

MAINTENANCE MANAGEMENT PLAN

FOR THE MAINTENANCE OF THE APPROXIMATELY 10,582 KM IMPALA ZIRCON MAIN 132KV POWERLINE WITH ASSOCIATED INFRASTRUCTURE WITHIN THE UMHLATHUZE MUNICIPALITY IN KWA-ZULU NATAL PROVINCE

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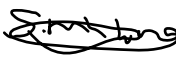
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REPORT DETAILS	
Title:	Maintenance Management Plan for the proposed Construction of the 10.582km Impala Zircon Main Line 132kv Powerline with Associated Infrastructure within the uMhlathuze Municipality in Kwa-Zulu Natal Province.
Purpose of this report	The purpose of this Report is to: ▪ To ensure environmental compliance ▪ Undertake sensitivity analysis based on the EIA Screening Tool and KZN Conservation Plan; ▪ A site evaluation to become familiar with the habitat diversity and inherent ecological sensitivity and integrity of the site and the immediate surrounds; ▪ Provide a discussion on the applicable legislation and policies; ▪ Highlight the opportunities and constraints associated with the proposed development. ▪ Compiling suitable maps, illustrating pertinent biophysical attributes of the area and surroundings; and ▪ Presenting mitigation measures for each identified environmental constraint.

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ENVIRONMENTAL MAINTENANCE MANAGEMENT PLAN FOR THE MAINTENANCE OF A 10,582KM IMPALA ZIRCON MAIN LINE 132KV POWERLINE WITH ASSOCIATED INFRASTRUCTURE

Contents	Page
.....	0
SECTION 1 - INTRODUCTION AND BACKGROUND OF THE PROJECT	14
1 INTRODUCTION	14
2 PROPOSED ACTIVITY	15
2.1 Brief Project Background	15
2.2 Project Description	15
2.3 Project Location	15
2.4 Site Images – Existing Infrastructure	19
3 SCOPE OF WORK	19
4 SITE SPECIFIC INFORMATION AND DECLARATION	20
4.1 Sub-section 1: Contact Details and Description of the Project	20
4.1.1 Details of the applicant:	20
4.1.2 Details and expertise of the EAP:	21
5 DESCRIPTION OF THE ENVIRONMENT	22
5.1 Climate and Temperature	22
5.2 Geology and Soils	23
5.3 Vegetation	25
5.4 Topography	25
5.5 Hydrology	26
5.6 Current Land-Use	28
SECTION 2: PURPOSE OF THE MAINTENANCE MANAGEMENT PLAN	30
6 PURPOSE OF THE MAINTENANCE MANAGEMENT PLAN	30
7 IMPLEMENTATION OF THE MMP	31
7.1 Practical Application	31
7.2 Non-compliance with the MMP	31
7.3 Amendment to the MMP	32
SECTION 3: ENVIRONMENTAL LEGISLATION CONSIDERED AND TRIGGERED LISTED ACTIVITIES	ERROR! BOOKMARK NOT DEFINED.
8 LEGISLATIONS TO BE CONSIDERED	32
8.1 Environmental Potential Impacts	33
8.1.1 Proposed Development Area Environmental Sensitivity	33
8.2 Triggered Activities	33
8.3 Type of Environmental Feature	34
9 SPECIALIST STUDIES	39
9.1 Agricultural Impact Assessment	39

