectiveness.
2. Implement mitigation controls during the operational phase as specified in the mitigation. Monitor and report on their effectiveness.
3. Monitoring of implementation of mitigation controls, along with reporting, should be undertaken at least quarterly throughout the construction phase, and bi-annually during the operational phase. Monitoring, at the minimum, should consist of a quarterly monitoring of the development area;
4. As much of the natural habitat as possible should be preserved during construction and operation to lessen the operational impacts and to reduce the irreversibility of impacts.
5. Effective restoration of the natural habitats that were intact before the development should be implemented and reported on after decommissioning.

Wetland Assessment

The majority of the watercourses in the study area are likely to have been impacted by agriculture and cattle farming to varying degrees, as well as mining in some areas. However, most of the proposed line is located on parts of the country that is very sparsely inhabited. Consequently, impacts to watercourses are relatively less significant compared to denser populated areas. Numerous waterbodies occur within the 250m route discussed in this report. The watercourses (including the buffer zones) directly crossed by the proposed development are the ones likely to be potentially impacted and form the main focus of this report.

The risk scores fall in the Low category. Authorisation may proceed through a General Authorisation given that mitigation measures are effectively implemented. The risk scores fall in the Low category. Authorisation may proceed through a General Authorisation given that mitigation measures are effectively implemented. It should be noted that Appendix D2 of GN 509 states that the construction of new transmission or distribution powerlines, minor maintenance on roads, river crossings, towers and substations, where the footprint remains the same, are exempt from a WUL.

From the impact assessment undertaken it is evident that during construction phase, prior to mitigation impacts on loss of habitat and ecological structure, as well as impacts on hydrological function and sediment balance are medium-high level impacts. However, should mitigation be implemented, the impacts will be reduced to medium-low level impacts. The impacts on ecological and sociocultural service provision, impacts on floral species as well as impacts on floral species are medium-low level impacts prior to mitigation. However, should mitigation be implemented, the impacts will be reduced to low level impacts. The impacts on faunal species will be low prior to mitigation and very-low should mitigation be implemented. During operational phase, prior to mitigation impacts on habitat and ecological structure, ecological and sociocultural service provision as well as hydrological function and sediment balance are low level impacts. Furthermore, the impacts on floral species and faunal species are very low significance impacts. However, should mitigation be implemented all impacts will be reduced to very-low significance impacts.

Several recommended mitigation measures are made to minimise the impact on the watercourses. Key mitigation measures include (but are not limited to):

- No construction may take place within the wetlands or 100m GN704 Zone of Regulation. Additionally, the wetlands and 100m GN704 Zone of Regulation must be demarcated as a no-go area;
- No stockpiles are to be permitted within the 100m GN704 Zone of Regulation;
- Exposed soil and stockpiles must be protected from wind by covering with a suitable geotextile such as hessian sheeting and ensure no stockpiles are higher than 2m;
- Dust suppression measures must be implemented throughout construction to prevent excessive dust which may smother wetland vegetation; and

- A site-specific rehabilitation plan, including an alien invasive plant (AIP) management plan, must be compiled and implemented. AIPs should be removed by hand and no machinery should be allowed in the wetlands.

Avifauna

The proposed powerline development is situated in an area of High animal sensitivity. Acquired historical data indicated the dominance of Least Concern species with a very moderate diversity of individuals. As a result, from an avifaunal perspective, there is no objection to the development of the proposed powerline development and associated infrastructure, provided that the recommended mitigation measures are strictly followed. The overall impacts (including cumulative) for the project are considered to be Negative low should the mitigation recommendations be effectively implemented.

Specific conditions recommended for the EA from an avifaunal perspective

1. Implement mitigation controls during the construction phase as specified in the mitigation requirements. Monitor and report on their effectiveness.
2. Implement mitigation controls during the operational phase as specified in the mitigation. Monitor and report on their effectiveness.
3. Monitoring of implementation of mitigation controls, along with reporting, should be undertaken at least quarterly throughout the construction phase, and bi-annually during the operational phase. Monitoring, at the minimum, should consist of a quarterly monitoring of the powerline area for evidence of collisions and electrocution risks.
4. Preserve as much of the natural habitat as possible during construction and operation to lessen the operational impacts and to reduce the irreversibility of impacts.
5. Effective restoration of the natural habitats that were intact before the development should be implemented and reported on after decommissioning.

Soil and Agricultural Potential

The study area has a Semi-Arid climate, making the cultivation of dry land crops possible but challenging. The area is dominated by the Ae broad land type, characterized by freely drained, deep, red, sandy soils. The soil capability varies across the proposed transmission line, with the southern part having a high capability (3-8), the central region having a moderate to high capability (4-7), and the northern part having a very low to moderate capability (1-6). The land capability also varies, with the northern part being non-arable and having low capability (5-7), while the central and southern parts are arable with moderate to high capability (8-11). The South African National Land-Cover 2020 (SANLC 2020) shows little change in land use since 2014, with the area predominantly classified as forested area, grassland, and both pivot irrigated and non-irrigated agricultural lands in the south.

A total of 35 soil and land use observations were made in the portion from the Elandsrivier to the Silimela substation, with 21 conducted on the Burutho-Silimela Transmission Line Deviation Route and 14 additional or shifted observations due to inaccessible areas. The prevalent soil forms identified were Vaalbos, Mispah, and Hutton soils, with other soil forms such as Avalon, Bainsvlei, and Nkonkoni identified in the south of the study area, close to the Silimela Substation. Land capability calculated from the field assessed portion of the line shows varying land capability across different areas. The southern part predominantly has high land capability, while the central and northern parts have predominantly low land capability.

The impact assessment identified soil erosion, compaction, and surface sealing as minor impacts. However, the loss of agricultural land was flagged as a moderate-to-high impact, necessitating mitigation measures (refer to Figure 3 below).

The Burutho - Silimela 400 kV Transmission Line is supported from an agricultural perspective with the following conditions:

- No placement of surface infrastructure within cropped fields, particularly in irrigated and citrus fields.
- Construction must interfere with agricultural activities.
- During construction, large vehicles and building equipment need to keep largely to the infrastructure footprint to not cause compaction and sealing further than the footprint.
- Perimeter fence, particularly in the game and grazing farms.

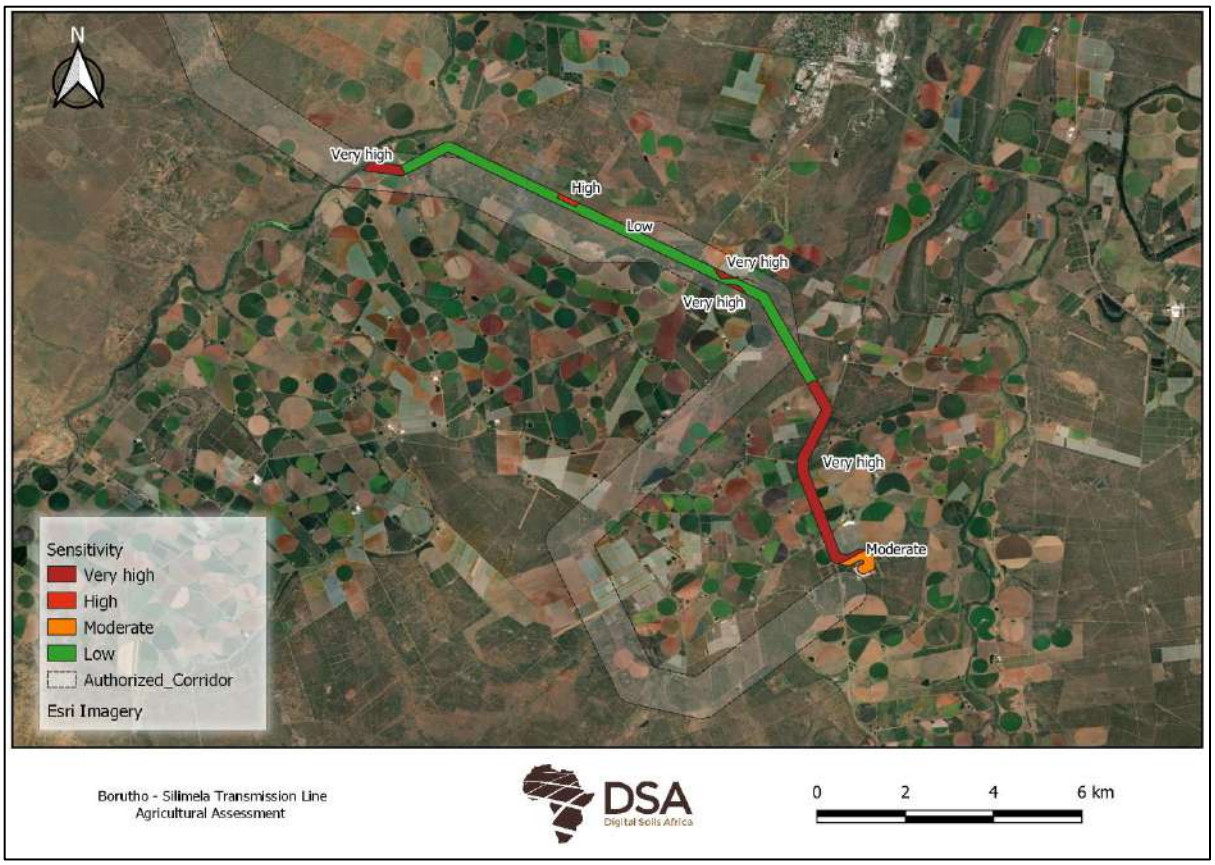

Figure 2: Sensitivity of the surveyed area

Social Impacts

From a social perspective it is concluded that the project is supported, but that mitigation measures should be implemented and adhered to. Positive and negative social impacts have been identified. The assessment of the key issues indicated that there are no negative impacts that can be classified as fatal flaws, and which are of such significance that it cannot be successfully mitigated. Positive impacts could be enhanced by implementing appropriate enhancement measures and through careful planning.

Based on the social assessment, the following general conclusions and findings can be made:

- The development of an overhead powerline is a critical step in addressing the socio-economic challenges faced by residents. The assessment identified key issues such as inadequate access to water, electricity, sanitation, and safety concerns. By developing these services, the project aims to improve living conditions, enhance safety, and provide equal opportunities for all residents.
- The proposed development aligns with the national, provincial, and local policy frameworks, emphasizing the importance of inclusive housing development, improved service delivery, and

sustainable urban development. It supports the goals outlined in the National Development Plan and various housing policies, which prioritize the provision of basic services and the enhancement of living conditions in informal settlements.

- The development of an overhead powerline will have positive socio-economic impacts. Job creation is expected during the construction phase, stimulating local economic activity through the procurement of construction materials and services. It also offers opportunities for skills development and training for the local labour force, contributing to improved employment prospects and income generation. The project will result in enhanced access to basic services and amenities, improving the standard of living and quality of life for affected communities.

- The stakeholder engagement process played a vital role in shaping the project. Community members and other stakeholders provided valuable insights and feedback, highlighting the importance of basic services, job opportunities, and addressing major social issues. The overwhelming support for the proposed development underscores the recognition of its potential benefits in improving the socio-economic well-being of the community.

- Mitigation measures are necessary to address potential negative impacts associated with the construction and operational phases. Temporary inconveniences and disruptions during construction should be minimized through effective project management and communication. Challenges in managing and maintaining the formalized services effectively require the implementation of efficient management practices, ongoing monitoring, and community engagement. Measures should also be in place to manage and resolve potential conflicts or disputes related to the allocation of formalized services.

- The cumulative impacts of the project can contribute to sustained economic growth, improved infrastructure development, and enhanced local services. Economic growth will be driven by job creation, increased business activity, and revenue generation. Infrastructure development will result in improved transportation networks, utilities, and community facilities, enhancing access to services.

- However, the cumulative impacts also present challenges that need to be addressed. The increased demand on resources, including water, energy, and land, must be managed efficiently to prevent scarcity and environmental degradation. Measures should be in place to minimize social displacement and avoid exacerbating socio-economic inequalities. Environmental degradation, including habitat loss, pollution, and resource depletion, must be mitigated through robust environmental management strategies.

- By considering diverse viewpoints and suggestions, the final Socio-Economic Impact Assessment (SIA) will provide a comprehensive analysis of potential socio-economic impacts. This will ensure

that decision-makers have a complete understanding of the project's implications, enabling them to make informed decisions that maximize benefits and minimize adverse effects.

- The proposed NTCSA Burotho-Silimela development in the Limpopo area is a crucial step in addressing socio-economic challenges, enhancing quality of life, promoting equitable development, and creating sustainable opportunities for the community. By considering affordability, implementing mitigation measures, and engaging stakeholders, the project can maximize its positive impacts while minimizing any negative consequences. The project's alignment with policy frameworks and its potential to contribute to sustained economic growth, improved infrastructure, and enhanced local services make it a promising endeavour for the socio-economic development of the area.

The following recommendations are made based on the SIA and a thorough review of the concerns and suggestions raised by stakeholders and interested and affected parties during the stakeholder engagement process. The proposed mitigation measures should be implemented to limit the negative impacts and enhance the positive impacts. Based on the social assessment, the following recommendations are made:

- **Employment and Economic Stimulation:** Given the scarcity of job opportunities for the unskilled and semi-skilled in the study area, it is recommended that local labour be utilized to enhance the positive impact of employment creation. This will also mitigate potential negative impacts associated with the inflow of outsiders to the area, increased pressure on infrastructure and services, and safety and security concerns. Local businesses should be involved in construction activities where possible.

- **Local Supplier Inclusion:** To enhance the multiplier effect, locals should be allowed an opportunity to be included in a list of possible local suppliers and service providers. This will further stimulate the local economy and offer valuable income opportunities for local residents.

- **Infrastructure and Land Use:** The project's location amidst active agricultural and mining lands means that collaboration with local farmers and industries is essential. A plan that minimizes disruptions to agricultural activities, especially in the farms listed under the project's purview, should be developed. Additionally, leveraging existing infrastructure, such as roads, can reduce both environmental and social impacts, ensuring that the project integrates seamlessly into the existing landscape. Given the potential increase in demand for local services such as housing, healthcare, transportation, and education, it is recommended that the project collaborates with local authorities and stakeholders to develop plans and support mechanisms to address these needs. This could include initiatives such as housing plans, healthcare capacity enhancement, transportation infrastructure upgrades, and educational planning and investment.

- **Mitigation of Construction Impacts:** Measures should be put in place to carefully mitigate impacts associated with the construction period, such as dust and noise pollution. This will ensure minimal disruption to the local community and environment.
- **Safety and Security:** Safety and security concerns should be considered during the planning and construction phases of the proposed project. Given that the mine is access controlled and has safety and security measures in place, these should be extended to the overhead powerline development.
- **Agricultural Collaboration:** Engage with local farmers to explore opportunities for dual land use. For instance, certain crops or livestock might coexist with proposed 400kV power line allowing farmers to continue agricultural activities.
- **Community Engagement:** The facility should work through a community liaison officer to ensure that the local community is kept informed about the project and any potential impacts. This will also provide a channel for addressing any concerns or grievances that may arise.

By implementing these recommendations, the proposed development can ensure that it contributes positively to the local community and economy, while minimizing any potential negative impacts.

Visual Impacts

Environmental and Visual Context:

Set against the diverse and natural backdrop of the Limpopo Province, the project traverses a landscape characterised by a tapestry of biodiversity and cultural heritage. The Visual Impact Assessment (VIA) takes into consideration the area's Visual Absorption Capacity (VAC), the dynamic interplay of natural and anthropogenic features, and the absence of significant cultural or landscape resources within the immediate vicinity of the proposed development.

Visual Impact Assessment (VIA) Findings:

The VIA identifies that the visual impacts of the Borutho-Silimela project, while notable, can be substantially mitigated through diligent planning and design. The region's inherent VAC, alongside the existing infrastructure network, positions the project favourably for visual integration. Strategic siting of the transmission line within the established landscape, utilising natural contours for screening and aligning with current visual corridors, contributes to the mitigation of potential visual impacts.

Mitigation and Design Strategies:

A series of design and mitigation strategies are set to be implemented to minimise the visual imprint of the Borutho-Silimela project. These measures include the use of existing vegetative screening, the careful alignment of structures to follow the natural topography, and the employment of design elements that reflect

the region's visual characteristics. The project is committed to using materials and colours that blend with the local environment to ensure that the transmission line infrastructure is visually assimilated into the existing landscape.

Heritage

The level of significance of the site and the cultural resources varies between social, historical, spiritual, scientific and aesthetic value.

Social value is when a place has become a focus of spiritual, political, national, or other cultural sentiments to a majority or minority group. This may be because the site is accessible and well known, rather than particularly well preserved or scientifically important (SAHRA Regulations). The proposed route has no social value.

Historical value refers to areas where historical events took place, and such events have high significance either locally, regionally, provincially or nationally. The proposed route does not traverse in areas of historical significance.

Scientific value refers to the importance of the study area for research purposes. The proposed route has no scientific value.

Aesthetic value refers to the unique beauty of the site. No aesthetic value found on the proposed route.

Based on the level of significance, the proposed route traverse in areas of low heritage significant from a heritage perspective. Cemeteries in the vicinity and a dilapidated structure were noted. Some portions of the route have been previously disturbed by the existing power line. Chances of finding burial grounds and graves and/or any other archaeological material on the proposed route should not be ruled out especially during construction phase. The proposed project may proceed provided mitigation measures and recommendations provided are adhered to and implemented.

Palaeontology

Based on the geology of the area and the palaeontological records, it can be assumed that the formation and layout of the dolomites, sandstones, shales and sands are typical for the country and only some do contain trace fossils or fossil plant material. The overlying sands and soils of the Quaternary period would not preserve fossils. It should be noted that most of the route is along disturbed ground, on road servitudes or adjacent to the existing power lines.

There is a small chance that fossils may occur in the Malmani Subgroup dolomites (Farm Rietfontein 2) and the southern section Irrigassie Formation (Farms Doringstock 623 and Rondeberg 624). There is a very small chance that fossils might occur in the route sections indicated as orange on the SAHRIS palaeo-sensitivity map. Therefore, a Fossil Chance Find Protocol should be added to the EMPr. If fossils are found by the contractor, environmental officer, or other responsible person once excavations for tower foundations and infrastructure have commenced then they should be rescued, and a palaeontologist called to assess and collect a representative sample. The impact on the palaeontological heritage would be very low for most of the route but low for two sections of the National Environmental Management Act 1998 (Act No 107 of 1998).

Civil Aviation

The analysis contained in this Aeronautical/Civil Aviation Study has determined:

- The proposed development is compliant with all relevant ICAO Annex 14 and SACAA (CARS and CATS) standards in respect of obstacle limitation surfaces and can therefore be supported for purposes of environmental approval.

- The proposed development will not materially impact civilian radar, navigation or communications infrastructure in the environs, nor present any material additional risks to operations at the aerodromes identified as potentially affected, currently or in the future.

- CAA Obstacle Approval processes per CA139.27 will need to be complied with, and amended aerodrome operating procedures will need to be implemented in due course.

On this basis, the recommendation of this CASS is that the sensitivity status of the proposed development be amended to 'low'.

Cumulative Impacts

Cumulative impacts and benefits on various environmental and social receptors will occur to varying degrees with the development of grid infrastructure in South Africa. The confidence in the degree of significance of these cumulative impacts is Low to Medium significance. The current study assesses the cumulative impacts on the basis of current and best available information, with precautionary assumptions taken into account.

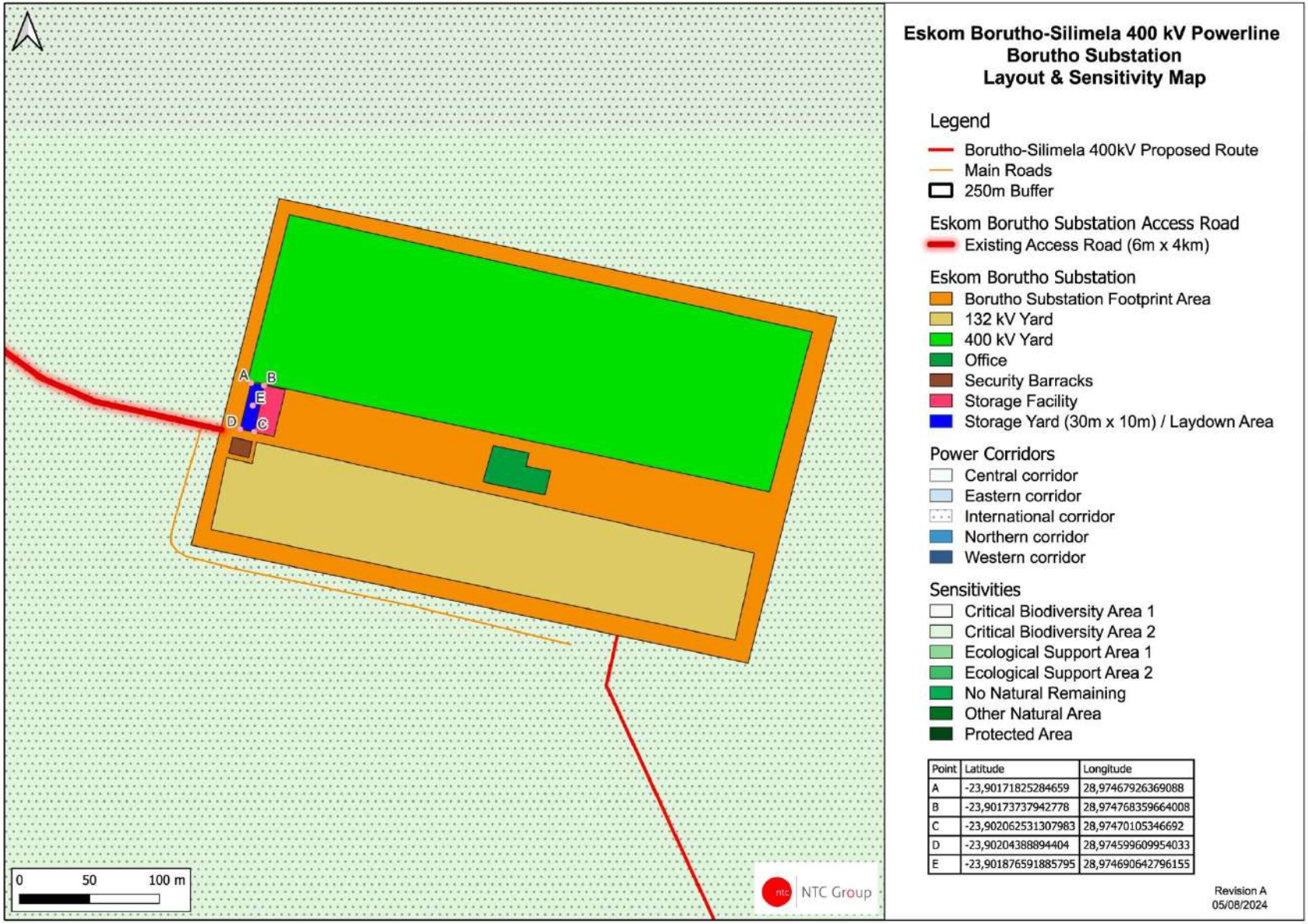

Figure 3: Environmental Sensitivity at the Borutho Substation

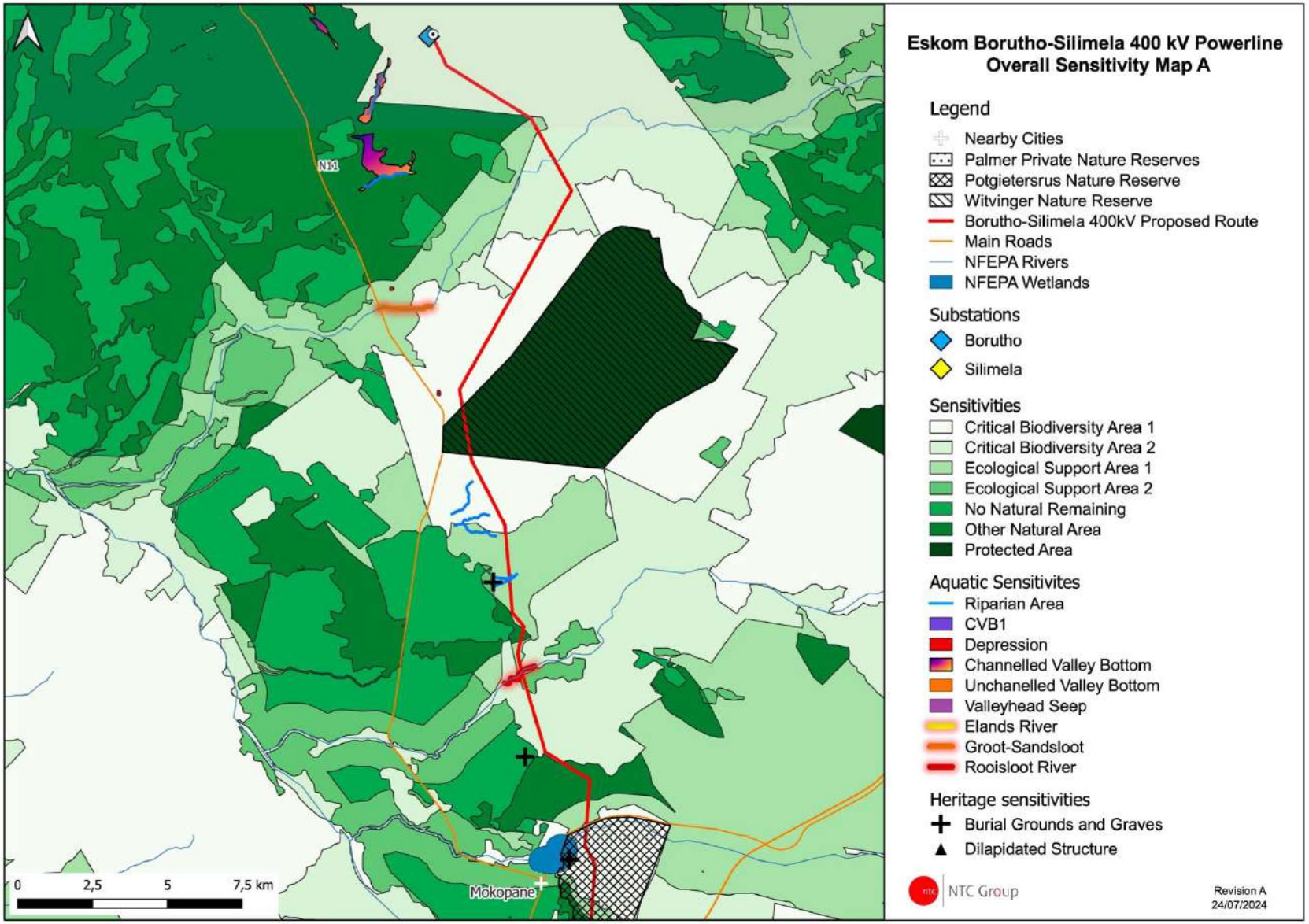

Figure 4: Environmental Sensitivity Map A

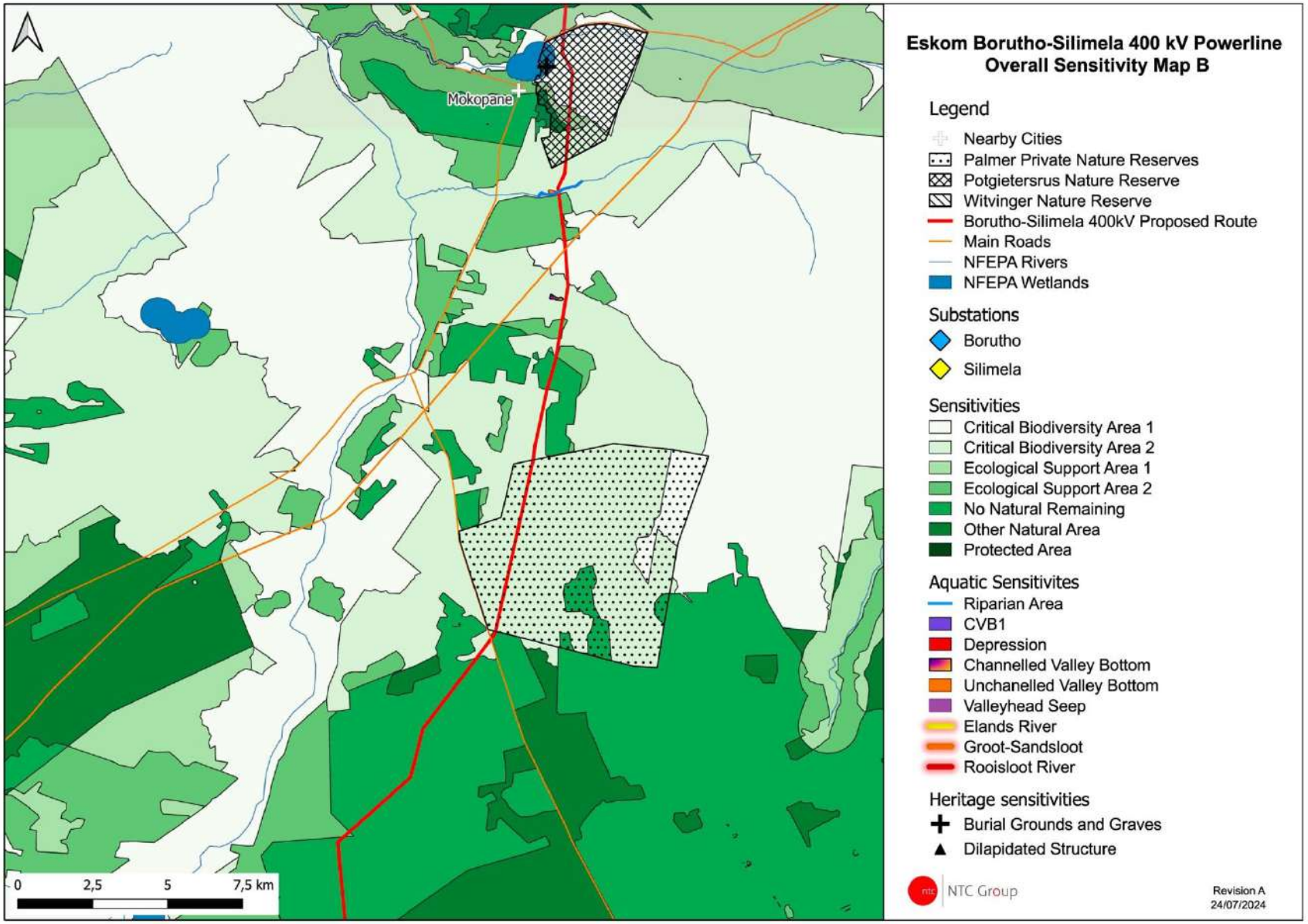

Figure 5: Environmental Sensitivity Map B

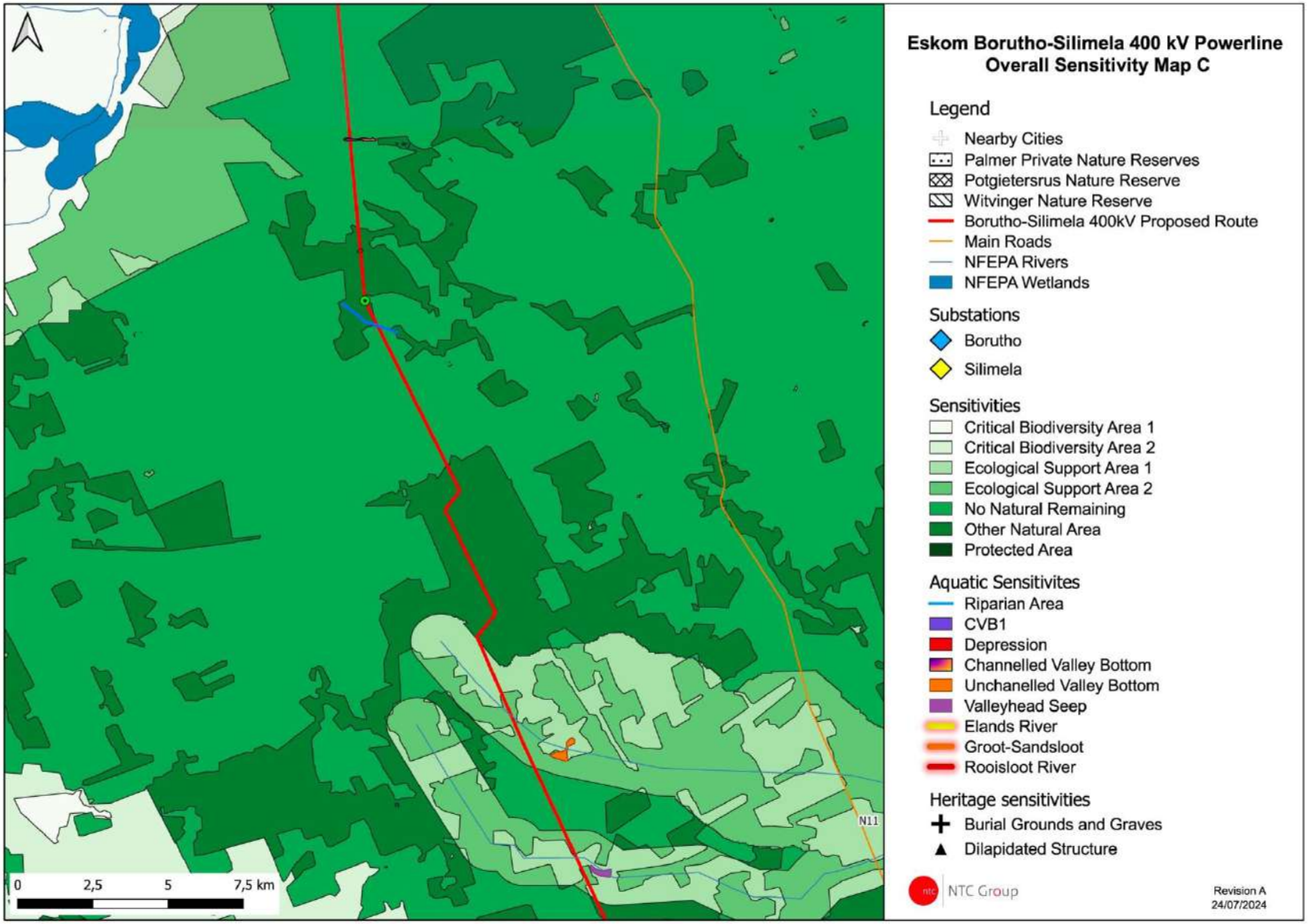

Figure 6: Environmental Sensitivity Map C

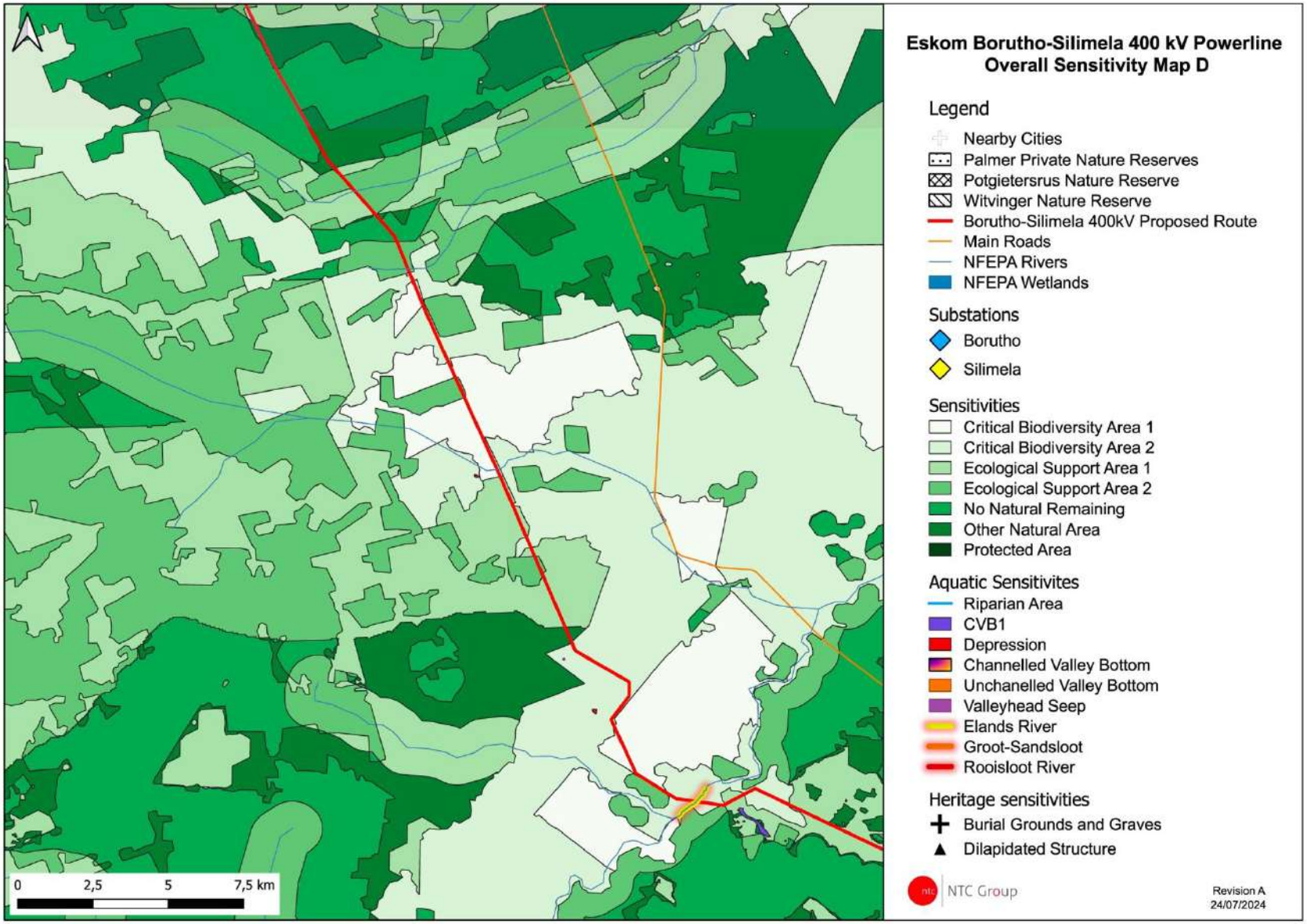

Figure 7: Environmental Sensitivity Map D

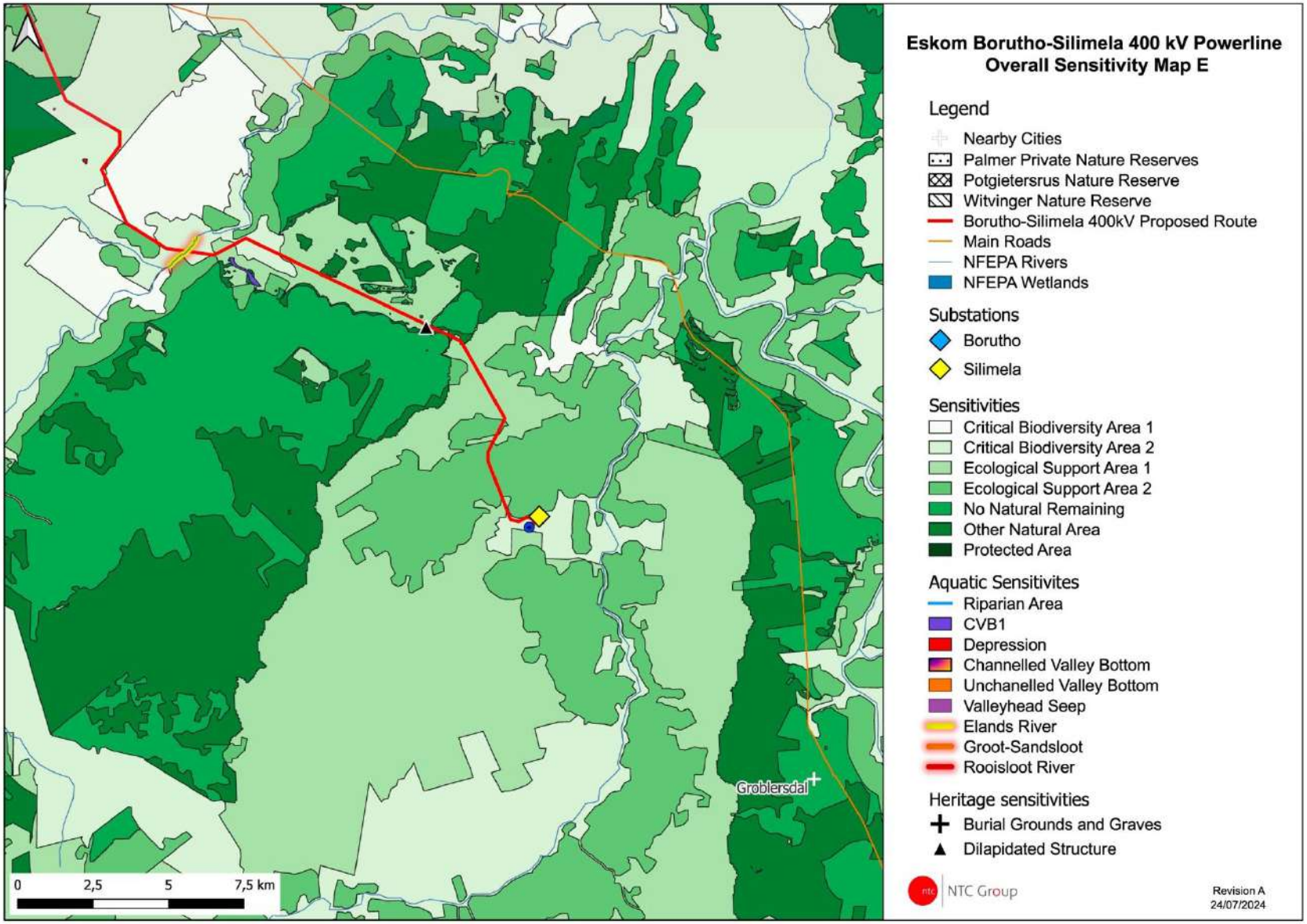

Figure 8: Environmental Sensitivity Map E

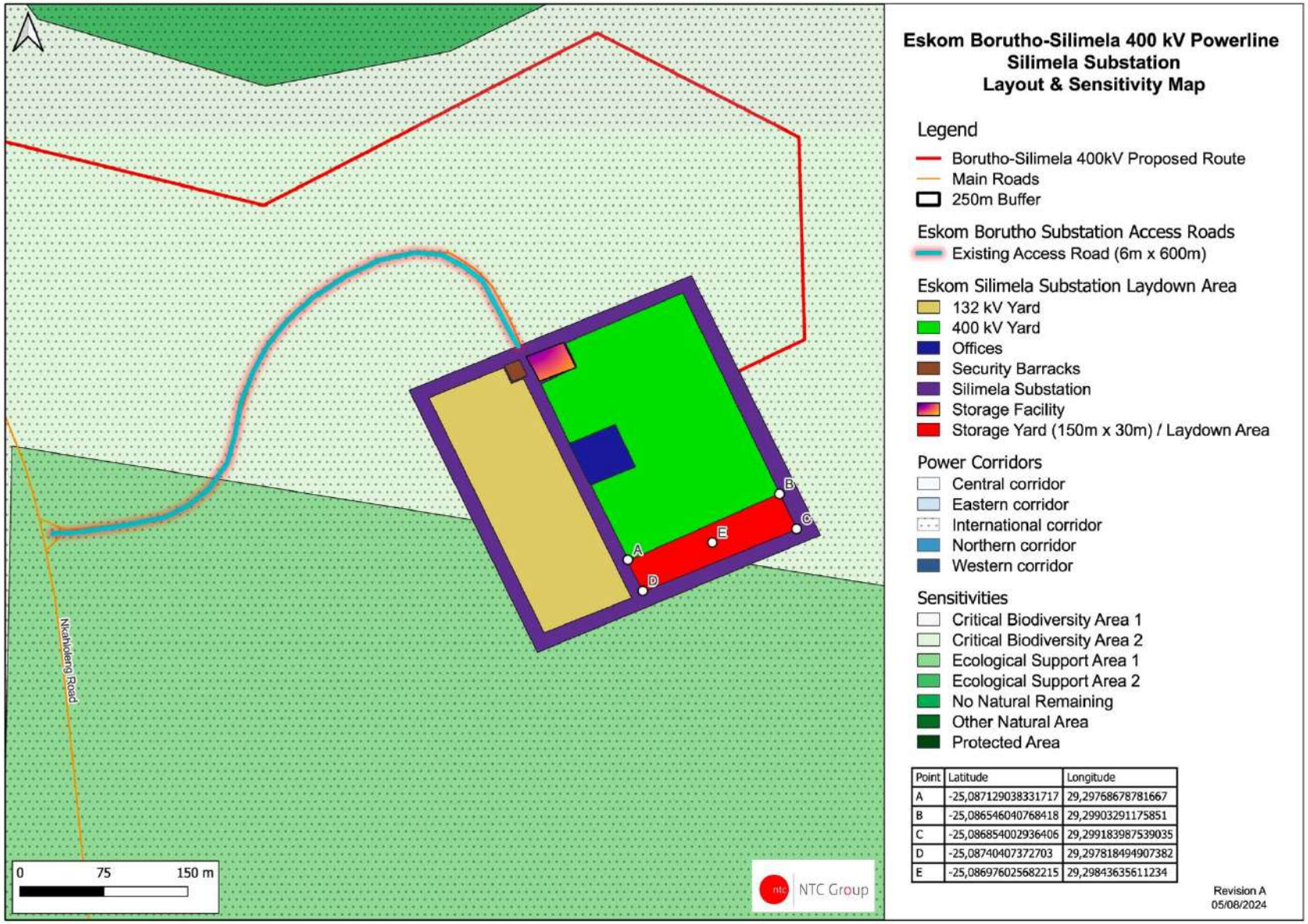

Figure 9: Environmental Sensitivity at the Silimela Substation

Optimisation of the powerline route

The amendment entailed the deviation/relocation of the powerline from the Farm Bokpoort 328KR Portion 1 to Portions 2 and 4 of the Farm Gegund 332 KR, Remainder Portion of the Farm Doelen 327 KR and Portion 8 of the Farm Blinkwater 331 KR. Please note that Portions 2 and 4 of the Farm Gegund 332 KR, Remainder Portion of the Farm Doelen 327 KR and Portion 8 of the Farm Blinkwater 331 KR did not form part of the initial scope of work. The powerline was deviated as the Landowner was not willing to sign the option agreement. Land and rights have negotiated with the landowner for more than 10 year.

The optimised layout was assessed by the specialists and it is concluded that the optimisation of the Layout did not result in additional impacts or an increase or decrease in the Environmental Impacts from a Terrestrial Biodiversity, Wetland, avifauna, Social, Visual, Soil and Agricultural, Civil Aviation, Heritage and Palaeontological perspective detailed in Section 6 of this report.

The Layout was optimised due to the technical feasibility, refer to Figure 9 below.

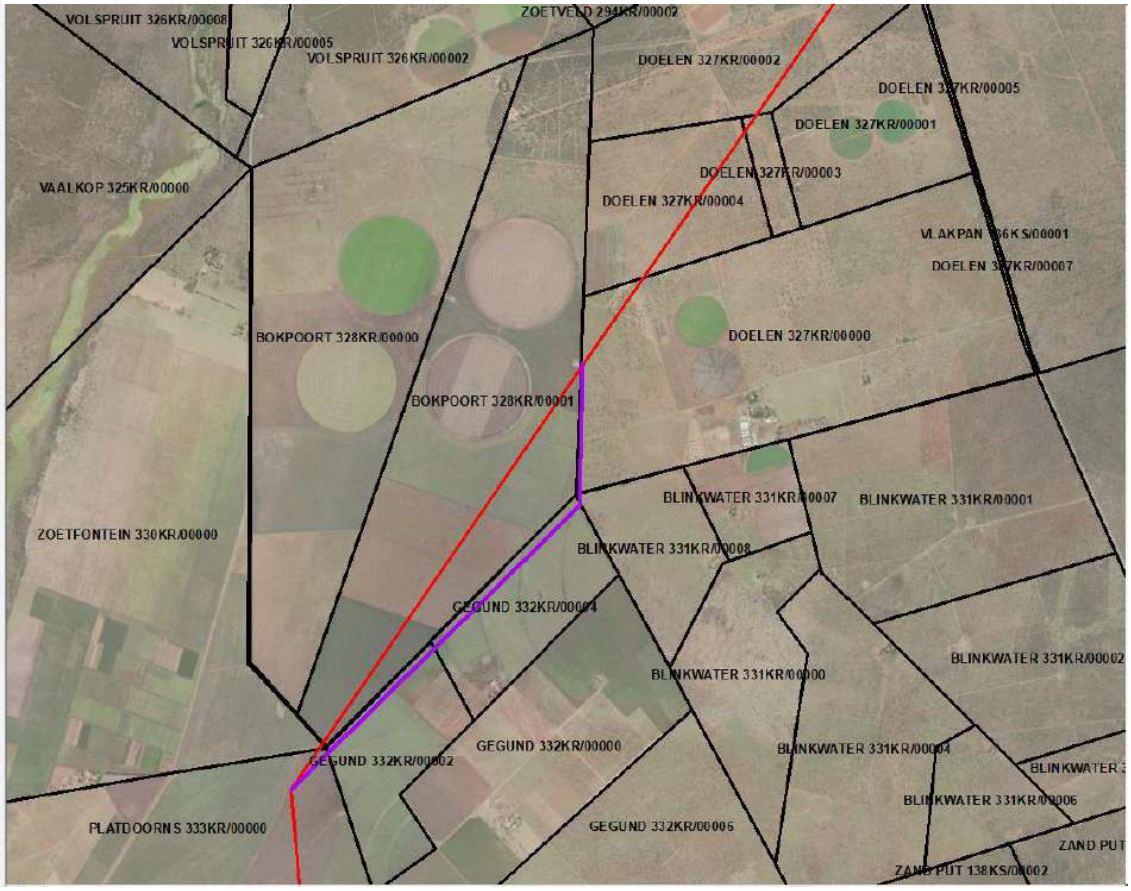

Figure 9: Layout map depicts the assessed powerline route (Red line) and the proposed deviation of the powerline[1] (Purple line)

Alternatives

The proposed Red Route begins at the Borutho substation and initially extends eastward, running parallel to existing gridlines like the Witkop/PPRUST 132kV line. It crosses portion 7 of farm Gillimberg 861, veering southwest through portions 8 and 9, then takes a direct southern path across portion 10 of the same farm. The route proceeds over farm Rietfontein 2 and portions 50 and 21 of farm Uitloop 3, intersecting an unnamed gravel road that bisects these farms from west to east. Continuing from portion 21, the line extends south for approximately 3.7km, then turns east on farm Piet Potgietersrust Town and Townlands 4. It meanders through various portions of this farm before curving southwest for 2.4km. Following the natural contours of the Mokopane landscape, the line heads south, reaching the border of portions 6 and 5 of farm Oorlogsfontein 45, near Hanwill Lodge. It then bends westward into portion 94 of the same farm, turning south for about 3.6 km, crossing the N1, and proceeding southwest on portion 152 of farm Oorlogsfontein 45. The line extends approximately 12.7km in a western and southwestern direction, passing landmarks like the Tussen die berge safari lodge, various provincial roads, and gravel paths. Upon reaching farm Vlakpan 136, the line shifts westward, crosses the N11, and spans 9.2km over agricultural land. It then bends directly south on farm Platdoorns 333, following a south-southeast curve for about 20km until it reaches farm Geluksfontein 54. Here, the line bends west, crosses the R519, and continues straight south over various lands and roads, including the R33, about 31km from the R519 crossing. Approaching farm Gruysbank 5, the line curves east, parallels, and crosses the R573. It then extends east for 8km to portion 643 of farm Loskop Noord 12, turns south for 3km to portion 638, skirts a secondary road, then zigzags west and south before connecting to the Slimela Substation.

The route that is being studied is 250m wide and the servitude route is pre-negotiated, negotiation is being finalised for the few outstanding servitudes. The servitude for the proposed powerline will not be more than 90m wide and is located within the 250m wide proposed route/preferred route. The reason for studying a 250 wide route was to ensure that should there be a need to shift the powerline position, there would be room for movement. Therefore no site, layout or technology alternatives have been considered in the DBAR.

No-Go Alternative

The no-go alternative concerns the project not proceeding. This would result in the current state remaining and future electricity supply in the area being compromised which would presents several issues and missed opportunities for the region.

[1] Deviation Co-ordinated: Start- 24°25'42.23"S 28°57'12.73"E; Middle- 24°24'37.55"S 28°58'26.76"E; End- 24°23'29.76"S 28°58'52.93"E

BENEFITS OF THE PROPOSED PROJECT

Benefits of the construction of the 400kV line and the associated infrastructure include the following:

- The project will result in important economic benefits at the local and regional scale through job creation,
- Income and other associated downstream economic development. These will persist during the preconstruction, construction, and decommissioning phases of the project.
- The project provides an opportunity for a new land use on the affected property which is considered as a more efficient use of the land and provides an opportunity for alternative generation of income from the property which would support the agricultural activities undertaken within the project site.
- The project contributes towards the Provincial and Local goals for the development of energy infrastructure as outlined in the respective IDPs.

EAPS RECOMMENDATION

A technically viable power line route was proposed by NTCSA and assessed as part of the BA process. The assessment of the proposed route within the project site was undertaken by independent specialists and their findings have informed the results of this BA report. The specialist and EAP findings have indicated that there are no identified fatal flaws associated with the implementation of the development footprint within the project site. Therefore, the EAP is of the opinion that the proposed project can be authorised, provided the above listed mitigation measures as well as those contained in the EMPr are adhered to by the applicant. A validity period of 10 years of the Environmental Authorisation is requested, should the project obtain approval from DFFE. It is anticipated that the commercial Operation will commence by the September 2028.

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ACRONYMS

BAR	Basic Assessment Report
CA	Competent Authority
CARA	Conservation of Agricultural Resources, 1983 (Act No. 43 of 1983)
CBA	Critical Biodiversity Area
dB	Decibel
DFFE	Department of Forestry, Fisheries and the Environment (National)
DHSWS	Department of Human Settlement, Water and Sanitation
DMRE	Department of Mineral Resources and Energy
DoE	Department of Energy
DSR	Draft Scoping Report
EAP	Environmental Assessment Practitioner
ECA	Environment Conservation Act, 1989 No. 73 of 1989)
EGI	Electricity Grid Infrastructure
EIA	Environmental Impact Assessment
EMPr	Environmental Management Programme
ESA	Ecological Support Area
ESA	Early Stone Age
ESKOM	Eskom Holdings SOC Limited
EWT	Endangered Wildlife Trust
FSR	Final Scoping Report
GNR	Government Notice Regulation
I&AP	Interested and Affected Party
IDP	Integrated Development Plan
IEM	Integrated Environmental Management
IPP	Independent Power Producer
IRP	Integrated Resource Plan
kV	Kilovolt
kWh	Kilowatt Hours
LSA	Late Stone Age
MSA	Middle Stone Age
MTS	Main Transmission Substation
MW	Megawatt
NCR	Noise Control Regulations
NDP	National Development Plan
NEMA	National Environmental Management Act, 1998 (Act No. 107 of 1998)
NEMBA	National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004)
NFEPA	National Freshwater Ecosystem Priority Area
NHRA	National Heritage Resources Act, 1999 (Act No. 25 of 1999)
NPAES	National Protected Area Expansion Strategy
NSD	Noise-sensitive Development
NTCSA	National Transmission Company of South Africa
NWA	National Water Act, 1998 (Act No. 36 of 1998)
PGDS	Provincial Growth and Development Strategy
PPP	Public Participation Process
REIPPPP	Renewable Energy Independent Power Producer Procurement Programme
SAHRA	South African Heritage Resources Agency
SAHRIS	South African Heritage Resources Information System
SANBI	South African National Biodiversity Institute
SANRAL	South African National Roads Agency Limited
SANS	South African National Standards
SAWS	South African Weather Service
SCADA	Supervisory Control and Data Acquisition
SDF	Spatial Development Framework
SEA	Strategic Environmental Assessment
WULA	Water Use License Application

1. Introduction

National Transmission Company of South Africa (NTCSA), a subsidiary of Eskom Holdings SOC Limited has appointed NTC Group (Pty) Ltd as an independent Environmental Consultant to undertake a Basic Assessment Process for the proposed construction of the equipping of Borutho and Silimela substations, Borutho-Silimela 400kV power line and its associated infrastructure. The length of the power line is approximately 150km. The proposed power line is located between the Borutho Substation on farm Gillimberg 861 in Mokopane and runs south to the proposed Silimela substation on farm Loskop Noord 12, near Marble Hall within the Lepelle-Nkumpi, Mogalakwena, Modimolle-Mookgophong and Ephraim Mogale Local Municipalities, Limpopo Province. The construction of the power line will aid NTCSA in strengthening the power supply within Limpopo Province. A detailed description of the project is provided in Section 2 of this report.

The proposed project falls within the Electricity Grid Infrastructure (EGI) corridor and as such there is one alternative/preferred route for consideration). The route that is being studied is 250m wide and the servitude route is pre-negotiated, negotiation is being finalised for the few outstanding servitudes. The servitude for the proposed powerline will not be more than 90m wide and is located within the 250m wide preferred route. The reason for studying a 250 wide route was to ensure that should there be a need to shift the powerline position, there would be room for movement.

The proposed project therefore triggers the Basic Assessment Process in terms of the Environmental Impact Assessment Regulations, 2014 (as amended) promulgated in terms of Chapter 5 of the National Environmental Management Act, 1998 (Act No 107 of 1998).

1.1 Structure of the Report

This BA Report describes and assesses this proposed project and consists of the following chapters:

- Section 1: Introduction
- Section 2: Project motivation and the description of the alternatives
- Section 3: Environmental Legal Framework
- Section 4: Public Participation Process
- Section 5: Description of the receiving environment
- Section 6: **Error! Reference source not found.**
- Section 7: Conclusion and recommendations
- Section 8: Reference

1.2 Purpose of the Report

The purpose of the BA process is to, through a consultative process—

(a) provide a detailed project description;

(b) determine the policy and legislative context within which the activity is located and document how the proposed activity complies with and responds to the policy and legislative context;

(c) identify the alternatives considered, including the activity, location, and technology alternatives;

(d) describe the need and desirability of the proposed alternatives;

(e) through the undertaking of an impact and risk assessment process inclusive of cumulative impacts which focused on determining the geographical, physical, biological, social, economic, heritage and cultural sensitivity of the sites and locations within sites and the risk of impact of the proposed activity and technology alternatives on these aspects to determine:

- The nature, significance, consequence, extent, duration, and probability of the impacts occurring to; and
- The degree to which these impacts –
  a. Can be reversed
  b. May cause irreplaceable loss of resources; and
  c. Can be managed, avoided or mitigated.

(f) Through a ranking of the site sensitivities and possible impacts the activity and technology alternatives will impose on the sites and location identified through the life of the activity to:

- Identify and motivate a preferred site, activity and technology alternative;
- Identify suitable measures to manage, avoid or mitigate identified impacts; and
- Identify residual risks that need to be managed and monitored.

(g) Provide a draft Environmental Management Programme (EMPr). The final EMP (which will be tower-to-tower and site specific) will be provided to the Department of Environmental Affairs after the project is authorised and exact tower positions have been negotiated.

1.3 Details of the Environmental Assessment Practitioner and Expertise to conduct the BA process

The NTC team have considerable experience in basic assessments and environmental management, and have been actively involved in undertaking environmental studies, for a wide variety of projects throughout South Africa, including those associated with electricity generation.

Table 1: Project Team Contact Details

Role	Responsible Person	Contact Details
Project Manager	Tebogo Mapinga is an experienced professional with 17 years across the fields of environment and permitting in both the public and the private sector. She holds a BSc Degree (Major in Physiology and Zoology) from the University of Limpopo (Turfloop Campus). Her competencies lie in Environmental Impact Assessments, Basic Assessments, Environmental Screening, Environmental Management Plan, compliance monitoring and obtaining permits for small and large scale projects. She is a member of the International Association for Impact Assessments (IAIA) and is a registered professional natural scientist as a Professional Natural Scientist with the South African Council for Natural Scientific Professions (SACNASP). Tebogo provided quality assurance during report compilations.	Tel: +27 11 462 2022 Fax: +27 86 665 1864 Email: admin@ntcgroup.co.za/ tebogo@ntcgroup.co.za
EAP	Rendani Rasivhetshele is a Professional Environmental Assessment Practitioner (Reg.EAP) registered with the Environmental Assessment Practitioners Association of South Africa (EAPASA: 2019/1729). She has conducted various environmental assessments for residential developments, commercial developments, recreational parks, industrial upgrades, dam rehabilitation, bulk services, and recently renewable energy projects (solar and wind). Further to her environmental assessment experience, Rendani also	Tel: +27 11 462 2022 Fax: +27 86 665 1864 Email: projects@ntcgroup.co.za

Role	Responsible Person	Contact Details
	has experience as an Environmental Control Officer (ECO) in factories that manufacture construction materials (cements, asphalt, and metal casting). She has also been widely exposed to the associated project management in her trade and developed skills such as stakeholder engagement, which includes but not limited to, site inspections, planning and liaising with clients, environmental specialists, built environment consultants, statutory bodies, and competent authorities.	

1.4 Specialist Assessments

Based on the Screening Report the following summary of the development site environmental sensitivities was identified. The environmental sensitivities for the proposed development footprint as identified, are indicative only and have been verified on site by a suitably qualified person before the specialist assessments identified below can be confirmed

THEME	VERY HIGH SENSITIVITY	HIGH SENSITIVITY	MEDIUM SENSITIVITY	LOW SENSITIVITY
Agriculture Theme	X			
Animal Species Theme		X		
Aquatic Biodiversity Theme	X			
Archaeological and Cultural Heritage Theme	X			
Civil Aviation Theme		X		
Defense Theme			X	
Paleontology Theme	X			
Plant Species Theme			X	
Terrestrial Biodiversity Theme	X			

Based on the sensitivities (very high to high) the following Specialists were identified and appointed to conduct details assessments in line with the DFFE Protocols to assess potential environmental impacts associated with the proposed facility, the following specialist consultants have provided input into this Basic Assessment report:

Specialist	Specialist Study	Organisation
Mokgatla Molepo	Terrestrial Biodiversity Assessment	Moro Ecological Services (Pty) Ltd
Mokgatla Molepo	Avifaunal Assessment	Moro Ecological Services (Pty) Ltd
Tsepo Lepono	Wetland Assessment	Ecosolve Consulting (Ecosolve)
Makhosazana Mngomezulu	Heritage Assessment	Vungandze Project (Pty) Ltd
Prof Marion Bamford	Palaeontological Assessment	Independent Consultant
Marvin Gabara	Social Assessment	Eco-Thunder Consulting (Pty) Ltd
Brogan Geldenhuys	Visual Assessment	Eco-Thunder Consulting (Pty) Ltd
Darren Bouwer	Soil and Agricultural Potential	Digital Soils Africa (Pty) Ltd
J. Heeger & S. Nkabinde	Civil Aviation Sensitivity Study	GWI Aviation Advisory

The Curricula Vitae (CV) of the EAP and specialist team are provided in Appendix A of the BA report.

1.5 Assumptions and Limitations

- This document has been prepared by an NTC Group with reasonable skill, care and diligence, and taking account of the manpower, timescales and resources devoted to it by agreement with NTCSA (the Applicant) as part or all of the services it has been appointed by the Client to carry out. It is subject to the terms and conditions of that appointment.
- NTC shall not be liable for the use of or reliance on any information, advice, recommendations and opinions in this document for any purpose by any person other than the Applicant. Reliance may be granted to a third party only in the event that NTC and the third party have executed a reliance agreement or collateral warranty.
- Information reported herein may be based on the interpretation of public domain data collected by NTC, and/or information supplied by the Applicant and/or its other advisors and associates. These data have been accepted in good faith as being accurate and valid.
- NTC disclaims any responsibility to the Applicant and others in respect of any matters outside the agreed scope of the work.
- The copyright and intellectual property in all drawings, reports, specifications, bills of quantities, calculations and other information set out in this report remain vested in letter of appointment/contract unless the terms of appointment state otherwise.
- This document may contain information of a specialised and/or highly technical nature and the Applicant is advised to seek clarification on any elements which may be unclear to it.

- Information, advice, recommendations and opinions in this document should only be relied upon in the context of the whole document and any documents referenced explicitly herein and should then only be used within the context of the appointment.

1.5.1 Specialist Assumptions and Limitation

Specialist Study	Assumptions and Limitations
Terrestrial Biodiversity Assessment	• We relied entirely on NTC Group, as the EAP, to supply correct information on the site locality and extent, as well as project details. We assume that these are correct; • The findings, results, observations, conclusions, and recommendations provided in this report are based on the author's best scientific and professional knowledge as well as available information regarding the potential impacts of powerline developments on the terrestrial environment; • The assessment of impacts was based on the current state of the primary receiving environment; • Only a single-season survey was conducted for the respective studies; • Night surveys were not performed due to safety and budgetary reasons; and • Despite these limitations, a comprehensive desktop study was conducted, in conjunction with the detailed results from the surveys, and as such there is a high level of confidence in the information provided.
Avifaunal Assessment	• The findings, results, conclusions and recommendations provided in this report are based on the author's best scientific and professional knowledge as well as available information regarding the potential impacts of powerlines on avifauna species. • The assessment of impacts was based on the current state of the primary environment currently. • It was assumed that the information contained in existing databases, reports and publications is correct. • MORA Ecological Services (Pty) Ltd relied on NTC Group, as the EAP, to supply correct information on the site

	locality and extent, as well as project details which were assumed to be correct. • It was assumed that a single season of surveys will be adequate to understand the bird species community of the proposed development area. Should a second season round of surveys be conducted, • MORA reserves the right to amend this report, recommendations and/or conclusions at any stage should any additional or otherwise significant information come to light. • Bird behavior is not completely understood in South Africa and is hampered by good monitoring data to evaluate the effectiveness of proposed mitigations.
Wetland Assessment	• All watercourses identified within 500m of the proposed project were delineated in fulfilment of GN509 as it relates to the National Water Act, 1998 (Act No. 36 of 1998) using desktop methods and verification thereof undertaken according to "Department of Water Affairs and Forestry (DWAF) (2008): Updated Manual for the Identification and Delineation of Wetlands and Riparian Areas". The general surroundings were considered in the desktop assessment of the study area; • Due to the degree to which the site has been disturbed, the watercourse delineations as presented in this report are regarded as a best estimate of the watercourse boundaries, based on the site conditions present at the time of assessment. Global Positioning System (GPS) technology is inherently inaccurate and some inaccuracies due to the use of handheld GPS instrumentation may occur however, the delineations as provided in this report are deemed accurate enough to fulfil the authorisation requirements as well as implementation of the mitigation measures provided. If more accurate assessments are required, the watercourses will need to be surveyed and pegged according to surveying principles;

	• Freshwater and terrestrial zones create transitional areas where an ecotone is formed as vegetation species change from terrestrial to obligate/facultative species. Within this transition zone, some variation of opinion on the watercourse boundary may occur. However, if the DWAF (2008) method is followed, all assessors should get largely similar results; and • With ecology being dynamic and complex, certain aspects (some of which may be important) may have been overlooked. However, it is expected that the proposed project activities have been accurately assessed and considered, based on the field observations in terms of freshwater ecology.
Heritage Assessment	• It was assumed based on the aerial view from Google Earth and literature review that the study area might yield heritage resources as some areas were not previously disturbed. • Limitations on site included accessibility. Some area could not be accessed as they are private properties. Furthermore, network coverage was extremely poor especially going north, resulting in loss of GPS signal, and tracking the route.
Palaeontological Assessment	• Based on the geology of the area and the palaeontological record as we know it, it can be assumed that the formation and layout of the dolomites, sandstones, shales and sands are typical for the country and only some do contain trace fossils or fossil plant material. The overlying sands and soils of the Quaternary period would not preserve fossils. It should be noted that most of the route is along disturbed ground, on road servitudes or adjacent to the existing powerlines.
Social Assessment	• It was assumed that information provided by NTC Group (Pty) Ltd was accurate and that the technical specifications of the Project and site selection are in accordance with the relevant requirements.

	• The assessment has been based on the requirements of the Limpopo of Environmental Affairs & Development Planning Guidelines. • The assessment assumes that all necessary consultations with stakeholders, including local communities, authorities, and other interested parties, have been / will be conducted in accordance with legal requirements, and that their views and concerns have been duly considered. • Whilst most homesteads and housing areas were visited during the site visit in order to confirm their nature and likely socio-economic of the development, it was not possible to visit all homesteads and housing areas. • The Project report uses the concept of 'worst case scenario' to identify issues and rate socio-economic impacts. • Regulation 11(3) of the EIA Regulations, which suggests that if more than one activity is part of the same development, a single application may be required, discourages the practice of splitting components or assessing them in isolation, thereby promoting a unified and integrated approach to cumulative impact assessment. • This report and assessment are dependent on the accuracy of the publicly available secondary information such as Statistics South Africa (Stats SA, 2022). • This SIA Report was prepared based on information that was available to the specialist at the time of preparing the report. The sources consulted are not exhaustive, and the possibility exists that additional information which might strengthen arguments, contradict information in this report, and/or identify additional information might exist. • Some of the project projections reflected in this SIA Report may be subject to change, and therefore may be higher or lower than those estimated by the project proponent.

	• It is assumed that the motivation for the planning and feasibility study of the project were undertaken with integrity, and that information provided by the project proponent was accurate and true at the time of preparing this SIA Report. • The responsibility for implementing the recommendations, mitigation measures, and any other actions outlined in this report lies solely with the client or project proponent. The SIA practitioners are not responsible for monitoring, enforcing, or ensuring compliance with these measures. It is the client's duty to ensure that all necessary permits, approvals, and consents are obtained, and that the project is carried out in accordance with all applicable laws, regulations, and standards. Any deviations from the recommendations or failure to implement the suggested measures may result in different impacts and outcomes than those described in this report.
Visual Assessment	**Assumptions:** • The assessment has been based on the requirements of the Western Cape Department of Environmental Affairs & Development Planning Guidelines (WC DEDP)[2] . • The assessment assumes that all necessary consultations with stakeholders, including local communities, authorities, and other interested parties, have been/will be conducted in accordance with legal requirements, and that their views and concerns have been duly considered. • The information and analysis provided in this report is based on the details available during the undertaking of the Visual Impact Assessment (VIA). As the VIA

[2] The WC DEDP Guidelines offer detailed directives on incorporating visual and aesthetic specialists into the EIA processes. These guidelines represent the primary legislative framework specifically pertaining to Visual Impact Assessments (VIA) in the region. While provincial insights and information will be integrated into the respective reports where feasible, it is important to note that the WC DEDP Guidelines are regarded as the definitive legislative standard for best practices in VIA.

	specialists, we have, to the best of our ability, analysed and interpreted the data provided. • We operate under the assumption that all information supplied by the client is accurate, current, and reflective of the agreements made with relevant landowners. Our assessments and recommendations are based on the information provided to us, and we rely on the client to ensure that this information is complete and up to date. • The Project report uses the concept of 'worst case scenario' to identify issues and rate visual impacts. This scenario assumes that all facilities along with the associated grid infrastructure and sub-stations would be constructed at the same time. **Limitations:** • Whilst most homesteads and housing areas were visited during the site visit in order to confirm their nature and likely visibility of the development, it was not possible to visit all homesteads and housing areas. • The information and analysis are based on the details available during the undertaking of the Visual Impact Assessment (VIA), and there is an inherent limitation in the data available at any given time. • There is a reliance on the accuracy, currency, and completeness of the information supplied by the client. Any decisions regarding development on specific portions of land, including agreements on relocations, demolitions, or other alterations, should be confirmed and discussed directly with the relevant landowners. • Regulation 11(3) of the EIA Regulations, which suggests that if more than one activity is part of the same development, a single application may be required, discourages the practice of splitting components or assessing them in isolation, thereby promoting a unified and integrated approach to cumulative impact assessment. • The findings, assessments, and recommendations represent the professional judgment of the VIA

	practitioners at the time of the assessment. While every effort has been made to ensure accuracy and completeness, this report does not constitute legal, financial, or other specialised advice. • The responsibility for implementing the recommendations, mitigation measures, and any other actions outlined in this report lies solely with the client or project proponent. The VIA practitioners are not responsible for monitoring, enforcing, or ensuring compliance with these measures.
Soil and Agricultural Potential	• For this study, there were limitations regarding access to some areas of the deviation route for the field visit. These access restrictions included: (1) inability to access the roads leading to the deviation route, or (2) inability to enter certain roads leading to the deviation route. These limitations were overcome by taking observations as close as possible to the deviation route, as well as taking additional observations. • The northern and central portions of the transmission line was accessed using desktop study without field verification.
Civil Aviation Sensitivity Study	• It is assumed that none of the pylons (powerline towers) will exceed 45m in height above ground. • No limitations were identified.

2. Detailed Description of the Projects

The proposed project entails the proposed construction of the Borutho-Silimela 400kV powerline and its associated infrastructure. The length of the powerline is approximately 150km. The proposed power line is located between the existing Borutho Substation on farm Gillimberg 861 in Mokopane and runs south to the existing Silimela Substation on farm Loskop Noord 12, near Marble Hall within the Lepelle-Nkumpi, Mogalakwena, Modimolle-Mookgophong and Ephriam Mogale Local Municipalities, Limpopo Province. The construction of the power line will aid NTCSA in strengthening the power supply within Limpopo Province.

The scope of work entails:

- Equip 1 x 400kV feeder bay at Borutho Substation for Silimela Line 1.
- Equip 1 x 400kV feeder bay at Silimela Substation for Borutho Line 1.
- Build approximately 150km 400kV line from Borutho Substation to Silimela Substation, with associated extensions at the terminal substations.

The powerline study route/area is 250m wide and the servitude within the route will not be more than 90m wide.

It is important to note that Silimela and Borutho substations have already been approved for construction under other Environmental Authorisations and as such, exist. Therefore, the proposed expansion works entail accommodation of 1 x 400kV feeder bay for Silimela Line 1 and 1 x 400kV feeder bay for Borutho Line 1. There will be no expansion of the existing terrace or substation boundaries.

2.1 Description of Activity

A summary of the project activity is included in Table 2.

Table 2: Summary of the details and dimensions of the proposed project and the associated infrastructure.

Infrastructure	Footprint and dimensions
Powerline development footprint	• Powerline route is approximately ~150km in extent.
Corridor	• A 250m wide route was assessed.
Servitude negotiations	• A servitude of not more than 90m is being negotiated with the landowners. This servitude is within the afore mentioned 250m wide route. The reason for studying a wider route is to ensure that should it be necessary to move any section of the powerline from the 90m servitude, there would be room for this.

Capacity of on-site facility	• 400kV
Tower types	• It is NTCSA's policy to not restrict themselves to a specific tower typology during the environmental assessment phase as the site conditions may necessitate a deviation at implementation stage.). Towers for the proposed powerline would be between 29m and 40m in height. In general, the type of towers to be used would consider weight, the area (e.g. topography characteristic), height, costs and erection time. Refer to **Figure 1** for the various tower types.
Tower Positions	• The tower positions will only be firmed up during the detail designs. At this stage we cannot provide locations for the temporary laydown areas for the towers.
Height of the pylon	• Optimal tower sizes and positions will be identified and verified using a ground survey (in terms of the Environmental Management Programme - EMPr requirements).
Clearance distance	• The proposed minimum vertical clearance to buildings, poles and structures not forming part of the powerline is 10.4m. Farming activities can be practiced under the powerline, provided that safe working clearances and building restrictions are adhered to; • The proposed minimum vertical clearance to any fixed structure that does not form part of the powerline is 3.8m from the edge of the servitude; • The proposed minimum distance of a 400kV powerline structure from a proclaimed public road is between 60 and 120m (according to the road type), from the centre of the structure to the centre of the road servitude. The minimum distance between any part of a tree or shrub and any bare phase conductor of a 400kV powerline must be 10m; and

	• The minimum safe distance required the edge of a domestic house is ±18m plus 12.5 m from the centre of the powerline.
Foundation	• The choice of foundation is influenced by the type of terrain encountered and the underlying geotechnical conditions. The actual size and type of foundation to be installed will depend on the soil bearing capacity (actual sub-soil conditions). Strain structures require more extensive foundations for support than in-line suspension structures, which contribute to the cost of the construction of the powerline. Foundations may be mechanically excavated where access to the tower position is readily available. The same usually applies to the pouring of concrete required for the setting of the foundations.
Insulators	• Composite insulators are used to connect the conductors to the towers. Glass and porcelain have previously been used to connect the conductors for many years and are the most common. These products are, however, heavy and susceptible to breakage by vandals and contamination by pollution. Composite insulators have a glass-fibre core with silicon sheds for insulation. Composite insulators are lightweight and resistant to both vandalism and pollution. Composite (Long rod type) insulators with silicone-based weather shed material will be used for strain assemblies. Composite horizontal line post insulators will be used for the intermediate structures and on the jumper supports.
Laydown Areas	• Storage areas that will be used as a temporary laydown for the substation scope at Silimela Substation – Dimensions: 150m x 30m. • Storage yard that will be used as a temporary laydown area for the substation for the Substatio. Dimension: 30m x 10m.

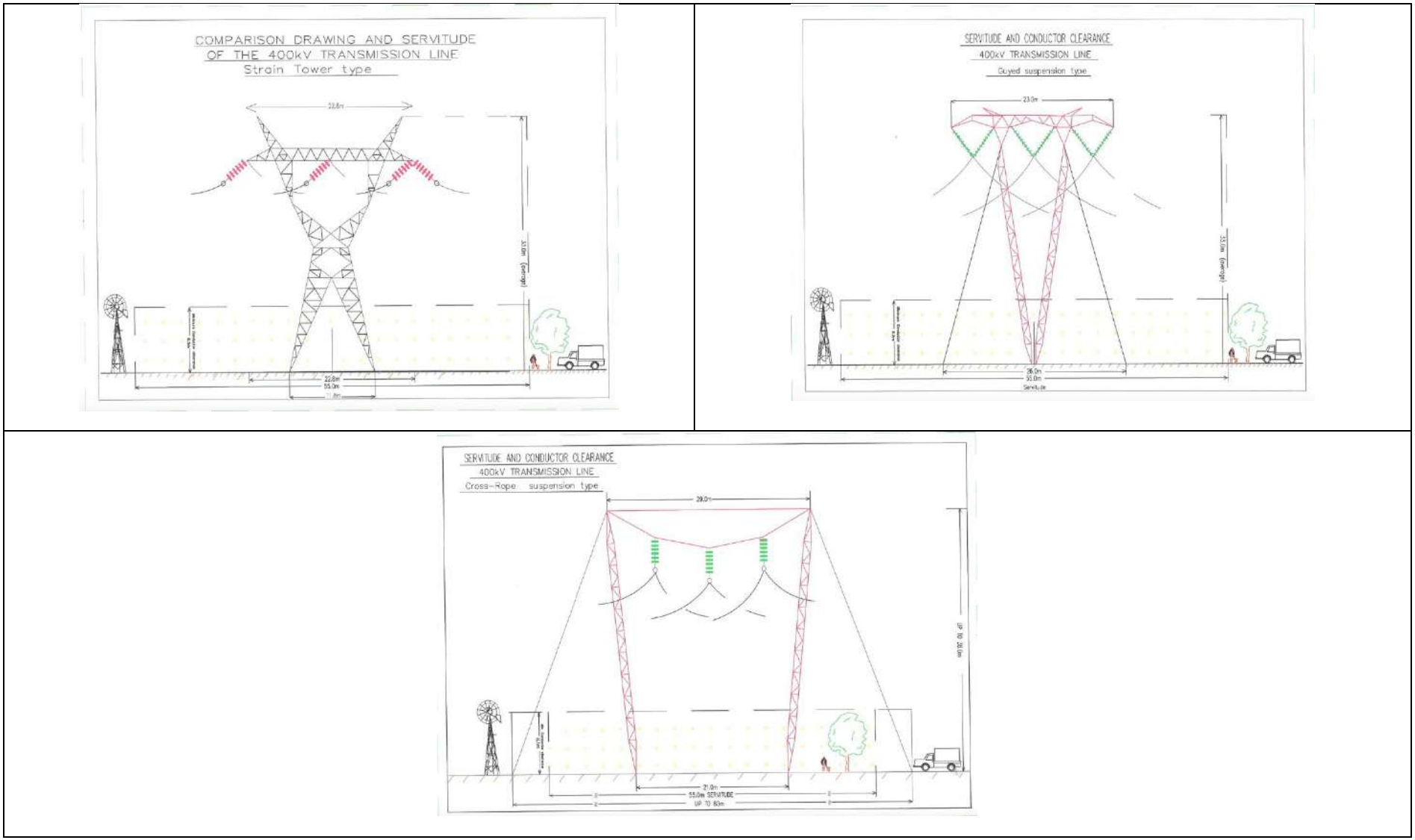

Figure 1: Illustration of the Tower Types considered for the construction of the proposed powerline

2.2 Location of the Project

The proposed ±150km 400kV transmission power line will be located between the Borutho Substation on farm Gillimberg 861 in Mokopane and runs south to the Silimela Substation on farm Loskop Noord 12, near Marble Hall within the Lepelle-Nkumpi, Mogalakwena, Modimolle-Mookgophong and Ephriam Mogale Local Municipalities, Limpopo Province. The Local Municipalities fall within the jurisdiction of the Sekhukhune and Waterberg District Municipalities (refer to Figure 2 for the Locality Map and Figure 3 for the photo plate of the project site).

Table 3: Detail description of the project site

Province	Limpopo Province	
District Municipality	Greater Sekhukhune, Capricorn, and Waterberg District Municipalities	
Local Municipality/ies	Lepelle-Nkumpi, Mogalakwena, Modimolle-Mookgopong and Ephraim Mogale Local Municipality	
Ward numbers	Lepelle-Nkumpi Ward 9 Mogalakwena Ward12, 13,16,18,20 and 32 Modimolle-Mookgopong Ward14 Ephraim Mogale Ward 5	
Nearest Town	Zebediela, Ga-Mashashane, Ga-Mapela, Mokopane, Ga-Taueatswala, Mokerong, Mookgophong, Modimolle, Marble Hall, Manapsane, and Moganyaka.	
Current Zoning	Agriculture	
Current Land Use	The land in question comprises of more than ten properties, and while certain portions remain fallow, other sections are actively utilized for agriculture.	
Access Roads	The project area can be accessed via the following roads: N11, N1, R519, R33, and various tertiary roads surrounding the area.	
Affected Properties: Farm name(s), number(s), portion numbers and SG 21 Digit Code (s)	Portion 0 of Farm Gillimberg 861 LR	T0LR00000000086100000
	Portion 7 of Farm Gillimberg 861 LR	T0LR00000000086100007
	Portion 8 of Farm Gillimberg 861 LR	T0LR00000000086100008
	Portion 9 of Farm Gillimberg 861 LR	T0LR00000000086100009
	Portion 10 of Farm Gillimberg 861 LR	T0LR00000000086100010
	Portion 3 of Farm Uitloop 3 KS	T0KS00000000000300021
	Portion 3 of Farm Uitloop 3 KS	T0KS00000000000300039
	Portion 33 of Farm Piet Potgietersrust Town and Townlands 4 KS	T0KS00000000004400033

	Portion 35 of Farm Piet Potgietersrust Town and Townlands 4 KS	T0KS00000000004400035
	Portion 36 of Farm Piet Potgietersrust Town and Townlands 4 KS	T0KS00000000004400036
	Portion 39 of Farm Piet Potgietersrust Town and Townlands 4 KS	T0KS00000000004400039
	Portion 40 of Farm Piet Potgietersrust Town and Townlands 4 KS	T0KS00000000004400040
	Portion 44 of Farm Piet Potgietersrust Town and Townlands 4 KS	T0KS00000000004400044
	Portion 43 of Farm Piet Potgietersrust Town and Townlands 4 KS	T0KS00000000004400043
	Portion 80 of Farm Piet Potgietersrust Town and Townlands 4 KS	T0KS00000000004400080
	Portion 6 Farm Oorlogsfontein 45 KS	T0KS00000000004500006
	Portion 88 Farm Oorlogsfontein 45 KS	T0KS00000000004500088
	Portion 89 Farm Oorlogsfontein 45 KS	T0KS00000000004500089
	Portion 94 Farm Oorlogsfontein 45 KS	T0KS00000000004500094
	Portion 96 Farm Oorlogsfontein 45 KS	T0KS00000000004500096
	Portion 152 Farm Oorlogsfontein 45 KS	T0KS00000000004500152
	Portion 0 of Farm Rooipoort 46 KS	T0KS00000000004600000
	Portion 1 of Farm Rooipoort 46 KS	T0KS00000000004600001
	Portion 5 of Farm Rooipoort 46 KS	T0KS00000000004600005
	Portion 9 of Farm Rooipoort 46 KS	T0KS00000000004600009
	Portion 19 of Farm Rooipoort 46 KS	T0KS00000000004600019
	Portion 20 of Farm Rooipoort 46 KS	T0KS00000000004600020
	Portion 0 Farm 1046 KS	T0KR00000000033300000
	Portion 1 Farm 1046 KS	T0KR00000000033300001
	Portion 2 Farm 1046 KS	T0KR00000000033300002
	Portion 4 Farm 1046 KS	T0KR00000000033300004
	Portion 7 Farm 1046 KS	T0KR00000000033300007
	Portion 0 Farm Platdoorns 333 KR	T0KR00000000033300000
	Portion 1 Farm Hartebeestfontein 355 KR	T0KR00000000054300001
	Portion 2 Farm Hartebeestfontein 355 KR	T0KR00000000054300002
	Portion 4 Farm Hartebeestfontein 355 KR	T0KR00000000054300004
	Portion 0 Farm Derdekraalpoort 543 KR	T0KR00000000054300000
	Portion 0 Farm Klaver Valley 542 KR	T0KR00000000054200000
	Portion 0 Farm Vlaklaagte 544 KR	T0KR00000000054400000

	Portion 1 Farm Vlaklaagte 544 KR	T0KR00000000054400001
	Portion 2 Farm Vlaklaagte 544 KR	T0KR00000000054400002
	Portion 1 Farm Geluksfontein 547 KR	T0KR00000000054700001
	Portion 11 Farm Geluksfontein 547 KR	T0KR00000000054700011
	Portion 4 Farm De Hoop 617 KS	T0KS00000000061700004
	Portion 0 Farm Klipgat 618 KS	T0KS00000000061800000
	Portion 3 Farm Klipgat 618 KS	T0KS00000000061800003
	Portion 0 Farm Hendriksrust 621 KS	T0KS00000000062100000
	Portion 0 Farm Conterberg 665 KS	T0KS00000000066500000
	Portion 7 Farm Conterberg 665 KS	T0KS00000000066500007
	Portion 9 Farm Conterberg 665 KS	T0KS00000000066500009
	Portion 18 Farm Conterberg 665 KS	T0KS00000000066500018
	Portion 23 Farm Conterberg 665 KS	T0KS00000000066500023
	Portion 0 Farm Weltevrede 670 KS	T0KS00000000067000000
	Portion 2 Farm Doornpan 694 KS	T0KS00000000069400002
	Portion 3 Farm Doornpan 694 KS	T0KS00000000069400003
	Portion 0 Farm OnverwachT 698 KS	T0KS00000000069800000
	Portion 0 Farm 996 KS	T0KS00000000099600000
	Portion 5 Farm Haringbult 699 KS	T0KS00000000069900005
	Portion 6 Farm Haringbult 699 KS	T0KS00000000069900006
	Portion 0 Farm Dronkfontein 724 KS	T0KS00000000072400000
	Portion 1 Farm Dronkfontein 724 KS	T0KS00000000072400001
	Portion 4 Farm Claremont 734 KS	T0KS00000000073400004
	Portion 5 Farm Claremont 734 KS	T0KS00000000073400005
	Portion 7 Farm Claremont 734 KS	T0KS00000000073400007
	Portion 8 Farm Claremont 734 KS	T0KS00000000073400008
	Portion 0 Farm Rhenosterfontein 731	T0KS00000000073100000
	Portion 1 Farm Mapochsgronde 733	T0JS00000000073300001
	Portion 2 Farm Mapochsgronde 733	T0JS00000000073300002

	Portion 0 Farm Gruysbank 5 JS	T0JS00000000000500000
	Portion 191 Farm Loskop Noord 12 JS	T0JS00000000001200191
	Portion 206 Farm Loskop Noord 12 JS	T0JS00000000001200206
	Portion 281 Farm Loskop Noord 12 JS	T0JS00000000001200281
	Portion 282 Farm Loskop Noord 12 JS	T0JS00000000001200282
	Portion 351 Farm Loskop Noord 12 JS	T0JS00000000001200351
	Portion 630 Farm Loskop Noord 12 JS	T0JS00000000001200630
	Portion 638 Farm Loskop Noord 12 JS	T0JS00000000001200638
	Portion 640 Farm Loskop Noord 12 JS	T0JS00000000001200640
	Portion 642 Farm Loskop Noord 12 JS	T0JS00000000001200642
	Portion 643 Farm Loskop Noord 12 JS	T0JS00000000001200643
	Portion 686 Farm Loskop Noord 12 JS	T0JS00000000001200686
	Portion 782 Farm Loskop Noord 12 JS	T0JS00000000001200782
	Portion 783 Farm Loskop Noord 12 JS	T0JS00000000001200783
	Portion 784 Farm Loskop Noord 12 JS	T0JS00000000001200784
	Portion 785 Farm Loskop Noord 12 JS	T0JS00000000001200785
	Portion 786 Farm Loskop Noord 12 JS	T0JS00000000001200786
	Portion 787 Farm Loskop Noord 12 JS	T0JS00000000001200787
	Portion 788 Farm Loskop Noord 12 JS	T0JS00000000001200795
	Portion 795 Farm Loskop Noord 12 JS	T0JS00000000001200975
	Portion 1050 Farm Loskop Noord 12 JS	T0JS00000000001201050
	Portion 1107 Farm Loskop Noord 12 JS	T0JS00000000001201107
	Portion 1083 Farm Loskop Noord 12 JS	T0JS00000000001201083
	Portion 1085 Farm Loskop Noord 12 JS	T0JS00000000001201085
	Portion 1208 Farm Loskop Noord 12 JS	T0JS00000000001201208
	Portion 04 Farm Kleinklipput 11 JS	T0JS00000000001100004
	Portion 05 Farm Kleinklipput 11 JS	T0JS00000000001100005
	Portion 0 of Farm Doelen 327 KR	T0KR00000000032700000
	Portion 8 of Farm Blinkwater 331 KR	T0KR00000000033100008

	Portion 2 Farm Gegund 332 KR	T0KR00000000033200002
	Portion 2 Farm Gegund 332 KR	T0KR00000000033200004
Powerline Co-ordinates: **Start Point 1** **Middle Point 2** **End Point 3**	23° 54'11.44" S; 28° 58'38.38 "E 24° 31'21.87" S; 28° 57'43.26" E 25° 05'09.01" S; 29° 17'52.40" E	
Laydown Areas	Borutho Substation: Point A: 28° 58' 28.86" S; 23° 54' 6.18" E Point B: 28° 58' 29.16" S; 23° 54' 6.24" E Point C: 28° 58' 28.92" S; 23° 54' 7.44" E Point D: 28° 58' 28.50" S; 23° 54' 7.32" E Point E: 28° 58' 28.86" S; 23° 54' 6.78" E Silimela Substation Point A: 29° 17' 51.66"; S25° 5' 13.62" E Point B: 29° 17' 56.46" S; 25° 5' 11.52" E Point C: 29° 17' 54.60" S; 25° 5' 12.66" E Point D: 29° 17' 52.08"; S25° 5' 14.64" E Point E: 29° 17' 54.36" S; 25° 5' 13.08" E	
Borutho Substation corner co-ordinates	A: 23°54'1.56"S; 28°58'29.57"E B: 23°54'10.55"S; 28°58'27.00"E C: 23°54'13.39"S; 28°58'41.51"E E: 23°54'4.61"S; 28°58'43.60"E	
Silimela Substation corner co-ordinates	A: 25° 5'8.00"S; 25° 5'8.00"S B: 25° 5'16.95"S; 29°17'48.88"E C: 25° 5'13.14"S; 29°17'58.29"E D: 25° 5'4.24"S; 29°17'53.56"E	

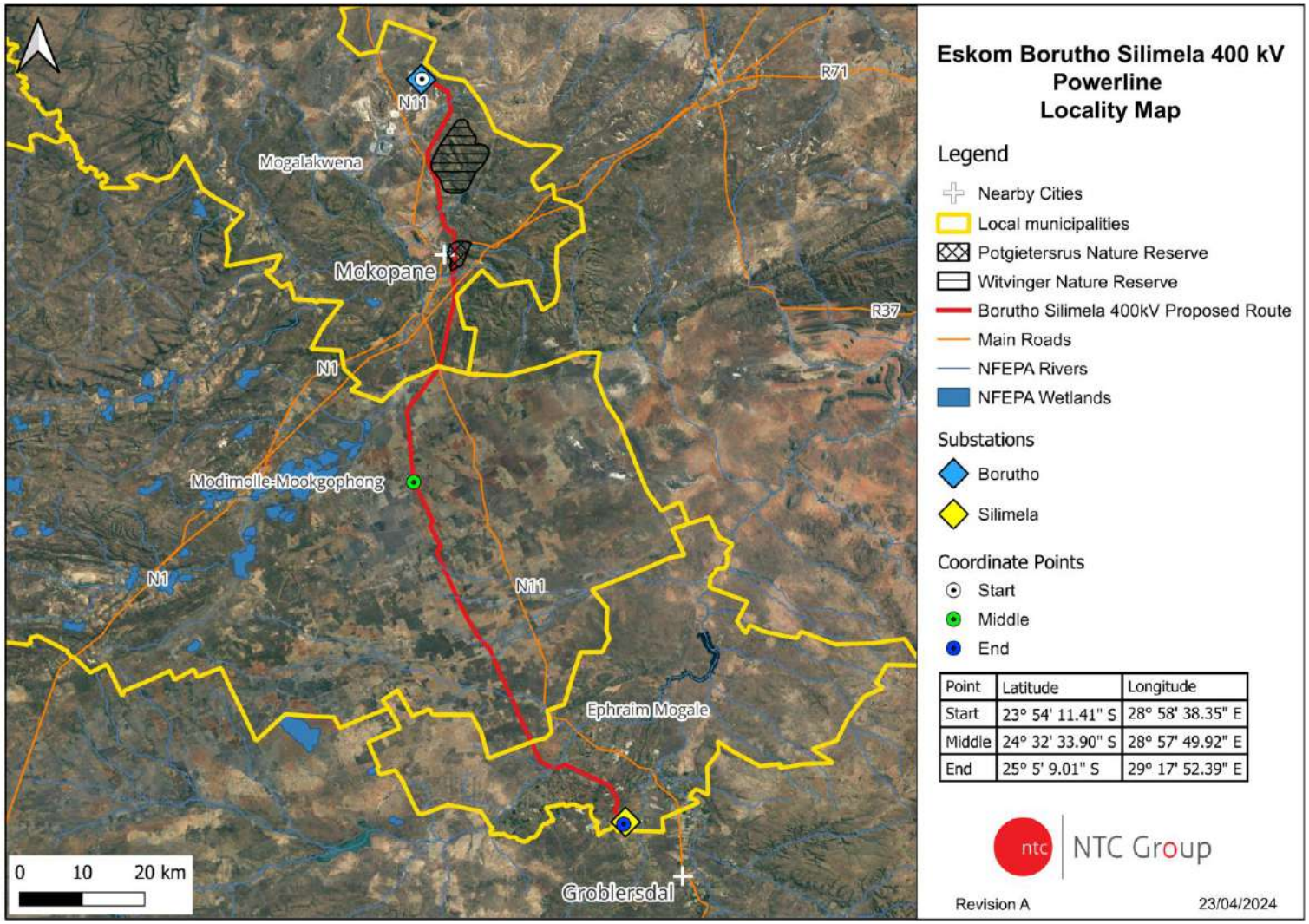

Figure 2: Locality Map showing the location of the project site proposed for the construction of the 400kV power line and the associated infrastructure.

Southeast view towards Borutho Substation; (right) Borutho Substation.

Overview of the power line route between the Borutho and Silimela Substations.

(Left) Silimela Substation; (right) northwest view after exiting Silimela Substation.

Figure 3: Photographic illustration of the Existing Burutho and Silimela Substation and an overview of the power line route.

2.3 Motivation for the project

The Borutho - Silimela 400kV line project is part of the Waterberg Generation Integration: 400kV Stability Enhancement Project which aims to cater for the full evacuation of power from Matimba and Medupi Power Stations. With the introduction of Medupi Power Station to the grid, this project will create sufficient stability margins and remove dependency on existing operational measures that is required for maintaining system stability. Furthermore, with the declining coal supplies and the planned decommissioning of some of the coal power stations in Mpumalanga, such as Arnot Power Station, the Phalaborwa CLN will rely more on the Waterberg generation.

There is also an increasing interest in the Limpopo Province to establish renewable generation, this project will facilitate the integration of future generation in the Waterberg area. This project will therefore support future network development plans towards Polokwane, Steelpoort and Marble Hall.

NTCSA is responsible for the provision of reliable and affordable power to its consumers in South Africa. Electricity cannot be stored and therefore must be used as it is generated. Electricity is generated in accordance with supply-demand requirements.

In South Africa, thousands of kilometres of high voltage transmission lines (i.e., 765kV or 400kV transmission lines) transmit this power, which is mainly generated at the power stations located within Mpumalanga and Limpopo Provinces, to NTCSA's major substations. At these major substations, the voltage is reduced, and distributed to smaller substations all over the country through distribution lines (i.e., 132kV, 88kV or 66kV distribution power lines). Here the voltage is reduced and distributed to local substations, which distribute the power via numerous small lines (i.e., 22kV and 11kV distribution power lines) to local users. The power generated by Eskom can only be utilised from those points of supply, voltage, and the ability to transform the power into a usable voltage.

The proposed construction 400kV powerline will create the following opportunities for the region:

- **Infrastructure Improvement**: The construction of the transmission line will potentially result in the improvement in the electrical infrastructure. This could lead to the reduction of energy supply issues in the region.
- **Economic Opportunities**: The construction of the transmission line will most likely result in the creation potential economic opportunities. The construction and maintenance of the transmission line are expected to create jobs and stimulate local businesses.
- **Energy Efficiency and Capacity**: The new transmission line is designed to improve energy efficiency and capacity within the region in order to meet the growing energy demands.

- **Impact on Renewable Energy Integration**: Part of the rationale for the new transmission line may be to facilitate the integration of renewable energy sources into the grid. Not proceeding with the project could hinder these efforts and slow down the transition to cleaner energy sources.
- **Developmental Delay**: The delay in the construction of the power line might lead to a delay in overall infrastructural and socio-economic development in the area, potentially impacting long-term regional growth and sustainability.
- **Environmental Considerations**: While the construction of the transmission line has associated environmental impacts, its operation, particularly if integrated with renewable energy sources, could have long-term environmental benefits.
- **Social Impact**: The project most likely includes components of community development and engagement. The delay in the construction of the transmission line would mean these planned community benefits, such as improved infrastructure, community programs, or educational initiatives, would not be realized.

2.4 Project Alternatives

In terms of the EIA Regulations 2014 (as amended) feasible alternatives are required to be considered as part of the environmental investigations. In addition, the obligation that alternatives are investigated is also a requirement of Section 24(4) of the NEMA (Act No. 107 of 1998) (as amended).

An alternative in relation to a proposed activity refers to the different means of meeting the general purpose and requirements of the activity which may include alternatives to:

- the property on which or location where it is proposed to undertake the activity;
- the type of activity to be undertaken;
- the design or layout of the activity;
- the technology to be used in the activity;
- the operational aspects of the activity; and
- the option of not implementing the activity.

For this proposed project, NTCSA has considered the alternatives outlined in Section 2.4.1 to 2.4.1 below:

2.4.2 Layout Alternative

The proposed Red Route begins at the Borutho substation and initially extends eastward, running parallel to existing gridlines like the Witkop/PPRUST 132kV line. It crosses portion 7 of farm Gillimberg 861, veering southwest through portions 8 and 9, then takes a direct southern path across portion 10 of the same farm.

The route proceeds over farm Rietfontein 2 and portions 50 and 21 of farm Uitloop 3, intersecting an unnamed gravel road that bisects these farms from west to east. Continuing from portion 21, the line extends south for approximately 3.7km, then turns east on farm Piet Potgietersrust Town and Townlands 4. It meanders through various portions of this farm before curving southwest for 2.4km. Following the natural contours of the Mokopane landscape, the line heads south, reaching the border of portions 6 and 5 of farm Oorlogsfontein 45, near Hanwill Lodge. It then bends westward into portion 94 of the same farm, turning south for about 3.6 km, crossing the N1, and proceeding southwest on portion 152 of farm Oorlogsfontein 45. The line extends approximately 12.7km in a western and southwestern direction, passing landmarks like the Tussen die berge safari lodge, various provincial roads, and gravel paths. Upon reaching farm Vlakpan 136, the line shifts westward, crosses the N11, and spans 9.2km over agricultural land. It then bends directly south on farm Platdoorns 333, following a south-southeast curve for about 20km until it reaches farm Geluksfontein 54. Here, the line bends west, crosses the R519, and continues straight south over various lands and roads, including the R33, about 31km from the R519 crossing. Approaching farm Gruysbank 5, the line curves east, parallels, and crosses the R573. It then extends east for 8km to Portion 643 of farm Loskop Noord 12, turns south for 3km to portion 638, skirts a secondary road, then zigzags west and south before connecting to the Silimela Substation. Refer to Figure 3 below. The route that is being studied is 250m wide and the servitude route is pre negotiated, negotiation is being finalised for the few outstanding servitudes. The servitude for the proposed powerline will not be more than 90m wide and is located within the 250m wide proposed route/preferred route. The reason for studying a 250 wide route was to ensure that should there be a need to shift the powerline position, there would be room for movement. Therefore no Layout alternatives have been considered in this DBAR.

2.4.3 Site Alternatives

The route that is being studied is 250m wide and the servitude route is pre negotiated, negotiation is being finalised for the few outstanding servitudes. The servitude for the proposed powerline will not be more than 90m wide and is located within the 250m wide proposed route/preferred route. The reason for studying a 250 wide route was to ensure that should there be a need to shift the powerline position, there would be room for movement. Therefore no site alternatives have been considered in this DBAR.