9.2	Heritage Impact Assessment	39
9.3	Civil Aviation Study	39
9.4	Radio Frequency Interference Compliance Statement	39
9.5	Palaeontological Impact Assessment.....	39
9.6	Visual Impact Assessment.....	40
9.7	Aquatic Biodiversity Assessment (Wetland Assessment)	42
10	PUBLIC PARTICIPATION PROCESS.....	48
10.1.1	DFFE Pre-Application Meeting	48
10.1.2	Identification of Interested and Affected Parties.....	48
10.1.3	Stakeholder Mapping.....	49
10.1.4	Placement of Site Notices	51
10.1.5	Circulation of Background Information Document.....	51
10.1.6	Review and Comment on the Draft Maintenance Management Plan	53
	SECTION 4: MAINTENANCE MANAGEMENT PLAN ACTIVITIES.....	53
10.2	Summary of Impacts Associated with the Proposed Project.....	57
10.3	Environmental Objectives and Targets	58
10.4	Maintenance Management Principles	59
12	ROLES AND RESPONSIBILITIES FOR MMP IMPLEMENTATION.....	65
13	REPORTING.....	71
13.1	Administration	71
13.2	Good Housekeeping	71
13.3	Documentation	71
13.3.1	Method Statements	71
13.3.2	Complaints/Incident Registers.....	72
13.3.3	Emergency Preparedness Procedure	72
13.4	Record Keeping.....	73
13.5	Document Control.....	74
14	MITIGATION AND MANAGEMENT SECTION.....	74
14.1	Conditions and Monitoring Requirements	74
14.1.1	Penalties	75
14.1.2	Suspension of Works.....	75
15	CONDITIONS AND MONITORING REQUIREMENTS.....	75
15.1	Environmental awareness training.....	Error! Bookmark not defined.
15.2	Site Establishment Development	Error! Bookmark not defined.
15.3	Access Restricted Areas	Error! Bookmark not defined.
15.4	Access Roads.....	Error! Bookmark not defined.
15.5	Fencing and Gate installation	Error! Bookmark not defined.
15.6	Water Supply Management	Error! Bookmark not defined.
15.7	Storm and Wastewater Management	Error! Bookmark not defined.
15.8	Solid and Hazardous Waste Management.....	Error! Bookmark not defined.
15.9	Protection of Watercourses and Estuaries	Error! Bookmark not defined.
15.10	Vegetation Clearing	Error! Bookmark not defined.
15.11	Protection of Fauna	Error! Bookmark not defined.
15.12	Protection of Heritage Resources.....	Error! Bookmark not defined.
15.13	Safety of the Public.....	Error! Bookmark not defined.
15.14	Sanitation.....	Error! Bookmark not defined.
15.15	Prevention of Disease	Error! Bookmark not defined.
15.16	Emergency Procedures.....	Error! Bookmark not defined.
15.17	Hazardous Substances	Error! Bookmark not defined.
15.18	Workshop, Equipment Maintenance and Storage	Error! Bookmark not defined.

15.19	Batching Plants	Error! Bookmark not defined.
15.20	Dust Emissions	Error! Bookmark not defined.
15.21	Blasting	Error! Bookmark not defined.
15.22	Noise	Error! Bookmark not defined.
15.23	Fire Prevention	Error! Bookmark not defined.
15.24	Stockpiling and stockpile areas	Error! Bookmark not defined.
15.25	Finalising Tower Positions	Error! Bookmark not defined.
15.26	Excavation and Installation of Foundations	Error! Bookmark not defined.
15.27	Assembly and Erecting Towers	Error! Bookmark not defined.
15.28	Stringing	Error! Bookmark not defined.
15.29	Socio-Economic	Error! Bookmark not defined.
15.30	Temporary Site Closure	Error! Bookmark not defined.
15.31	Landscaping and rehabilitation	Error! Bookmark not defined.
16	CONCLUSION	144
16.1	Pre-Construction Phase	144
16.2	Reconstruction and Maintenance Phase	144
16.3	Operational Phase	145

List of Tables:

Table 1: Project Location Information	15
Table 2: DFFE Screening Tool Findings	33
Table 3: Applicable Listed Activities	33
Table 4: List of Stakeholders	48
Table 5: Stakeholders Risk Mapping	50
Table 6: Venues of where the DMMP will be available	53
Table 7: Methodology utilised in the rating of significance of impacts	54
Table 8: Summary of impacts and their significance before and after mitigation.....	58
Table 9: Summary of the Environmental Methods Statement and Control Measures	60
Table 11: Guide to Roles and Responsibilities for Implementation of an MMP	65
Table 12: Maintenance Management Plan and Mitigation Measures	77

List of Figures

Figure 1: Google Earth Locality Map showing the Powerline.....	17
Figure 2: Locality Map showing the Farm Names and Ward Numbers.....	18
Figure 3: Pictorial Evidence of Photographic records of the existing powerlines with some corroded pylons	19
Figure 4: Monthly Average Temperature in Richards Bay (According to the Köppen-Geiger climate classification).	23
Figure 5: Geological Map of the proposed Powerline	24
Figure 6: Topography Aral Map	25
Figure 7: Hydrological Map for the proposed development	27
Figure 8: Hydrological Map for the proposed development	35
Figure 9: Conservation Plan in relation to the project site.....	37
Figure 10: National Freshwater Ecosystem Priority Areas (NFEPA) Wetlands on-site	38

Figure 11: Impala Zircon Stakeholder Map 50

Figure 12: Proof of Site Notices Erection around the PAOI 52

Figure 13: Tower dimensions 61

Figure 14: Design for Setting out details for the towers 62

DEFINITIONS

ASPECT	DEFINITION
Activity (Development)	An action either planned or existing that may result in environmental impacts through pollution or resource use. For the purpose of this report, the terms 'activity' and 'development' are freely interchanged.
Alternatives	Different means of meeting the general purpose and requirements of the activity, which may include site or location alternatives; alternatives to the type of activity being undertaken; the design or layout of the activity; the technology to be used in the activity; and the operational aspects of the activity.
Applicant	The project proponent or developer is responsible for submitting an environmental application to the relevant environmental authority for environmental authorisation.
Biodiversity	The diversity of animals, plants, and other organisms found within and between ecosystems, habitats, and the ecological complexes.
Construction	The building, erection or establishment of a facility, structure or infrastructure that is necessary for the undertaking of a listed or specified activity but excludes any modification, alteration or expansion of such a facility, structure or infrastructure and excluding the reconstruction of the same facility in the same location, with the same capacity and footprint.
Environment	In terms of the National Environmental Management Act (NEMA) (No 107 of 1998) (as amended), "Environment" means the surroundings within which humans exist and that are made up of: i. The land, water, and atmosphere of the Earth. ii. micro-organisms, plants, and animal life. iii. any part or combination of (i) or (ii), and the interrelationships among and between them; and iv. d) the physical, chemical, aesthetic, and cultural properties and conditions of the foregoing that influence human health and wellbeing
Environmental Assessment	The generic term for all forms of environmental assessment for projects, plans, programmes or policies and includes methodologies or tools such as environmental impact assessments, strategic environmental assessments and risk assessments.
Environmental Authorisation	An authorisation issued by the competent authority in respect of a listed activity, or an activity which takes place within a sensitive environment.
Environmental Assessment Practitioner (EAP)	The individual responsible for planning, management and coordination of environmental impact assessments, strategic environmental assessments, environmental management programmes or any other appropriate environmental instrument introduced through the EIA Regulations.

ASPECT	DEFINITION
Environmental Management	Ensuring that environmental concerns are included in all stages of development, so that development is sustainable and does not exceed the carrying capacity of the environment.
Groundwater	Water in the ground that is in the zone of saturation from which wells, springs, and groundwater run-off are supplied.
Hydrology	The Science encompasses the behaviour of water as it occurs in the atmosphere, on the surface of the ground, and underground.
Important areas	Sites that are important for the conservation of biodiversity in Gauteng (Gauteng C-Plan Version).
Irreplaceable areas	Sites, which are essential in meeting targets set for the conservation of biodiversity in Gauteng (Gauteng C-Plan Version 3)
Maintenance	Means actions performed to keep a structure or system functioning or in service at the same location, capacity and footprint
Maintenance Management Plan	Means a management plan for maintenance purposes, defined or adopted by the competent authority.
Mitigate	The implementation of practical measures designed to avoid, reduce, or remedy adverse impacts or enhance beneficial impacts of an action.
No-Go Option	In this instance, the proposed activity would not take place, and the resulting environmental effects from taking no action are compared with the effects of permitting the proposed activity to go forward.
Sensitive Environments	Any environment identified as being sensitive to the impacts of the development
Sustainable Development	Development that meets the needs of current generations without hindering future generations from meeting their own needs.
The Act	Means the National Environmental Management Act, 1998 (Act No 107 of 1998)
Undeveloped	Means that no facilities, structures or infrastructure have been developed upon the land or property during the preceding 10 years
Urban areas	Means areas situated within the urban edge (as defined or adopted by the competent authority), or in instances where no urban edge or boundary has been defined or adopted, it refers to areas situated within the edge of built-up areas
Vacant	Means not occupied for the purpose of its lawful land use during the preceding ten-year period
Watercourse	Means i. a river or spring. ii. a natural depression in which water flows regularly or intermittently. iii. a wetland, lake or dam into which, or from which, water flows. iv. and

ASPECT	DEFINITION
	v. (d) any collection of water which the Minister may, by notice in the Gazette, declare to be a watercourse, and a reference to a watercourse includes, where relevant, its bed and bank
Wetland	Means land which is transitional between terrestrial and aquatic systems where the water table is usually at or near the surface, or the land is periodically covered with shallow water, and which land in normal circumstances supports or would support vegetation typically adapted to life in saturated soil