2.4.4 No-Go Alternative

The no-go alternative concerns the project not proceeding. No impacts (positive or negative) are expected to occur on the social and environmental sensitive features or aspects located within or within the surrounding areas of the project site. The opportunities associated with the development of the power line and associated infrastructure in the Limpopo Province will not be realised.

This would result in the current state remaining and future electricity supply in the area being compromised which would presents several issues and missed opportunities for the region:

- **Lack of Infrastructure Improvement**: The absence of the transmission line means that the planned improvements in electrical infrastructure will not materialize. This could lead to continued or worsened energy supply issues in the region, potentially affecting residential, commercial, and industrial users.
- **Economic Opportunities**: Not proceeding with the project would mean a loss of potential economic opportunities. The construction and maintenance of the transmission line are expected to create jobs and stimulate local businesses. The No-Go option would result in these opportunities being unrealized.
- **Energy Efficiency and Capacity**: The new transmission line is designed to improve energy efficiency and capacity within the region. The No-Go option would mean continuing with the existing, possibly less efficient, infrastructure, which could be less capable of meeting growing energy demands.
- **Impact on Renewable Energy Integration**: Part of the rationale for the new transmission line may be to facilitate the integration of renewable energy sources into the grid. Not proceeding with the project could hinder these efforts and slow down the transition to cleaner energy sources.
- **Developmental Delay**: The No-Go option might lead to a delay in overall infrastructural and socio-economic development in the area, potentially impacting long-term regional growth and sustainability.
- **Environmental Considerations**: While the construction of the transmission line has associated environmental impacts, its operation, particularly if integrated with renewable energy sources, could have long-term environmental benefits. The No-Go option would miss out on these potential benefits.
- **Social Impact**: The project likely includes components of community development and engagement. The No-Go option would mean these planned community benefits, such as improved infrastructure, community programs, or educational initiatives, would not be realized.

In conclusion, while the No-Go option avoids the environmental and social impacts associated with the construction and operation of the NTCSA Borutho-Silimela 400 kV Transmission Line, it also forgoes the potential benefits in terms of improved energy infrastructure, economic development, renewable energy integration, and social advancement. This option may leave existing challenges unaddressed and miss out on significant opportunities for regional development. On the other hand, if the development is not undertaken, the environment will not be disturbed.

2.4.5 Project Development Phases of the 400kV power line and associated infrastructure

Table 4: Details of the project development phase (construction, operation and decommissioning)

Construction phase	Operational phase	Decommissioning phase
Requirements • Construction will be undertaken over a period of approximately three (3) years. • Direct construction employment opportunities - provide percentage for low skilled, semi-skilled and skilled opportunities. • Confirm if there will be onsite construction labour camp or will employees be accommodated in the nearby towns/townships and transported to site in a daily basis. • Waste removal and sanitation – will it be undertaken by a sub-contractor or the municipality, where possible. • Electricity requirements for construction phase. • Water will be required for the construction activities – how much water will be required. Will the water be supplied by the local	**Requirements** During the life span of the powerline i.e., approximately 40 years, ongoing maintenance is required to be performed from time to time. This maintenance work may be undertaken by contractors employed by NTCSA, and in compliance with the EMPrs.	**Requirements** • Decommissioning of the power line • Expected lifespan of approximately 40 years (which includes maintenance).

Construction phase	Operational phase	Decommissioning phase
municipalities or water will be extracted from any bulk water supply pipelines near the site or trucked to site.		
Activities to be undertaken		
Conducting of surveys prior to construction List surveys that need to be conducted in order to confirm the pylon micro-setting footprint.	▪ N/A	**Executing site preparations works** • Confirming the integrity of site access to accommodate the required equipment and lifting cranes. • Preparation of the site (e.g. construction platform). • Mobilisation of construction equipment
Establishment of access road A vehicle access/ maintenance road is usually required to be established to allow access along the entire length of the servitude. Access is required during both the construction and operation/ maintenance phases of the powerline's life cycle. In order to reduce potential impacts associated with the construction of new access roads, existing roads will be used as far as possible where available.	• N/A	**Disassembling and removal of towers and associated infrastructure** • Large crane required for the disassembling of the Pylons (if necessary). • Components to be reused, recycled, or disposed of in accordance with regulatory requirements.

Construction phase	Operational phase	Decommissioning phase
		• Concrete will be removed to a depth as defined by the specialist and the area rehabilitated. • Cables will be removed, as may be required. • Components to be disposed of or recycled

Undertaking site preparation
• Including the clearance of vegetation at the footprint of each Pylon establishment of the laydown, the establishment of internal access roads and excavations for foundations.
• Stripping of topsoil to be stockpiled, backfilled, removed from site and/or spread on site.
  • To be undertaken in a systematic manner to reduce the risk of exposed ground being subjected to erosion.
  • Include search and rescue of floral species of concern (where required) and the identification and excavation of any sites of cultural/heritage		

Construction phase	Operational phase	Decommissioning phase
value (where required).		
Construction foundation • The choice of foundation is influenced by the type of terrain encountered and the underlying geotechnical conditions. The actual size and type of foundation to be installed will depend on the soil bearing capacity (actual sub-soil conditions). Strain structures require more extensive foundations for support than in-line suspension structures, which contribute to the cost of the construction of the powerline. Foundations may be mechanically excavated where access to the tower position is readily available. The same usually applies to the pouring of concrete required for the setting of the foundations. Prior to erecting the towers and filling of the foundations, the excavated foundations are protected in order to safeguard unsuspecting animals and people from possible injury. All	N/A	

Construction phase	Operational phase	Decommissioning phase	
foundations are back-filled, stabilised through compaction, and capped with concrete at ground level.			
Insulators Composite insulators are used to connect the conductors to the towers. Glass and porcelain have previously been used to connect the conductors for many years and are the most common. These products are, however, heavy and susceptible to breakage by vandals and contamination by pollution. Composite insulators have a glass-fibre core with silicon sheds for insulation. Composite insulators are lightweight and resistant to both vandalism and pollution. Composite (Long rod type) insulators with silicone-based weather shed material will be used for strain assemblies. Composite horizontal line post insulators will be used for the intermediate structures and on the jumper supports.	N/A	N/A	N/A
Conductors and Stringing of conductors			

Construction phase	Operational phase	Decommissioning phase	
• The conductors are made of aluminium with a steel core for strength. Power transfer is determined by the area of aluminium in the conductors. Conductors are used singularly, in pairs, or in bundles of three, four or six. The choice is determined by factors such as audible noise, corona, and electro-magnetic field (E-MF) mitigation. The size of conductor to be used is based on the initial and life-cycle costs of different combinations of size and bundles, as well as the required load to be transmitted. A guide wire is used to string the conductors between towers. This can be undertaken mechanically or by hand. The powerline is generally strung in sections (from bend to bend). Cable drums are placed at 2km intervals (depending on the length of the conductor) during this stringing process. In order to minimise any potential negative impacts on the surrounding area, these cable drums are placed within the servitude.			

Construction phase	Operational phase	Decommissioning phase	
Transport of components and equipment to and within the site • Transportation will take place via appropriate National and Provincial • roads, and the dedicated access/haul road to the site. • Specialised construction and lifting equipment to be transported to site • to erect the pylons. • Civil engineering construction equipment to be brought to the site for the civil works (e.g. excavators, trucks, graders, compaction equipment, cement trucks etc.). • Components for the establishment of the associated infrastructure to be transported to site.	N/A	N/A	N/A
Expansion of the Borutho and Silimela substation			
Establishment of the associated infrastructure. • The current perimeter of the substation sites will not be extended.	N/A	N/A	N/A
Site rehabilitation	N/A	N/A	N/A

Construction phase	Operational phase	Decommissioning phase	
• Commence with rehabilitation efforts once construction is completed in an area, and all construction equipment is removed. • On commissioning, access points to the site that will not be required for the operation phase will be closed and prepared for rehabilitation.			

3. Environmental Legal Framework

This Section of the report provides an overview of the policy and legislative context within which the construction of a 400kV power line and its associated infrastructure is proposed. It identifies environmental legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks and instruments that are applicable to this activity and are to be considered in the assessment process which may be applicable to or have bearing on the proposed project. It is also providing information which supports the need and Justification for the project.

3.1 Constitution of South Africa,1996 (Act 108 of 1996)

Section 24(b) of the Constitution indicates that “everyone has the right to have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that prevent pollution and ecological degradation [and] promote conservation”. Hence the constitution is set to protect the rights of South African Citizens. This constitution has allowed for legal environmental laws to be generated to ensure compliance.

The proposed development requires EA prior to being constructed and operated. This section of the report highlights the important environmental legal considerations taken while undertaking this BA process.

3.2 Strategic Electricity Planning in South Africa

The energy sector in South Africa has been, and continues to be, at the centre of the economic and social development. The industry directly affects the economy by using labour and capital to produce energy. As the country’s economy continues to grow, the Department of Mineral Resources and Energy (DMRE) is mandated to ensure that energy resources are available, and that there is access to energy services in an affordable, reliable and sustainable manner, while minimising the associated adverse environmental impacts (Department of Energy, 2019).

The expansion of electricity generation capacity in South Africa is based on national policy and informed by on-going strategic planning undertaken by the DMRE. These policies are discussed in more detail in the following sections, along with the provincial and local policies and plans that have relevance to the construction of the 400kV power line and the associated power line.

The South African energy industry is evolving rapidly, with regular changes to legislation and industry role-players. The regulatory hierarchy for an energy generation project of this nature consists of three tiers of authority who exercise control through both statutory and non-statutory instruments – that is National, Provincial and Local levels.

3.3 White Paper on the Energy Policy of South Africa, 1998

The South African Energy Policy, published in December 1998 by the then-Department of Minerals and Energy (DME) identifies five key objectives, namely:

- Increasing access to affordable energy services.
- Improving energy sector governance.
- Stimulating economic development.
- Managing energy-related environmental impacts.
- Securing supply through diversity.

In order to meet these objectives and the developmental and socio-economic objectives of South Africa, the country needs to optimally use available energy resources. The South African Government is required to address what can be done to meet these electricity needs both in the short and long-term.

Policy identifies key objectives for energy supply, such as increasing access to affordable energy services, managing energy-related environmental impacts and securing energy supply through diversifying South Africa's electricity mix.

3.4 The Electricity Regulation Act, 2006 (No. 04 of 2006) (ERA)

The Electricity Regulation Act, 2006 (No. 04 of 2006) (ERA) as amended by the Electricity Regulation Act, 2007 (No. 28 of 2007), replaced the Electricity Act, 1987 (No. 41 of 1987), as amended, with the exception of Section 5B, which provides funds for the energy regulator for the purpose of regulating the electricity industry.

The ERA establishes a national regulatory framework for the electricity supply industry and made National Energy Regulator of South Africa (NERSA) custodian and enforcer of the National Electricity Regulatory Framework. The ERA also provides for licences and registration as the manner in which the generation, transmission, distribution, reticulation, trading, and import and export of electricity is regulated.

3.5 The National Development Plan (NDP) 2030

The National Development Plan (NDP) 2030 offers a long-term plan for the country. It defines desired destination where inequality and unemployment are reduced and poverty is eliminated so that all South Africans can attain a decent standard of living. Electricity is one of the core elements of a decent standard of living.

While the achievement of the objectives of the NDP requires progress on a broad front, three priorities stand out, namely:

- Raising employment through faster economic growth.
- Improving the quality of education, skills development and innovation.
- Building the capability of the state to play a developmental, transformative role.

In terms of the Energy Sector's role in empowering South Africa, the NDP envisages that, by 2030, South Africa will have an energy sector that promotes:

- Economic growth and development through adequate investment in energy infrastructure. The sector should provide reliable and efficient energy service at competitive rates, while supporting economic growth through job creation.
- Social equity through expanded access to energy at affordable tariffs and through targeted, sustainable subsidies for needy households.
- Environmental sustainability through efforts to reduce pollution and mitigate the effects of climate change.

3.6 The National Environment Management Act, 1998 (Act No 107 of 1998)

Section 2 of the National Environment Management Act, 1998 (NEMA) as amended, lists environmental principles that are to be applied by all organs of state regarding developments that may significantly affect the environment. Included amongst the key principles is the principle that all developments must be socially, economically and environmentally sustainable, and environmental management must place people and their needs at the forefront of its concern, to serve their physical, psychological, developmental, cultural and social interests equitably.

NEMA, as amended, also provides for the participation of potential and registered I&APs and it stipulates that decisions must take the interests, needs and values of all I&APs into account.

Chapter 5 of NEMA, as amended, outlines the general objectives and implementation of Integrated Environmental Management (IEM), the latter providing a framework for the integration of environmental issues into the planning, design, decision-making and implementation of plans and development proposals. Section 24 provides a framework for the granting of environmental authorisations.

To give effect to the general objectives of IEM, the potential impacts on the environment of listed activities must be considered, investigated, assessed and reported to the competent authority. Section 24(4) outlines the minimum requirements for procedures for the investigation, assessment and communication of the potential impact of activities.

3.7 Environmental Impact Assessment (EIA) Regulations, 2014 as amended

The EIA Regulations 2014 (as amended) GNR 982 of 2014 (as amended) provides for the control of certain Listed Activities. These activities are listed in Government Notice No. R983 (Listing Notice 1 – Basic Assessment), R934 (Listing Notice 2 – Scoping & EIA Process) and R985 (Listing Notice 3 – Basic Assessment), and are prohibited to commence until EA has been obtained from the competent authority, in this case, the Department of Forestry and Fisheries (DFFE).

The DFFE is the competent authority for all energy related proposals which are no national priority as NEMA, as amended, states that:

"24C. (2B) The Minister must be identified as the competent authority where a Cabinet decision stipulates that the Minister must be the competent authority for activities related to a matter declared as a national priority or a matter related to such national priority"."

EA, which may be granted subject to conditions, will only be considered upon compliance with GNR 326, as amended.

Any EA obtained from the DFFE or any other competent authority only applies to those specific listed activities for which the application was made. The applicable Listed Activities are presented in Table 5 below. All potential impacts associated with these Listed Activities will be considered and adequately assessed in this authorisation process.

Table 5: NEMA Listed Activities in relation to the Proposed Development

Listing Notices 1, 2 and 3 of the EIA Regulations, 2014 as amended	**Listed Activity**	**Description of project activity that triggers listed activity**
Listing Notice 1 GN R 327 Activity 12	*The development of –* *(ii) infrastructure or structures with a physical footprint of 100 square metres or more, where such development occurs-* *(a) within a watercourse; and (c) if no development setback exists, within 32 metres of a watercourse,*	The proposed project will require the placement of linear infrastructure (i.e., power line) with a combined physical footprint of more than 100m^2, The proposed powerline from the Borutho Substation and the Silimela Substation is approximatelt 150km in extent. The powerline study route/area is 250m wide and the servitude

Listing Notices 1, 2 and 3 of the EIA Regulations, 2014 as amended	Listed Activity	Description of project activity that triggers listed activity
	measured from the edge of a watercourse.	within the route will not be more than 90m wide. As the site consists of a number drainage lines and watercourses, the road and/or powerline will cross these watercourses or drainage lines or be within 32m thereof.
Listing Notice 1 GN R 983 Activity 19	*The infilling or depositing of any material of more than 10 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 10 cubic metres from* *(i) a watercourse;*	The topsoil used within the facility will be removed from the identified areas within the site. This includes areas identified within wetlands. The powerline traverses' watercourses and will require infilling and depositing of materials of more than 10 cubic meters into/from watercourses.
Listing Notice 1 GN R 983 Activity 28	*Residential, mixed, retail, commercial, industrial or institutional developments where such land was used for agriculture, game farming, equestrian purposes or afforestation on or after 01 April 1998 and where such development:* *(ii) will occur outside an urban area, where the total land to be developed is bigger than 1 hectare.*	The proposed powerline will transverse land used for agricultural purposes. The powerline and associated infrastructure is located outside an urban area and will cover an area over one hector or more. The proposed powerline from the Borutho Substation and the Silimela Substation is approximatelt 150km in extent. The powerline study route/area is 250m wide and the servitude within the route will not be more than 90m wide.

Listing Notices 1, 2 and 3 of the EIA Regulations, 2014 as amended	**Listed Activity**	**Description of project activity that triggers listed activity**
Listing Notice 1 GN R 983 Activity 30	Any process or activity identified in terms of section 53(1) of the National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004).	The proposed 400kV power line will transverse the Witvinger Nature Reserve, the Palmer Private Nature Reserve and the Potgietersrus Nature Reserves which triggers the requirement to request for permission for the power line to be located within the nature Reserve.
Listing Notice 2 GN R984 Activity 9	*The development of facilities or infrastructure for the transmission and distribution of electricity with a capacity of 275 Kilovolts or more, outside an urban area or industrial complex.*	The proposed project entails the development of a 400kV powerline and associated infrastructure. It should be noted that this project triggers Basic Assessment process since the project is located in an Electricity Grid Infrastructure (EGI) Corridor.
Listing Notice 3 GN R984 Activity 4	*The development of a road wider than 4 metres with a reserve less than 13,5 metres* *e. Limpopo Province* *(i) Outside urban area.* *(ee) Critical Biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans;*	Access roads that form part of the service infrastructure will be required for the construction and operation of the 400kV power line. In most cases, access is easily available through existing road networks. These roads will be developed within critical biodiversity areas as identified in the systematic biodiversity plans adopted by the competent authority or in bioregional plans.

Listing Notices 1, 2 and 3 of the EIA Regulations, 2014 as amended	Listed Activity	Description of project activity that triggers listed activity
Listing Notice 3 GN R 324 Activity 12	*The clearance of an area of 300 square metres or more of indigenous vegetation except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan.* *e. Limpopo Province* *(ii) Within critical biodiversity areas identified in bioregional plans;*	In some areas, development of infrastructure will require the clearance of more than 300m^2 of indigenous vegetation. The project site is located within the Limpopo Province. It is anticipated that the access roads and proposed power line be developed within critical biodiversity areas.
Listing Notice 3 GN R 324 Activity 14	*The development of—* *(ii) infrastructure or structures with a physical footprint of 10 square metres or more;* *where such development occurs—* *within* (a) Within a watercourse; (c) If no development setback has been adopted within 32 metres of a watercourse, measured from the edge of a watercourse; e. Limpopo (i) Outside urban area. (aa) a Protected area identified in terms of NEMPAA, excluding conservancies;	The proposed power line will span over a physical footprint of more than 10 square metres and will also span across watercourses. The proposed powerline transverses the Witvinger Nature Reserve, Palmer Private Nature Reserve and the Potgietersrus Nature Reserves. These Nature Reserves have been identified as protected areas in terms of NEMPAA. The power line will also transverse Critical Biodiversity Areas.

Listing Notices 1, 2 and 3 of the EIA Regulations, 2014 as amended	Listed Activity	Description of project activity that triggers listed activity
	(ff) Critical Biodiversity Areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans;	

3.8 The National Heritage Resources Act, 1999 (Act No 25 of 1999 - NHRA)

Section 38 (1) of the National Heritage Resources Act, 1999 (NHRA) lists development activities that would require authorisation by the responsible heritage resources authority. Activities considered applicable to the proposed project include the following:

"*(a) The construction of a road, wall, powerline, pipeline, canal or other similar form of linear development or barrier exceeding 300 m in length;*
(c) any development or other activity which will change the character of a site; and
(i) exceeding 5000 m² in extent."

The NHRA, 1999, requires that a person intending to undertake such an activity must notify the relevant national and provincial heritage authorities at the earliest stages of initiating such a development. The relevant heritage authority would then in turn, notify the person whether a Heritage Impact Assessment Report should be submitted. According to Section 38(8) of the NHRA, 1999, a separate report would not be necessary if an evaluation of the impact of such development on heritage resources is required in terms of the Environment Conservation Act, 1989 (No. 73 of 1989) (ECA) (now replaced by NEMA, Act 107 of 1998) or any other applicable legislation. The decision-making authority must ensure that the heritage evaluation fulfils the requirements of the NHRA, 1999, and take into account any comments and recommendations made by the relevant heritage resources authority.

The Heritage Assessment, including Archaeology and Palaeontology, which formed part of this Scoping process was submitted to the Northern Cape South African Heritage Resources Authority (SAHRA) for comment. Comment from the SAHRA was taken into consideration and final comment will be requested from the SAHRA for the EIA phase (refer to Volume III: PP Report).

In South Africa, the law is directed towards the protection of human-made heritage, although places and objects of scientific importance are covered. The NHRA, 1999, also protects intangible heritage such as traditional activities, oral histories and places where significant events happened. While not specifically mentioned in the NHRA, scenic routes are recognised as a category of heritage resources which requires grading as the Act protects area of aesthetic significance.

3.9 National Department of Agriculture, Land Reform and Rural Development (DALRRD)

3.9.1 Subdivision of Agricultural Land Act, 1970 (Act No. 70 of 1970 - SALA)

In terms of the Subdivision of Agricultural Land Act, 1970, any application for change of land use must be approved by the Minister of Agriculture. This is a consent for long-term lease in terms of the SALA. If DALRRD approval for the development has already been obtained in the form of the No Objection letter, then SALA approval should not present any difficulties. Note that SALA approval is not required if the lease is over the entire farm portion. SALA approval (if required) can only be applied for once the Municipal Rezoning Certificate and Environmental Authorisation has been obtained.

3.9.2 Conservation of Agricultural Resources, 1983 (Act No. 43 of 1983)

The Conservation of Agricultural Resources Act (CARA), 1983 states that no degradation of natural land is permitted. The Act requires the protection of land against soil erosion and the prevention of water logging and salinization of soils by means of suitable soil conservation works to be constructed and maintained. The utilisation of marshes, water sponges and watercourses are also addressed.

Rehabilitation after disturbance to agricultural land is managed by the CARA. A consent in terms of CARA is required for the cultivation of virgin land. Cultivation is defined in CARA as “any act by means of which the topsoil is disturbed mechanically”. The purpose of this consent for the cultivation of virgin land is to ensure that only land that is suitable as arable land is cultivated. Therefore, despite the above definition of cultivation, disturbance to the topsoil that results from the construction of a renewable energy facility and its associated infrastructure does not constitute cultivation as it is understood in CARA. This has been corroborated by Anneliza Collett (Acting Scientific Manager: Natural Resources Inventories and Assessments in the Directorate: Land and Soil Management of the Department of Agriculture, Land Reform and Rural Development (DALRRD)). The construction and operation of the facility will therefore not require consent from the Department of Agriculture, Land Reform and Rural Development in terms of this provision of CARA.

3.10 National Veld and Forest Fire Act, 1998 (Act No. 101 of 1998)

The purpose of the National Veld and Forest Fire Act, as amended by the National Fire Laws Amendment Act (Act 12 of 2001), is to prevent and combat veld, forest and mountain fires throughout South Africa. The Act applies to the open countryside beyond the urban limit and puts in place a range of requirements. It also specifies the responsibilities of landowners. The term 'owners' includes lessees, people in control of

land, the executive body of a community, the manager of State land, and the chief executive officer of any local authority. The requirements include, but are not limited to, the maintenance of firebreaks and availability of firefighting equipment to reasonably prevent the spread of fires to neighbouring properties.

3.11 The Environment Conservation Act, 1989 (Act No.73 of 1989), the National Noise Control Regulations: GN R154 of 1992

The Environment Conservation Act, 1989 (ECA) allows the Minister of Environmental Affairs and Tourism (now the "Minister of Forestry, Fisheries and the Environment") to make regulations regarding noise, amongst other concerns. The Minister has made noise control regulations under the ECA.

In terms of section 25 of the ECA, the national noise-control regulations (NCR) were promulgated (GN R154 in *Government Gazette* No. 13717 dated 10 January 1992). The NCRs were revised under Government Notice Number R. 55 of 14 January 1994 to make it obligatory for all authorities to apply the regulations.

Subsequently, in terms of Schedule 5 of the Constitution of South Africa of 1996 legislative responsibility for administering the NCR was devolved to provincial and local authorities.

These regulations define "**disturbing noise**" as:

"*Noise level which exceeds the zone sound level or, if no zone sound level has been designated, a noise level which exceeds the ambient sound level at the same measuring point by 7 dBA or more*".

These Regulations prohibits anyone from causing a disturbing noise.

3.12 National Environmental Management: Air Quality Act, 2004 (Act No. 39 of 2004)

Section 34 of the Air Quality Act, 2004 (AQA) makes provision for:

(1) The Minister to prescribe essential national noise standards –
   a. For the control of noise, either in general or by specified machinery or activities or in specified places or areas; or
   b. For determining –
      i. a definition of noise; and
      ii. the maximum levels of noise.

(2) When controlling noise, the provincial and local spheres of government are bound by any prescribed national standards.

This section of the Act is in force, but no such standards have yet been promulgated.

An atmospheric emission license issued in terms of Section 22 may contain conditions in respect of noise. This however will not be relevant to this proposed development.

3.13 National Dust Control Regulations, 2013

The National Environmental Management: Air Quality Act, 2004 (Act 39 of 2004), makes provision for national dust control regulations. These regulations prescribe dust fall standards for residential and non-residential areas. These Regulations also provide for dust monitoring, control and reporting.

The acceptable dust fall out rates are:

Restriction Area	Dust Fall (D) (mg/m^2/day, 30 day average)	Permitted Frequency of exceedance
Residential	D<600	Two within a year, not sequential months
Non- Residential	600 <D< 1200	Two within a year, not sequential months

3.14 National Water Act, 1998 (Act No. 36 of 1998 - NWA)

The National Water Act, 1998 (Act No. 36 of 1998) (NWA) provides for constitutional requirements including pollution prevention, ecological and resource conservation and sustainable utilisation. In terms of this Act, all water resources are the property of the State.

A water resource includes any watercourse, surface water, estuary or aquifer, and, where relevant, its bed and banks. A watercourse is interpreted as a river or spring; a natural channel in which water flows regularly or intermittently; a wetland lake or dam into which or from which water flows; and any collection of water that the Minister may declare to be a watercourse.

Relevant water uses for the proposed construction of the power line will transverse watercourses and drainage channels, in terms of Section 21 of the Act include but are not limited to the following:

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

GN 1199 of 18 December 2009 grants general authorisation (GA) for the above water uses based on certain conditions. It is also stipulates that these water uses must be registered with the responsible authority.

Pollution of river water is a contravention of the NWA. Chapter 3, Part 4 of the NWA deals with pollution prevention and in particular the situation where pollution of a water resource occurs or might occur as a result of activities on land. The person who owns, controls, occupies or uses the land in question is responsible for taking measures to prevent pollution of water resources.

Chapter 3, Part 5 of the NWA deals with pollution of water resources following an emergency incident, such as an accident involving the spilling of a harmful substance that finds or may find its way into a water

resource. The responsibility for remedying the situation rests with the person responsible for the incident or the substance involved.

3.14.1 Permit Requirements

A General Application (GA) or an exemption may be required. This will be determined by the Department of Water and Sanitation (DWS) during the WULA pre-application process.

This process will run separate to this EA application process.

3.15 National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004 - NEMBA) Threatened or Protected Species List, 2015

Amendments to the Threatened or Protected Species (TOPS) list were published on 31 March 2015 in Government Gazette No. 38600 and Notice 256 of 2015. Certain flora and fauna that occur on the site may be threatened or protected.

3.15.1 Alien and Invasive Species Regulations, 2016

The Act and Regulations set out various degrees of Invasive Species (Plants, Insects, Birds, Animals, Fish and Water Plants) and requires that certain of those invasive species are documented and, in some cases, removed from properties in South Africa.

The Regulations list 4 categories of invasive species that must be managed, controlled or eradicated from areas where they may cause harm to the environment, or that are prohibited to be brought into South Africa.

3.16 National Noise Control Regulations (GN R154 of 1992)

The Noise Control Regulations (NCR) were promulgated in terms of section 25 of the ECA. The NCRs were revised under Government Notice Number R. 55 of 14 January 1994 to make it obligatory for all authorities to apply the regulations.

Subsequently, in terms of Schedule 5 of the Constitution of South Africa of 1996 legislative responsibility for administering the noise control regulations was devolved to provincial and local authorities.

3.16.1 Noise Standards

There are a few South African scientific standards (SABS) relevant to noise from developments, industry and roads. They are:

- SANS 10103:2008. ‘The measurement and rating of environmental noise with respect to annoyance and to speech communication’.
- SANS 10210:2004. ‘Calculating and predicting road traffic noise’.
- SANS 10328:2008. ‘Methods for environmental noise impact assessments’.
- SANS 10357:2004. ‘The calculation of sound propagation by the Concave method’.

- SANS 10181:2003. 'The Measurement of Noise Emitted by Road Vehicles when Stationary'.

3.17 National Forests Act, 1998 (Act No. 84 of 1998 - NFA)

This act lists protected tree species and prohibits certain activities. The prohibitions provide that "*no person may cut, damage, disturb, destroy or remove any protected tree, or collect, remove, transport, export, purchase, sell, donate or in any other manner acquire or dispose of any protected tree, except under a licence granted by the Minister".*

3.18 National Road Traffic Act, 1996 (Act No. 93 of 1996) (NRTA)

The technical recommendations for highways (TRH 11): *"Draft Guidelines for Granting of Exemption Permits for the Conveyance of Abnormal Loads and for other Events on Public Roads"* outline the rules and conditions which apply to the transport of abnormal loads and vehicles on public roads and the detailed procedures to be followed in applying for exemption permits are described and discussed.

Legal axle load limits and the restrictions imposed on abnormally heavy loads are discussed in relation to the damaging effect on road pavements, bridges, and culverts.

The general conditions, limitations, and escort requirements for abnormally dimensioned loads and vehicles are also discussed and reference is made to speed restrictions, power/mass ratio, mass distribution, and general operating conditions for abnormal loads and vehicles. Provision is also made for the granting of permits for all other exemptions from the requirements of the National Road Traffic Act and the relevant Regulations.

The South African National Roads Authority (SANRAL) and the Provincial Department of Transport would act as a Competent/Commenting Authority.

3.19 Promotion of Access to Information Act, 2000 (Act No. 2 of 2000) (PAIA)

The PAIA gives effect to the constitutional right of access to any information held by the state and any information that is held by another person and that is required for the exercise or protection of any rights; and to provide for matters connected therewith.

3.20 National Environmental Management Act: National Appeals Regulations, 2014

The purpose of these regulations is to regulate the procedure contemplated in section 43(4) of the National Environmental Management Act relating to the submission, processing and consideration of a decision on an appeal. This Act is used to help guide and understand the appeal process and the procedures may follow.

3.21 Additional Relevant Legislation

The applicant must also comply with the provisions of other relevant national legislation. Additional relevant legislation that has informed the scope and content of this BA Report includes the following:

- *Constitution of the Republic of South Africa, 1996 (Act No. 108, 1996);*
- *Aviation Act, 1962 (Act No. 74, 1962);*
- *National Environmental Management: Waste Act, 2008 (Act No. 59, 2008);*
- *National Environmental Management: Protected Areas Act, 2003 (Act No. 57, 2003);*
- *National Roads Act, 1998 (Act No. 7, 1998)*
- *Occupational Health and Safety Act, 1993 (Act No. 85 of 1993);*
- *National Veld and Forest Fire Bill of 10 July 1998;*
- *Fertiliser, Farm Feeds, Agricultural Remedies and Stock Remedies Act, 1947 (Act No. 36 of 1947; and*
- *Independent Communications Authority of South Africa Act, 2000 (Act No. 13 of 2000; as amended); and*
- *Screening Report referred to in Regulation 16(1)(v) of the Environmental Impact Assessment Regulations 2014, as amended.*

3.22 Policies and Guidelines

3.22.1 Environmental Impact Assessment Guidelines

Relevant guidelines and policies as applicable to the management of the BA process and to this application have also been taken into account, as indicated below:

- *IEM Guideline Series (Series 3): Stakeholder engagement (2002);*
- *IEM Guideline Series (Series 4): Specialist studies (2002);*
- *IEM Guideline Series (Series 5): Impact Significance (2002);*
- *IEM Guideline Series (Guideline 5): Companion to the EIA Regulations 2010 (October 2012);*
- *IEM Guideline Series (Series 7): Cumulative Effects Assessment (2002);*
- *IEM Guideline Series (Guideline 7): Public Participation in the EIA process (October 2012);*
- *IEM Guideline Series (Series 7): Alternatives in the EIA process (2002);*
- *IEM Guideline Series (Guideline 9): Draft guideline on need and desirability in terms of the EIA Regulations 2010 (October 2012);*
- *DEA (2017) Guideline on Need and Desirability, Department of Environmental Affairs (DEA) Pretoria, South Africa (2017);*
- *IEM Guideline Series (Series 12): Environmental Management Plans (EMP) (2002); and*
- *IEM Guideline Series (Series 15): Environmental impact reporting (2002).*

3.23 The Equator Principles (EPs) IIII, 2020

The principles applicable to the project are likely to include:

- *Principle 2: Environmental and Social Assessment;*
- *Principle 3: Applicable Environmental and Social Standards;*
- *Principle 4: Environmental and Social Management System and Equator Principles Action Plan;*
- *Principle 5: Stakeholder Engagement;*
- *Principle 6: Grievance Mechanism;*
- *Principle 7: Independent Review;*
- *Principle 8: Covenants;*
- *Principle 9: Independent Monitoring and Reporting; and*
- *Principle 10: Reporting and Transparency*.

These principles, among various requirements, include a requirement for an assessment process and an Environmental and Social Management Plan (ESMP) to be prepared by the client to address issues raised in the assessment process and incorporate actions required to comply with the applicable standards, and the appointment of an independent environmental expert to verify monitoring information. This document, including the appended EMPr, provides the assessment and proposed measures to minimise, mitigate and, where residual impacts remain, remediate risks and impacts the 400kV power line development will have on the receiving environment and includes the requirement to establish an effective grievance mechanism for affected communities and workers in which it is proposed.

4. Public Participation Process

Public participation is an essential and regulatory requirement for an environmental authorisation process and is guided by Regulations 41 of the EIA Regulations 2014 (GN R982) (as amended). The objectives of the Public Participation Process (PPP) are to provide information to the public, identify key issues and concerns at an early stage, respond to the issues and concerns raised, provide a review opportunity, and to document the process properly. The PPP will be managed to meet these objectives throughout the EIA. The PPP undertaken to date is summarised below.

Consultation with the public forms an integral component of this investigation and enables I&APs (e.g., directly affected landowners, communities, national-, provincial- and local authorities, environmental groups, civic associations), to identify their issues and concerns relating to the proposed activities. The PPP is structured to provide I&APs with an opportunity to gain more knowledge about the proposed project, to provide input through the review of documents/reports, and to voice any issues of concern at various stages throughout the EIA process.

4.1 Basic Assessment Process

The EIA Phase aims to achieve the following:

- Provide a comprehensive assessment of the social and biophysical environments affected by the proposed phases put forward as part of the project.
- Assess potentially significant impacts (direct, indirect, and cumulative, where required) associated with the proposed facility.
- Comparatively assess any alternatives put forward as part of the projects.
- Identify and recommend appropriate mitigation measures for potentially significant environmental impacts.
- Undertake a fully inclusive public participation process to ensure that I&APs are afforded the opportunity to participate, and that their issues and concerns are recorded.

The DBAR Report addresses potential direct, indirect, and cumulative impacts (both positive and negative) associated with all phases of the project including design, construction, operation and decommissioning. In this regard the DBAR aims to provide the relevant authorities with sufficient information to make an informed decision regarding the proposed project.

4.1.1 Tasks completed during the BA Process

The BA process for the proposed Borutho-Silimela 400kV Power Line and associated infrastructure is being undertaken in accordance with the EIA Regulations published in GN 38282 in December 2014 (as amended), in terms of NEMA.

Key tasks undertaken within the Basic Assessment process included:

- Consultation with relevant decision-making and regulating authorities (at National,
- Provincial and Local levels).
- Undertaking a public participation process throughout the BA process in accordance with Chapter 6 of Government Notice R982 of 2014 (as amended) in order to identify any additional issues and concerns associated with the proposed project.
- Preparation of a Comments and Response Report detailing key issues raised by I&APs as part of the BA process.
- Undertaking of independent specialist studies in accordance with Appendix 6 of Government Notice R982 of 2014 (as amended).
- Preparation of an BA Report in accordance with Appendix 3 of Government Notice R982 of 2014 (as amended).

These tasks are discussed in detail below.

4.1.2 Authority Consultation

The DFFE is the competent authority for all energy related projects and the applicant is a state owned entity (NTCSA). As the project falls within the Limpopo Province, the Department of Economic Development, Environment and Tourism (LEDET) is the commenting authority for the project. A record of all authority consultation undertaken is included as part of the DBAR. Consultation with the regulating authorities (i.e. DFFE and LEDET) will continue throughout the BA process. On-going consultation included the following:

- Submission of the application for authorisation to DFFE;
- Submission of the DBAR for review by the competent authority from 25 April 2024 to the 03 June 2024.
- Notification and consultation with Organs of State (refer to Table 6) that may have jurisdiction over the project, including:
    - Provincial departments
    - Parastatals and Non-Governmental Organisations
    - Local Municipality and District Municipality
- Receipt of comment from the Competent Authority on the BAR, to be addressed and adequately reflected in the Final BAR.
- Submission of the Final BAR for the proposed project to DFFE after the 30 days public review period.
- Provision of an opportunity for DFFE and/or LEDET representatives to visit and inspect the proposed project site if required.

A record of the authority consultation of the first draft BAR is included within Appendix D.

4.1.3. Public Involvement and Consultation

The aim of the public participation process is primarily to ensure that:

- Information containing all relevant facts in respect of the proposed project is made available to potential stakeholders and I&APs.
- Participation by potential I&APs is facilitated in such a manner that all potential stakeholders and I&APs are provided with a reasonable opportunity to comment on the proposed project.
- Comments received from stakeholders and I&APs are recorded and incorporated into the BAR.

In order to accommodate the varying needs of stakeholders and I&APs within the study area, as well as capture their inputs regarding the project, various opportunities for stakeholders and I&APs to be involved in the BA process have been provided, as follows:

- In person Focus group meetings were held on the 16 and 17 May 2024 at the following Venues (refer to Appendix D-8):
    - Mookgophong Community Hall on the 16 May 2024 from 10h00 am to 12h00pm.
    - Ga Sekhaolelo on the 16 May 2024 from 14h00pm to 17h00pm.
    - Marble hall - World Shakers Christian Church on the 17 May 2024 From 14h00 to 17h00pm.
- Virtual Meetings were held via Teams on the 22 May 2024 from 10h00 to 12h00pm and 16h00 to 18h00 (Refer to Appendix D-8).
- The advertainments were placed in the Sunday World on the 05 May 2024 and the 12 May 2024 Notifying the I&APs of the BA process being undertaken and the availability of the DBAR and dates for the Focus Group Meetings.
- English and Sepedi Site Notices were placed along the powerline route on the 06 May 2024 (refer to Appendix D-2).
- Telephonic consultation sessions (consultation with various parties from the EIA project team, including the project participation consultant, lead by the EAP.
- Written, faxed or e-mail correspondence.
- The initial draft of the DBAR was released for a 30-day public review period from 24 April 2024 to the 03 June 2024. All comments received from I&APs have been captured in the Comment and Responses Report (refer to Appendix D-7) captured within a Comments and Response Report and will be included and addressed to the extent necessary within the amended DBAR.

Subsequent to the release of the initial Draft BAR the powerline route was slightly amended. The amendment entailed the deviation/relocation of the powerline from the Farm Bokpoort 328KR Portion 1 to Portions 2 and 4 of the Farm Gegund 332 KR, Portion 0 of the Farm Doelen 327 KR and Portion 8 of the Farm Blinkwater 331 KR. Please note that Portions 2 and 4 of the Farm Gegund 332 KR, Remainder Portion of the Farm Doelen 327 KR and Portion 8 of the Farm Blinkwater 331 KR did not form part of the

initial scope of work. This is considered as a change in the scope of work and therefore the Amended Draft Basic Assessment Report will be made available for public review from the 05 August 2024 to the 05 September 2024 following venues and platforms:

- Mokopane Local Library;
- Mogalakwena Local Municipality;
- Ephraim Mogale Local Municipality;
- Ga-Sekhaoelo Tribal Authority House;
- NTC Group website: www.ntcgroup.co.za ; and
- Copies of the draft BA Report will also be distributed to key authorities with jurisdiction, including the following:
- DFFE (including Biodiversity Conservation Unit).
- Limpopo Department of Economic Development, Environment and Tourism;
- Department of Water and Sanitation;
- Limpopo Department of Agriculture and Rural Development;
- South African Heritage Resources Agency;
- Lepelle-Nkumpi, Mogalakwena Local Municipality;
- Modimolle-Mookgophong;
- Ephraim Mogale Local Municipalities;
- Sekhukhune District Municipality;
- Capricorn District Municipality;
- Waterberg District Municipality and
- South African National Biodiversity Institute
- On request from NTC.

It is important to note that the initial Draft BAR was released before NTCSA came into operation, hence the names NTCSA and Eskom are used interchangeably.

- In person Focus group meetings were held on the 22 August 2024 at the following Venues (refer to Appendix D-8):
    - Mookgophong Community Hall on the 16 May 2024 from 10h00 am to 12h00pm.
- A Virtual Meeting via Teams on the 23 August 2024 from 14h00 to 16h00pm with I&APs who were unable to attend the Focus Group meeting in the first round of public Participation.
- The advertisement will be placed on the 04 August 2024 in the Sunday World.
- Amended site notices in English and Sepedi will be placed on site on the week of the 05 August 2024.
- Telephonic consultation sessions (consultation with various parties from the EIA project team, including the project participation consultant, led by the EAP.

- Written, faxed or e-mail correspondence.
- All comments received from I&APs will be captured in the Comment and Responses Report (refer to Appendix D-7) captured within a Comments and Response Report and will be included and addressed to the extent necessary within the FBAR, for submission to the authorities for decision making.

In terms of the requirement of Chapter 6 of the EIA Regulations of 2014 (as amended), the following key public participation tasks are required to be undertaken:

- Fixing a notice board at a place conspicuous to the public at the boundary or on the fence of—
  i. the site where the activity to which the application relates is or is to be undertaken; and
  ii. any alternative site mentioned in the application;
- Giving written notice to:
  i. the owner or person in control of that land if the applicant is not the owner or person in control of the land;
  ii. the occupiers of the site where the activity is or is to be undertaken or to any alternative site where the activity is to be undertaken;
  iii. owners and occupiers of land adjacent to the site where the activity is or is to be undertaken or to any alternative site where the activity is to be undertaken;
  iv. the municipal councillor of the ward in which the site or alternative site is situated and any organisation of rate payers that represent the community in the area;
  v. the municipality which has jurisdiction in the area;
  vi. any organ of state having jurisdiction in respect of any aspect of the activity; and
  vii. any other party as required by the competent authority.
- Placing an advertisement in:
  one local newspaper; and
  viii. in at least one provincial newspaper.
- Open and maintain a register/ database of interested and affected parties and organs of state.
- Release of a DBAR for Public Review
- Preparation of a Comments and Responses Report which documents all of the comments received and responses from the project team.

In compliance with the requirements of Chapter 6 of the EIA Regulations, 2014, the following summarises the key public participation activities to be conducted:

- Placement of Site Notices - Placement of site notices (in English and Sepedi) will be placed at visible points on the main access roads and at the entrance to the Borutho and Silimela Substation

in accordance with the requirements of the EIA Regulations. Further notices will be placed at the Local Municipalities.

- Distribution of Background information on the 24 April 2024.
- Newspaper Advertisement – An advertisement will be placed in the Star Newspaper on the week of the 22 April 2024)
- Identification of I&APs and establishment of a database - Identification of I&APs was undertaken by NTC through existing contacts and databases, recording responses to site notices and the newspaper advertisement, as well as through the process of networking. The key stakeholder groups identified include authorities, local and district municipalities, public stakeholders, Parastatals and Non-Governmental Organisations (refer to Table 6 below).

Table 6: List of Stakeholders identified during the EIA Process

Organs of State – National Government Department	DFFE Biodiversity Directorate
	Department of Rural Development and Land Reform (DRDLR)
	Department of Water and Sanitation (DWS)
Government Bodies and State Owned Companies	South African Heritage Resources Agency (SAHRA)
	South African National Roads Agency Limited (SANRAL)
	Telkom SA Ltd
	Civil Aviation Authority
	BirdLife South Africa
Provincial Government Departments	Limpopo Province Heritage Resources Authority (LIHRA)
	Roads Agency Limpopo (RAL) SOC Ltd
	Limpopo Department of Agriculture and Rural Development
	Limpopo Department Economic Development, Environment and Tourism (LEDET)
	Limpopo Department of Cooperative Governance, Human Settlements and Traditional Affairs
Local Government Departments	Greater Sekhukhune, Capricorn, and Waterberg District Municipalities

	Lepelle-Nkumpi, Mogalakwena, Modimolle-Mookgopong and Ephraim Mogale Local Municipalities
Conservation Authorities	South African National Biodiversity Institute (SANBI)
Landowners	Affected landowners and tenants

All relevant stakeholder and I&AP information has been recorded within a database of affected parties (refer to Appendix C). While I&APs are encouraged to register their interest in the project from the onset of the process undertaken, the identification and registration of I&APs is on-going for the duration of the BA process.

4.1.4 Summary of issues raised by interested and affected parties

A summary of the issues raised by interested and affected parties, and an indication of the manner in which the issues were incorporated or addressed in the report, or the reasons for not including them have been included in the Table below.

Table 7: a summary of the issues raised by interested and affected parties, and an indication of the manner in which the issues were incorporated,

Date of Comment	Comments received from	Comment	Response by EAP	Section and Page of the Report where comment is addressed
16 May 2024	Mr Sekhaowelo	How is Eskom going ensure that there is awareness amongst community members and the tribal authorities to avoid the allocation of stand for residential use within the power line route.	It is proposed that the powerline your be pegged or notices be placed along the powerline route. It will also be very beneficial for Eskom to communicate with the tribal authority on a regular basis to raise awareness to new members that may not be aware of the proposed powerline development. The community representatives will be notified well in time when the when the Surveyors come to site.	Refer to Appendix D of the DBAR.
16, 17 & 22 May 2024	Mr Albert Chaba	What are the potential job opportunities?	The job opportunities will include but not limited to the following: ▪ General Labourers. ▪ Semi-skilled labourers.	Refer to Appendix D of the Draft BAR.

Date of Comment	Comments received from	Comment	Response by EAP	Section and Page of the Report where comment is addressed
			▪ Skilled labourers (Climbers, Steel erectors, Safety Reps etc). ▪ Skills Development (SHEQ trainee, foreman etc). Specific numbers will only be determined once the contractor has been appointed by Eskom.	
	Mr Albert Chaba	What are the SMME opportunities and how to they apply for such opportunities? And how will they be notified of the opportunities.	Eskom advised that the local business should apply on Eskom website.	
	Alfred Setseta	When will the construction phase commence.	It is anticipated that construction phase will commence in January 2026.	
24 May 2024	DFFE	SG 21 Digit Codes and Coordinates The CA acknowledges the SG 21 Digit Codes on page 16 to 20 of the draft BAR; however, you are	The SG 21 Digit Codes included in the DBAR and in Appendix 9 of the application form are aligned.	Refer to Section 2.2, Table 3 , page 18 of the DBAR.

Date of Comment	Comments received from	Comment	Response by EAP	Section and Page of the Report where comment is addressed
		advised to ensure that the farm names and numbers with their SG 21 Digit CodSes provided in the final BAR are the same with those provided in Appendix 9 of the amended application form.		
24 May 2024	DFFE	The CA acknowledges the coordinates provide on page 20 of the draft BAR, however, for each property, you are advised to provide the powerline coordinates from the start, middle and end points. In addition, for the associated infrastructures such as the substation and laydown areas, you are advised to provide the four corner and centre points coordinates.	The start, middle co-ordinates and end co-ordinates of the proposed powerline, the four corner co-ordinates of the Borutho and Silimela Substation have been included in Section 2, Table 3 of the DBAR.	Refer to Section 2.2, Table 3 , page 18 of the DBAR.
24 May 2024	DFFE	It has been noted that the screening tool reports for the powerline and associated infrastructures are included in the draft BAR, however, there is no EIA Reference numbers and compiler signatures on the aforesaid reports. Therefore, you are advised to provide the EIA reference number and sign the abovementioned reports to be submitted with the final BAR.	The DFFE and the compiler signature has been incorporated into the Screening Report.	Refer to Appendix N.

Date of Comment	Comments received from	Comment	Response by EAP	Section and Page of the Report where comment is addressed
24 May 2024	DFFE	It has been noted that the word/s “should and may” have been used in the description of activity 19 of Listing Notice (LN) 1 and activity 9 of LN 2. Please refrain from using such word/s, since it creates an uncertainty regarding the applicability of the listed activity applied for, for the proposed development. In addition, please note that the project description and listed activities are not based on a precautionary approach.	The description of the listed activities in the application and DBAR and been amended accordingly.	Refer to
24 May 2024	DFFE	For activity 12 of LN 1, it has been noted that the placement of linear infrastructure (i.e., overhead powerlines) will be located within or within 32m of watercourses, however, the physical footprints of the linear infrastructures are not provided, therefore, you are advised to provide the physical footprint of the linear infrastructure/s which are 100 square meters or more and that are within 32m of a water course.	The proposed powerline from the Borutho Substation and the Silimela Substation is approximatelt 150km in extent. The powerline study route/area is 250m wide and the servitude within the route will not be more than 90m wide.	Refer to Section 3.7 on page 41 of the DBAR.

Date of Comment	Comments received from	Comment	Response by EAP	Section and Page of the Report where comment is addressed
24 May 2024	DFFE	For activity 19 of LN 1, the CA acknowledges that the listed activity will be triggered as the topsoil used within the facility will be removed from the identified areas within the site. This might include areas identified within wetlands. However, you are advised to provide the capacity of the materials which are more than 10 cubic meters to determine the applicability of this activity.	The proposed powerline from the Borutho Substation and the Silimela Substation is approximatelt 150km in extent. The powerline study route/area is 250m wide and the servitude within the route will not be more than 90m wide.	Refer to Section 3.7 on page 41 of the DBAR.
		For activity 28 of LN 1, the CA acknowledges that activity 28(ii) is triggered as the proposed powerline will transverse land used for agricultural purposes. The power line and associated infrastructure is located outside an urban area and will cover an area over one hectare or more. Please provide the size of the total land to be developed or cover by the powerline in hectares in order to determine the applicability of this listed activity.	The proposed powerline from the Borutho Substation and the Silimela Substation is approximatelt 150km in extent. The powerline study route/area is 250m wide and the servitude within the route will not be more than 90m wide.	Refer to Section 3.7 on page 41 of the DBAR.

Date of Comment	Comments received from	Comment	Response by EAP	Section and Page of the Report where comment is addressed
		It has been noted that for activity 30 of Listing Notice (LN) 1, the proposed 400kV power line will transverse the Witvinger Nature Reserve and the Potgietersrus Nature Reserves. Therefore, for the description to trigger the listed activity, the CA advise you to note the following: ➢ To obtain comments from the management authority of all the above-mentioned nature reserves. ➢ To obtain comments from the DFFE Biodiversity Conservation, LEDET: Biodiversity Section; DFFE: Protected Areas and the Department of Water and Sanitation (DWS).	Permit applications have been submitted to SANBI and LEDET.	Refer to Appendix 12 of the application form.
		Based on the above, please note that since the proposed route will overlap or go through the Protected Areas, approval from the Management Authority in terms of the National Environmental Management:	The amended Draft BAR will be submitted to the Department's Protected Areas Directorate (DFFE and LEDET) for comments and obtain approval from the Management Authority in terms of the National Environmental	N/A

Date of Comment	Comments received from	Comment	Response by EAP	Section and Page of the Report where comment is addressed
		Protected Areas Act, 2003; Section 50 (5) for commercial and community activities in the National Park, and/or World Heritage Site must be obtained and be submitted with the final report. Comments from this Department's Protected Areas Directorate must be obtained to confirm whether approval from the Management Authority in terms of the National Environmental Management: Protected Areas Act, 2003; Section 50 (5) is required.	Management: Protected Areas Act, 2003; Section 50 (5). The Protected Areas Directorate will also be included to the Stakeholders.	
		For activity 4 of LN 3, please indicate the dimensions of the road to determine the applicability of this listed activity.	The dimensions of the roads will only be firmed up during the detail designs. At this stage the information cannot provide.	N/A
		It has been noted that activities in LN 3 have been applied for because the site falls "within critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans….". Therefore, you are requested to indicate in the project	The information will be verified with the Ecologist.	N/A

Date of Comment	Comments received from	Comment	Response by EAP	Section and Page of the Report where comment is addressed
		description of the aforesaid listed activities that the CA has adopted the biodiversity plans or bioregional plans. Proof confirming the adoption of systematic biodiversity plans from the relevant CA must be submitted with the final report. Should it be that the systematic biodiversity plan is not adopted, the activities would not be triggered.		
		Kindly be advised that listed activities are not based on a precautionary approach. Please ensure that all the listed activities in the amended application form and final SR are clear and final for decision making purposes.	Your comment is noted.	N/A
		Please ensure that all relevant listed activities are applied for, are specific and can be linked to the development activity or infrastructure as described in the project description. In addition, the onus is on the applicant and the Environmental Assessment Practitioner (EAP) to ensure that all the applicable listed activities are included in the application and the final BAR. Failure to do so may	Your comment is noted.	N/A

Date of Comment	Comments received from	Comment	Response by EAP	Section and Page of the Report where comment is addressed
		result in unnecessary delays in the processing of the application.		
		If the activities applied for in the application form differ from those mentioned in the final BAR, an amended application form must be submitted for final review and decision making. Please note that the Department's has been amended and can be downloaded from the following link https://www.environment.gov.za/documents/forms	Your comment is noted. The activities applied for in the application form and the DBAR are aligned.	N/A
		The CA acknowledges the discussion of the site alternatives on page 26 of the draft BAR, and that a 250m servitude route is being studied and the servitude for the proposed powerline will not be more than 90m wide within the 250m servitude. However, it has been indicated that the reason for studying a 250 wide route was to ensure that should there be a need to shift the powerline position, there would be room for movement. Therefore, you are advised provide a discussion of the powerline route alternatives with affected	Please note that the 250 m corridor was provided to the specialists to allow for the optimisation of the layout should no-go areas be identified, with that said, there are no alternatives to be assessed for the proposed development.	Refer to Section 2.4 of the DBAR.

Date of Comment	Comments received from	Comment	Response by EAP	Section and Page of the Report where comment is addressed
		landowners and indicate the position of the preferred powerline route alternative (including the reasons as to why preferred) in the final BAR.		
		On page 13 of the draft BAR, it has been indicated that no layout alternatives have been considered in this draft BAR, while it is provided that the position of the powerline is not confirmed with the 250m servitude. Therefore, when submitting the final BAR, within the proposed identified 250m wide servitude, you are advised to provide the discussion of the design and layout alternative and indicate the preferred layout alternative with the preferred powerline route alternative.		
		Please note that Appendix 1(3)(1)(h)(x) of the Environmental Impact Assessment (EIA) Regulations, 2014, as amended, requires that "if no alternatives, including alternative locations for the activity were investigated, the motivation for not considering such" must be included in the BAR. You are therefore required to provide motivation	Please note that the 250 m corridor was provided to the specialists to allow for the optimisation of the layout should no-go areas be identified, with that said, there are no alternatives to be assessed for the proposed development.	Refer to Section 2.4 of the DBAR.

Date of Comment	Comments received from	Comment	Response by EAP	Section and Page of the Report where comment is addressed
		should other alternative sites, routes, layouts, and technologies not be considered. In addition, you are advised that motivation for not providing alternatives cannot be considered, especially if the proposed development will affect sensitive areas. You are advised to ensure that the final development layout avoids sensitive areas.		
		A description of the process followed to reach the preferred alternative within the site as per Appendix 1(3)(1)(h)(i) of the EIA Regulations (2014), as amended, must be incorporated into the final BAR.		
		Layout and Sensitivity Maps The CA acknowledges the attached Appendix A3 (layout map) submitted with the draft BAR, however, from the overall sensitivity map, please note that no activity is allowed within CBA 1.	The Directorate: Biodiversity Conservation noted that according to the information provided in the report, a large proportion of the proposed development area being categorized on delineated biodiversity areas CBA 1, CBA 2, ESA 1 and ESA 2. No	Appropriate mitigation measures have been included in Section 6.2 of the DBAR.

Date of Comment	Comments received from	Comment	Response by EAP	Section and Page of the Report where comment is addressed
			environmental fatal flaws or unacceptable impacts were identified in the detailed specialist studies conducted, provided that the recommended mitigation measures are implemented. The majority of the watercourses in the study area are likely to have been impacted by agriculture and cattle farming to varying degrees, as well as mining in some areas. To ensure the continued persistence of ecosystems and that national conservation targets are achieved, it is essential that impacts on sensitive and highly localised habitats are minimized or avoided altogether.	

Date of Comment	Comments received from	Comment	Response by EAP	Section and Page of the Report where comment is addressed
		In addition, it has been noted from the sensitivity map that the proposed grid connection traverse sensitive features such as wetlands, heritage sites, ESA's and CBA's, therefore, you are advised to provide buffers for the sensitive feature, no-go areas and mitigation measures i.e. spanning the waterbodies, /as recommended by the specialist to ensure avoidance of impacts on sensitive areas by the proposed development.	Sensitivity Maps that indicate the proposed grid connection in relation to the Sensitivity Map sensitive features such as wetlands, heritage sites, ESA's and CBA' have been included in the Report.	Refer to Section 7.1 and Appendix B of the Report.
		Please provide a layout map which indicates the following: ➢ Position of all infrastructure e.g., the 132kV powerline, substation, electrical distribution infrastructure as per page of the application form. ➢ Permanent laydown area footprint. ➢ All supporting onsite infrastructure e.g., roads (existing and proposed). ➢ All existing infrastructure on the site.	The dimensions of the roads as well as the tower positions will only be firmed up during the detail designs. At this stage the information cannot provide. Sensitivity Maps that indicate the proposed grid connection in relation to the Sensitivity Map sensitive features such as wetlands, heritage sites, ESA's	Refer to Appendix B

Date of Comment	Comments received from	Comment	Response by EAP	Section and Page of the Report where comment is addressed
		➢ The location of sensitive environmental features on site e.g., CBAs, ESAs, heritage sites, wetlands, drainage lines etc. that will be affected. ➢ Buffer areas of the above sensitive areas; and ➢ All "no-go" areas.	and CBA' have been included in the Report.	
		Please ensure that the above map has a clear legend that communicates with details of the map.		
		The above map must be overlain with a sensitivity map and a cumulative map which shows the proposed powerline with associated infrastructures as well as neighbouring powerlines.	Sensitivity Maps that indicate the proposed grid connection in relation to the Sensitivity Map sensitive features such as wetlands, heritage sites, ESA's and CBA' have been included in the Report..	Refer to Appendix B
		In addition, all available biodiversity information must be used in the finalisation of the map and infrastructure must not encroach on highly sensitive areas as far as possible.		
		Images and Google maps will not be accepted for decision-making purposes.	Comment is noted.	N/A

Date of Comment	Comments received from	Comment	Response by EAP	Section and Page of the Report where comment is addressed
		Specialist Assessments The CA acknowledges the attached Appendix E-L (specialist studies); however, it has been noted that site sensitivity verification report is not submitted with the draft BAR. Therefore, you are advised to submit a site sensitivity verification report that, comply with the requirements of Government Notice No. 320 of 20 March 2020 (i.e., "the Protocols"), and in Government Notice No. 1150 of 30 October 2020.	Please refer to Appendix P for the Site Sensitivity Verification Report.	Please refer to Appendix P.
		Based on the above, it is brought to your attention that Procedures for the Assessment and Minimum Criteria for Reporting on identified Environmental Themes in terms of Sections 24(5)(a) and (h) and 44 of the National Environmental Management Act, 1998, when applying for Environmental Authorisation, which were published in Government Notice No. 320 of 20 March 2020 (i.e., "the Protocols"), and in Government Notice No. 1150 of 30 October 2020, have come into effect.	All specialist assessment were compiled in line with the "Protocols".	Refer to Appendix E-M of the DBAR.

Date of Comment	Comments received from	Comment	Response by EAP	Section and Page of the Report where comment is addressed
		Please note that specialist assessments must be conducted in accordance with these protocols unless proof is provided to demonstrate that the specialist assessments were commissioned prior to 50 days after the promulgation of GN 320 and after promulgation of GN1150 (30 October 2020).		
		In addition to the above, you are hereby drawn to the following: ➢ The Specialist Declaration of interest forms must be attached for all specialist studies to be conducted in the final BAR. The forms are available on Department's website (please use the Department's template).	Please refer to Appendix Q for the specialist declarations of interest Forms.	Please refer to Appendix Q
		➢ Specialist studies to be conducted must provide a detailed description of their methodology, as well as indicate the locations and descriptions of proposed rehabilitation, and all other proposed structures that they have assessed and are recommending for authorisations.	Comment noted, all specialist studies conducted also include a description of the methodology used to undertake the assessment.	

Date of Comment	Comments received from	Comment	Response by EAP	Section and Page of the Report where comment is addressed
		➢ The specialist studies must also provide a detailed description of all limitations to their studies. All specialist studies must be conducted in the right season and providing that as a limitation, will not be accepted.	Comment noted, all specialist studies have highlighted their Assumptions and Limitations.	Please refer to Appendix E and M for the Specialist Studies Undertaken.
		➢ Should the appointed specialists specify contradicting recommendations, the EAP must clearly indicate the most reasonable recommendation and substantiate this with defendable reasons; and where necessary, include further expertise advice.	No contradicting recommendations were made by the specialists.	Please refer to Appendix E and M for the Specialist Studies Undertaken.
		➢ Please note further that the protocols require certain specialists' to be registered with SACNASP. Refer to the relevant protocols in this regard.	All Specialists Appointed are SACNASP Registered, please refer to for the Specialist Studies Undertaken.	
		➢ Please include a table in the final BAR summarising the specialist studies required by the Screening Tool, a column indicating whether these	Please refer to Section 1 of the BAR.	Please refer to Section 1 of the BAR.

Date of Comment	Comments received from	Comment	Response by EAP	Section and Page of the Report where comment is addressed
		studies will be conducted or not, and motivation if any study will not be undertaken. Please note that if any of the specialists' studies and requirements recommended in the Department's Screening Tool are not commissioned, motivation for such must be provided in the report, as per the requirements of the Protocols.		
		➢ Please also ensure that the final BAR includes the Site Verification Report as required by the relevant environmental themes and assessments.	Please refer to Appendix P of the Draft BAR.	Please refer to Appendix P of the Draft BAR.
		➢Should it be determined that there is a need for additional specialist studies to be undertaken based on the outcome of public participation, these must be commissioned and be included in the final BAR reports for public comment.	Comment noted, a need for a Civil Aviation Sensitivity study based on the findings of the screening Tool was identified and the assessment was conducted.	Refer to Appendix M.
		Participation Process	Please refer to Appendix D for proof of stakeholder consultation.	Please refer to Appendix D

Date of Comment	Comments received from	Comment	Response by EAP	Section and Page of the Report where comment is addressed
		Please ensure that comments from all relevant stakeholders are submitted to the Department with the final BAR. This includes but not limited to the Department of Forestry, Fisheries, and the Environment (DFFE): Protected Areas Planning and Management Effectiveness Directorate, Biodiversity Planning and Conservation (BCAdmin@environment.gov.za); Limpopo Department of Economic Development, Environment and Tourism (LEDET); Eskom, South African Heritage Resources Agency (SAHRA), South African Civil Aviation Authority, Endangered Wildlife Trust, Birdlife South Africa, Department of Human Settlement, Water and Sanitation, South African National Defence Force, Local interest groups, for example: Councillors and Rate Payers associations; Surrounding landowners, Farmer Organisations, Environmental Groups and NGOs; and Grassroots communities and structures as well as the affected district and local municipalities.		

Date of Comment	Comments received from	Comment	Response by EAP	Section and Page of the Report where comment is addressed
		Proof of correspondence with the various stakeholders must be included in the final BAR. Should you be unable to obtain comments, proof must be submitted to the Department of the attempts that were made to obtain comments.		
		The Public Participation Process must be conducted in terms of Regulations 39, 40, 41, 42, 43 & 44 of the EIA Regulations 2014, as amended and the approved Public Participation Plan.	Public Participation Process was conducted in terms of Regulations 39, 40, 41, 42, 43 & 44 of the EIA Regulations 2014.	Refer to Section 4 of the DBAR.
		The comments and response trail report (C&R) must be submitted with the final BAR. The C&R report must incorporate all comments for this development. The C&R report must be a separate document from the main report and the format must be in the table format as indicated in Annexure 1 of this comments letter.	Refer to Appendix D-7 for the Comment and Responses Report.	Refer to Appendix D-7.
		Please ensure that all issues raised, and comments received during the circulation of the		

Date of Comment	Comments received from	Comment	Response by EAP	Section and Page of the Report where comment is addressed
		BAR from registered I&APs and organs of state which have jurisdiction (including this Department's comments) in respect of the proposed activity are adequately addressed. Comments made by I&APs must be comprehensively captured (copy verbatim if required) and responded to clearly and fully. Please note that a response such as "Noted" is not regarded as an adequate response to I&AP's comments.		
		Cumulative Impact It has been noted that cumulative impacts for the proposed development has been provided as per specialist study, however, when submitting the final BAR, the cumulative impacts of the proposed development must be undertaken as per the requirements of the EIA Regulations, 2014 as amended.	Comment is noted. Cumulative impacts have been assessed and incorporated in the amended Draft BAR.	Refer to Section 6.10 of the DBAR.

Date of Comment	Comments received from	Comment	Response by EAP	Section and Page of the Report where comment is addressed
		Based on the above, the cumulative impact assessment for all identified and assessed impacts must be refined to indicate the following: ➢ Assess the cumulative impacts of the proposed (not yet authorised), authorised (not yet constructed) and existing OHPL and substations.		
		➢ Detailed process flow and proof must be provided, to indicate how the specialist's recommendations, mitigation measures and conclusions from the various similar developments in the area were taken into consideration in the assessment of cumulative impacts and when the conclusion and mitigation measures were drafted for this project.		
		➢ The cumulative impacts significance rating must also inform the need and desirability of the proposed development.	Comment is noted. Cumulative impacts have been assessed and	

Date of Comment	Comments received from	Comment	Response by EAP	Section and Page of the Report where comment is addressed
		➢ A cumulative impact environmental statement on whether the proposed development must proceed.	incorporated in the amended Draft BAR.	
		Environmental Management Programme (EMPr) The CA acknowledges both the substation and powerline generic EMPr's submitted with the draft BAR. You are advised to include these in the final BAR.	The substation and powerline EMPRs will be included in the Final BAR.	N/A
		The generic EMPrs must not contain any ambiguity. Where applicable, statements containing the word "should" or "may" are to be amended to "must".	Comment is noted.	N/A
		General You are further reminded to comply with Regulation 19(1)(a) of the NEMA EIA Regulations, 2014, as amended, which states that: Where basic assessment must be applied to an application, the applicant must, within 90 days of receipt of the	It is noted that in terms of Regulation 45 of the EIA Regulations, 2014, as amended, that this application will lapse if the applicant fails to meet any of the time-frames prescribed in terms of	N/A

Date of Comment	Comments received from	Comment	Response by EAP	Section and Page of the Report where comment is addressed
		application by the competent authority, submit to the competent authority - (a) a basic assessment report, inclusive of specialist reports, an EMPr, and where applicable a closure plan, which have been subjected to a public participation process of at least 30 days and which reflects the incorporation of comments received, including any comments of the competent authority."	these Regulation. Subsequest to submitioin of the Application form and DBAR for the DFFE on the 25 April 2024, there has been an amendment and/or deviation of the powerline which has resulted in the change of scope of work. therefore Therefore, NTC would like to notify the Department that the Final Basic Assessment Report will be submitted within 140 days from the date of submission of the application. The application was submitted to the Department on the 25 April 2024, therefore the Final BAR must be submitted before the 18 September 2024. This will allow sufficient time for the EAP and the specialists to amend the reports accordingly and allow the additional 30 days Public	
		Should there be significant changes or new information that has been added to the BAR or EMPr which changes or information was not contained in the reports or plans consulted on during the initial public participation process, you are required to comply with Regulation 19(b) of the NEMA EIA Regulations, 2014, as amended, which states: "the applicant must, within 90 days of receipt of the application by the competent authority, submit to the competent authority – (b) a notification in writing that the basic assessment report, inclusive of specialist reports an EMPr, and		N/A

Date of Comment	Comments received from	Comment	Response by EAP	Section and Page of the Report where comment is addressed
		where applicable, a closure plan, will be submitted within 140 days of receipt of the application by the competent authority, as significant changes have been made or significant new information has been added to the basic assessment report or EMPr or, where applicable, a closure plan, which changes or information was not contained in the reports or plans consulted on during the initial public participation process contemplated in sub-regulation (1)(a) and that the revised reports or, EMPr or, where applicable, a closure plan will be subjected to another public participation process of at least 30 days".	Participation Process to be undertaken. The DFFE confirmed receipt of the noticication letter on the 09 July 2024.	
		Should you fail to meet any of the timeframes stipulated in Regulation 19 of the NEMA EIA Regulations, 2014, as amended, your application will lapse.		N/A
		You are hereby reminded of Section 24F of the National Environmental Management Act, Act No. 107 of 1998, as amended, that no activity may	The Applicant notes that no activity may commence without an Environmental Authorisation.	N/A

Date of Comment	Comments received from	Comment	Response by EAP	Section and Page of the Report where comment is addressed
		commence prior to an Environmental Authorisation being granted by the Department.		
May 2024	The Directorate: Biodiversity Conservation	The Directorate: Biodiversity Conservation reviewed and evaluated the draft report. According to the information provided in the report, a large proportion of the proposed development area being categorized on delineated biodiversity areas CBA 1, CBA 2, ESA 1 and ESA 2. No environmental fatal flaws or unacceptable impacts were identified in the detailed specialist studies conducted, provided that the recommended mitigation measures are implemented. The majority of the watercourses in the study area are likely to have been impacted by agriculture and cattle farming to varying degrees, as well as mining in some areas. To ensure the continued persistence of ecosystems and that national conservation targets are achieved, it is essential that impacts on	Thank you for the comment, yes it is correct that a large proportion of the proposed development area being categorized on delineated biodiversity areas CBA 1, CBA 2, ESA 1 and ESA 2. No environmental fatal flaws or unacceptable impacts were identified in the detailed specialist studies conducted, provided that the recommended mitigation measures are implemented. The mitigation measures have been incorporated in the EMPR's which have been included in the DBAR as Appendix O.	Refer to Appendix O of the DBAR.

Date of Comment	Comments received from	Comment	Response by EAP	Section and Page of the Report where comment is addressed
		sensitive and highly localised habitats are minimized or avoided altogether. The proposed powerline traverses the following conservation areas: Witvinger Nature Reserve, Potgietersus Nature Reserve and Palmer Private Nature Reserve. Kindly obtain comments from the Directorate: PAPME for the attention of Ms M Mudau MaMudau@dffe.gov.za. The Public Participation Process documents related to Biodiversity EIA for review and queries should be submitted to the Directorate: Biodiversity Conservation at Email; BCAdmin@dffe.gov.za for the attention of Mr. Seoka Lekota.		

Please refer to **Appendix D** for the comments received, minutes of the Focus Group Meetings and the CRR.

5. Description of the Receiving Environment

This section of the report provides a description of the local environment that will be affected by the construction of the 400kV power line and substation works. Aspects of the biophysical, social and economic environment that could be directly or indirectly affected by, or could affect, the proposed development have been described. This information has been sourced from both existing information available for the area as well as collected field data by specialist consultants, and aims to provide the context within which this BA process is being conducted. Refer to Appendix E – M for the Specialist Reports.

5.1 Topography and Landscape

The proposed Borutho-Silimela 400kV Transmission Line project is strategically set within the dynamic and varied landscape of the Limpopo Province, characterised by its topographical diversity. The landscape through which the transmission line will traverse displays a broad spectrum of elevations and geological features, as depicted in the provided Topography-hydrology map and Elevation Profile.

Beginning in the northern regions of the proposed corridor, the land presents a diverse mix of ridges and valleys, creating a complex topography that peaks at approximately 1,321 meters above sea level. The terrain then gradually transitions into undulating hills and dips into lush valleys, descending to lower elevations of around 865 meters toward the southern terminus of the route. This height difference of approximately 456 meters over the extensive length of the project accentuates the topographical features unique to the Waterberg, Capricorn, and Greater Sekhukhune Districts.

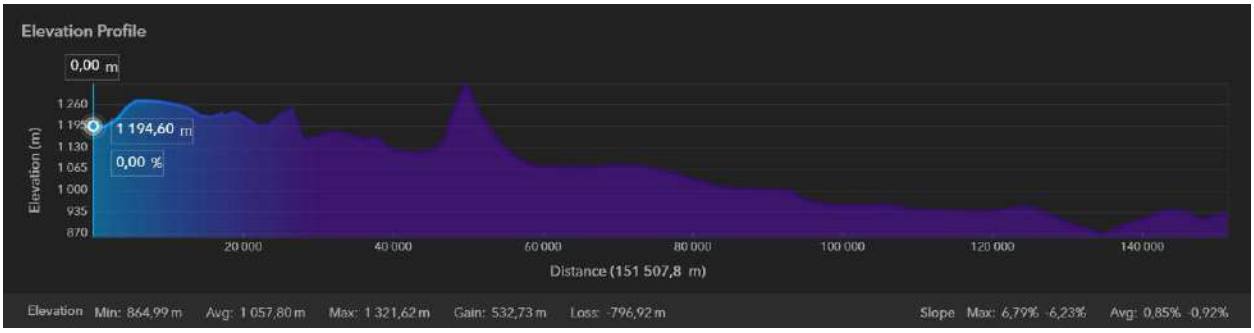

Figure 4: North-West to South-East Elevation Profile

The topographical variability along this extensive north-to-south transect enhances the visual interest and diversity of the region. The alternating high and low points offer a mix of expansive views and enclosed pockets of landscape, providing an opportunity for strategic placement of the transmission infrastructure to blend with the natural topography. The placement and orientation of towers and lines can be optimized by aligning them with natural landforms, thus reducing their visual prominence and preserving the integrity of the region's scenic vistas.

The presence of major rivers and water bodies, as indicated in Figure 5, introduces a critical dimension to the visual assessment. The watercourses meander through the project area, delineating the natural hydrological patterns and contributing to the region's biodiversity. These features must be accounted for in the planning stages, ensuring that the transmission line respects the hydrological dynamics and the associated visual landscape.

The Limpopo Province's landscape is aesthetically significant, marked by a topography that varies from broad plateaus to deep valleys. The transmission line's design must respect the existing visual qualities and environmental considerations, ensuring that the infrastructure complements the natural terrain. In the midst of this varied topography, the project's planners are faced with the challenge of integrating a large-scale infrastructure project in a manner that is visually unobtrusive and environmentally harmonious.
Furthermore, the pre-existing human alterations to the landscape, such as farming and other infrastructure, suggest an environment that has already been adapted for industrial activity. This established context may help to assimilate the new infrastructure visually, reducing the contrast between the existing landscape and the introduced elements of the Borutho-Silimela project.

In conclusion, the Borutho-Silimela 400kV Transmission Line project's passage through the diverse landscapes of Limpopo demands a design that is sensitive to the area's topographical and natural diversity. Integrating the transmission line within this context requires a commitment to environmental stewardship and a keen awareness of the visual and natural value inherent in the landscape. The project presents an opportunity to showcase sustainable infrastructure development that respects and preserves the natural character and beauty of the Limpopo Province.

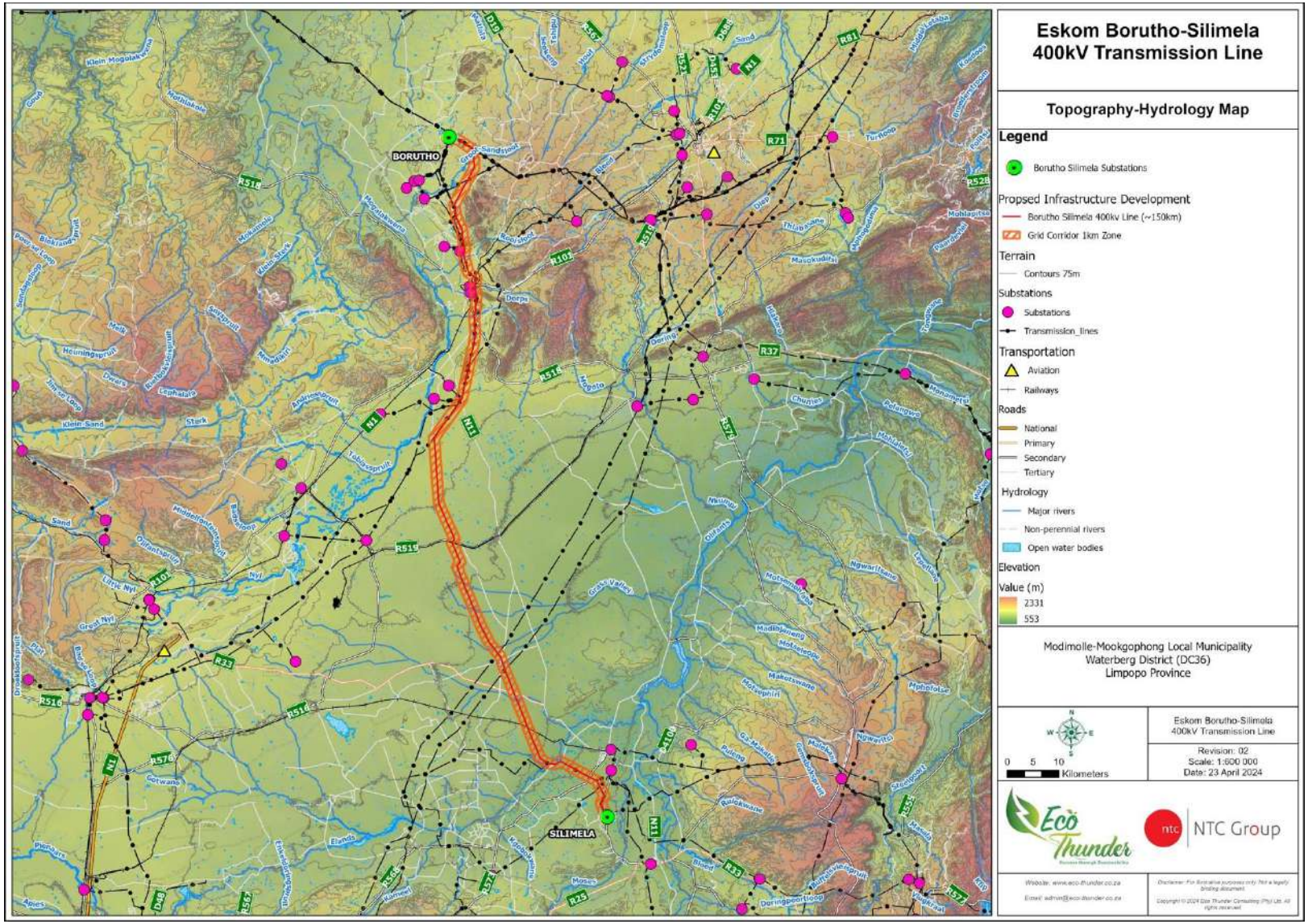

Figure 5: Topography-Hydrology Map

5.2 Climate, Rainfall

The climate of the area is generally sub-tropical, with almost exclusively summer rainfall and dry winter. The mean annual precipitation of the area is between 500 – 650 mm (Figure 6). The mean annual temperature has a wide range of between 35.2 °C and -2.0 °C.

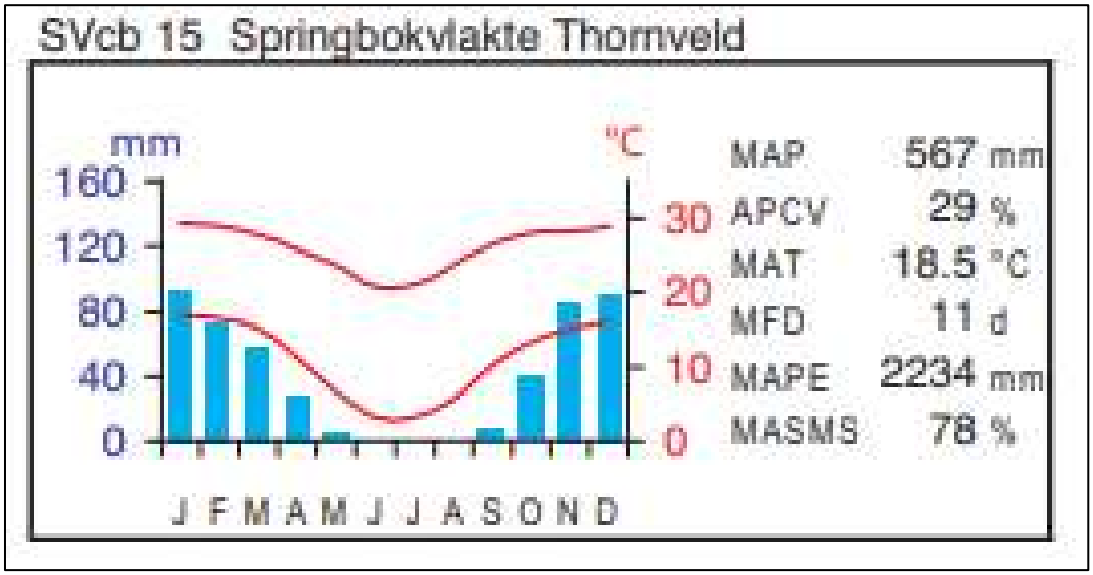

Figure 6: Climatic diagram

5.3 Soil and Land Capacity

The study area has a Semi-Arid climate, making the cultivation of dry land crops possible but challenging. The area is dominated by the Ae broad land type, characterized by freely drained, deep, red, sandy soils. The soil capability varies across the proposed transmission line, with the southern part having a high capability (3-8), the central region having a moderate to high capability (4-7), and the northern part having a very low to moderate capability (1-6).

The land capability also varies, with the northern part being non-arable and having low capability (5-7), while the central and southern parts are arable with moderate to high capability (8-11). The South African National Land-Cover 2020 (SANLC 2020) shows little change in land use since 2014, with the area predominantly classified as forested area, grassland, and both pivot irrigated and non-irrigated agricultural lands in the south.

A total of 35 soil and land use observations were made in the portion from the Elandsrivier to the Silimela substation, with 21 conducted on the Burutho-Silimela Transmission Line Deviation Route and 14 additional

or shifted observations due to inaccessible areas. The prevalent soil forms identified were Vaalbos, Mispah, and Hutton soils, with other soil forms such as Avalon, Bainsvlei, and Nkonkoni identified in the south of the study area, close to the Silimela Substation.

Land capability calculated from the field assessed portion of the line shows varying land capability across different areas. The southern part predominantly has high land capability, while the central and northern parts have predominantly low land capability (Refer to Figure 7).

High Land Capability Areas:

- The high land capability is attributed to specific soil forms, including Hutton, Bainsvlei, Nkonkoni, Avalon, and Clovelly.
- These soils have: Effective soil depth conducive to root penetration, infiltration and high water-holding capacity.
- Cultivated areas with citrus and cotton production are associated with these high-capability zones.

Low Land Capability Areas:

- The Mispah soils are assigned low land capability.
- Mispah soils have a shallow effective soil depth.
- These areas are mostly found where veld (natural grassland) is the primary land use.

Moderate to High Land Capability:

- Some areas within the study area exhibit moderate to high land capability.
- This is attributed to the Vaalbos soil form.
- Vaalbos soil depth ranges from 400 mm to 900 mm.
- The primary land use for Vaalbos soils is also veld or citrus.

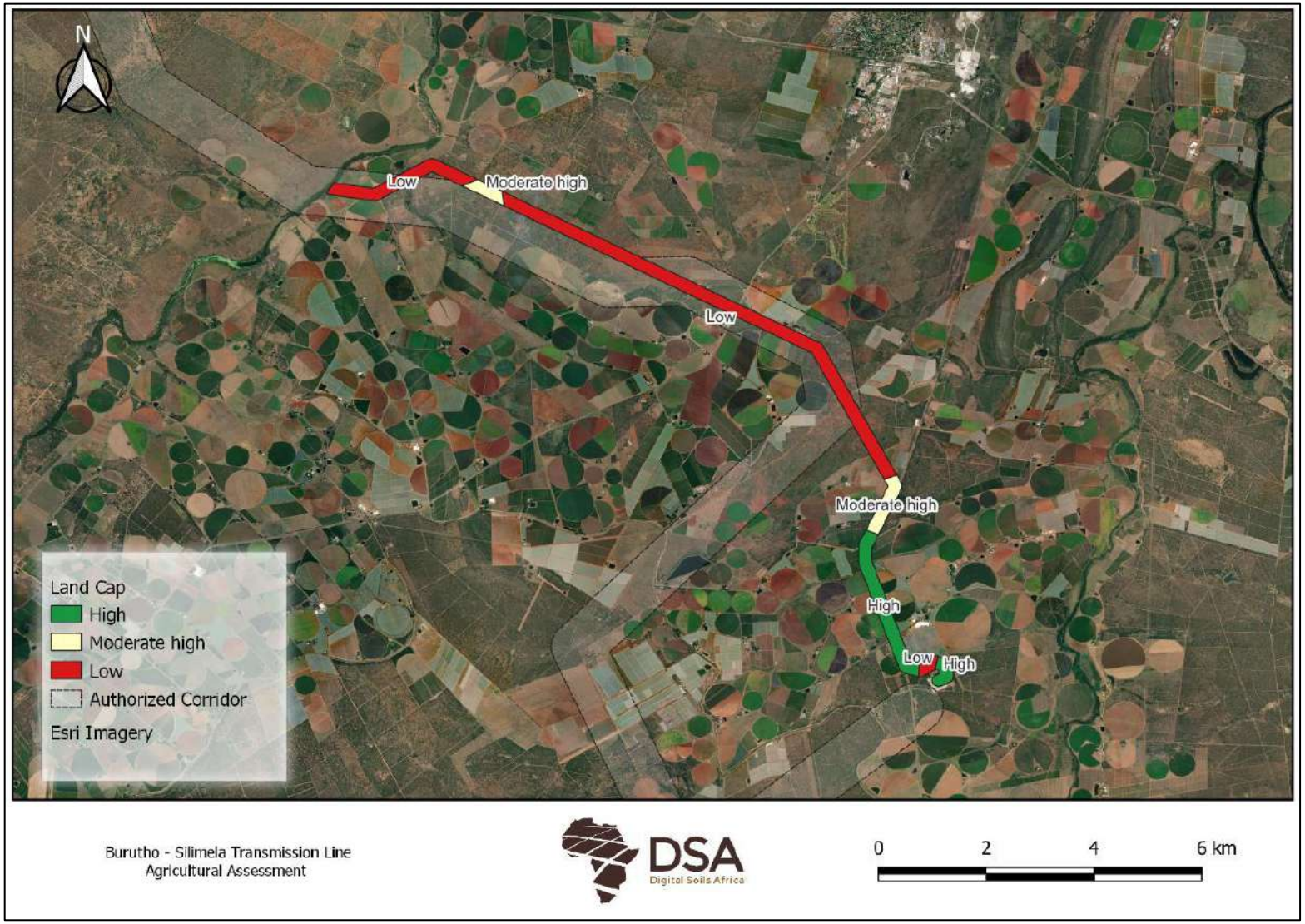

Figure 7: Refined Land Capability for the proposed Burutho Silimela Transmission Line

5.4 Biodiversity

5.4.1 Vegetation

The proposed development footprint falls on the Savanna Biome. The Savanna Biome is the largest, comprising 32.5% of the land in South Africa and the Swaziland combined. The Savanna Biome is dominated by a grassy and herbaceous layer with a woody upper layer of low to tall trees. Within the Savanna Biome, the proposed development falls on the Central Bushveld Savanna Bioregion. Within the Central Bushveld Savanna Bioregion, the project runs dominantly on the Springbokvlakte Thornveld (SVcb 15) vegetation type. The Springbokvlakte Thornveld (SVcb 15) vegetation type is dominated by Vachellia species and a shrubby grassland layer. Smaller portions of the authorized route also runs through other vegetation types, namely, the Makhado Sweet Bushveld and the Central Sandy Bushveld (Refer to Figure 8).

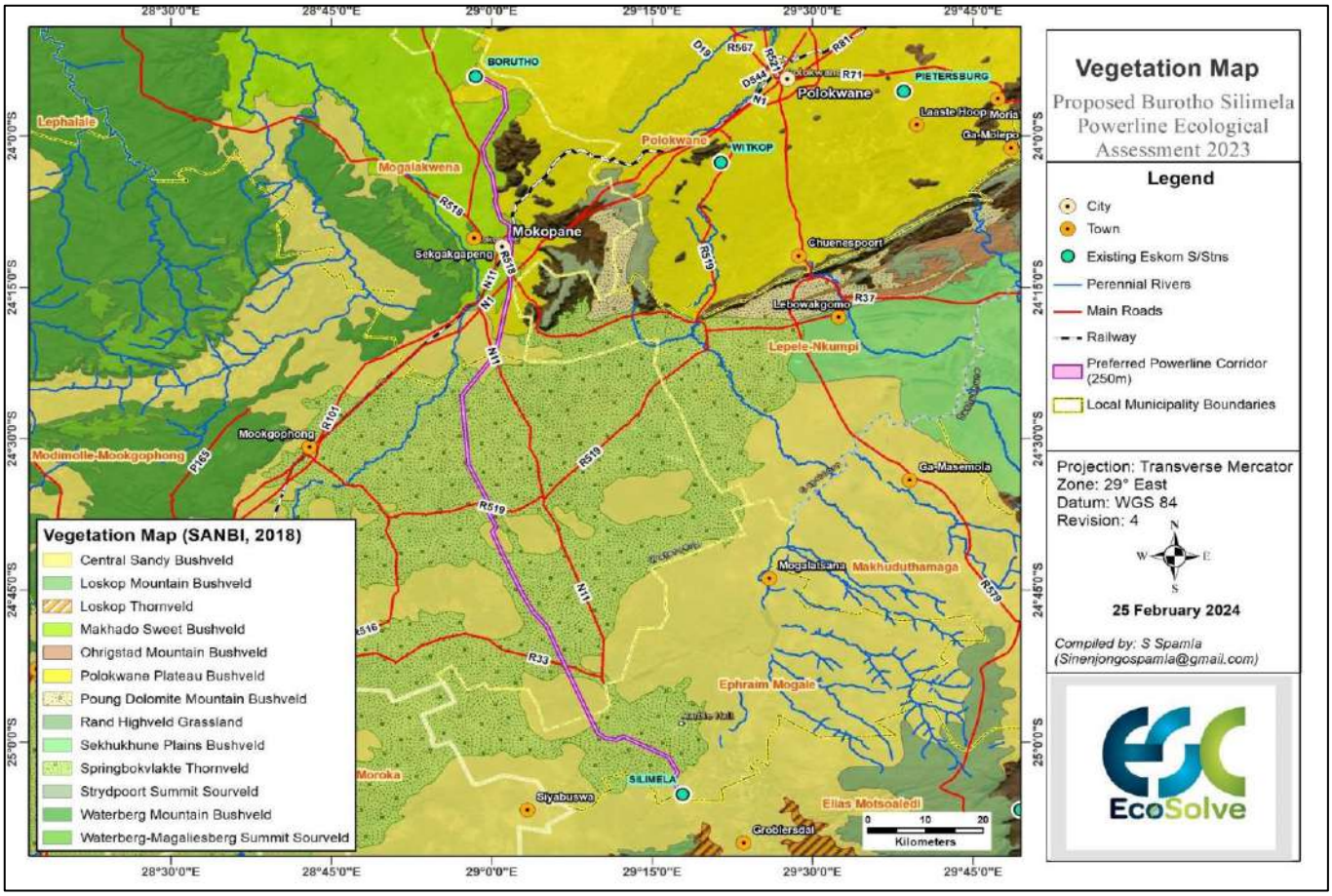

Figure 8: Vegetation map of the receiving environment.

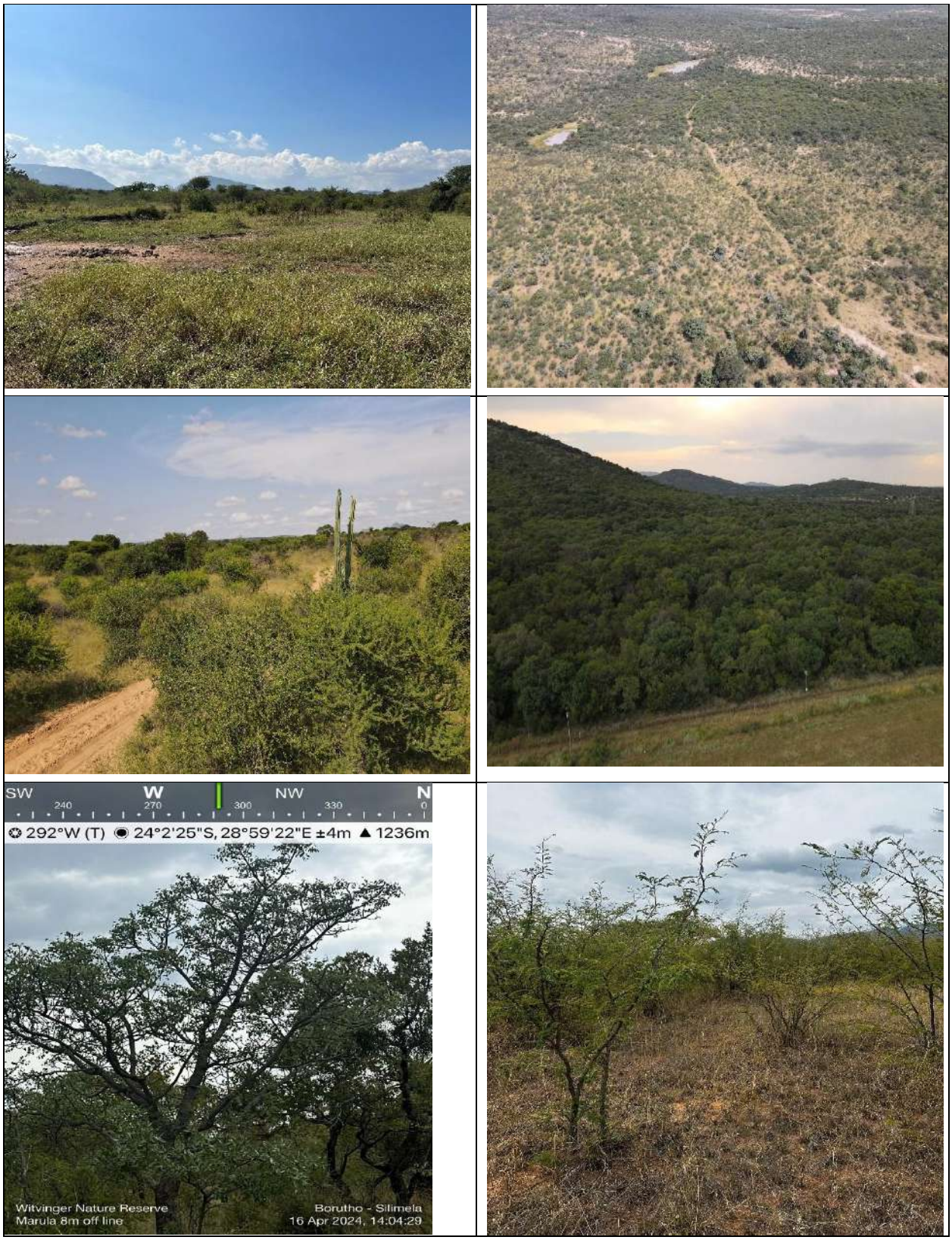

Figure 9:Illistration of the vegetation type with the project site

5.4.2 Alien Invasive Plants

Invasive alien species have been identified as the second greatest driver of habitat destruction by outcompeting native biodiversity. Biological invasions have deleterious impact on water quality, microclimate, soil nutrients, agricultural economies, and fire regime, listing them amongst the most prominent influencers of ecological change. Within the jurisdiction of the prosed project area, previously observed invasive alien plants at high infestations in the Springbokvlakte Thornveld (SVcb 15) vegetation type include *Cereus jamacaru*, *Eucalyptus* species, *Lantana camara*, *Melia azedarach*, *Opuntia ficus-indica* and *Sesbania punicea* (Mucina and Rutherford, 2006).

5.4.3 Fauna

Based on historical data of the Animal Demographic Units (ADU) Virtual Museum, the following fauna species occur on site[3]:

Table 8: List of mammal, reptile and amphibian species from ADU Virtual Museum records using the 2529AA, 2529AB, 2428DB, 2429CA, 2428BD, 2429AC, 2428BB, 2429AA and 2328DD Quarter Degree Squares.

Mammals	Amphibians	Reptiles
Arctocephalus pusillus pusillus	*Schismaderma carens*	*Nucras holubi*
Miroungafricaa	*Sclerophrys gutturalis*	*Panaspis wahlbergii*
Genetta tigrina	*Amietia delalandii*	*Varanus niloticus*
Caracal caracal	*Phrynomantis bifasciatus*	*Hemidactylus mabouia*
Cercopithecus albogularis erythrarchus	*Tomopterna cryptotis*	*Trachylepis varia sensu lato*
Elephantulus myurus	*Cacosternum boettgeri*	*Chondrodactylus turneri*
Procavia capensis capensis	*Sclerophrys garmani*	*Lygodactylus capensis*
Taphozous (Taphozous) mauritianus	*Xenopus laevis*	*Acanthocercus atricollis*
Dendromus melanotis	*Ptychadena mossambica*	*Lygodactylus capensis*
Georychus capensis	*Tomopterna cryptotis*	*Trachylepis punctatissima*
Herpestes pulverulentus	*Cacosternum boettgeri*	*Acanthocercus atricollis*
Malacothrix typica	*Pyxicephalus adspersus*	
Chlorocebus pygerythrus pygerythrus	*Pyxicephalus edulis*	
Oryx gazella	*Tomopterna cryptotis*	
Xerus inauris	*Pyxicephalus adspersus*	
Procavia capensis capensis	*Poyntonophrynus fenoulheti*	

[3] None of the Mammalia, Reptile or Amphibian species are Red Data or of conservation concern.

Mammals	Amphibians	Reptiles
Lepus saxatilis	*Ptychadena anchietae*	
Pronolagus rupestris	*Chiromantis xerampelina*	
Raphicerus campestris	*Kassina senegalensis*	
Rhabdomys pumilio		
Elephantulus edwardii		
Equus zebra zebra		
Otocyon megalotis		
Raphicerus campestris		
Lepus capensis		
Raphicerus campestris		
Cynictis penicillata		
Cephalophus natalensis		

5.4.4 Critical Biodiversity Areas and Ecological Support

Critical Biodiversity Areas (CBAs) are terrestrial and aquatic features in the landscape that are critical for conserving biodiversity and maintaining ecosystem functioning. Whereas, Ecological Support Areas (ESAs) are supporting areas which are intended for safeguarding and/or preventing the degradation of CBAs. Figure 10 shows a large proportion of the proposed development area being categorized on delineated biodiversity areas CBA 1, CBA 2, ESA 1 and ESA 2. Spatial biodiversity results, therefore, gives an indication that the receiving environment is of great biodiversity significance. Construction activities should be limited to the lesser sensitive regions of the receiving environment.

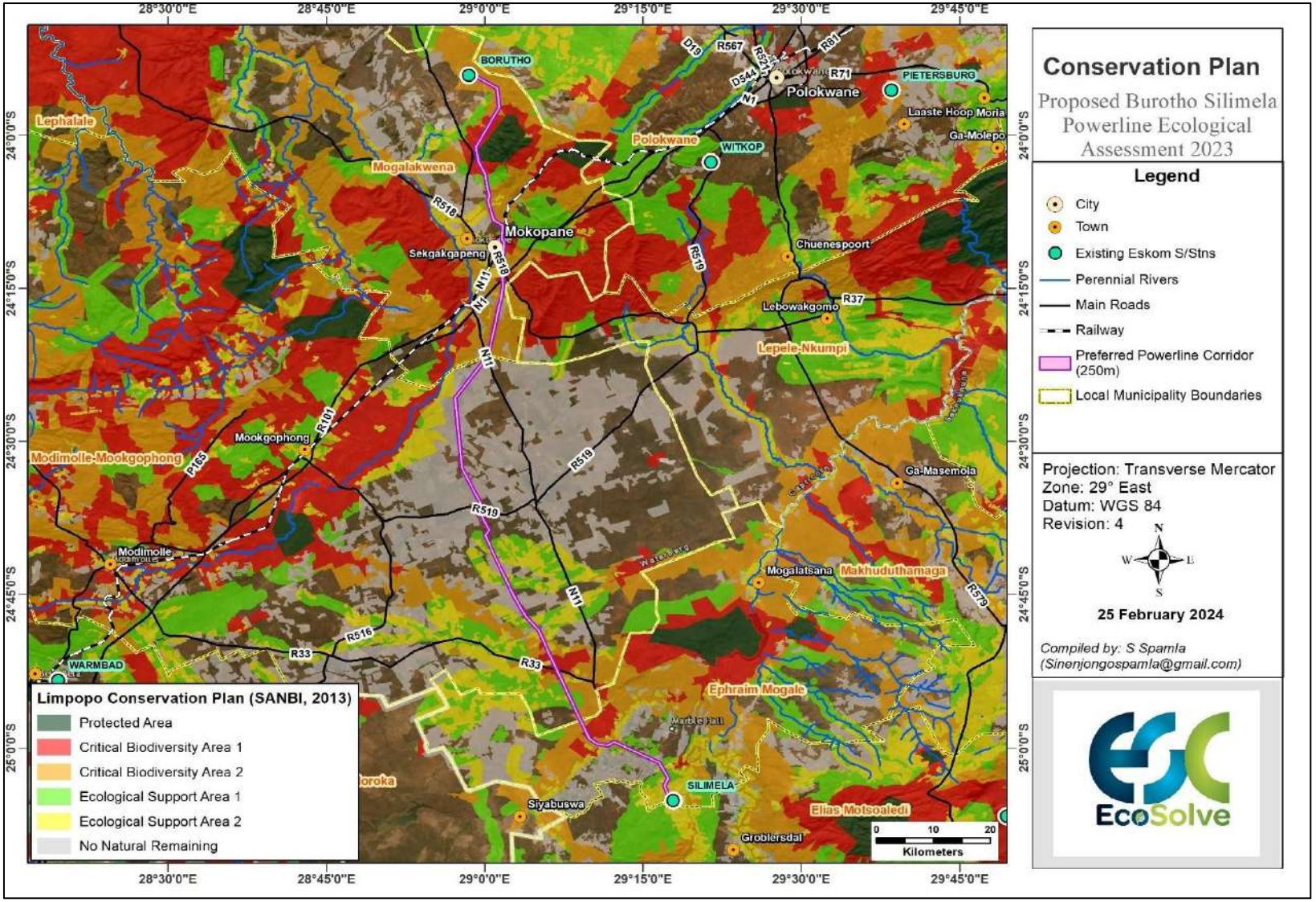

Figure 10: Conservation plan of the receiving environment.