Abbreviations (Definitions are above):

AIP / AIPs	Alien Invasive Plant(s)
BA	Basic Assessment
BGIS	Biodiversity GIS (SANBI platform)
CA	Competent Authority
CBA	Critical Biodiversity Area
CRR	Comment & Response Report
DBAR	Draft Basic Assessment Report
DFFE	Department of Forestry, Fisheries and the Environment
DWS	Department of Water and Sanitation
EA	Environmental Authorisation
EAP	Environmental Assessment Practitioner
ECA	Environment Conservation Act, 1989 (Act No. 73 of 1989)
EI	Ecological Importance
EMI	Electromagnetic Interference
MMP	Environmental Management Programme
ESA	Ecological Support Area
EDTEA	Department of Economic Development, Tourism and Environmental Affairs.
EKZNW	Ezemvelo KwaZulu-Natal Wildlife
FEPA	Freshwater Ecosystem Priority Areas
FI	Functional Integrity
GIS	Geographic Information System
GA	General Authorisation
GNR	Government Notice Regulation
HGM	Hydrogeomorphic
HIA	Heritage Impact Assessment
I&AP	Interested and Affected Party
IAP	Invasive Alien Plants
IDP	Integrated Development Plan
IEM	Integrated Environmental Management
LUMS	Land Use Management System
NDP	National Development Plan
NEMA	National Environmental Management Act, 1998 (Act No. 107 of 1998)
NEMBA	National Environmental Management: Biodiversity Act (Act No. 10 of 2004)
NFEPA	National Freshwater Ecosystem Priority Area
NHRA	National Heritage Resources Act, 1999 (Act No. 25 of 1999)
NWA	National Water Act, 1998 (Act No. 36 of 1998)
OHL	Over Head Line
OLS	Obstacle Limitation Surfaces
PAOI	Project Area of Influence
PES	Present Ecological State
PPP	Public Participation Process
RFI	Radio Frequency Interference

SAHRA	South African Heritage Resources Agency
SANBI	South African National Biodiversity Institute
SANS	South African National Standards
SCC	Species of Conservation Concern
SEI	Site Ecological Importance
SCP	Selahle Consultancy & Projects
SDF	Spatial Development Framework
SEA	Strategic Environmental Assessment
SIA	Social Impact Assessment
UVB	Unchanneled Valley Bottom
VAC	Visual Absorption Capacity
WULA	Water Use License Application
ZVI	Zone of Visual Influence.

SECTION 1 - INTRODUCTION AND BACKGROUND OF THE PROJECT

1 INTRODUCTION

Selahle Consultancy and Projects Pty Ltd was appointed by Eskom Holdings SOC Limited (herein referred to as the Eskom), to undertake environmental studies for the proposed maintenance and upgrade of existing 10,582km Impala Zircon 132kV Powerline with Associated Infrastructure within the uMhlathuze Municipality in KwaZulu-Natal Province.

The proposed environmental assessment project falls within the ambit of a Maintenance Management Programme Plan in terms of the EIA Regulations, 2014 (as amended). This Maintenance Management Plan (MMP) has been compiled primarily to meet the requirements of Section 28 of NEMA, which relates to the duty of care and remediation. Moreover, the MMP has been undertaken in accordance with environmental best practices and responsible development for the proposed maintenance and upgrade of the existing approximately 10,582km Impala Zircon 132kV Powerline, KwaZulu-Natal Province.

Section 24(b) of the Constitution of the Republic of South Africa Act, (Act No. 108 of 1996) states 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”. This is the statutory framework that promulgated the National Environmental Management Act (No. 107 of 1998, abbreviated NEMA). This Act was assented to provide for co-operative environmental governance by establishing principles for decision-making on matters affecting the environment, and procedures for co-ordinating environmental functions exercised by organs of state; to provide for the prohibition, restriction or control of activities which are likely to have a detrimental effect on the environment; and to provide for matters connected therewith.

This Act (NEMA) embodies other Environmental Management Acts, such as the National Environmental Management: Waste Act (No. 59 of 2008), to mention but a few. This Act regulates the Norms and Standards of Waste generated in South Africa and categorises them into either general/or hazardous waste.

Furthermore, EIA Regulations were promulgated under the National Environmental Management Act, 1998, in 2006. These regulations were aimed at streamlining and aligning potential environmental projects that were envisaged in the country, to determine if the project is a Basic Assessment and/or a Scoping or Environmental Impact. These EIA Regulations were then reviewed every four years and promulgated thereafter.