5.4.5 Protected and Conservation Areas

The definition of protected areas used in these documents follows the definition of a protected area as defined in the National Environmental Management: Protected Areas Act, 2003 (Act 57 of 2003). Chapter 2 of the National Environmental Management: Protected Areas Act, 2003 sets out the "System of Protected Areas", which consists of the following kinds of protected areas:

- Special nature reserves;
- National parks;
- Nature reserves;
- Protected environments (1-4 declared in terms of the National Environmental Management: Protected Areas Act, 2003);
- World heritage sites declared in terms of the World Heritage Convention Act;
- Marine protected areas declared in terms of the Marine Living Resources Act;
- Specially protected forest areas, forest nature reserves, and forest wilderness areas declared in terms of the National Forests Act, 1998 (Act No. 84 of 1998); and
- Mountain catchment areas declared in terms of the Mountain Catchment Areas Act, 1970 (Act No. 63 of 1970).

The following protected and conservation areas are found along the proposed powerline:

- Witvinger Nature Reserve
- Doelen Private Nature Reserve
- Palmer Private Nature Reserve
- Somerset Private Nature Reserve
- Potgietersus Nature Resrve

The proposed powerline traverses mainly the western parts of the following conservation areas: Witvinger Nature Reserve, Potgietersus Nature Reserve and Palmer Private Nature Reserve (Figure 11).

Protected and conservation areas in close proximity of the proposed development footprint are all of high environmental sensitivity.

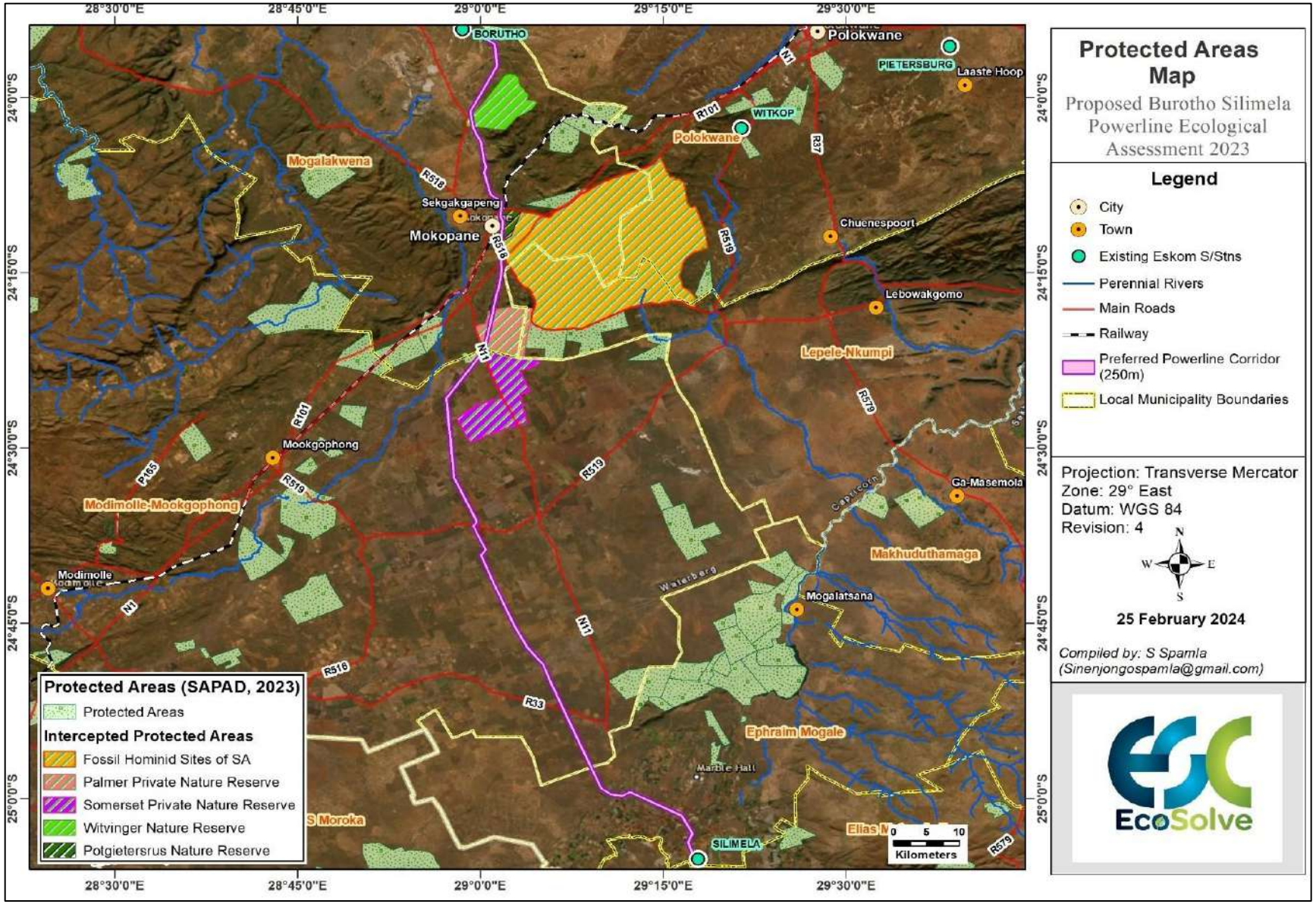

Figure 11: Formal and informal protected areas map

5.5 Wetlands

The majority of the watercourses in the study area are likely to have been impacted by agriculture and cattle farming to varying degrees, as well as mining in some areas. However, most of the proposed line is located on parts of the country that is very sparsely inhabited. Numerous waterbodies occur within the 250m route assessed. The watercourses (including the buffer zones) directly crossed by the proposed development are the ones likely to be potentially impacted and form the main focus of this report as directed in Figure 12.

Table 9: Desktop data relating to the character of the watercourses associated with the proposed Borutho – Silimela Power Line project.

<table>
<tr><th colspan="2">Aquatic ecoregion and sub-regions in which the proposed 400kV Power Line</th><th colspan="2">Detail of the proposed Aquatic ecoregion and sub-regions in which the proposed area</th></tr>
<tr><td>Ecoregion</td><td>Central Bushveld</td><td rowspan="5">Critical Biodiversity Area (CBA)</td><td rowspan="5">The proposed 150 km 400kV Borutho to Silimela Powerline, the relative terrestrial biodiversity theme sensitivity is classified as VERY HIGH due to portions of the site occurring within a Critical Biodiversity Area (CBA) 1 and 2. Protected Area (PA), Witvinger Nature and Reserve Occurs within the assessed corridor.</td></tr>
<tr><td>Catchment</td><td>Olifants</td></tr>
<tr><td>Quaternary Catchment</td><td>B32H; B31J; B51E; A61E; B51E; A61F and A61G</td></tr>
<tr><td>WMA</td><td>Olifants</td></tr>
<tr><td>Major Rivers</td><td>Elands; Dorps; Rooisloot and Groot-Sandsloot</td></tr>
<tr><td colspan="2">Detail of the proposed project area in terms of the National Freshwater Ecosystem Priority Area (NFEPA) (2011) database</td><td rowspan="3">Ecological Support Area (ESA)</td><td rowspan="3">Terrestrial biodiversity theme sensitivity is classified as VERY HIGH due to portions of the site occurring within an Ecological Support Area (ESA) 1 and 2</td></tr>
<tr><td>FEPACODE</td><td>Elands = 0
Dorps = 4
Rooisloot = 4
Groot-Sandsloot = 4</td></tr>
<tr><td>NFEPA Wetlands</td><td>According to the NFEPA database, Unchanneled valley-bottom wetlands, Channelled valley-bottom wetlands and Seeps are associated with the project area.</td></tr>
<tr><td>Wetland Vegetation Type</td><td>Central Bushveld was identified within the study area.</td><td colspan="2" rowspan="2"></td></tr>
<tr><td>NFEPA Rivers</td><td>According to the NFEPA Database, the following NFEPA rivers were identified:
Elands
Dorps
Rooisloot
Groot-Sandsloot</td></tr>
<tr><td colspan="4">Ecological Status of the most proximal sub-quaternary reach (DWS, 2014)</td></tr>
</table>

Proximity to Detail of the proposed Aquatic ecoregion and sub-regions in which the proposed project area is located.	Within
Assessed by expert?	Yes
PES Category Median	Elands = Class C: Moderately Modified Dorps = Class C: Moderately Modified Rooisloot = Class C: Moderately Modified Groot-Sandsloot = Class D: Largely Modified

CBA = Critical Biodiversity Areas; DWS = Department of Water and Sanitation; EI = Ecological Importance; EMF = Environmental Management Framework; ES = Ecological Sensitivity; ESA = Ecological Support Area; FEPA = Freshwater Ecosystem Priority Area; m.a.m.s.l = Meters Above Mean Sea Level; MAP = Mean Annual Precipitation; NFEPA = National Freshwater Ecosystem Priority Areas; WMA = Water Management Area.

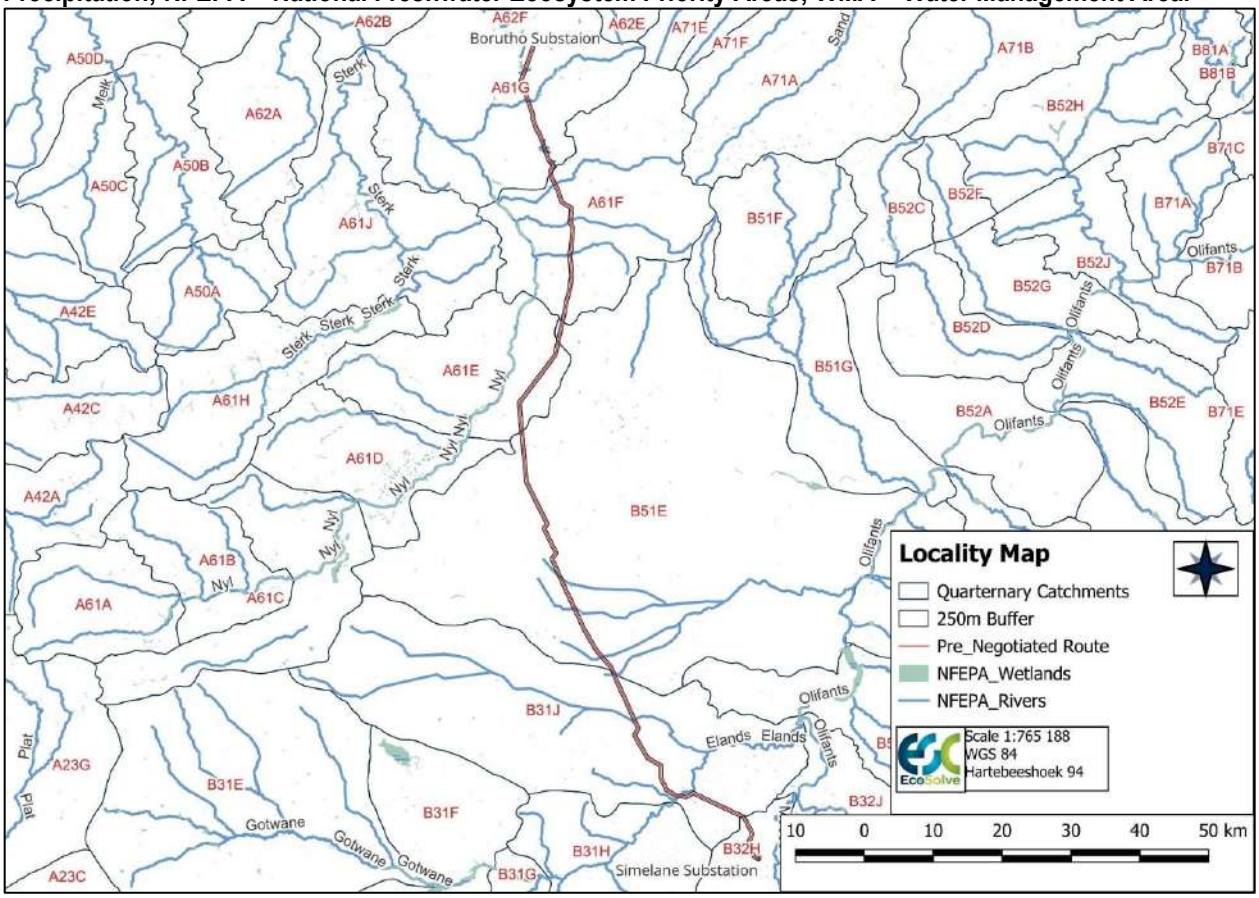

Figure 12: The wetlands and rivers associated with the proposed 400kV Power Line project in Alexandra according to the NFEPA Database (NFEPA, 2011)

	
Non-Perineal Stream	Typical landscape showing Pans

Figure 13: Aquatic features identified on site

5.6 Avifauna

Two avifaunal microhabitats were identified within the affected area. Satellite data spatially represented the existence of both the terrestrial and aquatic microhabitats that could potentially support bird life. The aquatic microhabitats, however, exist mostly within the buffer zones and will not be impacted upon to a substantial extent. Due to the potential loss of sensitive microhabitats for bird life and the occurrence of red-data species in the development footprint boundary, the outcome of the DFFE screening for the proposed corridor is “High”. However, this is also a representation of all fauna species of conservation significance occurring within the proposed development footprint. This includes mammals, reptiles, avifauna, amphibians etc., therefore, suggesting the importance of a fauna specialist study. The High environmental sensitivity for the development site is due to the presence of medium-highly sensitive avifauna species in Table 9.

Table 10: Summary of DFFE screening tool output

Theme	Very High Sensitivity	High Sensitivity	Medium Sensitivity	Low Sensitivity
Animal Species		**X**		

Table 11: Sensitive avifauna species along the proposed powerline route

Group-Species	Sensitivity
Aves-*Aquila rapax*	High
Aves-*Sagittarius serpentarius*	High
Aves-*Mycteria ibis*	High

Group-Species	Sensitivity
Aves-*Podica senegalensis*	Medium
Aves-*Hydroprogne caspia*	Medium
Aves-*Aquila verreauxii*	Medium

The desktop component of the study suggested the susceptibility of Least Concern avifauna species to become mostly impacted to powerline developments in the Limpopo Province. Field assessments within the proposed development area suggested the dominance of common resident species which are also mostly of Least Concern. As a result, from an avifaunal perspective, the site has a moderate species diversity and there are no objections for the proposed powerline development to continue, given that the recommended mitigations are thoroughly implemented by the developer. This report gives feasible mitigations to further recommendations for ongoing impacts throughout the four development phases.

It is important to delineate sensitive avian habitats within the project site in order to ensure the development does not have a long-term negative impact on these habitats. Important avian habitats play an integral role in their persistence within a landscape providing nesting, foraging and reproductive benefits.

Figure 14 below is representations of the observed species during assessments (species abundance) using the different sampling methods. Tables 11 is a list of the recorded species during assessments, using the different sampling methods. Species composition of encountered avifaunal community during assessments and the site can be concluded to have a moderate diversity.

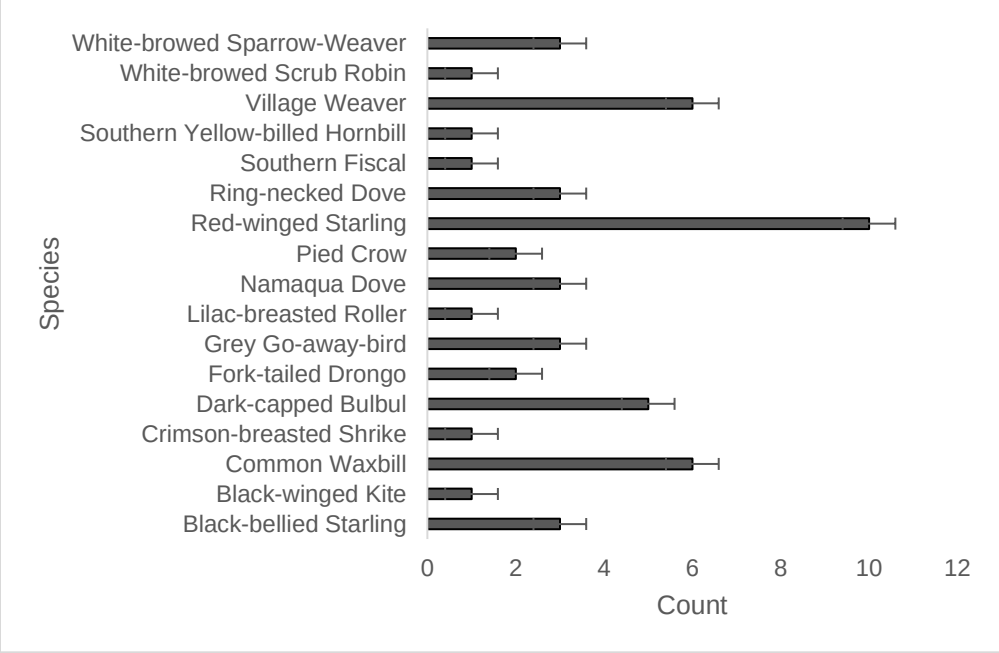

Figure 14: Encountered avifaunal species during vehicle-drive surveys

Species abundance was mostly low for the different species with an extreme outlier of the Red-winged Starling and the Common waxbill.

Table 12: Recorded species and their abundance during assessments.

No.	Species	Count
1	Black-bellied Starling	3
2	Black-winged Kite	1
3	Common Waxbill	6
4	Crimson-breasted Shrike	1
5	Dark-capped Bulbul	5
6	Fork-tailed Drongo	2
7	Grey Go-away-bird	3
8	Lilac-breasted Roller	1
9	Namaqua Dove	3
10	Pied Crow	2
11	Red-winged Starling	10
12	Ring-necked Dove	3
13	Southern Fiscal	1
14	Southern Yellow-billed Hornbill	1
15	Village Weaver	6
16	White-browed Scrub Robin	1
17	White-browed Sparrow-Weaver	3

Results from the collected data indicate a moderate species diversity throughout the area. This is subject to the unequal abundance of a single species. An inconsistent diversity of the overall avifaunal population was observed.

5.7 Socio- Economic

This section outlines the relevant administrative context, the provincial socio-economic, and municipal contexts. It concludes with a description of the local context of the immediate surroundings of the proposed **Error! Reference source not found.**.

Table 13: Study Area Context for the NTCSA Borutho-Silimela 400 kV Transmission Line

Province	Limpopo Province

District Municipality	• Capricorn District Municipality (CDM); • Waterberg District Municipality (WDM); and • Sekhukhune District Municipality (SDM).
Local Municipality	• CDM: Lepelle Nkumpi Local Municipality (LNLM); • WDM: Mogalalakwena Local Municipality (MLM) and Modimolle-Mookgophong Local Municipality (MMLM); and • SDM: Ephraime Mogale Local Municipality (EMLM).
Ward number(s)	• LNLM: 9 • MLM: 12; 13; 16; 18; 20 and 32 • MMLM: 14 • EMLM: 5
Nearest town(s)	Zebediela, Ga-Mashashane, Ga-Mapela, Mokopane, Ga-Taueatswala, Mokerong, Mookgophong, Modimolle, Marble Hall, Manapsane, and Moganyaka.
Current Zoning	Agriculture
Current land use	The land in question comprises more than ten properties, and while certain portions remain fallow, other sections are actively utilized for agriculture.
Access	Access to the project area is provided via: the N11, N1, R519, R33, and various tertiary roads surrounding the area.

5.7.1. Limpopo Province Overview

Limpopo ranks fifth in South Africa in both surface area and population, covering an area of 125 754km²and being home to a population of 5 779 090. The capital is Polokwane (previously Pietersburg). Other major cities and towns include Bela-Bela (Warmbad), Lephalale (Ellisras), Makhado (Louis Trichardt), Musina (Messina), Thabazimbi and Tzaneen.

Mining is the primary driver of economic activity. Limpopo is rich in mineral deposits, including platinum-group metals, iron ore, chromium, high and middle-grade coking coal, diamonds, antimony, phosphate and copper, as well as mineral reserves such as gold, emeralds, scheelite, magnetite, vermiculite, silicon and mica. The province is a typical developing area, exporting primary products and importing manufactured goods and services.

Limpopo population was recorded at 5.4 million in 2010 and it has since increased to 5.9 million in 2020, this means that the provincial population has increased by around 500 thousand people between 2010 and 2020 period. The population growth rate has been on decline since 2016, in 2020 the population increased at a rate of 0.8 percent from a high of 1 percent in 2016. As the population number is forever increasing, it means there will be more demand for public goods such as water, housing, energy, healthcare, transportation and more.

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Limpopo population in terms of age structure tend to follow similar pattern as that of the country, dominated by people of young age or youth, with ages ranging between below 39 years. Though in Limpopo from the age group of 0-4 to the age group of 25- 29 the male gender is dominant. From the age group of 30-34 to the age group of 80+ the Limpopo population is dominated by females with a large variance between the genders.

Limpopo's unemployment rate surged from 23.6 percent in the 1st quarter of 2020 to 32.5 percent in the 3rd quarter of 2021. Though the provincial unemployment rate is still below the national unemployment rate, the province has seen a bigger upsurge of about 9 percent since the beginning of the COVID-19 pandemic in early 2020. During the same period, the absorption rate reduced from 36.3 percent in the 1st quarter of 2020 to 29.4 percent in the 3rd quarter of 2021, a reduction of about 7 percent in the absorption rate in the province. While the labour force participation rate also witnessed a decrease from 47.3 percent in the 1st quarter of 2020 to 43.6 percent in the 3rd quarter of 2021.

5.8 Heritage

Historically Mokopane is known for the rich heritage resources found in Makapans Valley, east of Mokopane town. The valley is one of the only two Stone Age sites in the world that offered up an unbroken sequence of artefacts from the Earlier Stone Age to the Iron Age. Among the historic caves is the Cave of Gwasa, later became known as Makapan's Cave in 1854, after the great chief Makapan who, with several thousand members of the Kekana tribe, tried to hide there from Boers. According to Swanepoel, Esterhysen & Bonner (2008: 192) "The people who took refuge in Makapan Cave in 1854 were principally Kekana Northern Ndebele but include Sotho Tswana sub-chiefs and their followers. Many perished during the siege, so amongst materials that were recovered are strings of beads and a small piece of beadwork on leather".

Makapans Valley was declared part of the Cradle of Humankind World Heritage Site in 2005 and it is one of 15 sites that make up the Cradle of Humankind World Heritage Site. Makapan Cave is situated +/-15km east of proposed route on the north. Another type of beads was found in Maleoskop, a BaKopa (Pedi) community that lived west of Groblersdal between 1840-1864 when the village was destroyed in a joint Boer/Swazi attack (Boshoff et al 2007; as cited in Swanepoel et al 2008).

During the physical survey, no heritage resources were found within the route of the proposed route, however, three (3) cemeteries were found in less than 250m from the route (refer to Figure 15 to Figure 19). Furthermore, a dilapidated structure was found in close proximity of the route. It was a church, as evidence of commemorative plague inside the structure was found. The structure was built with bricks made of clay and no roof (refer to Figure 20).

5.9 Palaeontology

Based on the geology of the area and the palaeontological record as we know it, it can be assumed that the formation and layout of the dolomites, sandstones, shales and sands are typical for the country and only some do contain trace fossils or fossil plant material. The overlying sands and soils of the Quaternary period would not preserve fossils. It should be noted that most of the route is along disturbed ground, on road servitudes or adjacent to the existing powerlines.

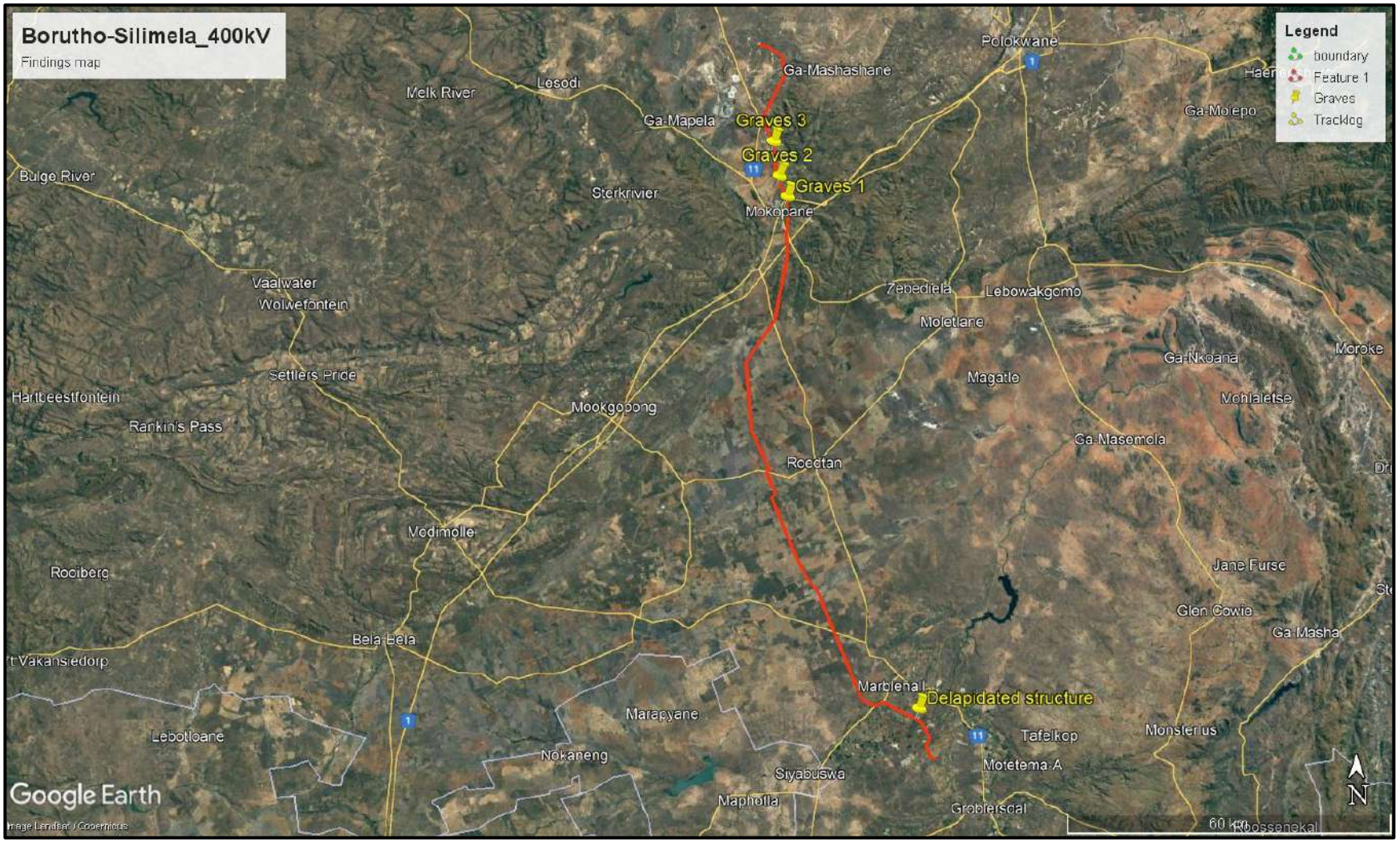


Figure 15: Map of heritage resources found in the vicinity of the proposed route.

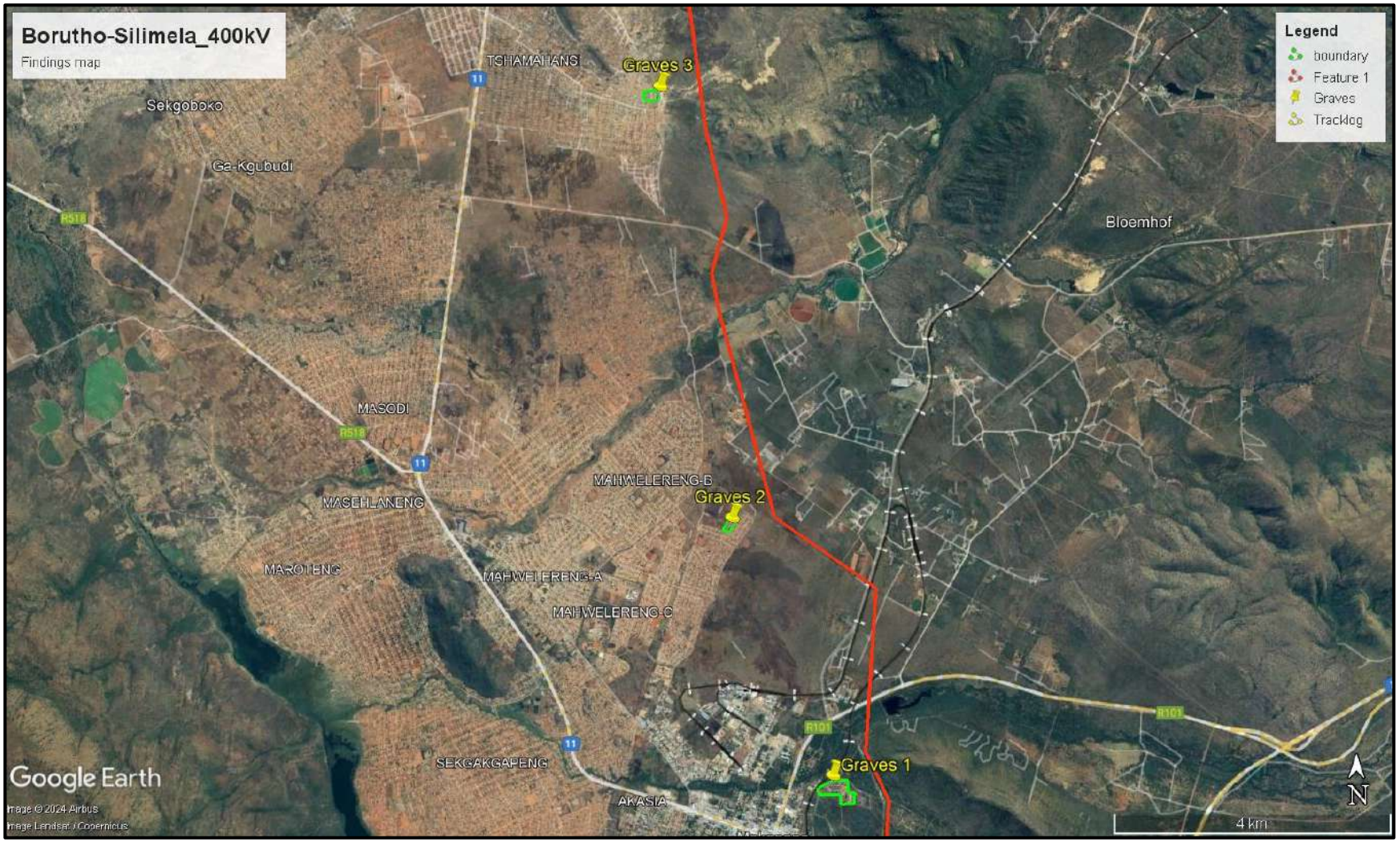


Figure 16: Close view of grave sites found in the vicinity.

Figure 17: Cemetery in Mokopane (Graves 1).

Figure 18: Cemetery in Mahwelereng (Graves 2).

Figure 19: Cemetery in Tsamahansi (Graves 3).

Figure 20: Dilapidated structure and plaque found.

5.10 Civil Aviation

The powerline route passes relatively close to no fewer than 7 aerodromes or airstrips along the route, all of which are noted on the latest (June 2024) SA Civil Aviation Authority (SACAA) register of aerodromes at various different classifications, according to Table 13.

Table 14: Obstacle Limitation and Clearances based on SACARS 139.01.30 (supersedes ICAO Annex 14)

Aerodrome	ICAO Code	Licence Status	Threshold Height amsl (ht)	Critical OLS height (ho)	Nearest pylon ngl Height amsl (hpg)	Height Limit (ht+45-hpg)	Distance to Powerline (km)	Compliance with CARS 139.01.30	Recommendations
FAQR/R325	2	N	1 066	45	1 113	-2	4,36	N	Obstacle Approval / Marking CATS 139.01
R081	1	N	1 344	45	1 130	259	12,5	Y	Beyond 8km - Intervening obstacle (terrain)
R237	1	N	1 113	45	1 063	95	13,9	Y	Beyond 8km – No Obstacle Approval Reqd.
R214	1	N	913	45	934	24	3,4	N	Obstacle Approval / Marking CATS 139.01
FAMI/R216	1	N	913	45	933	25	3,4	N	Obstacle Approval / Marking CATS 139.01
R170	1	N	967	45	928	84	5,42	N	Obstacle Approval / Marking CATS 139.01
R304	1	N	899	45	919	25	1,8	N	Obstacle Approval

									/ Marking CATS 139.01

From an aviation safety viewpoint the 5 aerodromes (marked in Amber) listed in Table 13 are within the 8km distance that would trigger an obstacle assessment in terms of SACAA regulations. However, because they are all Code 1 Aerodromes, only one, on available evidence, requires detailed analysis since the powerline route falls outside the obstacle limitation surfaces per Civil Aviation Organisation (ICAO) Annex 14 for the aerodrome Code. The 2 other aerodromes fall between 8km and 15km and do not trigger an obstacle assessment.

6. Assessment of impacts

This chapter serves to assess the significance of the positive and negative environmental impacts (direct, indirect, and cumulative) expected to be associated with the construction of the 400kV power line and its associated infrastructure. This assessment has considered the construction of the power line which is approximately 150km in length and its associated infrastructure. The route that was assessed by the specialist is 250m wide. The scope of work entails:

- Equip 1 x 400kV feeder bay at Borutho Substation for Silimela Line 1.
- Equip 1 x 400kV feeder bay at Silimela Substation for Borutho Line 1.
- Build approximately 150km 400kV line from Borutho Substation to Silimela Substation, with associated extensions at the terminal substations.

On-site sensitivities were identified through the review of existing information, a regional screening process, desk-top evaluations and field surveys. The specialist assessments undertaken as part of this BA process have considered the entire length of the power line and the footprints of the associated infrastructures) which was provided by NTCSA.

The sections which follow provide a summary of the specialist assessment for each field of study in terms of the impacts which are expected to occur, the significance of the impacts, the opportunity for mitigation of the impacts to an acceptable level, as well as the appropriate mitigation measures recommended for the reduction of the impact significance. Note that impacts associated with decommissioning are expected to be similar to those associated with construction activities, however where specific decommissioning impacts have been identified these are covered and assessed. This section of the report must be read together with the detailed specialist studies contained in Appendix **E to J**.

6.1 Impact Assessment Methodology

Impact assessment was conducted for this project. The methodology applied to the identified impacts was “without “and “with” the application of proposed mitigation measures.

Determination of Consequence

Consequence is calculated as the average of the sum of the ratings of severity, duration and extent of the environmental impact.

Table 15: Assessment and Rating of Severity, Duration and Extent

Rating/ Description	1	2	3	4	5
Severity	Negligible / non-harmful / minimal deterioration (0 – 20%)	Minor / potentially harmful / measurable deterioration (20 – 40%)	Moderate / harmful / moderate deterioration (40 – 60%)	Significant / very harmful / substantial deterioration (60 – 80%)	**Irreversible / permanent / death (80 – 100%)**
Duration	Less than 1 month / quickly reversible	Less than 1 year / quickly reversible	More than 1 year / reversible over time	More than 10 years / reversible over time / life of project or facility	**Beyond life of project of facility / permanent**
Extent	Within immediate area of activity	Surrounding area within project boundary	Beyond project boundary	Regional / provincial	**National / international**
Consequence	**(Severity + Duration + Extent) / 3**				

Determination of Likelihood

Likelihood considers the frequency of the activity together with the probability of the environmental impact associated with that activity occurring.

Table 16: Assessment and Rating of Frequency and Probability

Rating/ Description	1	2	3	4	5
Frequency	Less than once a year	Once in a year	Quarterly	Weekly	**Daily**
Probability	Almost impossible / Never	Unlikely	Probable	Highly likely	**Definite**
Likelihood	**(Frequency + Probability) / 2**				

Environmental Significance

Environmental significance is the product of the consequence and likelihood values:

- **Significance = Consequence X Likelihood**

Table 17:Determination of Environmental Significance

Significance	Description
L	Low environmental significance
LM	Low to medium environmental significance
M	Medium environmental significance
MH	Medium to high environmental significance
H	High environmental significance. Likely to be a fatal flaw.

6.2 Terrestrial Biodiversity Assessment

6.2.1 Flora

Two broad vegetation units were identified during surveys. Both based on floristic differences of different topographical positions and natural habitat types.

- Vegetation Unit 1: Has a natural character although some portions have been slightly degraded due to fragmentation and the edge effects of other neighbouring transformed habitats. Additionally, natural environments and field margins are very important in harbouring native animal diversity. Therefore, it is advisable that such vegetation should be protected from disturbance.
- Vegetation Unit 2: Has low sensitivity due to its totally transformed nature since it is subjected to high levels of transformation.

Category 1/1b under CARA and NEMBA invasive alien plant species were recorded on site. Below are photographic examples of invasive alien plants observed during surveys. The observed species are highly competitive species that grow and reproduce quickly. Additionally, these plant species, for example *Tecoma stans*, have highly effective seed dispersal methods and a few enemies. Therefore, it should be well ensured that invasive alien plants are controlled prior to reaching the construction phase of the development. This will assist in reducing the propagation of these problematic species across the footprint area.

CONSTRUCTION PHASE	**Before Mitigation**	**After Mitigation**
POTENTIAL IMPACTS: Loss of priority flora and fauna species from important habitats		
Magnitude:	2	2
Duration:	2	1
Geographical Extent:	1	1
Loss of Resources:	3	2
Reversibility:	2	2
Cumulative Effect:	2	1
Probability:	3	1
Total SP:	28	20
Significance rating:	Negative low impact	Negative low impact
Mitigation Measures: • Minimise the development footprint and reserve indigenous vegetation wherever possible. • Avoid undertaking project activities during the breeding season (summer). The project should be in shortest timeframe and control pollution. • Undertake final walkdown where powerline traverse protected areas.		

• All areas of increased ecological sensitivity should be marked as such and be off limits to all unauthorised construction vehicles.		
POTENTIAL IMPACT: Loss of resident flora and fauna through increased disturbance		
Magnitude:	2	2
Duration:	1	1
Geographical Extent:	1	1
Loss of Resources:	2	2
Reversibility:	2	1
Cumulative Effect:	2	1
Probability:	3	2
Total SP:	22	16
Significance rating:	Negative medium impact	Negative low impact
Mitigation Measures: • Minimise the development footprint and reserve indigenous vegetation wherever possible. • Avoid undertaking project activities during the breeding season (summer). The project should be in shortest timeframe and control pollution. • Undertake final walkdown where powerline traverse protected areas. • All areas of increased ecological sensitivity should be marked as such and be off limits to all unauthorised construction vehicles. • Invasive plant material should be disposed by incineration, or alternatively, composting to break down seeds. If seedbank persists, invasive alien plant management and eradication measures should be implemented.		
POTENTIAL IMPACT: Long-term or permanent degradation and modification of the receiving environment resulting to the loss of important habitats		
Magnitude:	1	1
Duration:	3	2
Geographical Extent:	1	1
Loss of Resources:	3	2
Reversibility:	3	2
Cumulative Effect:	2	1
Probability:	3	2
Total SP:	17	11
Significance rating:	**Negative low impact**	**Negative low impact**
Mitigation Measures:		

- Use designated roads to access the site.
- Minimise the project footprint and reserve indigenous vegetation wherever possible.
- Avoid undertaking project activities during the breeding season (summer).
- The project should be in shortest timeframe and control noise pollution. Rehabilitate area with indigenous flora.

OPERATION PHASE	**Before Mitigation**	**After Mitigation**
POTENTIAL IMPACT: Loss of resident flora and fauna through increased disturbance		
Magnitude:	2	2
Duration:	3	2
Geographical Extent:	1	1
Loss of Resources:	3	2
Reversibility:	3	2
Cumulative Effect:	2	1
Probability:	3	3
Total SP:	34	26
Significance rating:	**Negative medium impact**	**Negative low impact**

Mitigation Measures:

- Minimise the development footprint and reserve indigenous vegetation wherever possible.
- Avoid undertaking project activities during the breeding season (summer). The project should be in shortest timeframe and control pollution.
- Undertake final walkdown where powerline traverse protected areas.
- All areas of increased ecological sensitivity should be marked as such and be off limits to all unauthorised construction vehicles.

Invasive plant material should be disposed by incineration, or alternatively, composting to break down seeds. If seedbank persists, invasive alien plant management and eradication measures should be implemented.

POTENTIAL IMPACT: Continuous deterioration of aquatic ecosystems		
Magnitude:	2	2
Duration:	3	2
Geographical Extent:	1	1
Loss of Resources:	3	2
Reversibility:	3	2
Cumulative Effect:	2	1
Probability:	3	3
Total SP:	34	26

Significance rating:	Negative medium impact	Negative low impact
Mitigation Measures: • Any construction-related waste must not be placed in the vicinity of the riparian areas; • Limit the footprint area of the construction activity to what is absolutely essential in order to minimize environmental damage; and • Upon completion of the construction phase the disturbed area should be rehabilitated through reprofiling and revegetation.		
DECOMMISSIONING PHASE	**Before Mitigation**	**After Mitigation**
POTENTIAL IMPACT: Long-term or permanent degradation and modification of the receiving environment due to uncontrolled construction activities and poor rehabilitation		
Magnitude:	2	2
Duration:	3	2
Geographical Extent:	1	1
Loss of Resources:	3	2
Reversibility:	3	2
Cumulative Effect:	2	1
Probability:	3	3
Total SP:	34	26
Significance rating:	**Negative medium impact**	**Positive low impact**
Mitigation Measures: • Any construction-related waste must not be placed in the vicinity of the riparian areas; • Limit the footprint area of the construction activity to what is absolutely essential in order to minimize environmental damage; and • Upon completion of the construction phase, the disturbed area should be rehabilitated through reprofiling and revegetation.		
POTENTIAL IMPACT: Continuous deterioration of aquatic ecosystems		
Magnitude:	2	2
Duration:	3	2
Geographical Extent:	1	1
Loss of Resources:	3	2
Reversibility:	3	2
Cumulative Effect:	2	1

Probability:	3	3
Total SP:	34	26
Significance rating:	Negative medium impact	Positive low impact

Mitigation Measures:

- Any construction-related waste must not be placed in the vicinity of the riparian areas;
- Limit the footprint area of the construction activity to what is absolutely essential in order to minimize environmental damage; and
- Upon completion of the construction phase the disturbed area should be rehabilitated through reprofiling and revegetation.

Post Decommissioning Phase	**Before Mitigation**	**After Mitigation**
POTENTIAL IMPACTS ASPECTS: Cumulative displacement of resident species		
Magnitude:	2	2
Duration:	2	1
Geographical Extent:	1	1
Loss of Resources:	3	2
Reversibility:	2	2
Cumulative Effect:	2	1
Probability:	2	1
Total SP:	45	16
Significance rating:	Negative medium impact	Positive low impact

Mitigation Measures:

- No trapping or hunting of fauna is to take place. Access control must be implemented to ensure that no illegal trapping or poaching takes place; and
- Limit the footprint area of the construction activity to what is absolutely essential in order to minimize environmental damage.
- All areas of increased ecological sensitivity should be marked as such and be off limits to all unauthorised construction vehicles.

Recommended mitigation measures for construction phase:

- All areas of increased ecological sensitivity should be marked as such and be off limits to all unauthorised construction vehicles.

Essential mitigation measures for operational phase:

- No trapping or hunting of fauna is to take place; and
- Ensure that migratory connectivity is maintained where appropriate, especially in the sensitive faunal habitat unit areas.

6.2.2 Conclusion and Recommendation

Important recommendations for the conservation of the current vegetation structure

- The proponent must be committed to a conservation approach of practice and the actual footprint of disturbance must be kept to a minimum.
- As much of the natural environment must be conserved, there should be minimal vegetation clearing.
- Relocation of important species, identification and demarcation of specimens and sub habitats not to be disturbed will have to be done beforehand by a specialist.
- Important species (flora) that will be threatened by the development must be relocated to safer habitats by suitable specialists.
- Preventative erosion control measures to be put in place.
- Conduct alien invasive species monitoring on an annual basis.

Important recommendations for conservation of fauna species

- The proponent must be committed to a conservation approach of practice and the actual footprint of disturbance must be kept to a minimum.
- Relocation of important species, identification and demarcation of specimens and sub habitats not to be disturbed will have to be done beforehand by a specialist.
- Important species (fauna) that will be threatened by the development must be relocated to safer habitats by suitable specialists.
- Preventative erosion control measures to be put in place.

6.3 Wetland Impacts

6.3.1 Loss of habitat and ecological structure

Loss of habitat and ecological structure may be caused by construction waste materials spilling into the system that will in turn affect the integrity of the area. Construction related activities that might be undertaken prior to mitigation, such as the removal of the topsoil and vegetation clearing, will lead to destruction of habitat and overall loss of biodiversity within the system. Disturbance within the system may lead to loss of migratory routes for more mobile species. Furthermore, the removal of vegetation and the disturbance of soils will result in the alteration of the vegetation community.

Unmanaged	Probability of Impact	Sensitivity of receiving environment	Severity	Spatial scale	Duration of impact	Likelihood	Consequence	Significance
Construction Phase	**5**	**3**	**4**	**3**	**4**	**8**	**11**	**88 (Medium – High)**

Operational Phase	**2**	**3**	**2**	**2**	**2**	**5**	**6**	**30 (Low)**

Essential mitigation measures for construction phase:

- Demarcate areas and ensure that vegetation clearing and indiscriminate vehicle driving occurs within demarcated areas;
- Use a coffer dam to temporarily divert stream flow;
- Minimize construction footprints prior to commencement of the construction and control the edge effects from construction activities; and
- Implement alien vegetation control program and ensure establishment of indigenous species within areas previously dominated by alien vegetation.

Recommended mitigation measures for construction phase:

- Ensure that all activities impacting on the Sand River are managed according to the relevant DWS Licensing regulations;
- As far as possible, all construction activities should occur in the low flow season, during the drier winter months; and
- Reinforce banks where necessary with hessian sheets.

Essential mitigation measures for operational phase:

- Any area where active erosion is observed must be immediately rehabilitated in such a way as to ensure that the hydrology of the area is re-instated to conditions which are as natural as possible.

Recommended mitigation measures for operational phase:

- N/A

Managed	Probability of Impact	Sensitivity of receiving environment	Severity	Spatial scale	Duration of impact	Likelihood	Consequence	Significance
Construction Phase	**5**	**3**	**3**	**2**	**2**	**8**	**7**	**56 (Medium – Low)**
Operational Phase	**2**	**3**	**1**	**1**	**1**	**5**	**3**	**15 (Very Low)**

Probable latent impacts:

- Erosion and incision of the river may occur if not effectively rehabilitated and managed.

6.3.2 Changes to ecological and sociocultural service provision

Construction related activities might result in the loss of ecosystem services and function such as streamflow regulation and sediment trapping. Furthermore, impacts may result in the decrease in the ability of the river to support biodiversity as a result of vegetation clearing and general edge effects.

Unmanaged	Probability of Impact	Sensitivity of receiving environment	Severity	Spatial scale	Duration of impact	Likelihood	Consequence	Significance
Construction Phase	**5**	**3**	**3**	**3**	**3**	**8**	**9**	**72 (Medium – Low)**
Operational Phase	**2**	**3**	**3**	**2**	**2**	**5**	**7**	**35 (Low)**

Essential mitigation measures for construction phase:

- During construction use techniques which support the hydrology and sediment control functions of the riparian areas; and
- Limit excavations to a minimum extent to ensure that drainage patterns within the river returns to normal as soon as possible after construction

Recommended mitigation measures for construction phase:

- Restrict construction to the drier winter months, if possible, to avoid sedimentation of the river and to minimize the severity of disturbance of the river and hydraulic function

Essential mitigation measures for operational phase:

- Monitor the river for erosion and incision; and
- Implement an alien vegetation control program and ensure establishment of indigenous species within areas previously disturbed by activities.
- dominated by alien vegetation.

Recommended mitigation measures for operational phase:

- N/A

Managed	Probability of Impact	Sensitivity of receiving environment	Severity	Spatial scale	Duration of impact	Likelihood	Consequence	Significance
Construction Phase	**5**	**3**	**2**	**2**	**2**	**8**	**6**	**48 (Low)**
Operational Phase	**1**	**3**	**2**	**1**	**1**	**4**	**4**	**16 (Very Low)**

Probable latent impacts:

- Reduced biodiversity support; and
- Reduced functioning of nutrient cycling.

6.3.3 Impacts on hydrological function and sediment balance

During the construction phase of the proposed stormwater channel and berm, activities such as excavations will lead to flow disturbance within the river and riparian areas. Stream flow will have to be temporarily diverted, thus impacting on the hydrology of the system. Furthermore, sediment deposition as a result of soil disturbance and increased sediment runoff during the construction may result in an impact on the sediment balance of the system.

Unmanaged	Probability of Impact	Sensitivity of receiving environment	Severity	Spatial scale	Duration of impact	Likelihood	Consequence	Significance
Construction Phase	**5**	**3**	**3**	**2**	**2**	**8**	**7**	**56 (Medium – Low)**
Operational Phase	**1**	**3**	**1**	**1**	**1**	**4**	**4**	**16 (Low)**

Essential mitigation measures for construction phase:

- Stream diversions must at no time lead to upstream ponding and inundation or lead to downstream erosion;
- Any construction-related waste must not be placed in the vicinity of the riparian areas;
- Limit the footprint area of the construction activity to what is absolutely essential in order to minimize environmental damage; and
- Upon completion of the construction phase the disturbed area should be rehabilitated through reprofiling and revegetation.

Recommended mitigation measures for construction phase:

- Desilt all areas affected by construction activities; and
- As far as possible, all construction activities should occur in the low flow season, during the drier summer months.

Essential mitigation measures for operational phase:

- Reinforce banks where necessary with hessian sheets.

Recommended mitigation measures for operational phase:

- Ongoing aquatic biomonitoring on a minimum of a quarterly basis must take place from 6 months till 1 year after construction to determine any impacts requiring mitigation; and
- During the operational phase an annual assessment should be undertaken to determine if any excessive erosion along the structure. Photographic records should be maintained and any necessary maintenance and rehabilitation implemented.

Managed	Probability of Impact	Sensitivity of receiving environment	Severity	Spatial scale	Duration of impact	Likelihood	Consequence	Significance
Construction Phase	**5**	**3**	**2**	**2**	**2**	**8**	**6**	**48 (Low)**
Operational Phase	**1**	**3**	**2**	**1**	**1**	**4**	**4**	**16 (Very Low)**

Probable latent impacts:

- Reduced biodiversity support; and
- Reduced functioning of nutrient cycling.