The MMP is a detailed plan for the implementation of the mitigation measures to minimise the negative environmental impacts. The provisions of this MMP are binding on the contractor during

the life cycle of the contract. The MMP is a dynamic document subject to similar influences and changes as are brought by variations to the provisions of the project specification.

2 PROPOSED ACTIVITY

2.1 Brief Project Background

The Impala Zircon 132kV Main Powerline is located along the North Coast of KwaZulu-Natal and is exposed to both coastal and industrial pollution, which have resulted in significant corrosion and deterioration of the tower foundations over time. To facilitate the maintenance and refurbishment of the main powerline while ensuring a continuous electricity supply, Eskom proposes the construction of a temporary By-Pass Powerline that will operate for a period of three years. The existing powerline is approximately 10.582 km in length, of which Eskom is responsible for approximately 7.6 km, while the remaining powerline is owned and maintained by the uMhlathuze Local Municipality.

The Impala Zircon 132kV powerline is a radial line with no back-feeding capabilities and distributes electricity to approximately 6062 customers. It feeds Cygnus Substation, which supplies all the Esikhaweni networks, uMhlathuze Local Municipality and Lake Qube water pump.

2.2 Project Description

The 10.582 km Impala Zircon 132kV Main Powerline connects from Impala substation to Zircon 132kV Substation. Most of the powerline traverses a sugarcane farm, crossing the uMhlathuze River, an estuary functional zone and Riparian areas. As part of the Basic Assessment process, a temporary working servitude of approximately 25 m on either side of the centre line, will be required during the construction phase to accommodate construction activities, equipment, and safe access. Once construction is complete, the operational footprint will be limited to operational servitude of 36m measured from the centre line of the existing line. The temporary Bypass will operate from this existing servitude. The temporary bypass will be 15 m offset from the main line.

2.3 Project Location

The proposed Maintenance of Existing Powerline is located within Wards **12, 14, 17, 20** and **21** of the uMhlathuze Local Municipality, under the jurisdiction of the King Cetshwayo District Municipality. See the maps below.

The proposed existing main powerline routes can be accessed along the N2 and R34 roads. The coordinates to the site are:

Table 1: Project Location Information

MAIN POWERLINE	
Co-ordinates	Start Point- 28°50'43.00" S 31°55'49.28" E

	Middle Point- 28°48'13.80" S 31°56'20.81" E End point- 28°46'05.25" S 31°56'43.18" E
ERVENS	SG Code
Reserve No. 10 15830 GU	N0GU00000001583000000
RE/16349	N0GV04210001634900000
RE/11520	N0GV04210001152000000
2/11454	N0GV04210001145400002
RE/11454	N0GV04210001145400000
RE/11490	N0GV04210001149000000
2/11449	N0GV04210001144900002
1/11449	N0GV04210001144900001
RE/11449	N0GV04210001144900000
17/11454	N0GV04210001145400017
RE/11453	N0GV04210001145300000
1/11452	N0GV04210001145200001
1/11418	N0GV04210001141800001
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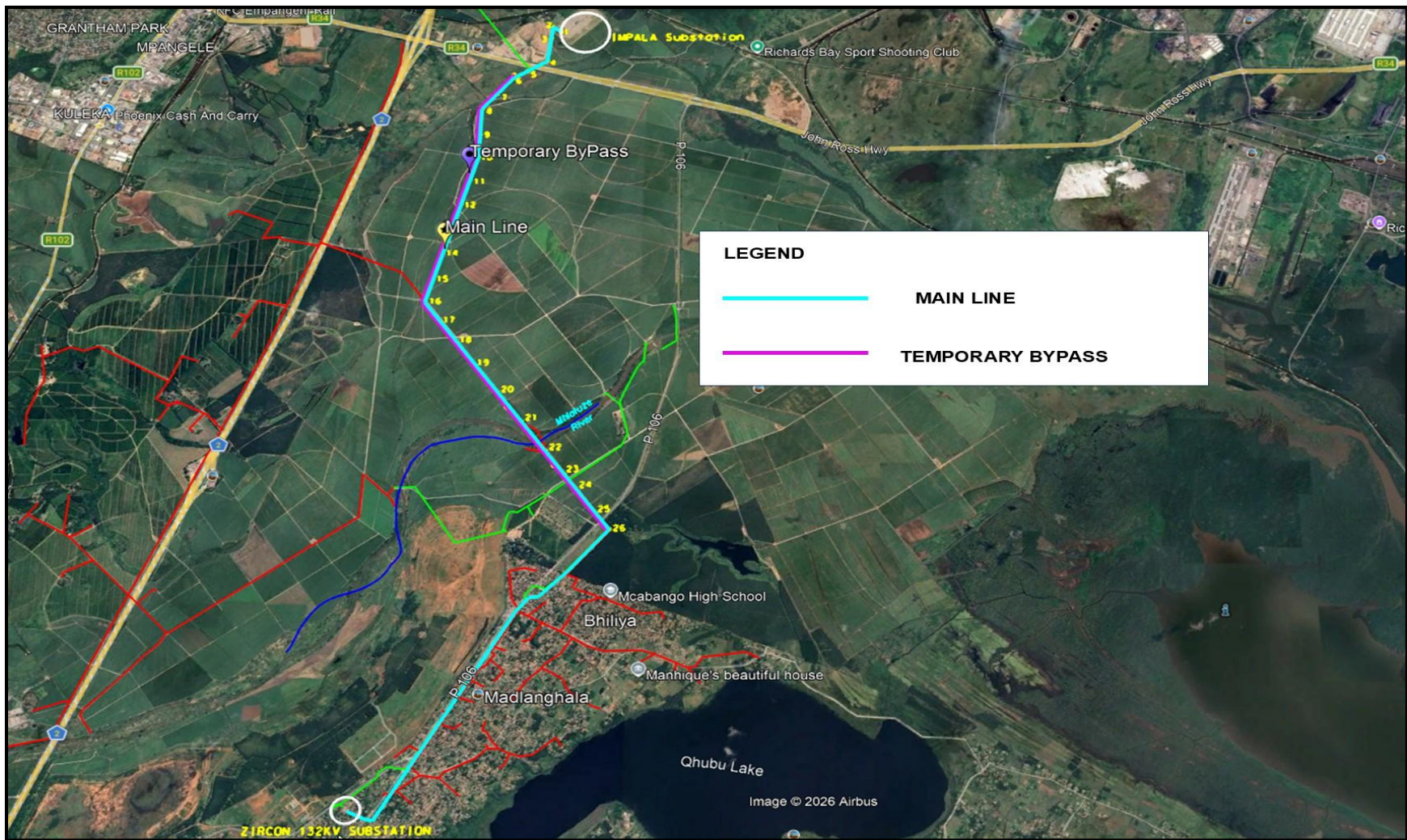