6.3.4 Impacts on floral Species of Conservational Concern (SCC)

Construction related activities such as vegetation clearing, and topsoil removal might result in the loss of vegetation communities as well as proliferation of alien vegetation species. In addition, excavations will lead to bank destabilization, thus resulting in the removal of woody vegetation species along the banks. SCC such as *Boophane disticha* and *Hypoxis hemerocallidae* may occur within the project area. Although these species were not located within the direct footpath of the construction activities, their presence should be noted to ensure that no edge effects and removal thereof takes place. Should these above-mentioned species be noted during the construction of the stormwater channel and berm, these species should be rescued and relocated to suitable habitat, outside of the construction footprint area. These species must be relocated to suitable sites by a qualified specialist.

Unmanaged	Probability of Impact	Sensitivity of receiving environment	Severity	Spatial scale	Duration of impact	Likelihood	Consequence	Significance
Construction Phase	**4**	**3**	**3**	**2**	**3**	**7**	**8**	**56 (Medium – Low)**
Operational Phase	**2**	**3**	**2**	**1**	**1**	**5**	**4**	**20 (Very Low)**

Essential mitigation measures for construction phase:

- Limit excavations to a minimum extent to minimize loss of vegetation and the proliferation of alien vegetation species; and
- Prohibit the collection of vegetation species for medicinal purposes and/or firewood.

Recommended mitigation measures for construction phase:

- Should any SCC be encountered in the footprint area during construction phase, the species must be relocated to a suitable site by an authorized specialist; and
- Upon completion of the construction phase the disturbed area should be rehabilitated through reprofiling and revegetation.

Essential mitigation measures for operational phase:

- Implement an alien vegetation control program within riparian/drainage areas and ensure establishment of indigenous species within areas previously dominated by alien vegetation.

Recommended mitigation measures for operational phase:

- N/A

Managed	Probability of Impact	Sensitivity of receiving environment	Severity	Spatial scale	Duration of impact	Likelihood	Consequence	Significance
Construction Phase	**4**	**3**	**2**	**2**	**2**	**7**	**6**	**42 (Low)**
Operational Phase	**1**	**3**	**1**	**1**	**1**	**4**	**3**	**12 (Very Low)**

Probable latent impacts:

- Proliferation of alien vegetation species; and
- Altered vegetation species composition.

6.3.4 Impacts on faunal species

During construction phase of the proposed stormwater channel and berm, excavations will lead to sedimentation within the riparian areas. Furthermore, sedimentation can lead to habitat alteration within deeper pools, which will affect fish species that require refuge pools during the dry season. Stream flow will have to be temporarily diverted, thus impacting on the survival of the aquatic species within the system. No important faunal species were encountered during site assessment.

Unmanaged	Probability of Impact	Sensitivity of receiving environment	Severity	Spatial scale	Duration of impact	Likelihood	Consequence	Significance
Construction Phase	**3**	**3**	**3**	**2**	**3**	**6**	**8**	**48 (Low)**
Operational Phase	**2**	**3**	**2**	**2**	**2**	**5**	**6**	**25 (Very Low)**

Essential mitigation measures for construction phase:

- No trapping or hunting of fauna is to take place. Access control must be implemented to ensure that no illegal trapping or poaching takes place; and
- Limit the footprint area of the construction activity to what is absolutely essential in order to minimize environmental damage.

Recommended mitigation measures for construction phase:

- All areas of increased ecological sensitivity should be marked as such and be off limits to all unauthorised construction vehicles.

Essential mitigation measures for operational phase:

- No trapping or hunting of fauna is to take place; and
- Ensure that migratory connectivity is maintained where appropriate, especially in the sensitive faunal habitat unit areas.

Recommended mitigation measures for operational phase: • N/A								
Managed	Probability of Impact	Sensitivity of receiving environment	Severity	Spatial scale	Duration of impact	Likelihood	Consequence	Significance
Construction Phase	**2**	**3**	**2**	**1**	**2**	**5**	**5**	**25 (Very Low)**
Operational Phase	**1**	**3**	**1**	**1**	**1**	**4**	**3**	**12 (Very Low)**
Probable latent impacts: • Decrease in potential important faunal species diversity may lead to loss of species richness overtime in the area.								

6.3.5 Impacts Assessment Conclusion

Based on the above assessment it is evident that there are five possible impacts that may affect the ecology of the resources in close proximity of the proposed stormwater channel and berm. The table below summarises the findings indicating the significance of the impacts before mitigation takes place and the likely impacts if management and mitigation takes place. In the consideration of mitigation, it is assumed that a high level of mitigation takes place but which does not lead to prohibitive costs.

Construction Phase		
Impact	**Unmanaged**	**Managed**
1: Loss of habitat and ecological structure	Medium-high	Medium-low
2: Changes to ecological and sociocultural service provision	Medium-low	Low
3: Impacts on hydrological function and sediment balance	Medium-high	Medium-low
4: Impacts on the floral species	Medium-low	Low
5: Impacts on faunal species	Low	Very-low
Operational Phase		
1: Loss of habitat and ecological structure	Low	Very-low
2: Changes to ecological and sociocultural service provision	Low	Very-low
3: Impacts on hydrological function and sediment balance	Low	Very-low
4: Impacts on the floral species	Very-low	Very-low
5: Impacts on faunal species	Very-low	Very-low

From the impact assessment undertaken it is evident that during construction phase, prior to mitigation impacts on loss of habitat and ecological structure, as well as impacts on hydrological function and sediment balance are medium-high level impacts. However, should mitigation be implemented, the impacts will be reduced to medium-low level impacts. The impacts on ecological and sociocultural service provision, impacts on floral species as well as impacts on floral species are medium-low level impacts prior to mitigation. However, should mitigation be implemented, the impacts will be reduced to low level impacts. The impacts on faunal species will be low prior to mitigation and very-low should mitigation be implemented. During operational phase, prior to mitigation impacts on habitat and ecological structure, ecological and sociocultural service provision as well as hydrological function and sediment balance are low level impacts. Furthermore, the impacts on floral species and faunal species are very low significance impacts. However, should mitigation be implemented all impacts will be reduced to very-low significance impacts.

6.3 Avifaunal Assessment

An impact assessment of all potential pre-construction, construction, operational and maintenance phase impacts associated with the activities pertaining to the proposed infrastructure developments are provided in impact assessment table below.

Construction Phase	Before Mitigation	After Mitigation
POTENTIAL IMPACTS: Displacement of priority avian species from important habitats		
Magnitude:	6	4
Duration:	2	1
Extent:	1	1
Irreplaceable:	3	2
Reversibility:	3	2
Probability:	3	1
Total SP:	45	10
Significance rating:	Medium (M)	Low (L)
Mitigation Measures: • Minimize the construction footprint and reserve indigenous vegetation wherever possible. Construct development in shortest timeframe and control pollution		
POTENTIAL IMPACT: Displacement of resident avifauna through increased disturbance		
Magnitude:	6	4
Duration:	2	1
Extent:	1	1
Irreplaceable:	2	2
Reversibility:	2	1
Probability:	4	2

Total SP:	52	18
Significance rating:	Medium (M)	Low (L)
Mitigation Measures: • Minimize the construction footprint and reserve indigenous vegetation wherever possible. Construct development in shortest timeframe and control pollution.		
POTENTIAL IMPACT: Loss of important avian habitats e.g. wetlands and nesting sites		
Magnitude:	6	6
Duration:	2	4
Extent:	1	1
Irreplaceable:	3	3
Reversibility:	3	3
Probability:	3	2
Total SP:	45	34
Significance rating:	Medium (M)	Low (L)
Mitigation Measures: • Use designated roads to access the site. • Minimize the construction footprint and reserve indigenous vegetation wherever possible. Construct development in shortest timeframe and control noise pollution. • Prohibit construction near nesting sites especially during the breeding season (summer). Rehabilitate area with indigenous flora		
Operation Phase	**Before Mitigation**	**After Mitigation**
POTENTIAL IMPACTS: Displacement of priority avian species from important habitats		
Magnitude:	6	4
Duration:	2	1
Extent:	1	1
Irreplaceable:	3	2
Reversibility:	3	2
Probability:	3	1
Total SP:	45	10
Significance rating:	Medium (M)	Low (L)
Mitigation measures: • Minimize the construction footprint and reserve indigenous vegetation wherever possible. • Construct development in shortest timeframe and control pollution.		
POTENTIAL IMPACT: Displacement of resident avifauna through increased disturbance		
Magnitude:	6	2
Duration:	3	3
Extent:	1	1
Irreplaceable:	2	2
Reversibility:	2	2

Probability:	3	3
Total SP:	42	30
Significance rating:	Medium (M)	Low (L)
Mitigation Measures: • Minimize construction footprint and reserve indigenous vegetation wherever possible. • Construct development in shortest timeframe, control noise pollution.		
POTENTIAL IMPACT: Collisions with panels leading to injury or loss of avian life		
Magnitude:	6	4
Duration:	3	3
Extent:	1	1
Irreplaceable:	2	2
Reversibility:	4	3
Probability:	3	2
Total SP:	48	26
Significance rating:	Medium (M)	Low (L)
Mitigation Measures: • Ensure panels are flat during the night time, preferably low-sheen/matt surfaces. • Conduct quarterly fatality monitoring assessments.		
Decommissioning Phase	**Before Mitigation**	**After Mitigation**
POTENTIAL IMPACTS: Displacement of priority avian species from important habitats		
POTENTIAL ENVIRONMENTAL IMPACT / NATURE OF IMPACT:		None required due to low significance
Magnitude:	4	4
Duration:	2	1
Extent:	1	1
Irreplaceable:	2	2
Reversibility:	2	2
Probability:	2	1
Total SP:	22	10
Significance rating:	Low (H)	Low (L)
Mitigation measures: • None required due to low significance.		
POTENTIAL IMPACT: Displacement of resident avifauna through increased disturbance		
Magnitude:	2	2
Duration:	2	2
Extent:	1	1
Irreplaceable:	2	2
Reversibility:	2	2

Probability:	2	2
Total SP:	18	18
Significance rating:	Low (H)	Low (L)
Mitigation Measures: • None required due to low significance.		
Post Decommissioning Phase	**Before Mitigation**	**After Mitigation**
POTENTIAL IMPACTS ASPECTS		
POTENTIAL IMPACT: Cumulative displacement of priority avian species from important habitats		
Magnitude:	6	4
Duration:	5	3
Extent:	2	2
Irreplaceable:	3	2
Reversibility:	3	2
Probability:	3	2
Total SP:	57	26
Significance rating:	Medium (M)	Low (L)
Mitigation Measures: • Minimize development footprint and habitat transformation, limit ongoing human activity to the minimum required for ongoing operation, control noise to minimum, rehabilitate with native vegetation and retain indigenous vegetation throughout as far as possible, limit roadways and vehicle speeds; rehabilitate thoroughly post-decommissioning with locally native species.		
POTENTIAL IMPACT: Cumulative displacement of resident avifauna		
Magnitude:	6	4
Duration:	2	2
Extent:	1	1
Irreplaceable:	2	2
Reversibility:	2	2
Probability:	2	2
Total SP:	26	22
Significance rating:	Low (L)	Low (L)
Mitigation Measures: • Minimize development footprint and habitat transformation, limit ongoing human activity to the minimum required for ongoing operation, control noise pollution, rehabilitate with indigenous flora and reserve indigenous vegetation throughout as far as possible, limit roadways and vehicle speeds		
POTENTIAL IMPACT: Cumulative loss of important avian habitats		
Magnitude:	4	4
Duration:	4	3

Extent:	2	1
Irreplaceable:	2	2
Reversibility:	2	2
Probability:	3	2
Total SP:	42	24
Significance rating:	Medium (M)	Low (L)
Mitigation Measures • Minimize development footprint and habitat transformation, rehabilitate with indigenous flora and reserve indigenous vegetation throughout as far as possible.		

6.3.1 Impacts Assessment Conclusion

The proposed powerline development is situated in an area of High animal sensitivity. Acquired historical data indicated the dominance of Least Concern species with a very moderate diversity of individuals. As a result, from an avifaunal perspective, there is no objection to the development of the proposed powerline development and associated infrastructure, provided that the recommended mitigation measures are strictly followed. The overall impacts (including cumulative) for the project are considered to be Negative low should the mitigation recommendations be effectively implemented.

6.4 Soil and Agricultural Potential

The development of the Burutho-Silimela Transmission Line Deviation Route has three negative main affects which include soil erosion, soil pollution, and soil compaction. All three negative impacts would occur during the construction phase with soil erosion being the main concern, while soil pollution and compaction could occur during the operational phase as well. It is anticipated that there will not be a decommission phase.

6.4.1 Soil erosion - Construction Phase

During soil erosion, soil particles are removed through wind and water erosion. The development area consists mainly of the Avalon, Vaalbos, Mispah and Hutton soil forms. Due to these soils having fine particles in the orthic horizon, they are more prone to erosion. The area affected by erosion is approximately 180 ha, taking the area of the Burutho-Silimela Transmission Line Deviation Route as a reference.

Once earthworks commence at the proposed development site, vegetation will be removed from the surface and expose the soil surfaces underneath to soil erosion that can be caused by both wind and water movement. Soil erosion will result in removal of soil particles from site to the areas where it is deposited as dust particles or as sediment in lower landscape positions.

	Without Mitigation	With mitigation / enhancement
Status	Negative	Negative
Severity	2	1
Spatial Scale	1	1
Duration	3	3
Frequency of activity	3	3
Frequency of impact	3	3
Impact rating	**Low (36)**	**Low (30)**
Mitigation Measures: • Only remove vegetation prior to construction in an area. • Park vehicles and equipment in designated parking areas to prevent vegetation disturbance of additional areas. • Monitor the area to determine whether there is any erosion and rehabilitated eroded areas directly after detection.		

6.4.2 Soil contamination

During the construction phase contamination could occur due to vehicles and equipment traversing the area for infrastructure construction, dust suppression and fuel on site.

Construction and Operational phase: Dust emissions containing trace element particles as well as organic (carbon-containing) contaminants, will settle on surfaces outside of the site. Dust can result in elevated levels of soil contaminants in nearby soil.

	Without Mitigation	With mitigation / enhancement
Status	Negative	Negative
Severity	3	2
Spatial Scale	1	1
Duration	3	3
Frequency of activity	3	3
Frequency of impact	3	3
Impact rating	**Low (42)**	**Low (36)**
Mitigation Measures: • High level maintenance must be undertaken on all vehicles and transmission infrastructure;		

• Impermeable and bunded surfaces must be used for storage tanks and to park vehicles on; • Site surface water and wash water must be contained and treated before reuse or discharge from site; and • Spills of fuel and lubricants from vehicles and equipment must be contained using a drip tray with plastic sheeting filled with adsorbent material.

6.4.3 Soil compaction and surface sealing

Soil will be compacted as part of civil engineering procedures to ensure the stability of the infrastructure as well trampling from construction workers. Soil compaction affects the soil porosity, thereby decreasing the water infiltration rate of soil. Compacted soil surfaces and sealed off areas increase stormwater runoff rates and can cause soil erosion in areas outside the site boundary.

	Without Mitigation	**With mitigation / enhancement**
Status	Negative	
Severity	3	
Spatial Scale	1	
Duration	4	
Frequency of activity	4	
Frequency of impact	5	
Impact rating	**Medium Low (72)**	
Mitigation Measures: • N/A		

6.4.4 Decrease in the combined agricultural and soil sensitivity due to the operational footprint of the Transmission Line.

During the operation phase of the Transmission Line, the estimated 180 ha area will run from the Silimela Substation, over the Elandsriver and towards the Burutho Substation.

Operational phase

The operational footprint would likely decrease agricultural and soil sensitivity.

	Without Mitigation	With mitigation / enhancement
Status	Negative	Negative
Severity	2	1
Spatial Scale	1	1
Duration	5	4
Frequency of activity	5	4
Frequency of impact	5	5
Impact rating	**Medium-high (80)**	**Medium-Low (54)**
Mitigation Measures: • Placement of infrastructure outside of crop boundaries- especially in irrigated or citrus lands.		

6.4.5 Cumulative Impacts

Due to most of the land use under the powerlines being grazing, the impact on agriculture is minimal. The cumulative impact of the proposed (not yet authorised), authorised (not yet constructed) and existing powerlines and substations is low due to the small footprint lost.

6.5 Socio-Economic

6.5.1 Construction Phase

The construction phase of the NTCSA Borutho-Silimela 400 kV Transmission Line project and associated infrastructure is expected to bring a mix of socio-economic impacts, typical of large-scale infrastructure developments. These impacts, though primarily temporary and concentrated within the estimated 3 years construction period, could extend long-term effects on the local socio-economic environment if not managed properly. It's crucial that the detailed design phase minimizes permanent socio-economic impacts, avoiding poor placement of project components or mismanagement of construction activities. The positive and negative social impacts identified and assessed for the construction phase includes:

Potential positive impacts:

- Job Creation: Employment opportunities for local workforce and contractors.
- Economic Stimulation: Increased economic activity from the influx of workers and related businesses.
- Infrastructure Development: Improvements in local infrastructure, such as roads and accommodation facilities for workers.

- Skill Development: Enhanced skills and training opportunities for the local workforce due to exposure to construction activities and technologies.

Potential negative impacts:

- Environmental Disturbance: Site clearing and construction equipment could disrupt local ecosystems.
- Social Displacement: Temporary removal of boundary fences and establishment of contractor camps might affect local communities and land use.
- Increased Traffic and Noise: Transportation of materials and equipment could lead to road damage and noise pollution.
- Waste and Pollution: Generation and disposal of waste, including handling hazardous materials, might pose environmental and health risks.
- Water Resource Management: Dewatering activities and potential groundwater abstraction could impact local water resources.

Impact: Employment of Workforce and Contractors.		
Nature: Employment of local workforce will result in the potential for skills transfer and increased income leading to potential indirect benefits to the local economy. Should labour polices not be fair and suitably protect workers, this could lead to human rights infringements.		
	Without Mitigation	**With Mitigation**
Extent	Local – National (5)	Local – Regional (4)
Duration	Short-term (2)	Short-term (2)
Magnitude	Low (4)	Moderate (6)
Probability	Probable (3)	Definite (5)
Significance	Medium (33)	High Medium (60)
Status	Positive	Positive
Reversibility	Yes – Loss of Employment	Yes – Loss of Employment
Irreplaceable loss of resources?	Impact will improve the Job Market	Impact will improve the Job Market
Can impacts be mitigated?	Enhanced	Enhanced
Enhancement Measures		
To enhance the local employment, skills development and business opportunities associated with the construction phase, the following measures should be implemented: • The developers be committed to involving and benefiting the communities surrounding the development, contributing to their development and growth.		

- It is recommended to conduct structured and proactive engagement sessions within the municipal district, to expose local small, micro, and medium enterprises which will benefit from the proposed development.
- Training and skills development programmes should be offered to employees of the development prior to the commencement of the construction phase.
- The communities which are most in need of employment on a local level should be considered for employment before outsourcing.
- Develop a traffic management plan to manage the increased traffic and potential disruptions associated with the construction phase.
- Engage proactively with local stakeholders and implement transparent hiring practices to ensure equitable distribution of employment opportunities.

Cumulative Impact

The combined effect of the project's employment opportunities, skills development, and enhancement measures will result in a strengthened local job market, improved skills base, and overall socio-economic upliftment of the community. The initiatives to eliminate unfair discrimination, targeted training, and development programs, and the emphasis on portable skills training will further enhance the long-term benefits to the community, ensuring sustainability and growth.

Residual Opportunities

- Initiatives to eliminate unfair discrimination in employment.
- Recruit and select suitably qualified individuals from the designated groups.
- Employees from designated groups who have been identified in the talent pool should be advanced and accelerated through targeted training and development programs.
- Assist employees in obtaining an initial vocational education and pre-qualification, as well as additional education and training that refreshes knowledge, skills, work and life competencies that are critical for overall development.
- Provide portable skills training to employees who express an interest in obtaining such training, with a special emphasis on employees who have been incapacitated or retrenched, in order for them to remain economically active, employable, or self-sustaining in their communities.
- Growth of talent is facilitated, thereby providing opportunities for all employees to contribute to their full potential.

Impact: Economic Multiplier Effects.

Nature: Economic multiplier effects from the use of local goods and services opportunities include but are not limited to, the provision of construction materials and equipment, and workforce essentials such as services, safety equipment, ablution, accommodation, transportation, and other goods. The increase in demand for goods and services may stimulate local business and local economic development (however locally sourced materials and services may be limited due to availability). There is likely to be a direct increase in industry and indirect increase in secondary businesses.

	Without Mitigation	**With Mitigation**
Extent	Local – Regional (4)	Local – Regional (4)
Duration	Short-term (2)	Short-term (2)
Magnitude	Low (4)	Moderate (6)
Probability	Probable (3)	Definite (5)
Significance	Low Medium (30)	High Medium (60)
Status	Positive	Positive
Reversibility	Yes – Loss of economic benefits	Yes – Loss of economic benefits
Irreplaceable loss of resources?	No	No
Can impacts be mitigated?	Enhanced - Yes	Enhanced - Yes

Enhancement Measures

- Preference is given to suppliers that are local to the operation where the service will be consumed.
- Establishing liaison and communication structures with the district and local government structures.
- Liaise with the local governmental structures and municipal authorities in the labour-sending communities to ensure that group development initiatives are integrated into the economic and development plans of those areas.
- The continuous review of the economic development of the project during the implementation process will ensure that the project does not become static but is revised in terms of changing needs and also to ensure sustainability.
- It is recommended that a local procurement policy be adopted by the developer to maximise the benefit to the local economy, where feasible.
- Create job opportunities, boost local economies by supporting business activities, and contribute to government tax revenues through the development of the 400kV Power Line.
- Prior to the start of the construction contractor procurement, a database of local companies, specifically Historically Disadvantaged (HD) companies, that qualify as potential service

providers (e.g., construction companies, catering companies, waste collection companies, security companies, etc) should be identified and informed about the tender process and invited to bid on project-related work, if applicable.

- Engage with local authorities and business organisations to investigate the feasibility of obtaining construction materials, goods, and products from local suppliers, where possible.

Cumulative Impact

The project's economic multiplier effects, combined with the enhancement measures, will lead to a sustained boost in the local economy. The increased demand for local goods and services will not only benefit primary suppliers but will also have a ripple effect, benefiting secondary businesses and service providers. Over time, this will lead to a more robust and diversified local economy, with increased resilience and capacity for growth.

Residual Opportunities

- Improved local service sector, growth in local business.
- Community development and stimulation of the local economy.
- Growth in the local markets.

Impact: Influx of Jobseekers and Change in Population.

Nature: An influx of people looking for employment or other economic opportunities could result in increased pressure being placed on economic and socio-economic infrastructure, and a change in the local population. Population change refers to the size, structure, density as well as demographic profile of the local community.

An influx of jobseekers into an area, could lead to a temporary increase in the level of crime, cause socio-economic disruption and put pressure on basic services. It could also potentially create conflict between locals and outsiders due to potential differences in cultural and ethnic composition. A further negative impact that could result due to an influx of jobseekers into an area is an increase in unemployment levels due to an oversupply of available workforce, particularly with respect to semi- and unskilled workers.

	Without Mitigation	**With Mitigation**
Extent	Local – Regional (3)	Local (2)
Duration	Short-term (2)	Short-term (2)
Magnitude	Low (4)	Low (4)
Probability	Probable (3)	Improbable (2)
Significance	Low (27)	Low (16)
Status	Negative	Negative
Reversibility	Medium	High

Irreplaceable loss of resources?	No	No
Can impacts be mitigated?	Yes	Yes

Mitigation Measures

- Safety awareness and training as well as positive behaviour reinforcement.
- Improving system monitoring and analysis to improve risk management.
- Making the surrounding landowners aware of the dangers associated with the influx of workers during the construction period.
- Identifying abandoned buildings and utilizing them or ensuring they cannot be used for malicious activities.
- Ensuring that access cannot be gained to surrounding properties.
- Encourage employees to stop working when a workplace is considered unsafe and/or to prevent unsafe actions.
- Education, Training and Development Services must be implemented.
- Access in and out of the construction area should be strictly controlled.
- The contractor must provide adequate firefighting equipment on site and provide firefighting training to selected construction staff.
- Have clear rules and regulations for access to the proposed site to control loitering.
- A comprehensive employee induction programme would cover land access protocols, fire management and road safety must be prepared.
- A Community Liaison Officer should be appointed.
- A method of communication should be implemented whereby procedures to lodge complaints are set out in order for the local community to express any complaints or grievances with the construction process.

Cumulative Impact

The combined effects of the influx of jobseekers and the change in population, even with mitigation measures in place, could lead to a strain on local resources, potential socio-economic disruptions, and a temporary increase in crime rates. The cumulative impact also encompasses the potential for heightened social tensions due to perceived inequalities in job distribution and benefits from the project. However, with the proposed mitigation measures, the severity of these impacts can be reduced, leading to a more controlled and manageable influx, and ensuring that the local community benefits from the project in a sustainable manner.

Residual Risks

Potential for conflict: If there are perceptions of unfair hiring practices or unequal distribution of project benefits, this could lead to social tensions or conflicts, which could have implications for local safety and security. This is a potential residual impact as it is dependent on perceptions and social dynamics, which can be difficult to fully mitigate.

Impact: Safety and Security Impacts.

Nature: Temporary increase in safety and security concerns associated with the influx of people during the construction phase.

The temporary dismantling of property fences during construction could escalate theft incidents within the project area, involving workers, potential criminals, and others. This increase in movement is likely to increase criminal activities such as house break-ins, and livestock and game theft, causing unplanned financial costs for property owners. Additionally, the project's intent to hire locally might not prevent the migration of job seekers from surrounding communities, which could put local communities, subsistence farms, and residential settlements at risk, temporarily elevating crime levels, causing social disruption, and pressuring basic services.

	Without Mitigation	**With Mitigation**
Extent	Local – Regional (2)	Local (2)
Duration	Short-term (2)	Short-term (2)
Magnitude	Moderate (6)	Low (4)
Probability	Probable (3)	Improbable (2)
Significance	Low Medium (30)	Low (16)
Status	Negative	Negative
Reversibility	Low	Low
Irreplaceable loss of resources?	No	No
Can impacts be mitigated?	Yes	Yes

Mitigation Measures

- Safety awareness and training as well as positive behaviour reinforcement.
- Improving system monitoring and analysis to improve risk management.
- Making the surrounding landowners aware of the dangers associated with the influx of workers during the construction period.
- Identifying abandoned buildings and utilizing them or ensuring they cannot be used for malicious activities.
- Ensuring that access cannot be gained to surrounding properties.

- Encourage employees to stop working when a workplace is considered unsafe and/or to prevent unsafe actions.
- Education, Training and Development Services must be implemented.
- Access in and out of the construction area should be strictly controlled.
- The contractor must provide adequate firefighting equipment on site and provide firefighting training to selected construction staff.
- Have clear rules and regulations for access to the proposed site to control loitering.
- A comprehensive employee induction programme would cover land access protocols, fire management and road safety must be prepared.
- A Community Liaison Officer should be appointed.
- A method of communication should be implemented whereby procedures to lodge complaints are set out in order for the local community to express any complaints or grievances with the construction process.

Cumulative Impact

The combined effects of the construction activities, especially the movement of heavy vehicles and influx of workers, can lead to heightened safety and security concerns in the area. This includes potential increases in crime rates, disturbances to local communities, and strain on local infrastructure. Even with mitigation measures in place, the cumulative impact of these activities can lead to a perceived decrease in the safety and security of the area, affecting the well-being and peace of mind of local residents.

Residual Risks

- Potential for increased crime: Despite mitigation measures, there's always a risk of a temporary spike in crime rates due to the influx of outsiders and increased activity in the area.
- Disturbance to local communities: The presence of construction activities and workers can lead to disturbances in daily life, affecting the well-being of local residents.
- Strain on local infrastructure: The increased activity can put a strain on local roads, utilities, and other infrastructure, leading to wear and tear or potential breakdowns.

Impact: Increased Pressure on Local Services / Resources

Nature: Increased demand on existing local infrastructure and services due to the influx of construction workers and associated personnel. This can result in increased pressure on healthcare, education, transportation, and utility systems, which may struggle to meet the increased consumption and demand.

	Without Mitigation	**With Mitigation**
Extent	Local – Regional (2)	Local (2)
Duration	Short-term (2)	Short-term (2)

Magnitude	Moderate (6)	Low (4)
Probability	Probable (3)	Improbable (3)
Significance	Low Medium (30)	Low (16)
Status	Negative	Negative
Reversibility	Medium	High
Irreplaceable loss of resources?	No	No
Can impacts be mitigated?	Yes	Yes

Mitigation Measures

- It is necessary to appoint a Community Liaison Officer. A method of communication should be implemented, with procedures for filing complaints outlined, so that the local community can express any complaints or grievances about the construction process.
- Strategic Planning: Collaborate with local authorities to forecast service needs and develop a strategic plan to bolster local services where deemed necessary in anticipation of increased demand.
- Community Investment: Invest in local infrastructure improvements where possible that will benefit both the project and the community in the long term.
- Temporary Facilities: Establish temporary facilities when required to cater to the needs of the construction workforce without straining local services.
- Traffic Management: Implement traffic management plans where possible to mitigate the impact of additional vehicles and machinery on local transport systems.

Cumulative Impact

The cumulative impact of increased pressure on local services and resources during the construction phase can be multi-faceted, affecting various community sectors both spatially and temporally. Multiple construction projects in the area, combined with the scaling-up of individual projects, can strain local resources such as emergency services, water supply, and waste management. This strain can trigger secondary environmental impacts and may necessitate local government to adjust budget and planning, potentially affecting other civic priorities. Over time, these compounded effects can degrade the quality of life for local residents, causing social tensions and potentially leading to long-term issues like reduced property values or out-migration. In essence, the incremental pressures on local services and resources can collectively reach a tipping point, affecting the community's well-being and environmental sustainability.

Residual Risks

Possibility of outside workers remaining in the area after construction is completed and subsequent pressures on local infrastructure.

Impact: Increased Probability of Fire Risk		
Nature: Risk from accidental or intentional fire being set to the surrounding area which then spreads to the adjacent properties.		
	Without Mitigation	**With Mitigation**
Extent	Local – Regional (2)	Local (2)
Duration	Short-term (2)	Short-term (2)
Magnitude	Moderate (6)	Low (4)
Probability	Probable (3)	Improbable (2)
Significance	Low Medium (30)	Low (16)
Status	Negative	Negative
Reversibility	High	High
Irreplaceable loss of resources?	No	No
Can impacts be mitigated?	Yes	Yes
Mitigation Measures		
• Ensure training is given to employees on the risks of fires. • Ensure that firefighting equipment is present and working. • No fires are to be made on site for any reason. • No hunting or cooking of any animals or plants in or around the development footprint.		
Cumulative Impact		
The cumulative impact of an increased probability of fire risk during the construction phase is a matter of grave concern, not just for the immediate vicinity but also for broader ecosystems and communities. The combination of various fire-prone activities—such as welding, electrical work, and the use of flammable materials—across multiple construction sites can substantially elevate the fire risk level. When this is aggregated over multiple construction projects and durations, the cumulative effect can severely strain local fire-fighting resources and emergency services. Additionally, recurring incidents could lead to a degradation of local air quality due to smoke and pollutants, impact local flora and fauna, and contribute to long-term environmental degradation. Furthermore, the psychological toll on local residents from elevated fire risks could result in reduced property values and an increased desire to relocate, affecting the social fabric of the community. Overall, the cumulative impact of increased fire risk during		

construction is a complex interplay of environmental, social, and economic factors that could have lasting repercussions.
Residual Risks
None identified.

Impact: Nuisance Impacts (Noise and Dust)		
Nature: The construction activities, including the use of heavy machinery, movement of vehicles, and site clearing, are expected to generate significant levels of noise and dust. These nuisance impacts could affect the well-being and quality of life of nearby residents and sensitive ecosystems.		
	Without Mitigation	**With Mitigation**
Extent	Local (2)	Local (1)
Duration	Short-term (2)	Short-term (2)
Magnitude	Moderate (6)	Low (4)
Probability	Highly Probable (4)	Probable (3)
Significance	Medium (40)	Low (21)
Status	Negative	Negative
Reversibility	High	High
Irreplaceable loss of resources?	No	No
Can impacts be mitigated?	Yes	Yes
Mitigation Measures		

- During construction, care should be taken to ensure that noise from construction vehicles and plant equipment does not intrude on the farms and residential areas nearby. Plant equipment such as generators, compressors, concrete mixers, and vehicles should be kept in good working order and, where possible, equipped with effective exhaust mufflers.
- The movement of construction vehicles on the site should be confined to agreed access road/s.
- Heavy vehicle movement during the construction phase should be timed (where possible) to avoid times of the week, such as weekends, when the volume of traffic on the access roads may be higher.
- Dust suppression measures must be implemented on a regular basis and ensuring that vehicles used to transport sand and building materials are fitted with tarpaulins or covers.

Cumulative Impact
The combined effects of noise and dust from construction activities can lead to a significant disturbance for local residents and other sensitive receptors. Over time, these nuisances can accumulate, leading to a decrease in the quality of life for those living or working nearby. The cumulative impact of these nuisances can also affect local ecosystems, particularly if dust settles on nearby water sources or vegetation.
Residual Risks
Noise and dust generation will remain an issue irrespective of the construction of the transmission line.

6.5.2 Operational Phase

It is anticipated that the grid infrastructure will operate for approximately 40 years or as long as required by the development. The potential positive and negative socio-economic impacts that could arise because of the operation of the proposed project include the following:

- Direct and indirect employment opportunities.
- Development of non-polluting, renewable energy infrastructure.
- Contribution to local economic development and socio-economic upliftment; and
- Impacts associated with the loss of agricultural land.

Impact: Direct and Indirect Employment Opportunities.		
Nature: During the operational phase, the project continues to offer employment opportunities, although at a reduced scale compared to the construction phase. Direct employment largely involves roles related to maintenance, monitoring, and management of the transmission line and its facilities. These roles are essential for ensuring the smooth and efficient functioning of the transmission infrastructure and include activities like routine inspections, repairs, and necessary upgrades. Indirect employment opportunities are also generated, supporting local businesses and industries that provide ancillary services and supplies for the operational needs of the transmission line. These roles may include local supply of maintenance materials, logistical support, and specialized technical services.		
	Without Mitigation	**With Mitigation**
Extent	Regional (3)	Regional (3)
Duration	Long-term (4)	Long-term (4)
Magnitude	Low (4)	Moderate (6)
Probability	Highly Probable (4)	Definite (5)
Significance	Medium (44)	High (65)

Status	Positive	Positive
Reversibility	Low	Low
Irreplaceable loss of resources?	No	No
Can impacts be mitigated?	Enhanced - Yes	Enhanced - Yes

Enhancement Measures

- Local Hiring: Prioritize hiring from the local community for all available positions. This will ensure that the benefits of employment are directly felt within the local community.
- Skills Transfer: In cases where highly skilled expertise is required, provide provisions for skills transfer. This will facilitate knowledge sharing within the local workforce and enhance the overall skill level of the community.
- Support for Local Businesses: Encourage the involvement of local businesses in providing materials, goods, and services during the operational phase of the project. This can stimulate entrepreneurial growth and create indirect job opportunities.
- Community Engagement: Maintain open lines of communication with the local community through the development's existing community liaison officer. This will ensure that job opportunities are communicated effectively and that local residents are given fair consideration in the hiring process.
- Fair Labour Practices: Align the project with the development's social labour plan to ensure fair labour practices and safe working conditions for all workers.

Cumulative Impact

The sustained employment opportunities during the operational phase will lead to long-term economic stability and growth in the region. The direct and indirect job opportunities will not only benefit the immediate families of the employed but will also have a ripple effect on the local economy. As more individuals gain employment, there will be an increase in disposable income, leading to higher consumer spending, which can stimulate other sectors of the local economy.

Residual Opportunities

- Economic Upliftment: The consistent employment opportunities during the operational phase will lead to an upliftment in the overall economic status of the region. This can result in improved living standards, better access to education, and healthcare for the local community.
- Skills Development: The emphasis on skills transfer and training will ensure that the local workforce is better equipped for future job opportunities, even beyond the lifespan of the project. This can lead to a more skilled and competitive workforce in the region.

- Entrepreneurial Growth: With the support for local businesses and the increase in consumer spending, there's potential for entrepreneurial growth. Local entrepreneurs can capitalize on the increased demand for goods and services, leading to the establishment of new businesses and further job creation.

Impact: Economic Multiplier Effects.

Nature: Economic multiplier effects from the sustained operation and maintenance of the transmission line present numerous opportunities. These include, but are not limited to, the provision of maintenance materials and equipment, ongoing workforce essentials such as services, safety equipment, ablution, accommodation, transportation, and so forth. The consistent demand for goods and services can bolster local businesses and foster local economic development. However, the sourcing of local materials and services might face constraints due to availability.

	Without Mitigation	**With Mitigation**
Extent	Local – Regional (3)	Local – Regional (3)
Duration	Long-term (4)	Long-term (4)
Magnitude	Low (4)	Low (4)
Probability	Probable (3)	Definite (5)
Significance	Medium (33)	Medium (55)
Status	Positive	Positive
Reversibility	Yes – Loss of economic benefits	Yes – Loss of economic benefits
Irreplaceable loss of resources?	No	No
Can impacts be mitigated?	Enhanced - Yes	Enhanced - Yes

Enhancement Measures

- Local Supplier Engagement and Development: Actively engage with local suppliers to understand their capabilities and limitations. Offer support and development programs to help them meet the project's needs. This could include training in specific skills, quality standards, or business management.
- Community Liaison Officers (CLOs): Employ CLOs to facilitate communication between the project and local businesses, ensuring that the needs of both are met and that opportunities are fairly distributed.
- Investment in Local Capacity Building: Invest in local infrastructure and capacity building to enable local businesses to scale up and meet the operational or maintenance demands of the project. This could include financial support, technology transfer, or infrastructure improvements.

- Long-term Community Development Plans: Work with local authorities and community groups to develop and implement long-term economic development plans that align with the project's long term presence and potential for economic stimulation.
- Transparent Procurement Processes: Establish transparent and fair procurement processes that give local businesses a fair chance to compete for services required such as maintenance contracts, ensuring equitable opportunity distribution.

Cumulative Impact

The project's economic multiplier effects, combined with the enhancement measures, will lead to a sustained boost in the local economy. The increased demand for local goods and services will not only benefit primary suppliers but will also have a ripple effect, benefiting secondary businesses and service providers. Over time, this will lead to a more robust and diversified local economy, with increased resilience and capacity for growth.

Residual Opportunities

- Improved local service sector, growth in local business.
- Community development and stimulation of the local economy.
- Growth in the local markets.

Impact: Strengthening of Power Grid and Rural Electrification.

Nature: The operational phase of the NTCSA Borutho-Silimela 400 kV Transmission Line project is set to provide a significant boost to rural electrification efforts, catalysing socio-economic development. This expansion facilitates improved access to reliable electricity, which is a cornerstone for healthcare services, educational facilities, and digital connectivity. The stable power supply can unlock new opportunities for local businesses, support enhancement of agricultural productivity through modern farming techniques.

	Without Mitigation	**With Mitigation**
Extent	Regional (3)	Regional (3)
Duration	Long Term (4)	Long Term (4)
Magnitude	Moderate (6)	High (8)
Probability	Probable (3)	Highly Probable (4)
Significance	Medium (39)	High Medium (60)
Status	Positive	Positive
Reversibility	Low	Low
Irreplaceable loss of resources?	No	No

Can impacts be mitigated?	Enhanced - Yes	Enhanced - Yes

Enhancement Measures

- Local Business Partnerships: Forge partnerships with local businesses to supply materials and services required for ongoing operations, thereby fostering local enterprise development.
- Educational Programs: Launch educational programs and workshops on energy efficiency and safe electricity practices to increase local understanding and capability.
- Capacity Building Initiatives: Support capacity building in local governance to manage and maintain rural electrification efforts sustainably..

Cumulative Impact

The cumulative impact of the operational phase is the progressive strengthening of local socio-economic structures. Reliable electricity access can lead to improved educational outcomes, higher quality healthcare services, and burgeoning local businesses, cumulatively enhancing the standard of living and economic vitality of the region.

Residual Opportunities

- Long-Term Employment Growth: The demand for maintenance and operational expertise can contribute to long-term employment growth in sectors directly and indirectly associated with the energy industry.
- Technological Advancements: As local businesses and services modernize with reliable electricity, this can lead to increased adoption of new technologies, fostering innovation and potentially attracting new industries to the area.
- Community Development: With improved infrastructure, there can be a significant uplift in community development initiatives, including new educational facilities, healthcare services, and community centers, which in turn can spur further job creation and economic activities for Future Growth: As global trends move towards sustainability and renewable energy; the region will be well-positioned to attract future investments and partnerships in the green energy sector.

Impact: Handling and Storage of Hazardous Materials

Nature: Handling and storage of hazardous materials, such as transformer oil during maintenance activities, are crucial in preventing environmental contamination and safeguarding community health. Proper management is essential to avoid detrimental impacts on local ecosystems and community resources.

	Without Mitigation	**With Mitigation**
Extent	Local (2)	Local (2)
Duration	Long Term (4)	Long Term (4)

Magnitude	Moderate (6)	Low (4)
Probability	Probable (3)	Unlikely (2)
Significance	Medium (36)	Low (20)
Status	Negative	Negative
Reversibility	Low	Low
Irreplaceable loss of resources?	No	No
Can impacts be mitigated?	Yes	Yes

Mitigation Measures

- Implement strict storage and handling protocols for hazardous materials in line with international best practices.
- Conduct regular training for personnel on the handling of hazardous materials to prevent accidental releases.
- Establish emergency response procedures for any incidents involving hazardous materials.
- Perform regular audits and inspections to ensure compliance with storage and handling regulations.

Cumulative Impact

With effective mitigation, the long-term cumulative impact on the environment and public health from hazardous materials is minimized, contributing to the project's overall sustainability and the well-being of the local community.

Residual Opportunities

- Continuous improvement of handling procedures can lead to innovations in safety and environmental protection practices.
- Development of local expertise in hazardous material management can offer additional professional job opportunities in the region.
- Enhanced environmental health and safety standards can serve as a model for other projects, elevating regional industry standards.

Impact: Transmission Lines, Conductors, and Towers		
Nature: The operation of the transmission lines can result in noise pollution, primarily from corona discharge, and can affect wildlife through collisions and habitat alteration. The physical presence of the infrastructure may disrupt animal behaviour and lead to habitat loss or fragmentation.		
	Without Mitigation	**With Mitigation**

Extent	Local (2)	Local (2)
Duration	Long Term (4)	Long Term (4)
Magnitude	Moderate (6)	Low (4)
Probability	Probable (3)	Unlikely (2)
Significance	Medium (36)	Low (20)
Status	Negative	Negative
Reversibility	Low	Low
Irreplaceable loss of resources?	No	No
Can impacts be mitigated?	Yes	Yes

Mitigation Measures

- Install bird diverters on powerlines to prevent bird strikes.
- Maintain vegetation in servitude areas to create wildlife-friendly habitats and prevent flashovers.
- Implement noise reduction technologies or materials to minimize corona discharge noise.
- Regularly monitor wildlife activity and adjust management practices to minimize disturbances.

Cumulative Impact

When mitigation measures are consistently applied, the cumulative impact on wildlife and noise levels can be significantly reduced, promoting coexistence between the operational powerline and the surrounding environment.

Residual Opportunities

- Conservation partnerships could be established to create or improve wildlife corridors.
- Long-term ecological studies could be initiated to monitor the impacts and effectiveness of mitigation measures.
- Educational programs could be developed to raise awareness about the importance of protecting wildlife in powerline areas.

6.5.3 Decommissioning Phase

For the decommissioning phase of the NTCSA Borutho-Silimela 400 kV Transmission Line project, the focus would be on the careful dismantling of infrastructure while minimizing social and environmental impacts. Key considerations include:

- **Community Engagement**: Proactively communicate with local stakeholders about the decommissioning process, timelines, and expected changes.

- **Employment Transition**: Develop strategies for the re-employment or retraining of workers affected by the decommissioning.
- **Land Rehabilitation**: Plan for the restoration of land used for the project, ensuring it's returned to a state suitable for future use, whether for ecological, agricultural, or community purposes.
- Environmental Protection: Implement measures to minimize environmental impacts during the dismantling process, including waste management and pollution prevention.

This approach ensures the decommissioning phase is managed responsibly, aligning with NTCSA's sustainability goals and community expectations.

6.5.4 Cumulative Impact

The potential cumulative impacts of the NTCSA Borutho-Silimela 400 kV power line project on the area's sense of place and landscape will be primarily linked to visual and land use changes. Key considerations include:

- **Combined Visibility**: Assessing whether multiple sections of the transmission line will be visible from single or multiple locations, and how this influences the landscape character.
- **Sequential Visibility**: Evaluating the visual impact experienced by individuals traveling along routes that parallel or cross the transmission line, such as roads or walking trails.
- **Visual Compatibility**: Determining the visual compatibility of the transmission line infrastructure with the surrounding environment, including natural landscapes and built environments.
- **Perceived or Actual Change in Land Use**: Analysing the impact of the transmission line on overall land use and character of the area, including changes in land accessibility and use patterns.
- **Loss of Characteristic Elements**: Considering the potential loss of specific landscape features or characteristics due to the presence of the transmission line.

These impacts call for both dynamic and static considerations. The cumulative visual impact should be perceived as a dynamic sequence of sights and visual impacts along travel routes, rather than just the cumulative impact of the infrastructure in one area.

The establishment of the NTCSA Borutho-Silimela project is expected to have transformative effects on the community and local municipality, leading to various impacts:

- People:
    - Skills development and training opportunities.
    - Employment opportunities during construction and maintenance phases.
    - Improved socio-economic outcomes due to investments in community development:
        - Health improvements.

- Education enhancements.
- Increased economic participation.
- Socio-economic cohesion among community beneficiaries.
- Increased sense of prestige for the community and town.

- **Planet**:
  - Contribution to the national power grid with minimal environmental disruption.
  - Implementation of environmental management plans to mitigate impacts on local ecosystems.
- **Profit**:
  - Increased revenue opportunities for the local municipality.
  - Increased economic activity in the local community and broader municipality.
  - Investment in socio-economic and commercial infrastructure to stimulate economic growth.

The cumulative impacts of the NTCSA Borutho-Silimela project, particularly when considered in conjunction with other regional developments, offer socio-economic prospects for the area. These include job creation, skill development, and enhanced local services. The project's presence can benefit the local, regional, and national economies through various economic activities related to construction, operation, and maintenance. The cumulative impact at the municipal level can be positive, with potential for operations and maintenance companies to focus on education and training initiatives, contributing to the long-term development of the local workforce.

Nature: An increase in employment opportunities, skills development, and business opportunities with the establishment of the NTCSA Borutho-Silimela 400 kV Transmission Line.		
	Overall Impact of the Proposed Project Considered in Isolation	**Cumulative Impact of the Project and Other Projects in the Area**
Extent	Local – Regional (3)	Local-regional (3)
Duration	Long-term (4)	Long-term (4)
Magnitude	Low (4)	Moderate (6)
Probability	Probable (3)	Probable (3)
Significance	Medium (33)	Medium (39)
Status (positive or negative)	Positive	Positive

Reversibility	N/A	N/A
Irreplaceable loss of resources?	N/A	N/A
Can impacts be mitigated?	Yes	Yes
Confidence in findings: High.		
Enhancement Measures		
• Adopt local employment policies to ensure that job creation benefits the community surrounding the transmission line. • Utilize local service providers for construction, maintenance, and operational needs to enhance business opportunities in the area. • Implement skills development programs in partnership with local educational institutions and technical training centers to prepare the local workforce for opportunities arising from the project and other similar developments in the region.		

Nature: Negative impacts and change to the local economy with an in-migration of labourers, businesses, and jobseekers to the project area.		
	Overall Impact of the Proposed Project Considered in Isolation	**Cumulative Impact of the Project and Other Projects in the Area**
Extent	Local – Regional (3)	Local (2)
Duration	Long-term (4)	Long-term (4)
Magnitude	Low (4)	Minor (2)
Probability	Improbable (2)	Very Improbable (1)
Significance	Low (22)	Low (8)
Status (positive or negative)	Negative	Negative
Reversibility	Yes	
Irreplaceable loss of resources?	No	
Can impacts be mitigated?	Yes	

Confidence in findings: High.
Mitigation Measures
• Develop and enforce a local recruitment policy to prioritize hiring from the surrounding communities, thereby reducing the need for extensive in-migration. • Collaborate with local government agencies and community organizations to align the project's development with the local area's needs, ensuring that service provisions meet the requirements of both existing residents and newcomers. • Establish joint ventures or partnerships with community organizations, potentially through Trusts, to provide tangible benefits to local communities, including employment opportunities and essential services. • Formulate and distribute a clear recruitment protocol in partnership with the local municipality and community leaders, ensuring transparent communication about employment processes.

6.6 Visual Impacts

Key findings related to the Borutho-Silimela 400kV Transmission Line and Associated Infrastructure project include:

- **Project Location and Context:** Situated within the International Corridor of Strategic Transmission Corridors, the Borutho-Silimela project is pivotal in aligning with South Africa's strategic initiatives for energy distribution. The project encompasses significant infrastructure, including 400kV overhead transmission lines designed to reinforce the energy grid's reliability and capacity.
- **Landscape and Visual Baseline:** The project transects the diverse landscapes of the Limpopo Province, known for its scenic vistas and ecological significance. The baseline landscape is characterized by a mix of natural, agricultural, and developed areas, providing a context within which the new infrastructure must be sensitively integrated.
- **Infrastructure and Visual Exposure:** The transmission line infrastructure will visibly alter the existing landscape. Despite its critical role in energy transmission, the project introduces linear and vertical elements into varied settings, from natural landscapes to rural and urban fringes.
- **Mitigation of Visual Impacts:** The VIA recommends a suite of mitigation strategies to minimize visual impacts, such as utilising topography and vegetation for screening, designing towers with minimal visual intrusion, and strategic siting of substations.

- **Sensitivity of Local Communities:** The proximity of the infrastructure to communities across the Waterberg, Capricorn, and Greater Sekhukhune Districts necessitates careful management of visual impacts. Engaging local stakeholders and transparently communicating the project's visual impact mitigation strategies are vital.
- **Cumulative Impact Assessment:** Considering the project within the broader regional context, including other infrastructural developments, the VIA concludes that cumulative visual impacts are moderate, provided that recommended mitigation measures are implemented.

The overall Visual Impact Magnitude and Significance of the project:

- **Magnitude of Visual Impact:** Based on the viewshed analysis, the visual impact of the Borutho-Silimela 400kV Transmission Line is considered moderate. Implementing mitigation measures, such as vegetative screening and the careful placement of structures, is expected to significantly lessen the project's visual footprint.
- **Significance Rating:** When factoring in the mitigative efforts, the significance of visual impacts is rated as low to moderate. The region's visual absorption capacity, aided by the recommended mitigation strategies, ensures that visual impacts are maintained within acceptable boundaries.
- **Acceptability of Visual Impact:** Given the application of mitigation measures outlined in the Environmental Management Programme, combined with ongoing community engagement, the VIA deems the visual impact of the project acceptable. The Borutho-Silimela project supports the strategic energy distribution initiatives while managing visual impacts effectively.