Figure 1: Google Earth Locality Map showing the Powerline

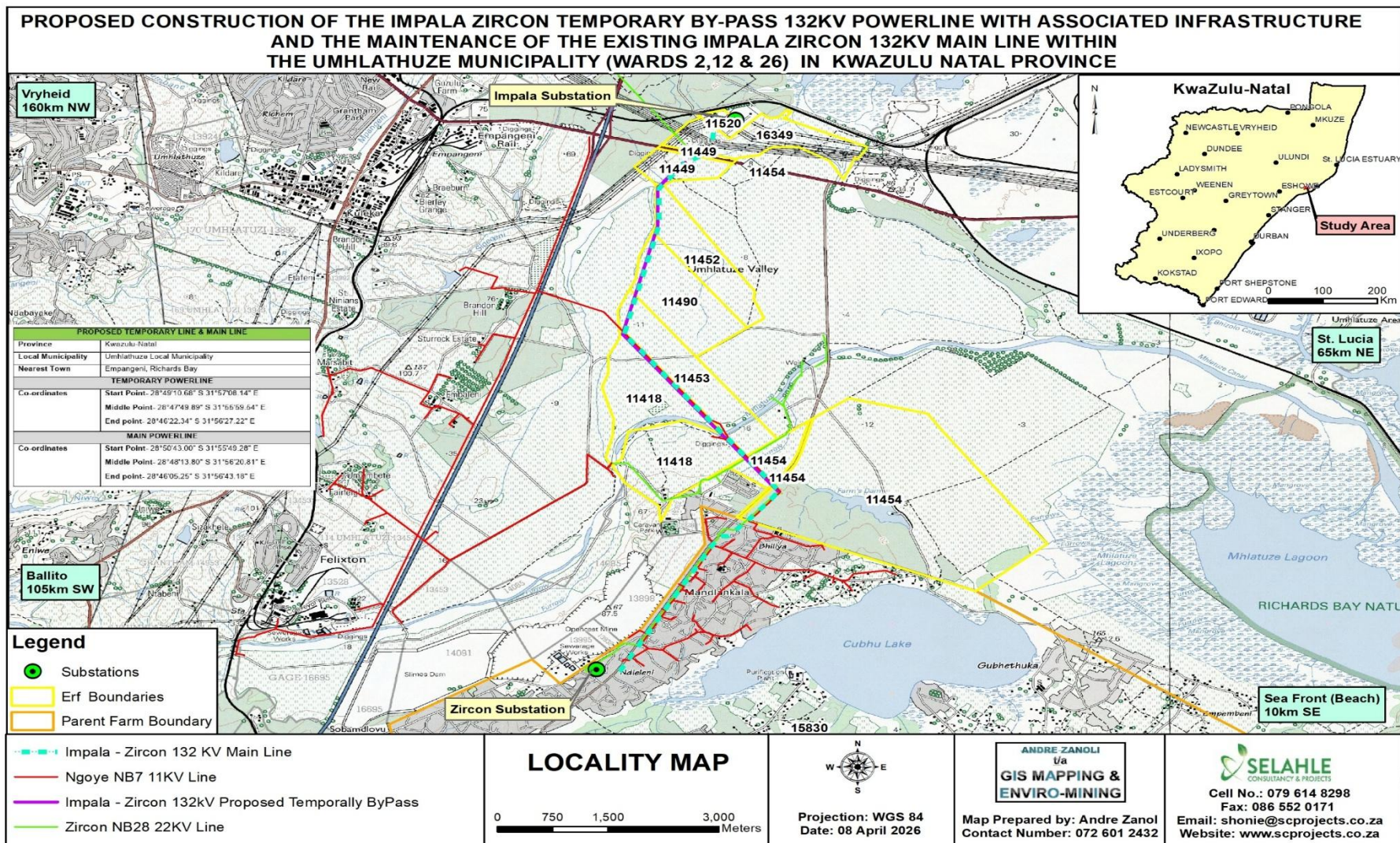


Figure 2: Locality Map showing the Farm Names and Ward Numbers

2.4 Site Images – Existing Infrastructure



Figure 3: Pictorial Evidence of Photographic records of the existing powerlines with some corroded pylons

3 SCOPE OF WORK

The scope of works for the Maintenance of the 132kV Impala-Zircon Powerlines lines in uMhlathuze will entail the following:

- Replacement of missing, damaged, or corroded steel members along the line.
- Replacement of missing, damaged, or corroded climbing bolts.
- Replacement and reinstatement of anti-climbing devices and tower identification labels.
- Replacement of approximately 3 km of Wolf phase conductor (various sections including T16–T29
- Replacement of approximately 7 km aluminium shield wire (7/3.35).
- Splicing and repair of corroded tower stubs, including removal of tower concrete foundation caps where required.

- Replacement of approximately 3000 kg of steel members across towers T1–T28.
- Re-installation of 7 km of aluminium earthwire (T2–T29).
- Replacement of damaged hardware components on various tower structures.
- Replacement of one 222V tower at T16.
- Replacement of tower earth peaks at T6, T10, T11, and T12.
- Replacement of middle and top cross-arms at towers T8 and T9.
- Repair and strengthening of tower stubs on tower legs.

Main HV Line SOW (Existing Line)

- Replace missing / damaged / corroded steel members.
- Replace Missing/damaged/corroded climbing bolts.
- Replace anti-climbing devices and tower labels.
- Replace approx. 3km Wolf conductor (T16-T29).
- Re -install approx. 7km aluminium shieldwire (7/3.35).
- Replace damaged hardware in various structures.
- Splicing corroded stubs on various towers.
- Establish gabion retaining walls around 3x towers.
- Rehabilitation on the affected areas upon completion.

Waste Management

- Concrete Quantities – Approx. 2 cubic meters of concrete to be removed off site from the main line splicing SOW.

Access to site

- The access to existing main line tower (and new temporal bypass) line structure positions will be through means of using the existing roads and existing paths.

Upon completion of refurbishment:

- Transfer of load back to the main powerline.
- Decommissioning and removal of all temporary infrastructure (wooden poles, conductors, etc.) from site.
- Rehabilitation of all disturbed and affected areas.