6.6.1 Potential Impacts during Construction Phase

Impact: Altered Landscape and Sense of Place caused by Borutho-Silimela 400kV Transmission Line		
Nature: The construction involves activities like vegetation stripping, earthworks, and the use of heavy machinery, which will temporarily change the visual landscape.		
	Without Mitigation	**With Mitigation**
Extent	Regional (3)	Regional (3)
Duration	Short-term (2)	Short-term (2)
Magnitude	Moderate (6)	Low (4)
Probability	Highly Probable (4)	Probable (3)
Significance	Medium (44)	Low (27)

Status	Negative	Negative
Reversibility	High	High
Irreplaceable loss of resources?	No	No
Can impacts be mitigated?	Yes	Yes

Mitigation Measures

- Vegetative Screens: Utilise existing vegetation or plant new native species around the construction site for visual screening, where required.
- Controlled Construction Zones: Limit construction to specific areas at a time to reduce overall visual impact, where possible.
- Dust Management: Implement effective dust suppression techniques to minimise visual and environmental impacts of dust.
- Rapid Revegetation: Prioritise swift revegetation in disturbed areas to restore visual aesthetics post-construction.
- Community Engagement: Maintain open communication with local communities about construction activities and mitigation measures.
- Limit Night-time Activities: Reduce night-time construction to minimize light pollution and visual disturbance.

Cumulative Impact

The overall visual impact during construction could be more pronounced when combined with other existing infrastructure. With mitigation, this impact can be effectively managed.

Residual Risks

With mitigation measures in place, the residual visual impact is expected to be reduced, though some temporary disturbances are inevitable.

Impact: Visibility of the Construction Activities to Residents and Locals

Nature: During the construction phase of the Borutho-Silimela 400kV Transmission Line, the activities and the introduction of construction infrastructure will be noticeable across the landscapes of the Capricorn, Waterberg, and Greater Sekhukhune Districts. The visibility of these activities, especially from the nearby settlements and along major roads like the N1, N11, R519, R33, and R575, may affect the

visual amenity for local residents and travellers. The impact is influenced by the varying terrain of the route, which could make the construction activities visible from multiple viewpoints, particularly in areas of less dense vegetation or higher elevation points along the transmission line's path.

	Without Mitigation	**With Mitigation**
Extent	Regional (3)	Regional (3)
Duration	Short-term (2)	Short-term (2)
Magnitude	Moderate (6)	Low (4)
Probability	Definite (5)	Highly Probable (4)
Significance	Medium (55)	Medium (36)
Status	Negative	Negative
Reversibility	High	High
Irreplaceable loss of resources?	No	No
Can impacts be mitigated?	Yes	Yes

Mitigation Measures

- Strategic Siting: Prioritise the placement of construction infrastructure in areas less visible from major residential zones, where possible.
- Visual Screening: Employ temporary visual barriers, such as strategic placement of construction material, to reduce visibility from residential areas.
- Community Engagement: Maintain open communication with local communities, particularly those in areas close to the Transmission Line path, such as settlements within the Capricorn, Waterberg, and Greater Sekhukhune Districts. It is crucial to inform these communities about construction activities, expected visual changes, and the duration of the project, ensuring transparency and addressing concerns proactively.
- Limiting Construction Visibility: Schedule visually intrusive activities during times of lower residential activity, if possible.
- Dust Control Measures: Implement dust suppression techniques to reduce the visual impact of dust generated by construction activities.
- Rapid Remediation: Prioritise rapid remediation and clean-up of construction areas to reduce the duration of visual impact.

Cumulative Impact
Medium – The overall visual impact during construction could be more pronounced when combined with other existing infrastructure. With mitigation, this impact can be effectively managed.
Residual Risks
Medium – Despite mitigation measures, the visibility of construction activities will be evident to nearby residents. Over time, as construction progresses and residents become accustomed to these changes, the perceived impact may reduce.

Impact: Dust and Construction Disturbances		
Nature: Construction activities for the Borutho-Silimela 400kV Transmission Line will involve earthworks and the movement of heavy machinery, potentially leading to dust generation. This aspect is particularly relevant given the diverse landscapes in the region, ranging from open plains to more vegetated areas. Dust and construction disturbances, including noise from machinery and vehicle movements, may temporarily impact the quality of life for residents in the vicinity of the transmission line, especially those in closer settlements and along major routes like the N1, N11, R519, R33, and R575. The disturbances are expected to be localized around the construction sites and along the access routes used for the project.		
	Without Mitigation	**With Mitigation**
Extent	Regional (3)	Regional (3)
Duration	Short-term (2)	Short-term (2)
Magnitude	Moderate (6)	Low (4)
Probability	High Probable (4)	Probable (3)
Significance	Medium (44)	Low (27)
Status	Negative	Negative
Reversibility	High	High
Irreplaceable loss of resources?	No	No
Can impacts be mitigated?	Yes	Yes
Mitigation Measures		

• Dust Suppression: Regularly water down active construction areas, particularly in dry and windy conditions, to reduce dust generation. • Windbreaks: Erect temporary windbreaks or barriers at key points around the construction site to control the spread of dust. • Vehicle Speed Limits: Enforce speed limits for construction vehicles to minimize dust disturbances. • Machinery Maintenance: Ensure regular maintenance of construction machinery to reduce noise and vibrations. • Community Communication: Proactively communicate with nearby residents about construction schedules and particularly disruptive activities, allowing for better community preparedness and adaptation. • Monitoring: Regularly monitor dust levels and noise to ensure compliance with mitigation measures and make adjustments as necessary.
Cumulative Impact
Medium – The combined impact of dust, noise, and other construction-related disturbances could be more noticeable, especially in the absence of other significant activities in the area. Effective mitigation can manage this impact.
Residual Risks
Low to Medium – With the mitigation measures in place, the residual impact from dust and construction disturbances is expected to be significantly reduced. Occasional increases in dust or noise might still occur during specific construction activities.

6.6.2 Potential Impacts during the Operation Phase

Impact: Altered Landscape and Sense of Place		
Nature: The operational phase of the Borutho-Silimela 400kV Transmission Line will introduce new infrastructure elements to the Limpopo landscape, including overhead power lines and associated substations. While these structures are essential for the transmission of electricity and play a vital role in regional energy distribution, they will become permanent fixtures in the landscape for their operational lifespan. This presence will influence the visual character of the area and how it is perceived by local communities across the Capricorn, Waterberg, and Greater Sekhukhune Districts.		
	Without Mitigation	**With Mitigation**
Extent	Regional (3)	Regional (3)

Duration	Permanent (5)	Permanent (5)
Magnitude	Low (4)	Minor (2)
Probability	Highly Probably (4)	Probable (3)
Significance	Medium (48)	Medium (30)
Status	Negative	Negative
Reversibility	High	High
Irreplaceable loss of resources?	No	No
Can impacts be mitigated?	Yes	Yes

Mitigation Measures

- Visual Integration: Employ designs for towers and switching substation connections that minimise visual intrusion, such as using colour schemes that blend with the natural environment and low-profile designs, where possible.
- Landscaping: Implement landscaping around substations and along the power line corridor to soften visual impacts, using native plant species to ensure ecological compatibility.
- Community Engagement: Regularly engage with local communities to communicate the long-term benefits of the grid connection and address concerns regarding visual changes.
- Viewpoint Management: Identify and manage key viewpoints to minimise the visual impact from sensitive locations, such as residential areas and cultural sites.

Cumulative Impact

Medium – The grid connection infrastructure, combined with existing and planned developments in the area, contributes to a changing landscape character. Effective mitigation can manage this cumulative visual impact.

Residual Risks

Low to Medium – With the mitigation measures implemented, the residual visual impact on the landscape and sense of place will be significantly reduced. However, the presence of the infrastructure will remain a noticeable element in the landscape during its operational phase.

Impact: Visibility of the Borutho-Silimela 400kV Transmission Line and Associated Infrastructure to Residents		
Nature: During the operational phase, the Borutho-Silimela 400kV Transmission Line infrastructure, including overhead power lines and substations, will become permanent features in the Limpopo landscape. The visibility of these structures to residents in areas adjacent to the transmission line, particularly in the Capricorn, Waterberg, and Greater Sekhukhune Districts, can influence their daily visual experience, potentially altering their sense of place and connection to the landscape. The infrastructure's presence might be more noticeable in areas with less undulating terrain and fewer visual obstructions, affecting how the local environment is perceived and experienced.		
	Without Mitigation	**With Mitigation**
Extent	Regional (3)	Regional (3)
Duration	Permanent (5)	Permanent (5)
Magnitude	Low (4)	Minor (2)
Probability	Highly Probable (4)	Probable (3)
Significance	Medium (48)	Medium (30)
Status	Negative	Negative
Reversibility	High	High
Irreplaceable loss of resources?	No	No
Can impacts be mitigated?	Yes	Yes
Mitigation Measures		
• Strategic Infrastructure Placement: Position towers and associated infrastructure in a manner that minimises direct visibility from residential areas, especially from key viewpoints, where possible. • Vegetative Screening: Integrate native trees and shrubs into the landscape design around substations and along the power line corridor to create natural screens and soften the view, where required. • Community Involvement: Engage local communities in discussions about the grid connection infrastructure's design and layout to encourage a sense of involvement and address concerns. • Visual Simulations: Provide visual simulations to the community during the planning phase to offer a preview of the expected visual changes. Gather feedback to adjust designs where feasible.		

Cumulative Impact
Medium – The visibility of the grid connection infrastructure, in combination with other developments in the area, contributes to a changing visual landscape. Effective mitigation can manage this cumulative visual impact.
Residual Risks
Low to Medium – With mitigation measures implemented, the visibility impact of the grid connection on residents will be significantly reduced. However, some level of visibility will remain, particularly in open areas with few obstructions.

Impact: Visual Exposure		
Nature: The Borutho-Silimela 400kV Transmission Line, with its new overhead power lines and accompanying substations, will be significant additions to the Limpopo landscape. Visual exposure refers to the degree to which this infrastructure stands out as a dominant or noticeable feature in the visual landscape for observers at various distances and from different vantage points, including key areas within the Capricorn, Waterberg, and Greater Sekhukhune Districts.		
	Without Mitigation	**With Mitigation**
Extent	Regional (3)	Regional (3)
Duration	Permanent (5)	Permanent (5)
Magnitude	Low (4)	Minor (2)
Probability	Probable (3)	Probable (3)
Significance	Medium (36)	Medium (30)
Status	Negative	Negative
Reversibility	High	High
Irreplaceable loss of resources?	No	No
Can impacts be mitigated?	Yes	Yes
Mitigation Measures		

• Strategic Alignment and Siting: Optimise the alignment and siting of power lines and associated infrastructure to minimise visual exposure from key viewpoints, especially residential areas, where possible. • Vegetative Screening: Use vegetation to screen substations and minimise the visual impact of towers, particularly from residential viewpoints, where required. • Infrastructure Design: Implement design measures for towers and associated infrastructure that minimize visual intrusion, such as using colours and forms that blend with the natural environment, where possible. • Viewpoint Management: Identify and manage key viewpoints to minimise the visual impact from sensitive locations, such as residential areas and cultural sites.
Cumulative Impact
Medium – The addition of the grid connection infrastructure to the existing landscape could result in a cumulative visual change. However, effective mitigation can manage this impact.
Residual Risks
Low to Medium – With mitigation measures implemented, the residual risk of significant visual exposure will be reduced. However, some level of visual exposure is likely to remain, given the nature of the infrastructure.

6.6.3 Potential Impacts during Decommissioning Phase

Impact: Landscape Character and Visual Amenity		
Nature: The decommissioning phase of the Borutho-Silimela 400kV Transmission Line involves the removal of overhead power lines and associated structures. This process will temporarily disrupt the landscape and could lead to a transient alteration in its visual character. The removal of infrastructure might expose areas that have been altered during the construction phase, creating a temporary visual contrast in the Limpopo landscape.		
	Without Mitigation	**With Mitigation**
Extent	Regional (3)	Regional (3)
Duration	Short-Term (2)	Short-Term (2)
Magnitude	Moderate (6)	Low (4)
Probability	Probable (3)	Probable (3)

Significance	Medium (33)	Low (27)
Status	Negative initially, transitioning to Neutral	Negative initially, transitioning to Neutral
Reversibility	High	High
Irreplaceable loss of resources?	No	No
Can impacts be mitigated?	Yes	Yes

Mitigation Measures

- Gradual Dismantling: Implement a phased approach to decommissioning, gradually removing infrastructure to minimize abrupt changes in the landscape.
- Community Engagement: Communicate with local communities and stakeholders throughout the decommissioning process, addressing their concerns and preferences.
- Site Restoration: Prioritise immediate restoration of areas once infrastructure is removed, including replanting with native species to match the original landscape.
- Minimise Ground Disturbance: Utilise techniques that limit ground disturbance during the removal of infrastructure, preserving the integrity of the landscape.
- Effective Waste Management: Ensure responsible disposal and recycling of materials, leaving no harmful remnants in the environment.
- Monitor Restoration Progress: Continuously monitor the site's recovery post-decommissioning to ensure successful landscape restoration and address any emerging issues.

Cumulative Impact

Low – As the goal of decommissioning is to restore the landscape to its pre-construction state, the cumulative visual impact is expected to be minimal.

Residual Risks

Low – With effective mitigation measures and a strong focus on landscape restoration, the residual risk of significant visual disruption during the decommissioning process should be minimal.

Impact: Site Restoration

Nature: Site restoration for the Borutho-Silimela 400kV Transmission Line project involves returning the land to its original or near-original state following the decommissioning of the infrastructure. This process

includes the removal of power lines and associated structures, remediation of disturbed soils, and the re-establishment of native vegetation. The objective is to allow the land across the Capricorn, Waterberg, and Greater Sekhukhune Districts to revert to its prior use, be it agriculture, natural habitat, or other land uses, thus preserving the environmental integrity and visual character of the Limpopo landscape.

	Without Mitigation	**With Mitigation**
Extent	Regional (3)	Regional (3)
Duration	Long-Term (4)	Long-Term (4)
Magnitude	Low (4)	Moderate (6)
Probability	Probable (3)	Highly Probably (4)
Significance	**Medium (33)**	**Medium (52)**
Status	Positive	Positive
Reversibility	High	High
Irreplaceable loss of resources?	No	No
Can impacts be mitigated?	Yes	Yes

Enhancement Measures

- Native Vegetation Replanting: Use native and local plant species for replanting to ensure ecological compatibility and restore biodiversity.
- Soil Conservation Techniques: Apply soil conservation measures to prevent erosion and maintain soil health.
- Effective Water Management: Implement proper drainage and water management strategies to prevent issues like waterlogging or soil erosion.
- Monitoring and Adaptation: Conduct regular monitoring of the restoration progress, adapting techniques as necessary to achieve desired outcomes.
- Community Involvement: Engage with local communities, gathering feedback and addressing concerns related to the restoration process.
- Responsible Material Disposal: Ensure that all materials from decommissioned infrastructure are properly recycled or disposed of, preventing environmental contamination.

Cumulative Impact

Low – Proper site restoration aims to negate the impacts of the grid connection infrastructure, resulting in minimal cumulative effects in the landscape.
Residual Risks
Low – With diligent restoration efforts and continuous monitoring, the residual risk of negative impacts from the restoration process should be minimal.

6.6.4 Cumulative Impact Assessment

Cumulative impacts in the context of the Borutho-Silimela 400kV Transmission Line project involve the combined effects of this development with other past, present, or foreseeable future developments and actions in the area. These cumulative effects, which may be either positive or negative, contribute to the overall landscape and visual amenity changes.

The Borutho-Silimela 400kV Transmission Line project entails the installation of overhead power lines and associated infrastructure near Brakpan, Gauteng Province. This development, while necessary for enhancing power transmission capabilities, contributes to the changing visual landscape within the region.

Considerations for Cumulative Impact:

- Strategic Location: The project is part of a strategic initiative to improve electricity distribution efficiency since it falls withing a Strategic Transmission Corridor, specifically the International Corridor.
- Intervisibility with Other Developments: The cumulative visual impact considers the intervisibility of the grid connection with other developments, including any existing or planned infrastructure in the area.
- Landscape Transformation: The project adds to the existing landscape transformation, especially considering other utility and infrastructural developments in the area.
- Regional Importance: The project's role in the local electricity network underscores its strategic importance despite potential visual changes.

The potential cumulative impacts that were identified for the construction, operational and decommissioning phases, are discussed in the table below.

Nature of Impact
Construction, Operational and Decommissioning Phases: The potential cumulative visual impact of the Borutho-Silimela 400kV Transmission Line on the visual quality of the landscape.

	Overall impact of the proposed project considered in isolation (with mitigation)	Cumulative impact of the project and other projects within the area (with mitigation)
Extent	Regional (3)	Regional (3)
Duration	Long-Term (4)	Long-Term (4)
Magnitude	Low (4)	Moderate (6)
Probability	Probable (3)	Probable (3)
Significance	Moderate (33)	Moderate (39)
Status (positive, neutral, or negative)	Negative	Negative
Reversibility	High	High
Irreplaceable loss of resources?	No	No
Can impacts be mitigated?	Yes	Yes
Generic best practise mitigation/management measures		
Planning: • Strategic siting of infrastructure to minimise visibility. - Use of design and materials that blend with the landscape. Operations: • Regular maintenance to ensure a neat and orderly appearance of the infrastructure. • Minimise disruption to the local landscape. Decommissioning: • Efficient removal of all infrastructure. • Restoration and rehabilitation of the landscape to its original state or as close as possible. • Consultation with environmental specialists for restoration plans.		
Residual Impacts		
With full decommissioning and restoration, visual impacts are expected to be fully mitigated. However, any failure in complete removal or restoration may leave residual impacts.		

6.7 Heritage

The proposed construction of the transmission line has a high chance of impacting the heritage resources found on the proposed site, especially those on the northern portion close to the proposed irrigation dam. This section evaluates the extent of the impact with and without mitigation measures in relation to the project under study.

Evaluation of the impacts of the project on the heritage resource **WITHOUT** mitigation measures.

Aspect	Description	Weight
Probability	Improbable	1
	Probable	2
	Highly Probable	4
	Definite	5
Duration	Short term	1
	Medium term	3
	Long term	4
	Permanent	5
Scale	Local	1
	Site	2
	Regional	3
Magnitude/Severity	Low	2
	Medium	6
	High	8
Significance	Sum (Duration, Scale, Magnitude) x Probability	
	Negligible	≤20
	Low	>20≤40
	Moderate	>40≤60
	High	>60

Results: 5+3+8×5 = 80 i.e >60

This means without mitigation measures, the heritage resources will be impacted and its impact may render the project unacceptable.

*Evaluation of the impacts of project on the structures **WITH** mitigation measures.*

Aspect	Description	Weight
Probability	Improbable	1
	Probable	2
	Highly Probable	4
	Definite	5
Duration	Short term	1
	Medium term	3
	Long term	4
	Permanent	5
Scale	Local	1
	Site	2
	Regional	3
Magnitude/Severity	Low	2
	Medium	6
	High	8
Significance	Sum (Duration, Scale, Magnitude) x Probability	
	Negligible	≤20
	Low	>20≤40
	Moderate	>40≤60
	High	>60

Results: 4+1+6×1 = 11 i.e.≤20

The impact is non-existent or unsubstantial and is of no or little importance to any stakeholder and can be ignored.

6.7.1 Construction Phase Mitigation Measures

- During the construction phase, the contractor should keep within the proposed parameters of the site to avoid impacting on any heritage resources found outside of the proposed project site, this may include unknown burial grounds and graves;
- The contractor should induct all employees on the importance of heritage sites and resources that they should not be impacted in any way. This is to ensure that even if any heritage resources are found during the construction phase or exposed due to construction activities, should by no means be impacted or destroyed.
- Should any other heritage resources be found on site during the construction phase, be it archaeological artefacts such as stone tools and pottery; burial grounds and graves and structures; the contractor should cease construction immediately and contact the client. A heritage expert should be called to assess the site and the significance of the archaeological artefacts and the impacts of the proposed activities on such artefacts, and then provide mitigation measures.
- The possibility of uncovering unearthed human remains or shallow graves should not be ruled out. Should potential human remains be found on site, the contractor should cease construction immediately and the South African Police Service and the client should also be contacted. Should the remains be below 60 years old since time of death, it is considered a forensic case and further investigations will be conducted by the police and should the remains be above 60 years old since time of death, it becomes a South African Heritage Resources Agency case. This means an archaeologist should be called on site to remove the remains at the expense of the client.
- Following the latter point, NTCSA may decide whether to incorporate the heritage resources found within the proposed project or exhume and relocate; and this is at the expense of the developer. Should the developer choose to incorporate the findings within the proposed boundary, the following is recommended:
    - The graves must be left *in situ* and be incorporated into the development by barricading/fencing off with an entrance to ensure that they are protected while allowing access for the family. This is recommended as graves will remain protected and conserved.

Should NTCSA choose to relocate the findings within the proposed boundary, the following is recommended:

- A Phase 2 HIA will have to be conducted whereby a process of relocation will be conducted, and this include tracing the families (public participation) and reburial of the remains to another place as recommended by relevant family. All of which will be under the expense of the client. This should be conducted by a professional archaeologist.

- It should be noted that no heritage resources should be removed on site without a permit application from SAHRA.

6.7.2 Operation Phase

Impacts

No heritage impacts are anticipated during the operational phase.

Mitigation Measure

No mitigation measure proposed.

6.7.3 Decommissioning Phase

Impact

No heritage impacts are anticipated during the decomissioning phase.

Mitigation measure

No mitigation measure proposed

6.7.4 Cumulative Impacts

Impact

Activities such as vegetation clearance and soil removal, excavations and even duty vehicles have the potential of exposing archaeological materials and unknown graves and/or human skeletal remains, and might cause runoff of exposed unknown human remains if any.

Mitigation measure

During the aforementioned activities, heritage resources should be on the looked out for to prevent any damage.

6.8 Palaeontology

Based on the nature of the project, surface activities may impact upon the fossil heritage if preserved in the development footprint. The geological structures suggest that the rocks are much too old to contain fossils, are the wrong kind, or in the case of the Malmani Subgroup and Irrigassie Formation, might contain fossils stromatolites or plants, respectively. Since there is a small chance that fossils may occur in these two strata and may be disturbed a Fossil Chance Find Protocol has been added to this report. Taking account of the defined criteria, the potential impact to fossil heritage resources is mostly extremely low, with two sections low to moderate.

Criteria for assessing impacts

PART A: DEFINITION AND CRITERIA		
Criteria for ranking of the SEVERITY/NATURE of environmental impacts	**H**	Substantial deterioration (death, illness or injury). Recommended level will often be violated. Vigorous community action.
	M	Moderate/ measurable deterioration (discomfort). Recommended level will occasionally be violated. Widespread complaints.
	L	Minor deterioration (nuisance or minor deterioration). Change not measurable/ will remain in the current range. Recommended level will never be violated. Sporadic complaints.
	L+	Minor improvement. Change not measurable/ will remain in the current range. Recommended level will never be violated. Sporadic complaints.
	M+	Moderate improvement. Will be within or better than the recommended level. No observed reaction.
	H+	Substantial improvement. Will be within or better than the recommended level. Favourable publicity.
Criteria for ranking the DURATION of impacts	**L**	Quickly reversible. Less than the project life. Short term
	M	Reversible over time. Life of the project. Medium term
	H	Permanent. Beyond closure. Long term.
Criteria for ranking the SPATIAL SCALE of impacts	**L**	Localised - Within the site boundary.
	M	Fairly widespread – Beyond the site boundary. Local
	H	Widespread – Far beyond site boundary. Regional/ national
PROBABILITY (of exposure to impacts)	**H**	Definite/ Continuous
	M	Possible/ frequent
	L	Unlikely/ seldom

Impact Assessment

PART B: ASSESSMENT		
SEVERITY/NATURE	**H**	-
	M	-
	L	Soils do not preserve fossils; so far there are records only from the Malmani Subgroup and Irrigassie Fm of trace and plant fossils, respectively, in this region so it is very unlikely that fossils occur on the site. The impact would be negligible
	L+	-

PART B: ASSESSMENT		
	M+	-
	H+	-
DURATION	**L**	-
	M	-
	H	Where manifest, the impact will be permanent.
SPATIAL SCALE	**L**	Since the only possible fossils within the area would be trace fossils in the Malmani Subgroup dolomites and plant fossils in the shales of the Irrigassie Fm, the spatial scale will be localised within the site boundary.
	M	-
	H	-
PROBABILITY	**H**	**-**
	M	**-**
	L	It is extremely unlikely that any fossils would be found in the loose soils and sands that cover the area but a low chance that trace fossils occur in the Malmani Subgroup and fossil plants in the Irrigassie Fm. Nonetheless, a Fossil Chance Find Protocol should be added to the eventual EMPr.

6.9 Civil Aviation

It should be noted that the impacts were assessed based on the SACAA guidelines for assessment of risk, based on (a) the severity of risk associated with an event and (b) the likely consequence. In this case, the most severe event would be the consequence of an aircraft impacting an obstacle on the site or being affected by debris resulting from on-site activities, or the unlikely event of a major explosion. The approach is thus based on a 'with the development' versus a 'without the development' scenario. Based on Table below, with the exception of the aerodromes noted, the risk is thus assessed as '2A', indicating that minor mitigation measures will need to be introduced. These will relate mainly to updating the AIP and Aerodrome Register information of the FAMI (Marble Hall), FAQR (Potgietersrus), R170 (Tebogo), R214 (Die Boskamp) and R304 (TKB) aerodromes and marking of new obstacles in accordance with CATS 139.01, even if this mitigation is more 'operational' than 'environmental'.

Risk Assessment Table

RISK PROBABILITY		RISK SEVERITY				
		Catastrophic A	Hazardous B	Major C	Minor D	Negligible E
Frequent	5	5A	5B	5C	5D	5E

Occasional	4	4A	4B	4C	4D	4E
Remote	3	3A	3B	3C	3D	3E
Improbable	2	2A	2B	2C	2D	2E
Extremely Improbable	1	1A	1B	1C	1D	1E

Risk tolerability is deemed 'tolerable', indicating that some risk mitigation will be required from the developer in terms of CATS 139.30, relating to both the development activities and the marking of obstacles. In the case of aircraft operating near the affected aerodromes the standard operating procedures (PANS/OPS) laid down in the CARS (including Parts 91 and 135) provide for risk mitigation in the event of aircraft failure or other unexpected events, supplemented by the CATS relevant to operating of aircraft close to sites where fuel is stored, or other risk events are likely to occur. This scenario, however, is only likely after the commissioning of the facility.

Risk Tolerability Matrix Table

TOLERABILITY LEVEL	ASSESSED RISK INDEX	SUGGESTED CRITERIA
Intolerable	5A, 5B, 5C, 4A, 4B, 3A	Unacceptable in the existing circumstances
Tolerable	5D, 5E, 4C, 4D, 4E, 3B, 3C, 3D, 2A, 2B, 2C	Acceptable based on risk mitigation – may require a management decision
Acceptable	3E, 2D, 2E, 1A, 1B, 1C, 1D, 1E	Acceptable

6.9.1 Airspace Analysis, Radar and Communications Assessment

Some Key observations are:

- There are no civilian radar facilities within 35km of the proposed powerline.
- There are no aeronautical navigational facilities within 35km of the proposed powerline.
- There are aeronautical communication facilities, in the form of VHF forward relay stations at Mokopane (Potgietersrus) and at Ysterberg which are within 35km of the proposed powerline.

The powerline is not within 35km of any aeronautical navigation facilities. Moreover, the development is unlikely to cause Radio Frequency Interruption (RFI) within the VHF Spectrum. Overall, based on the foregoing discussion, risk was assessed as 1E and the risk tolerability has been assessed as 'Acceptable'.

6.9.2 Glint and Glare Impact

Three (3) km is regarded by the SACAA as the distance within which 'glint and glare issues might become problematic for facilities where highly reflective materials are likely to be used. A detailed glint and glare assessment would only be required if significant components of the facility (solar panels, glazing and roof materials, for example) are of a reflective nature and likely to cause 'glint' issues to air craft on approach. However, the proposed structures do not comprise of solar panels, glazing and roof materials.

6.9.3 Cumulative Impacts

There are no cumulative effects arising from the implementation of the powerline from an aviation safety and Aeronautical perspective.

6.10 Summary of Cumulative Impacts

The cumulative impacts that have the potential to be compounded through the development of the wind energy facility and its associated infrastructure in proximity to other similar developments include impacts such as those listed below. The role of the cumulative assessment is to test if such impacts are relevant to the proposed project in the proposed location (Refer to Figure:

- Unacceptable loss of threatened or protected vegetation types or species through clearing, resulting in an impact on the conservation status of such flora or ecological functioning;
- Unacceptable risk to aquatic habitat resulting due to the increase in the extent of hard or impermeable surfaces in the greater area;
- Unacceptable risk to avifauna through loss of habitat, infringement on breeding areas, or risk to collision-prone species;
- Unacceptable risk to bats through loss of habitat, infringement on roosting or breeding areas, or risk to collision-prone species;
- Unacceptable loss of high agricultural potential areas presenting a risk to food security and increased soil erosion;
- Complete or whole-scale change in sense of place and character of an area and unacceptable visual intrusion;
- Unacceptable loss of heritage resources; and
- Unacceptable increase in ambient noise levels, resulting in an impact on the normal functioning of the occupants of the area.

The proposed project falls within the Electricity Grid Infrastructure (EGI) corridor and as such there is one alternative/preferred route for consideration). The route that is being studied is 250m wide and the servitude route is pre-negotiated, negotiation is being finalised for the few outstanding servitudes. The servitude for

the proposed powerline will not be more than 90m wide and is located within the 250m wide preferred route. The cumulative impacts have been summarised in the table below.

Aspects	**Impacts**	**Significance Rating**	**Mitigation (Post mitigation)**
Terrestrial Biodiversity	Displacement of resident species	Positive Low	• No trapping or hunting of fauna is to take place. Access control must be implemented to ensure that no illegal trapping or poaching takes place; and • Limit the footprint area of the construction activity to what is absolutely essential in order to minimize environmental damage. • All areas of increased ecological sensitivity should be marked as such and be off limits to all unauthorised construction vehicles. **Recommended mitigation measures for construction phase:** • All areas of increased ecological sensitivity should be marked as such and be off limits to all

Aspects	Impacts	Significance Rating	Mitigation (Post mitigation)
			unauthorised construction vehicles. **Essential mitigation measures for operational phase:** • No trapping or hunting of fauna is to take place; and • Ensure that migratory connectivity is maintained where appropriate, especially in the sensitive faunal habitat unit areas.
Avifauna	Powerline collisions and electrocution risks for birds when flying	Negative Medium	The effective implementation and ongoing monitoring of required mitigations as suggested in the report will only reduce the impact scoring to a Negative medium impact. This is because collisions and electrocution risks are residual impacts and cannot be fully mitigated.
	Loss of Habitat for resident Species	Negative Low	Minimize development footprint and habitat transformation, rehabilitate with

Aspects	Impacts	Significance Rating	Mitigation (Post mitigation)
			indigenous flora and reserve indigenous vegetation throughout as far as possible
	Cumulative displacement of priority avian species from important habitats	Negative Low	Minimize development footprint and habitat transformation, limit ongoing human activity to the minimum required for ongoing operation, control noise pollution, rehabilitate with indigenous flora and reserve indigenous vegetation throughout as far as possible, limit roadways and vehicle speeds
Socio-Economic	An increase in employment opportunities, skills development, and business opportunities with the establishment of the NTCSA Borutho-Silimela 400 kV Transmission Line.	Medium Positive	• Adopt local employment policies to ensure that job creation benefits the community surrounding the transmission line. • Utilize local service providers for construction, maintenance, and operational needs to enhance business opportunities in the area. • Implement skills development

Aspects	Impacts	Significance Rating	Mitigation (Post mitigation)
			programs in partnership with local educational institutions and technical training centers to prepare the local workforce for opportunities arising from the project and other similar developments in the region.
	Negative impacts and change to the local economy with an in-migration of labourers, businesses, and jobseekers to the project area.	Low Negative	• Develop and enforce a local recruitment policy to prioritize hiring from the surrounding communities, thereby reducing the need for extensive in-migration. • Collaborate with local government agencies and community organizations to align the project's development with the local area's needs, ensuring that service provisions meet the requirements of both existing residents and newcomers.

Aspects	Impacts	Significance Rating	Mitigation (Post mitigation)
			• Establish joint ventures or partnerships with community organizations, potentially through Trusts, to provide tangible benefits to local communities, including employment opportunities and essential services. • Formulate and distribute a clear recruitment protocol in partnership with the local municipality and community leaders, ensuring transparent communication about employment processes.
Soil and Agricultural Potential	Impact on agriculture is minimal.	Low Negative	N/A
Visual	Construction, Operational and Decommissioning Phases: The potential cumulative visual impact of the Borutho-Silimela 400kV Transmission Line on	Medium Negative	Planning: • Strategic siting of infrastructure to minimise visibility. - Use of design and materials that blend with the landscape. Operations:

Aspects	Impacts	Significance Rating	Mitigation (Post mitigation)
	the visual quality of the landscape.		• Regular maintenance to ensure a neat and orderly appearance of the infrastructure. • Minimise disruption to the local landscape. Decommissioning: • Efficient removal of all infrastructure. • Restoration and rehabilitation of the landscape to its original state or as close as possible. • Consultation with environmental specialists for restoration plans.
Heritage	Activities such as vegetation clearance and soil removal, excavations and even duty vehicles have the potential of exposing archaeological materials and unknown graves and/or human skeletal remains, and might cause runoff of exposed unknown human remains if any.	Low	During the aforementioned activities, heritage resources should be on the looked out for to prevent any damage.

Aspects	Impacts	Significance Rating	Mitigation (Post mitigation)
	During the aforementioned activities, heritage resources should be on the looked out for to prevent any damage.		
Palaeontology	Impact upon the fossil heritage.	Low	N/A
Civil Aviation	There are no cumulative effects arising from the implementation of the powerline from an aviation safety and Aeronautical perspective.	Low	N/A

Cumulative impacts and benefits on various environmental and social receptors will occur to varying degrees with the development of grid infrastructure in South Africa. The confidence in the degree of significance of these cumulative impacts is Low to Medium significance. The current study assesses the cumulative impacts on the basis of current and best available information, with precautionary assumptions taken into account.

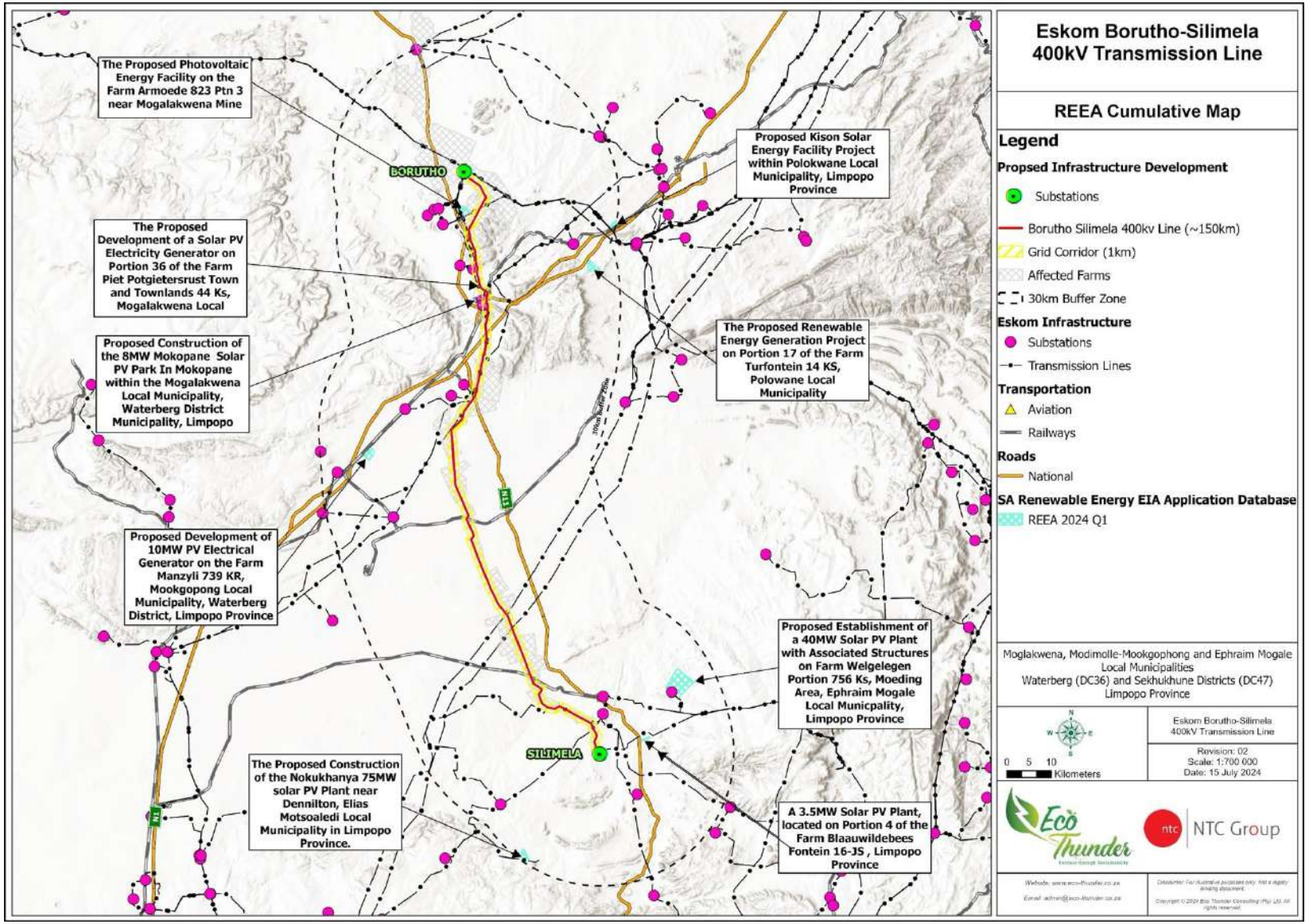


Figure 21: Cumulative Map

7. Conclusion and Recommendations

The proposed project entails the proposed construction of the Borutho-Silimela 400kV powerline and its associated infrastructure. The length of the powerline is approximately 150km. The proposed power line is located between the Borutho Substation on farm Gillimberg 861 in Mokopane and runs south to the Silimela Substation on farm Loskop Noord 12, near Marble Hall within the Lepelle-Nkumpi, Mogalakwena, Modimolle-Mookgophong and Ephriam Mogale Local Municipalities, Limpopo Province. The construction of the power line will aid NTCSA in strengthening the power supply within Limpopo Province.

The scope of work entails:

- Equip 1 x 400kV feeder bay at Borutho Substation for Silimela Line 1.
- Equip 1 x 400kV feeder bay at Silimela Substation for Borutho Line 1.
- Build approximately 150km 400kV line from Borutho Substation to Silimela Substation, with associated extensions at the terminal substations.

The proposed project is located within the Electricity Grid Infrastructure (EGI) Corridor referred to as the International Corridor, therefore triggers the Basic Assessment Process in terms of the Environmental Impact Assessment Regulations, 2014 (as amended) promulgated in terms of Chapter 5 of the National Environmental Management Act 1998 (Act No 107 of 1998).

7.1 Summary of the findings and Recommendations

The preceding chapters of this report together with the specialist studies contained within Appendices **E - M** provide a detailed assessment of the potential impacts that may result from the construction of the 400kV power line and associated infrastructure. A summary of the recommendations and conclusions for the proposed project is provided in this Section of the report.

In so doing, it draws on the information gathered as part of the BA process, the knowledge gained by the environmental specialists and the EAP and presents a combined and informed opinion of the environmental impacts associated with the project.

No environmental fatal flaws or unacceptable impacts were identified in the detailed specialist studies conducted, provided that the recommended mitigation measures are implemented. These measures include, amongst others, the avoidance of sensitive features within the development footprint and the undertaking of the construction and operational bird and bat monitoring, as specified by the specialists.

The potential environmental impacts associated with the construction of the 400kV power line and the associated infrastructure identified and assessed through the BA process include:

- Impacts on ecology, flora and fauna.
- Impacts on freshwater resources.
- Impacts on avifauna.
- Impacts on land use, soils and agricultural potential.
- Impacts on heritage resources, including archaeology and palaeontology the cultural landscape.
- Positive and negative socio- economic impacts.
- Impacts on Civil Aviation Infrastructure.

The environmental sensitivities identified by the relevant specialists for the project site are illustrated in Figure 23 to Figure 30. The development footprint, as assessed, has been overlain with the relevant environmental sensitivities.

7.1.1 Terrestrial Biodiversity Assessment

The impacts assessment ratings will be mostly Negative medium impact to Negative low impact from a specialist perspective. However, considering the aforementioned conservation status of the footprint bioregion and the recommended mitigations are not implemented, the project will drastically have an overall Negative high impact which should be avoided by the applicant.

Important recommendations for the conservation of the current vegetation structure

- The proponent must be committed to a conservation approach of practice and the actual footprint of disturbance must be kept to a minimum.
- As much of the natural environment must be conserved, there should be minimal vegetation clearing.
- Relocation of important species, identification and demarcation of specimens and sub habitats not to be disturbed will have to be done beforehand by a specialist.
- Important species (flora) that will be threatened by the development must be relocated to safer habitats by suitable specialists.
- Preventative erosion control measures to be put in place.
- Conduct alien invasive species monitoring on an annual basis.

Important recommendations for conservation of fauna species

- The proponent must be committed to a conservation approach of practice and the actual footprint of disturbance must be kept to a minimum.
- Relocation of important species, identification and demarcation of specimens and sub habitats not to be disturbed will have to be done beforehand by a specialist.

- Important species (fauna) that will be threatened by the development must be relocated to safer habitats by suitable specialists.
- Preventative erosion control measures to be put in place.

Specific conditions recommended for the EA from a biodiversity perspective

- Implement mitigation controls during the construction phase as specified in the mitigation requirements. Monitor and report on their effectiveness.
- Implement mitigation controls during the operational phase as specified in the mitigation. Monitor and report on their effectiveness.
- Monitoring of implementation of mitigation controls, along with reporting, should be undertaken at least quarterly throughout the construction phase, and bi-annually during the operational phase. Monitoring, at the minimum, should consist of a quarterly monitoring of the development area;
- As much of the natural habitat as possible should be preserved during construction and operation to lessen the operational impacts and to reduce the irreversibility of impacts.
- Effective restoration of the natural habitats that were intact before the development should be implemented and reported on after decommissioning.

7.1.2 Wetland Assessment

The majority of the watercourses in the study area are likely to have been impacted by agriculture and cattle farming to varying degrees, as well as mining in some areas. However, most of the proposed line is located on parts of the country that is very sparsely inhabited. Consequently, impacts to watercourses are relatively less significant compared to denser populated areas. Numerous waterbodies occur within the 250m route discussed in this report. The watercourses (including the buffer zones) directly crossed by the proposed development are the ones likely to be potentially impacted and form the main focus of this report.

The risk scores fall in the Low category. Authorisation may proceed through a General Authorisation given that mitigation measures are effectively implemented. The risk scores fall in the Low category. Authorisation may proceed through a General Authorisation given that mitigation measures are effectively implemented. It should be noted that Appendix D2 of GN 509 states that the construction of new transmission or distribution powerlines, minor maintenance on roads, river crossings, towers and substations, where the footprint remains the same, are exempt from a WUL.

From the impact assessment undertaken it is evident that during construction phase, prior to mitigation impacts on loss of habitat and ecological structure, as well as impacts on hydrological function and sediment balance are medium-high level impacts. However, should mitigation be implemented, the impacts will be reduced to medium-low level impacts. The impacts on ecological and sociocultural service provision, impacts on floral species as well as impacts on floral species are medium-low level impacts prior to

mitigation. However, should mitigation be implemented, the impacts will be reduced to low level impacts. The impacts on faunal species will be low prior to mitigation and very-low should mitigation be implemented. During operational phase, prior to mitigation impacts on habitat and ecological structure, ecological and sociocultural service provision as well as hydrological function and sediment balance are low level impacts. Furthermore, the impacts on floral species and faunal species are very low significance impacts. However, should mitigation be implemented all impacts will be reduced to very-low significance impacts.

Several recommended mitigation measures are made to minimise the impact on the watercourses. Key mitigation measures include (but are not limited to):

- No construction may take place within the wetlands or 100m GN704 Zone of Regulation. Additionally, the wetlands and 100m GN704 Zone of Regulation must be demarcated as a no-go area;
- No stockpiles are to be permitted within the 100m GN704 Zone of Regulation;
- Exposed soil and stockpiles must be protected from wind by covering with a suitable geotextile such as hessian sheeting and ensure no stockpiles are higher than 2m;
- Dust suppression measures must be implemented throughout construction to prevent excessive dust which may smother wetland vegetation; and
- A site-specific rehabilitation plan, including an alien invasive plant (AIP) management plan, must be compiled and implemented. AIPs should be removed by hand and no machinery should be allowed in the wetlands.

7.1.3 Avifauna

The proposed powerline development is situated in an area of High animal sensitivity. Acquired historical data indicated the dominance of Least Concern species with a very moderate diversity of individuals. As a result, from an avifaunal perspective, there is no objection to the development of the proposed powerline development and associated infrastructure, provided that the recommended mitigation measures are strictly followed. The overall impacts (including cumulative) for the project are considered to be Negative low should the mitigation recommendations be effectively implemented.

Specific conditions recommended for the EA from an avifaunal perspective

- Implement mitigation controls during the construction phase as specified in the mitigation requirements. Monitor and report on their effectiveness.
- Implement mitigation controls during the operational phase as specified in the mitigation. Monitor and report on their effectiveness.
- Monitoring of implementation of mitigation controls, along with reporting, should be undertaken at least quarterly throughout the construction phase, and bi-annually during the operational phase.

Monitoring, at the minimum, should consist of a quarterly monitoring of the powerline area for evidence of collisions and electrocution risks.

- Preserve as much of the natural habitat as possible during construction and operation to lessen the operational impacts and to reduce the irreversibility of impacts.
- Effective restoration of the natural habitats that were intact before the development should be implemented and reported on after decommissioning.

7.1.4 Soil and Agricultural Potential

The study area has a Semi-Arid climate, making the cultivation of dry land crops possible but challenging. The area is dominated by the Ae broad land type, characterized by freely drained, deep, red, sandy soils. The soil capability varies across the proposed transmission line, with the southern part having a high capability (3-8), the central region having a moderate to high capability (4-7), and the northern part having a very low to moderate capability (1-6). The land capability also varies, with the northern part being non-arable and having low capability (5-7), while the central and southern parts are arable with moderate to high capability (8-11). The South African National Land-Cover 2020 (SANLC 2020) shows little change in land use since 2014, with the area predominantly classified as forested area, grassland, and both pivot irrigated and non-irrigated agricultural lands in the south.

A total of 35 soil and land use observations were made in the portion from the Elandsrivier to the Silimela substation, with 21 conducted on the Burutho-Silimela Transmission Line Deviation Route and 14 additional or shifted observations due to inaccessible areas. The prevalent soil forms identified were Vaalbos, Mispah, and Hutton soils, with other soil forms such as Avalon, Bainsvlei, and Nkonkoni identified in the south of the study area, close to the Silimela Substation. Land capability calculated from the field assessed portion of the line shows varying land capability across different areas. The southern part predominantly has high land capability, while the central and northern parts have predominantly low land capability.

The impact assessment identified soil erosion, compaction, and surface sealing as minor impacts. However, the loss of agricultural land was flagged as a moderate-to-high impact, necessitating mitigation measures (refer to Figure 21 below).

The deviation in the Burutho - Silimela 400 kV Transmission Line is supported from an agricultural perspective with the following conditions:

- No placement of surface infrastructure within cropped fields, particularly in irrigated and citrus fields.
- Construction must interfere with agricultural activities.
- During construction, large vehicles and building equipment need to keep largely to the infrastructure footprint to not cause compaction and sealing further than the footprint.
- Perimeter fence, particularly in the game and grazing farms.

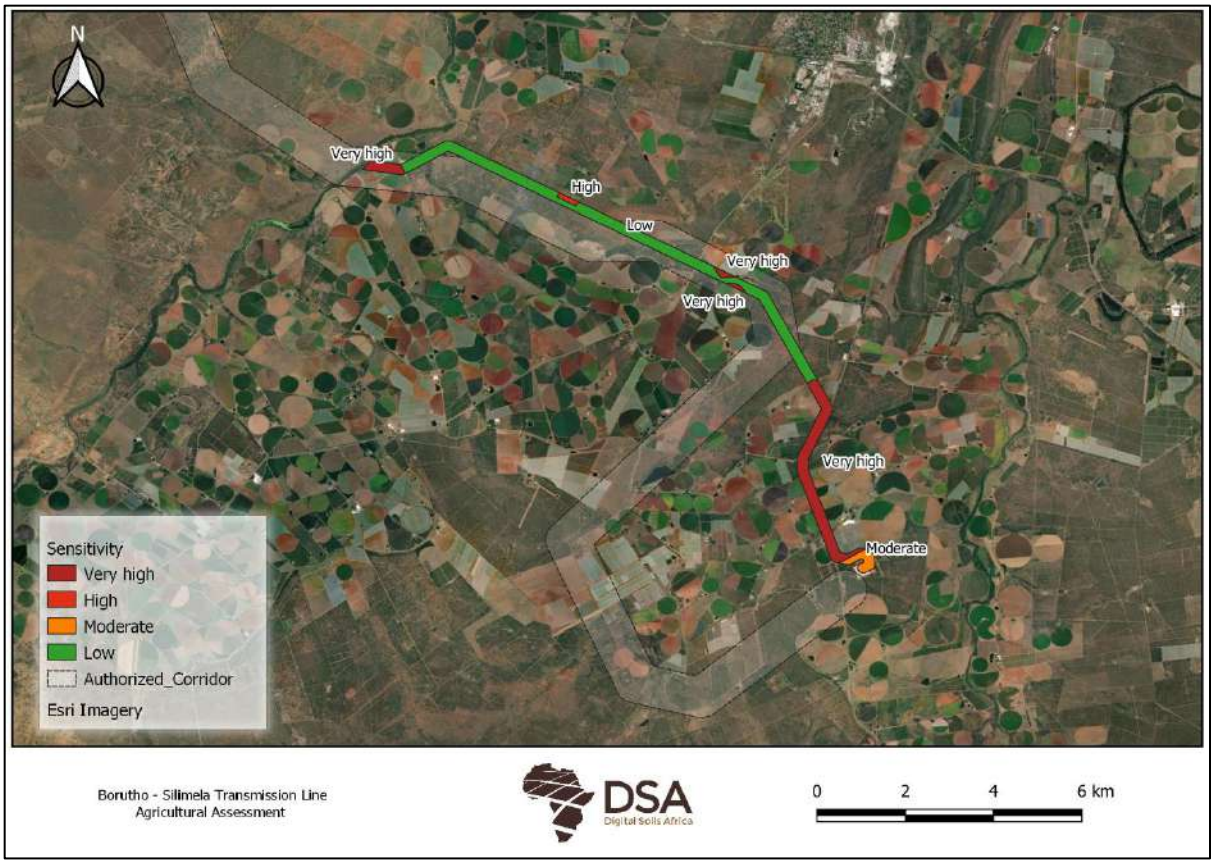


Figure 22: Sensitivity of the surveyed area

7.1.5 Social Impacts

From a social perspective it is concluded that the project is supported, but that mitigation measures should be implemented and adhered to. Positive and negative social impacts have been identified. The assessment of the key issues indicated that there are no negative impacts that can be classified as fatal flaws, and which are of such significance that it cannot be successfully mitigated. Positive impacts could be enhanced by implementing appropriate enhancement measures and through careful planning.

Based on the social assessment, the following general conclusions and findings can be made:

- The development of an overhead powerline is a critical step in addressing the socio-economic challenges faced by residents. The assessment identified key issues such as inadequate access to water, electricity, sanitation, and safety concerns. By developing these services, the project aims to improve living conditions, enhance safety, and provide equal opportunities for all residents.

- The proposed development aligns with the national, provincial, and local policy frameworks, emphasizing the importance of inclusive housing development, improved service delivery, and sustainable urban development. It supports the goals outlined in the National Development Plan and various housing policies, which prioritize the provision of basic services and the enhancement of living conditions in informal settlements.

- The development of an overhead powerline will have positive socio-economic impacts. Job creation is expected during the construction phase, stimulating local economic activity through the procurement of construction materials and services. It also offers opportunities for skills development and training for the local labour force, contributing to improved employment prospects and income generation. The project will result in enhanced access to basic services and amenities, improving the standard of living and quality of life for affected communities.

- The stakeholder engagement process played a vital role in shaping the project. Community members and other stakeholders provided valuable insights and feedback, highlighting the importance of basic services, job opportunities, and addressing major social issues. The overwhelming support for the proposed development underscores the recognition of its potential benefits in improving the socio-economic well-being of the community.

- Mitigation measures are necessary to address potential negative impacts associated with the construction and operational phases. Temporary inconveniences and disruptions during construction should be minimized through effective project management and communication. Challenges in managing and maintaining the formalized services effectively require the implementation of efficient management practices, ongoing monitoring, and community engagement. Measures should also be in place to manage and resolve potential conflicts or disputes related to the allocation of formalized services.

- The cumulative impacts of the project can contribute to sustained economic growth, improved infrastructure development, and enhanced local services. Economic growth will be driven by job creation, increased business activity, and revenue generation. Infrastructure development will result in improved transportation networks, utilities, and community facilities, enhancing access to services.

- However, the cumulative impacts also present challenges that need to be addressed. The increased demand on resources, including water, energy, and land, must be managed efficiently to prevent scarcity and environmental degradation. Measures should be in place to minimize social displacement and avoid exacerbating socio-economic inequalities. Environmental degradation, including habitat loss, pollution, and resource depletion, must be mitigated through robust environmental management strategies.

- By considering diverse viewpoints and suggestions, the final Socio-Economic Impact Assessment (SIA) will provide a comprehensive analysis of potential socio-economic impacts. This will ensure that decision-makers have a complete understanding of the project's implications, enabling them to make informed decisions that maximize benefits and minimize adverse effects.

- The proposed NTCSA Burotho-Silimela development in the Limpopo area is a crucial step in addressing socio-economic challenges, enhancing quality of life, promoting equitable development, and creating sustainable opportunities for the community. By considering affordability, implementing mitigation measures, and engaging stakeholders, the project can maximize its positive impacts while minimizing any negative consequences. The project's alignment with policy frameworks and its potential to contribute to sustained economic growth, improved infrastructure, and enhanced local services make it a promising endeavour for the socio-economic development of the area.

The following recommendations are made based on the SIA and a thorough review of the concerns and suggestions raised by stakeholders and interested and affected parties during the stakeholder engagement process. The proposed mitigation measures should be implemented to limit the negative impacts and enhance the positive impacts. Based on the social assessment, the following recommendations are made:

- **Employment and Economic Stimulation:** Given the scarcity of job opportunities for the unskilled and semi-skilled in the study area, it is recommended that local labour be utilized to enhance the positive impact of employment creation. This will also mitigate potential negative impacts associated with the inflow of outsiders to the area, increased pressure on infrastructure and services, and safety and security concerns. Local businesses should be involved in construction activities where possible.

- **Local Supplier Inclusion:** To enhance the multiplier effect, locals should be allowed an opportunity to be included in a list of possible local suppliers and service providers. This will further stimulate the local economy and offer valuable income opportunities for local residents.

- **Infrastructure and Land Use:** The project's location amidst active agricultural and mining lands means that collaboration with local farmers and industries is essential. A plan that minimizes disruptions to agricultural activities, especially in the farms listed under the project's purview, should be developed. Additionally, leveraging existing infrastructure, such as roads, can reduce both environmental and social impacts, ensuring that the project integrates seamlessly into the existing landscape. Given the potential increase in demand for local services such as housing, healthcare, transportation, and education, it is recommended that the project collaborates with local authorities and stakeholders to develop plans and support mechanisms to address these needs. This could include initiatives such as housing plans, healthcare capacity enhancement, transportation infrastructure upgrades, and educational planning and investment.

- **Mitigation of Construction Impacts:** Measures should be put in place to carefully mitigate impacts associated with the construction period, such as dust and noise pollution. This will ensure minimal disruption to the local community and environment.
- **Safety and Security:** Safety and security concerns should be considered during the planning and construction phases of the proposed project. Given that the mine is access controlled and has safety and security measures in place, these should be extended to the overhead powerline development.
- **Agricultural Collaboration:** Engage with local farmers to explore opportunities for dual land use. For instance, certain crops or livestock might coexist with 400kV power line.
- **Community Engagement:** The facility should work through a community liaison officer to ensure that the local community is kept informed about the project and any potential impacts. This will also provide a channel for addressing any concerns or grievances that may arise.

By implementing these recommendations, the proposed development can ensure that it contributes positively to the local community and economy, while minimizing any potential negative impacts.

7.1.6 Visual Impacts

Environmental and Visual Context:

Set against the diverse and natural backdrop of the Limpopo Province, the project traverses a landscape characterised by a tapestry of biodiversity and cultural heritage. The Visual Impact Assessment (VIA) takes into consideration the area's Visual Absorption Capacity (VAC), the dynamic interplay of natural and anthropogenic features, and the absence of significant cultural or landscape resources within the immediate vicinity of the proposed development.

Visual Impact Assessment (VIA) Findings:

The VIA identifies that the visual impacts of the Borutho-Silimela project, while notable, can be substantially mitigated through diligent planning and design. The region's inherent VAC, alongside the existing infrastructure network, positions the project favourably for visual integration. Strategic siting of the transmission line within the established landscape, utilising natural contours for screening and aligning with current visual corridors, contributes to the mitigation of potential visual impacts.

Mitigation and Design Strategies:

A series of design and mitigation strategies are set to be implemented to minimise the visual imprint of the Borutho-Silimela project. These measures include the use of existing vegetative screening, the careful alignment of structures to follow the natural topography, and the employment of design elements that reflect the region's visual characteristics. The project is committed to using materials and colours that blend with

the local environment to ensure that the transmission line infrastructure is visually assimilated into the existing landscape.

7.1.7 Heritage

The level of significance of the site and the cultural resources varies between social, historical, spiritual, scientific and aesthetic value.

Social value is when a place has become a focus of spiritual, political, national, or other cultural sentiments to a majority or minority group. This may be because the site is accessible and well known, rather than particularly well preserved or scientifically important (SAHRA Regulations). The proposed route has no social value.

Historical value refers to areas where historical events took place, and such events have high significance either locally, regionally, provincially or nationally. The proposed route does not traverse in areas of historical significance.

Scientific value refers to the importance of the study area for research purposes. The proposed route has no scientific value.

Aesthetic value refers to the unique beauty of the site. No aesthetic value found on the proposed route.

Based on the level of significance, the proposed route traverse in areas of low heritage significant from a heritage perspective. Cemeteries in the vicinity and a dilapidated structure were noted. Some portions of the route have been previously disturbed by the existing power line. Chances of finding burial grounds and graves and/or any other archaeological material on the proposed route should not be ruled out especially during construction phase. The proposed project may proceed provided mitigation measures and recommendations provided are adhered to and implemented.

7.1.8 Palaeontology

Based on the geology of the area and the palaeontological records, it can be assumed that the formation and layout of the dolomites, sandstones, shales and sands are typical for the country and only some do contain trace fossils or fossil plant material. The overlying sands and soils of the Quaternary period would not preserve fossils. It should be noted that most of the route is along disturbed ground, on road servitudes or adjacent to the existing power lines.

There is a small chance that fossils may occur in the Malmani Subgroup dolomites (Farm Rietfontein 2) and the southern section Irrigassie Formation (Farms Doringstock 623 and Rondeberg 624). There is a very small chance that fossils might occur in the route sections indicated as orange on the SAHRIS

palaeosensitivity map. Therefore, a Fossil Chance Find Protocol should be added to the EMPr. If fossils are found by the contractor, environmental officer, or other responsible person once excavations for tower foundations and infrastructure have commenced then they should be rescued, and a palaeontologist called to assess and collect a representative sample. The impact on the palaeontological heritage would be very low for most of the route but low for two sections (refer to Table 16) of the National Environmental Management Act 1998 (Act No 107 of 1998).

Table 18: Summary of palaeontology for the sections of the Boruthro – Silimela 400kV power line route. FCFP = Fossil chance find protocol. FCFP = low to moderate sensitivity; FCFP = low sensitivity.

Pal section	Route, north to south	Geology	Palaeontology	Action required
1	Boruthro SS to Mokopane	Rhr, Rt	No fossils	None
		Vmd	Stromatolites	**FCFP**
		Vg	No fossils	None
		Vt	Possible fossils	FCFP
2	Mokopane to Roedtan	Vt	Possible fossils	FCFP
		Vg	No fossils	None
		Jd	No fossils	None
3	Roedtan to Marble Hall	Tr	No fossils	None
		P-Tr	Fossil plants	**FCFP**
		Vmq	No fossils	None
		Mn	No fossils	None
		Pe	Possible plants	FCFP
4	Marble Hall to Silimela SS	Vhq	No fossils	None
		Mn	No fossils	None
		Pe	Possible plants	FCFP
		Mn	No fossils	None
		Vde	No fossils	None

7.1.9 Civil Aviation

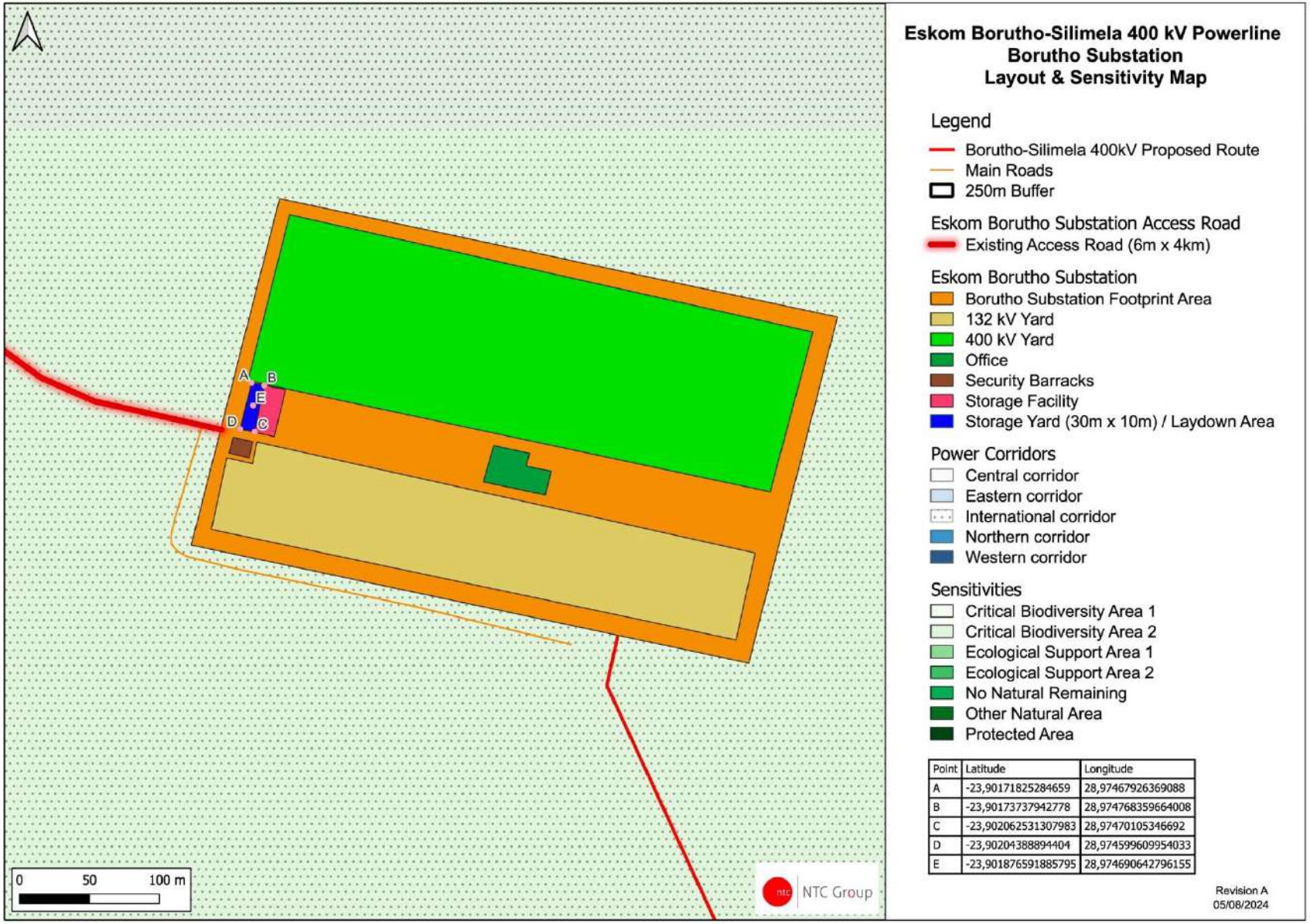
The analysis contained in this Aeronautical/Civil Aviation Study has determined:

- The proposed development is compliant with all relevant ICAO Annex 14 and SACAA (CARS and CATS) standards in respect of obstacle limitation surfaces and can therefore be supported for purposes of environmental approval.

- The proposed development will not materially impact civilian radar, navigation or communications infrastructure in the environs, nor present any material additional risks to operations at the aerodromes identified as potentially affected, currently or in the future.

- CAA Obstacle Approval processes per CA139.27 will need to be complied with, and amended aerodrome operating procedures will need to be implemented in due course.

On this basis, the recommendation of this CASS is that the sensitivity status of the proposed development be amended to ‘low’.



Point	Latitude	Longitude
A	-23,90171825284659	28,97467926369088
B	-23,90173737942778	28,974768359664008
C	-23,902062531307983	28,97470105346692
D	-23,90204388894404	28,974599609954033
E	-23,901876591885795	28,974690642796155

Figure 23: Environmental Sensitivities at the Borutho Substation

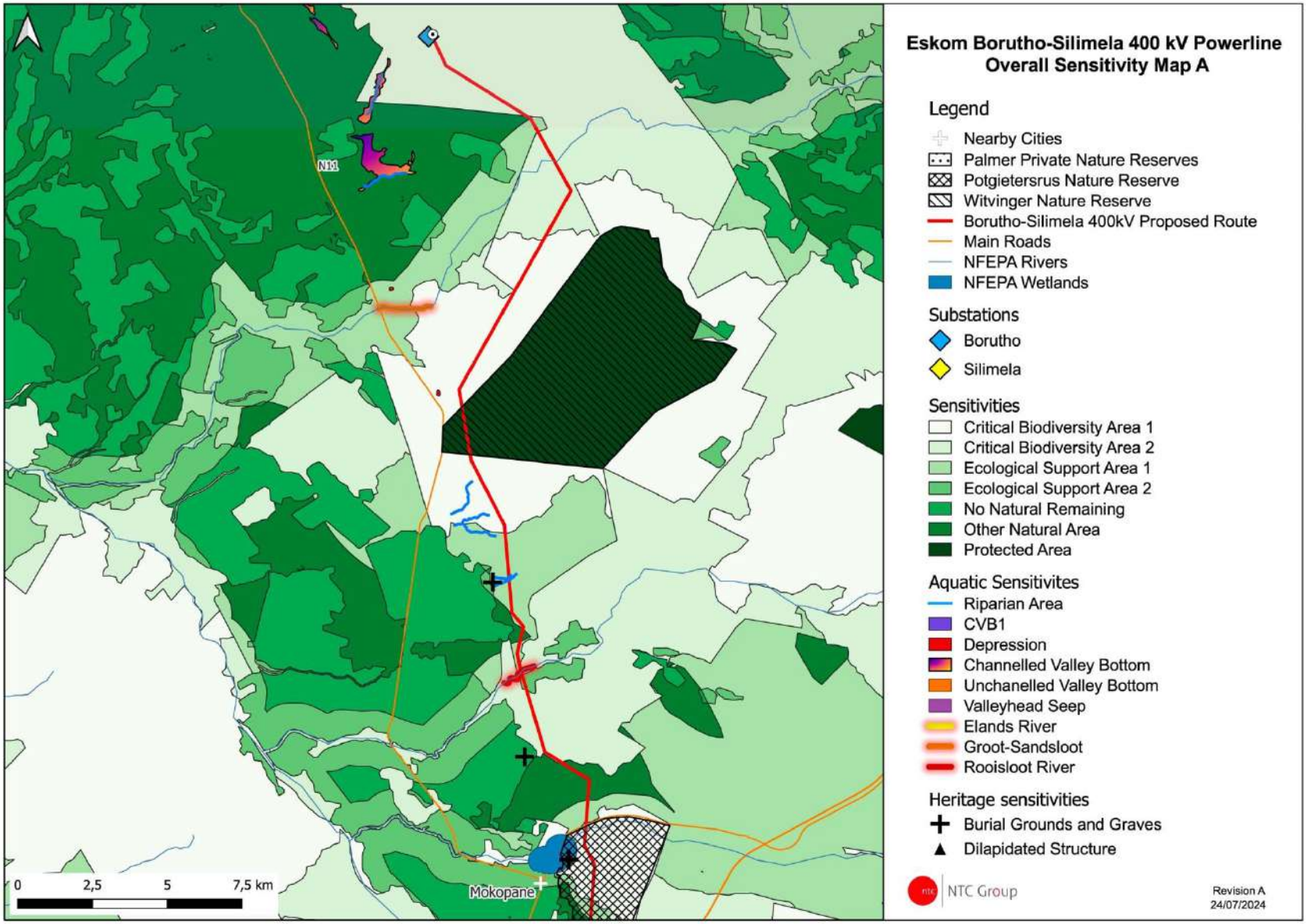


Figure 24: Environmental Sensitivity Map A

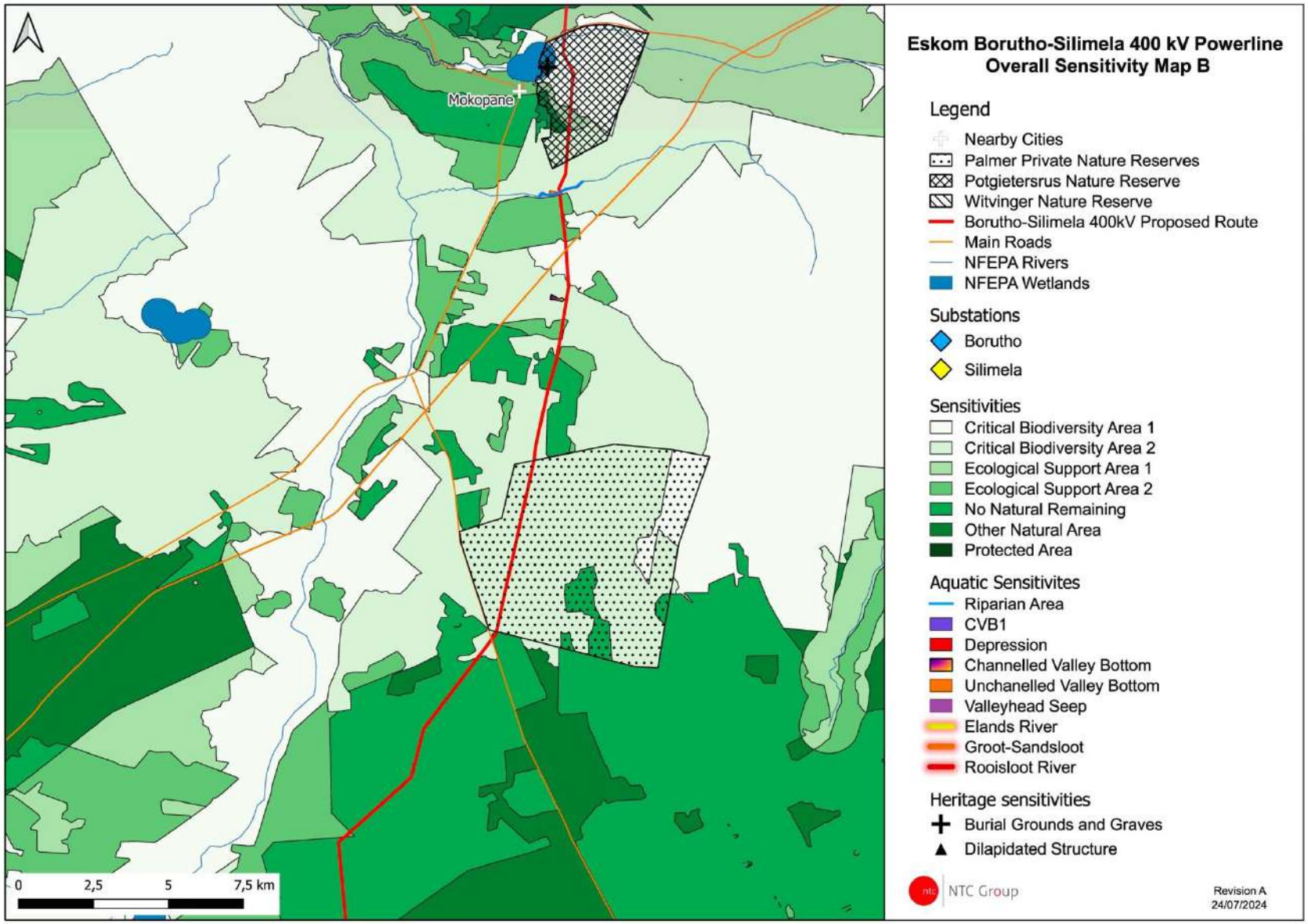


Figure 25: Environmental Sensitivity Map B

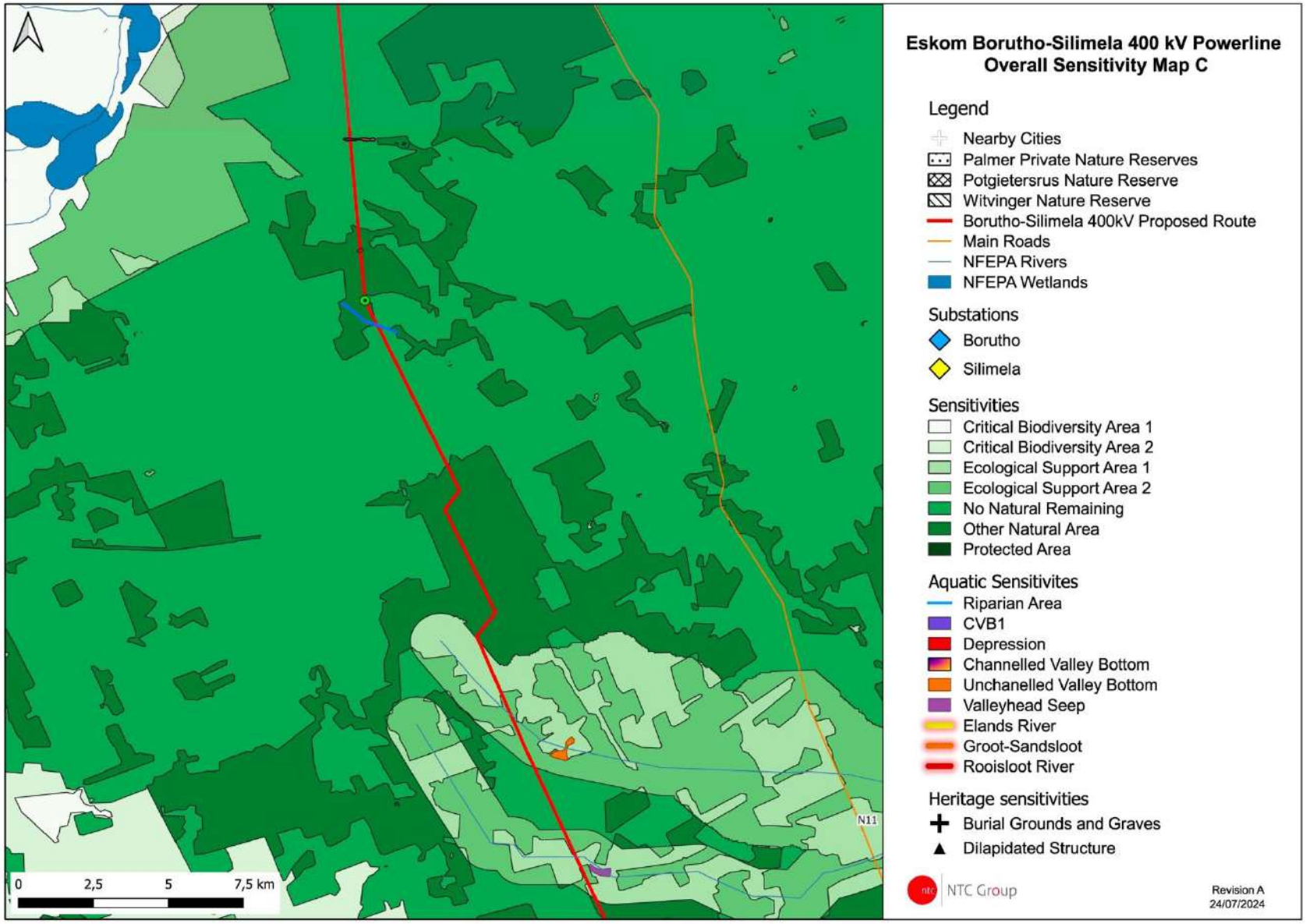


Figure 26: Environmental Sensitivity Map C

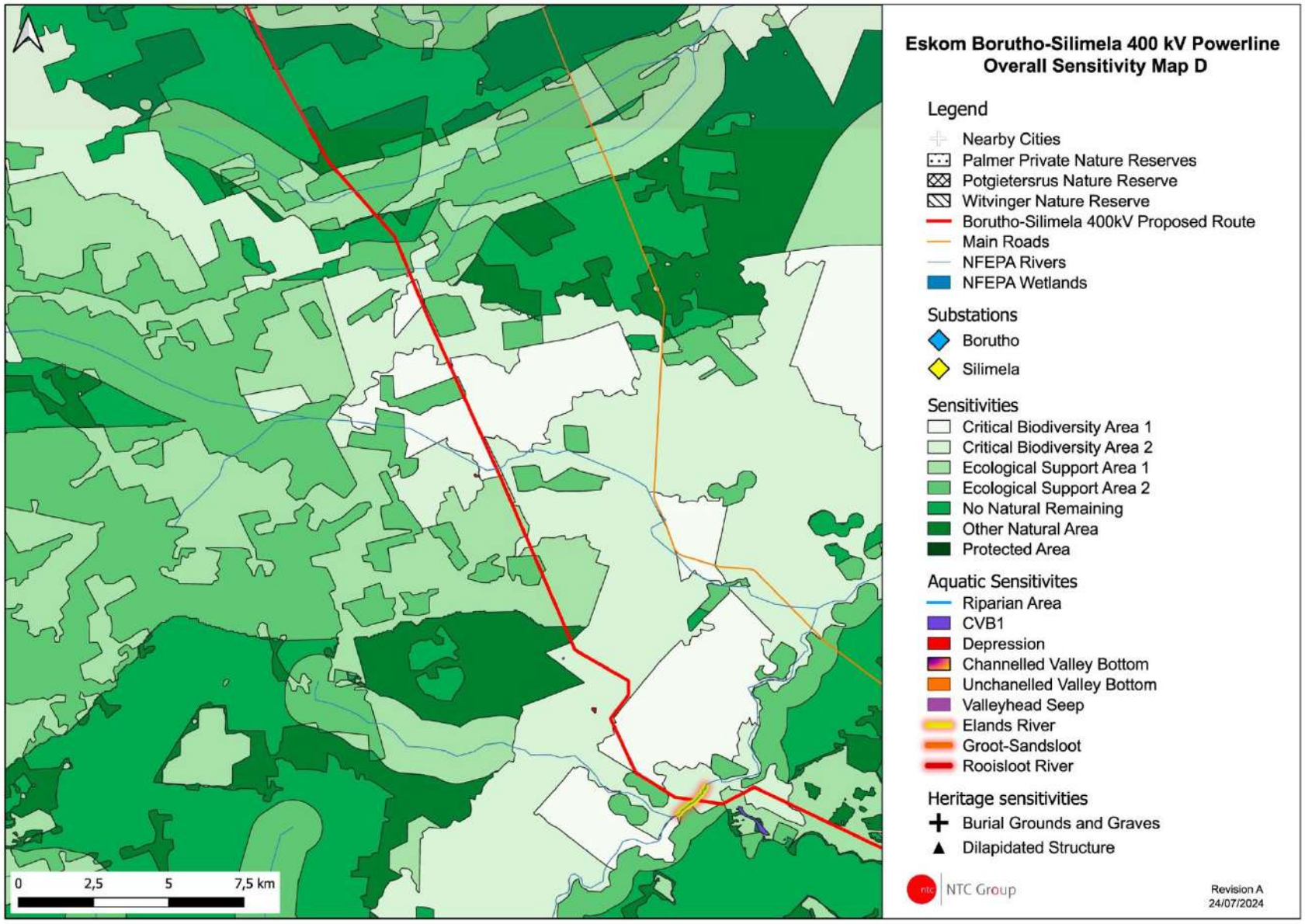


Figure 27: Environmental Sensitivity Map D

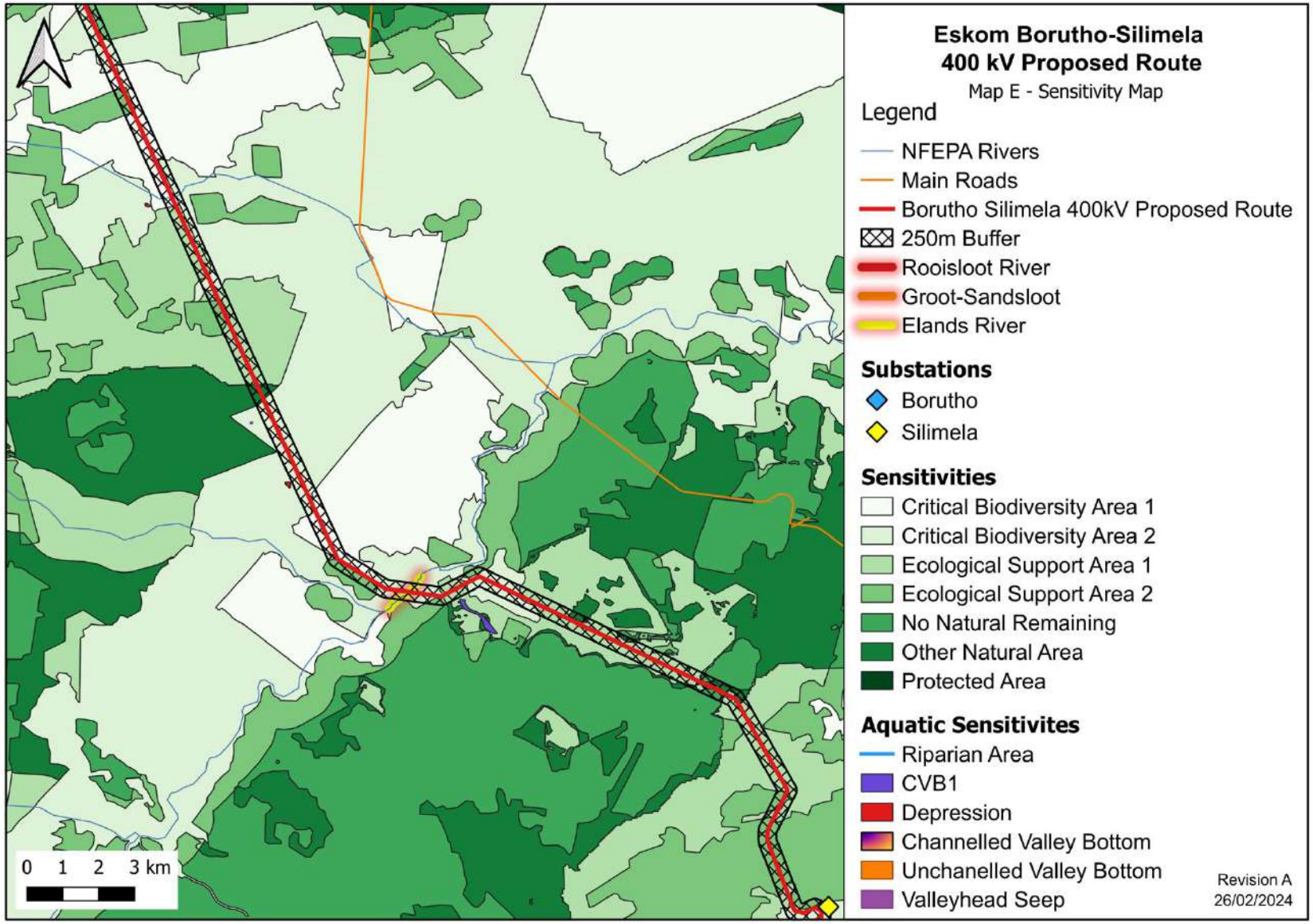


Figure 28: Environmental Sensitivity Map E

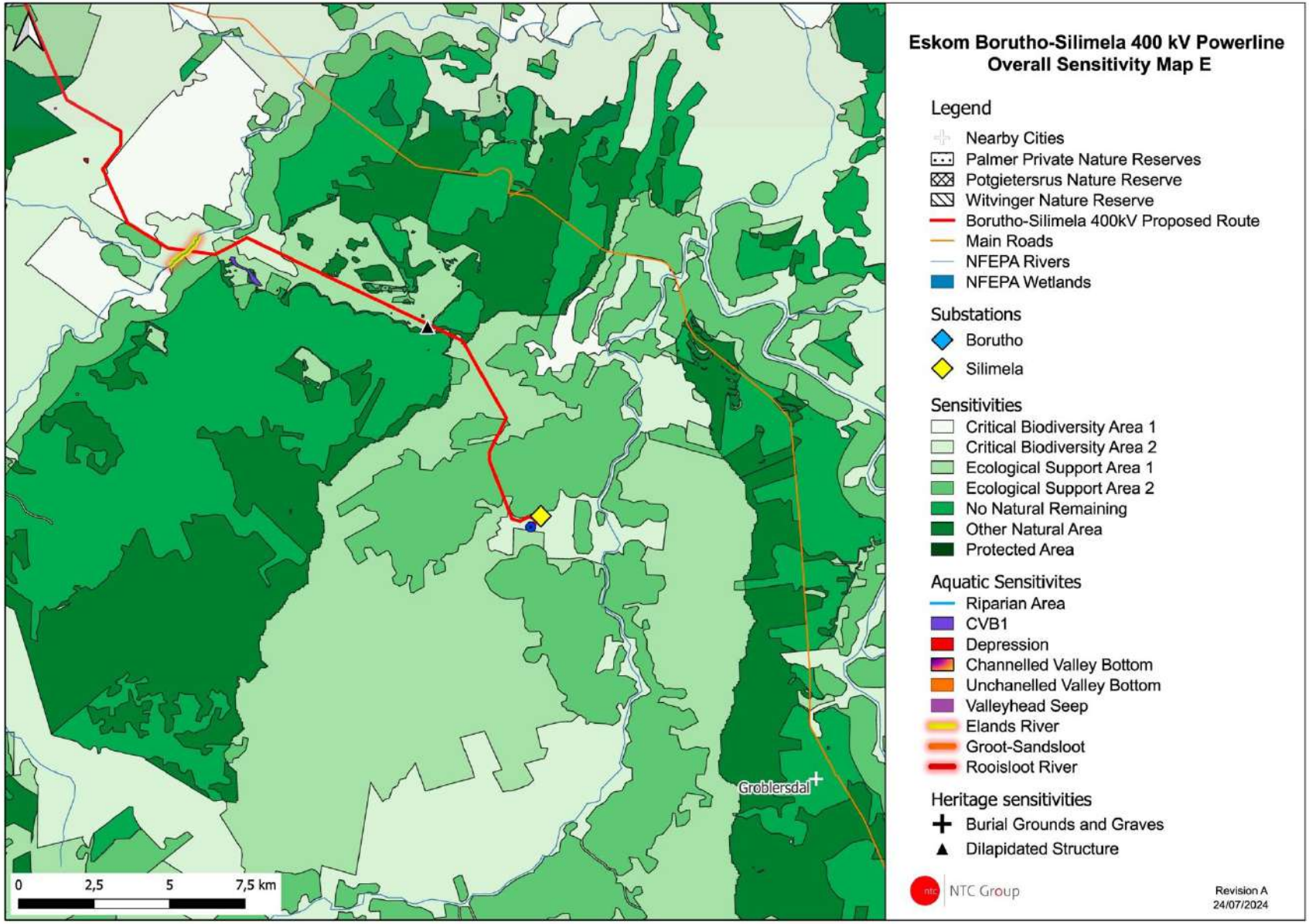


Figure 29: Environmental Sensitivity Map E

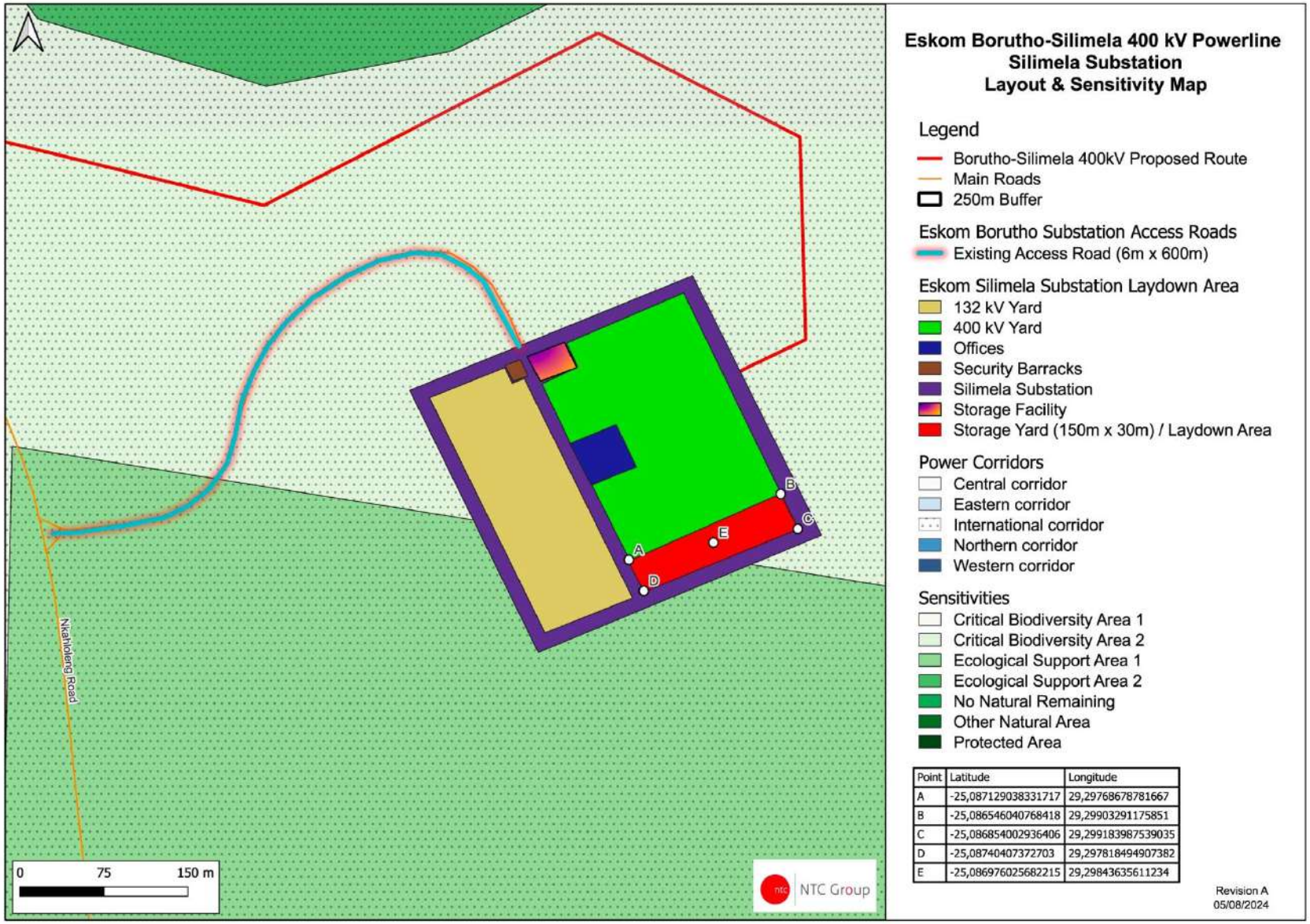


Figure 30: Environmental Sensitivities at the Silimela Substation

7.2 Cumulative Impacts

Cumulative impacts and benefits on various environmental and social receptors will occur to varying degrees with the development of grid infrastructure in South Africa. The confidence in the degree of significance of these cumulative impacts is Low to Medium significance. The current study assesses the cumulative impacts on the basis of current and best available information, with precautionary assumptions taken into account.

7.3 Optimisation of the powerline route

The amendment entailed the deviation/relocation of the powerline from the Farm Bokpoort 328KR Portion 1 to Portions 2 and 4 of the Farm Gegund 332 KR, Portion 0 of the Farm Doelen 327 KR and Portion 8 of the Farm Blinkwater 331 KR. Please note that Portions 2 and 4 of the Farm Gegund 332 KR, Remainder Portion of the Farm Doelen 327 KR and Portion 8 of the Farm Blinkwater 331 KR did not form part of the initial scope of work. The powerline was deviated as the Landowner was not willing to sign the option agreement. Land and rights have negotiated with the landowner for more than 10 year.

The optimised layout was assessed by the specialists and it is concluded that the optimisation of the Layout did not result in additional impacts or an increase or decrease in the Environmental Impacts from an Terrestrial Biodiversity, Wetland, avifauna, Social, Visual, Soil and Agricultural, Heritage and Palaeontological perspective detailed in Section 6 of this report.

The Layout was optimised due to the technical feasibility, refer to Figure 31 below.

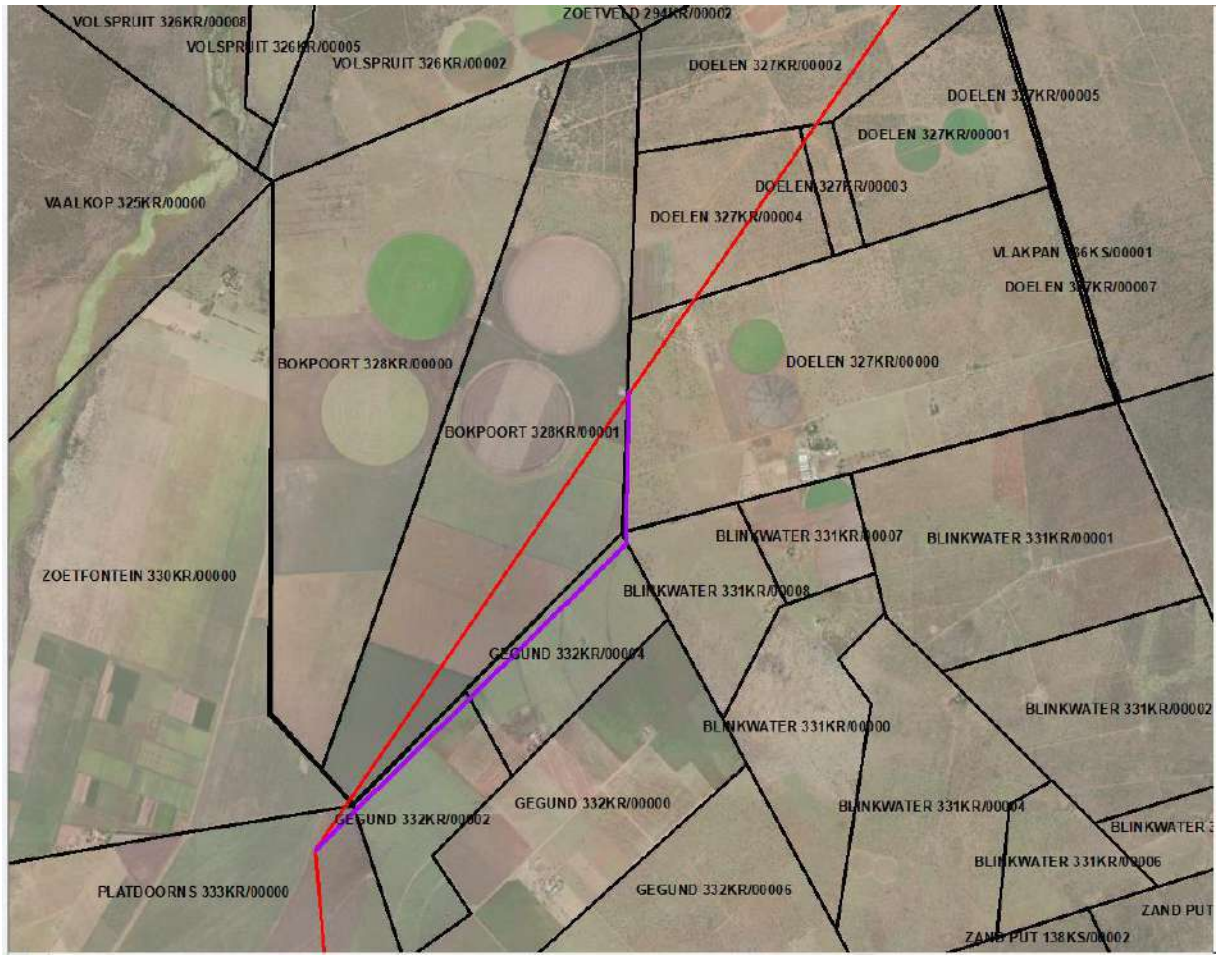


Figure 31: Layout map depicts the assessed powerline route (Red line) and the proposed deviation of the powerline[4] (Purple line)

7.4 Alternatives

The following layout alternative were assessed as part of the BA process. It should be noted the impacts and the overall significant of the impacts are the same (refer to Section 6 of this report).

7.2.1 Layout Alternative

The proposed Route begins at the Borutho substation and initially extends eastward, running parallel to existing gridlines like the Witkop/PPRUST 132kV line. It crosses portion 7 of farm Gillimberg 861, veering southwest through portions 8 and 9, then takes a direct southern path across portion 10 of the same farm. The route proceeds over farm Rietfontein 2 and portions 50 and 21 of farm Uitloop 3, intersecting an unnamed gravel road that bisects these farms from west to east. Continuing from portion 21, the line

[4] Deviation Co-ordinated: Start- 24°25'42.23"S 28°57'12.73"E; Middle- 24°24'37.55"S 28°58'26.76"E; End- 24°23'29.76"S 28°58'52.93"E

extends south for approximately 3.7km, then turns east on farm Piet Potgietersrust Town and Townlands 4. It meanders through various portions of this farm before curving southwest for 2.4km. Following the natural contours of the Mokopane landscape, the line heads south, reaching the border of portions 6 and 5 of farm Oorlogsfontein 45, near Hanwill Lodge. It then bends westward into portion 94 of the same farm, turning south for about 3.6 km, crossing the N1, and proceeding southwest on portion 152 of farm Oorlogsfontein 45. The line extends approximately 12.7km in a western and southwestern direction, passing landmarks like the Tussen die berge safari lodge, various provincial roads, and gravel paths. Upon reaching farm Vlakpan 136, the line shifts westward, crosses the N11, and spans 9.2km over agricultural land. It then bends directly south on farm Platdoorns 333, following a south-southeast curve for about 20km until it reaches farm Geluksfontein 54. Here, the line bends west, crosses the R519, and continues straight south over various lands and roads, including the R33, about 31km from the R519 crossing. Approaching farm Gruysbank 5, the line curves east, parallels, and crosses the R573. It then extends east for 8km to Portion 643 of farm Loskop Noord 12, turns south for 3km to portion 638, skirts a secondary road, then zigzags west and south before connecting to the Silimela Substation. Refer to Figure 3 below. The route that is being studied is 250m wide and the servitude route is pre negotiated, negotiation is being finalised for the few outstanding servitudes. The servitude for the proposed powerline will not be more than 90m wide and is located within the 250m wide proposed route/preferred route. The reason for studying a 250 wide route was to ensure that should there be a need to shift the powerline position, there would be room for movement. Therefore no Layout alternatives have been considered in this DBAR.

7.2.2 Site Alternatives

The route that is being studied is 250m wide and the servitude route is pre negotiated, negotiation is being finalised for the few outstanding servitudes. The servitude for the proposed powerline will not be more than 90m wide and is located within the 250m wide proposed route/preferred route. The reason for studying a 250 wide route was to ensure that should there be a need to shift the powerline position, there would be room for movement. Therefore no site alternatives have been considered in this DBAR

7.2.3 No-Go Alternative

The no-go alternative concerns the project not proceeding. This would result in the current state remaining and future electricity supply in the area being compromised which would presents several issues and missed opportunities for the region.

7.5 Benefits of the proposed project

Benefits of the construction of the 400kV line and the associated infrastructure include the following:

- The project will result in important economic benefits at the local and regional scale through job creation,
- Income and other associated downstream economic development. These will persist during the preconstruction, construction, and decommissioning phases of the project.
- The project provides an opportunity for a new land use on the affected property which is considered as a more efficient use of the land and provides an opportunity for alternative generation of income from the property which would support the agricultural activities undertaken within the project site.
- The project contributes towards the Provincial and Local goals for the development of energy infrastructure as outlined in the respective IDPs.

7.6 EAPS Recommendation, Conclusion and Impact Statement

A technically viable power line route was proposed by NTCSA and assessed as part of the BA process. The assessment of the proposed route within the project site was undertaken by independent specialists and their findings have informed the results of this BA report.

The specialist and EAP findings have indicated that there are no identified fatal flaws associated with the implementation of the development footprint within the project sit. Therefore, the EAP is of the opinion that the proposed project can be authorised, provided the above listed mitigation measures as well as those contained in the EMPr are adhered to by the applicant. A validity period of 10 years of the Environmental Authorisation is requested, should the project obtain approval from DFFE. It is anticipated that the commercial Operation will commence by the September 2028.

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APPENDICES

Appendix A: EIA Project Consulting Team and Specialist CVs

Appendix B: A3 Maps

Appendix C: Authority Consultation

Appendix D: Public Participation

- Appendix D -1: I&AP Database
- Appendix D-2: Site noticed, Advert and Background Information Document
- Appendix D-3: Correspondence with the Organs of State
- Appendix D-4: Stakeholder Correspondence
- Appendix D-5: Comments Received
- Appendix D-6: Minutes of the Meetings
- Appendix D-7: Comment and Responses Report

Appendix E: Terrestrial Assessment Report

Appendix F: Avifaunal Assessment Report

Appendix G: Wetland Assessment Report

Appendix H: Soil and Agricultural Potential Assessment Report

Appendix I: Social Assessment Report

Appendix J: Visual Assessment Report

Appendix K: Heritage Impact Assessment Report

Appendix L: Palaeontological Assessment Report

Appendix M: Civil Aviation Sensitivity Report

Appendix N: Screening Report

Appendix O: Environmental Management Programmes

Appendix N: Specialist Declarations