4 SITE SPECIFIC INFORMATION AND DECLARATION

4.1 Sub-section 1: Contact Details and Description of the Project

4.1.1 Details of the applicant:

Name of the Applicant	Eskom Holdings SOC Limited (Central East Cluster KZN)
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4.1.2 Details and expertise of the EAP:

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EAP name and surname	Shonisani Selahle
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Postal code	1685
Telephone	011 026 2560
Cell phone	079 614 8298
E-mail	admin@scprojects.co.za / shonie@scprojects.co.za
Qualifications & Experience	BSC Hons. in Environmental Management 16 years of experience
Expertise of the EAP (Curriculum Vitae included):	In terms of project-related expertise, the Environmental Assessment Practitioner has undertaken projects of varying scale and complexity, including: ▪ Environmental Scoping for the Proposed Construction for Housing Establishment on the Remainder of Farm Benoni 77 IR, Ekurhuleni Metropolitan Municipality, Gauteng Province. ▪ Basic Assessment Report for the Proposed Construction and Maintenance of New System 1 At Rand Water Vereeniging Treatment Works, Installation of Approximately 7 Km Phase 2 Sludge Pipeline in Vereeniging, 1.5 Km Sludge Line in Panfontein and Associated Infrastructure Within the Jurisdiction of Sedibeng District Municipality, Gauteng Province. ▪ Basic Assessment Process for the Proposed Construction of Housing Establishment on Portion 153 of the Remainder of Farm Zuurfontein 33 IR, Ekurhuleni Metropolitan Municipality, Gauteng Province. ▪ Basic Assessment for the proposed Non-Motorised Transport (NMT) Training and Recreational Park in Polokwane, Limpopo Province. ▪ Basic Assessment for the proposed Housing Establishment in Clayville Extension 33, Gauteng Province. ▪ Basic Assessment for the proposed Development of Poultry Farm on Farm Doornkraal 426 JR in Cullinan, Gauteng Province.

	▪ Basic Assessment for the Proposed Construction of the Limestone 2-132kV and Switchyard Station in the Northern Cape. ▪ Basic Assessment for the proposed construction of the SSS1 and SSS2 5MW Solar Photovoltaic (PV) Plant, Free State Province. ▪ Basic Assessment for the proposed Design Review, Services Relocation and Construction Monitoring of Belle Ombre Phase 2 (Overflow Car Park, Electric Fencing, etc) within the jurisdiction of the City of Tshwane Metropolitan Municipality, Gauteng Province. ▪ Basic Assessment for the proposed Construction of Social Housing in Cosmo City Extension 8, Gauteng Province. ▪ Basic Assessment for the proposed Construction and Upgrading of Hebron Canal and Stormwater Drainage within Madibeng Local Municipality, North-West Province and City of Tshwane Metropolitan Municipality, Gauteng Province. ▪ Basic Assessment for the proposed Expansion of Poultry Farm on Plot 160 Rooiwal within the jurisdiction of the City of Tshwane Metropolitan Municipality, Gauteng Province.
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5 DESCRIPTION OF THE ENVIRONMENT

The project area overlaps with several ecologically relevant landscape features including the Zululand Coast Strategic Water Source Area (SWSA), National Freshwater Ecosystem Priority Areas (NFEPA), and South African Inventory of Inland Aquatic Ecosystems (SAIIAE) features, including a poorly protected floodplain and portions of the Mhlathuze River system. Furthermore, the proposed development does not overlap with Critical Biodiversity Areas (CBAs), Ecological Support Areas (ESAs), Key Biodiversity Areas (KBAs) or National Protected Areas Expansion Strategy (NPAES) areas but overlaps with a Least Concern ecosystem and portions of Mostly Protected and Well Protected ecosystems.

5.1 Climate and Temperature

Richards Bay's climate is tropical, and the quantity of rainfall during summers surpasses that of winters. This climate is considered to be A (Tropical Climate) w (Dry Winter) according to the Köppen-Geiger climate classification. The temperature in this location is approximately 21.9 °C, as determined by statistical analysis. Approximately 944 mm of rainfall occurs on a yearly basis.

In June, the precipitation level plummets to a mere 42 mm. This month holds the title for being exceptionally arid. On average, the highest amount of rainfall occurs during January, with a mean value of 113 mm. The precipitation variance between the months with the lowest and highest levels of rainfall is 71 mm. The fluctuation of temperatures across the seasons is referred to as 6.5 °C.

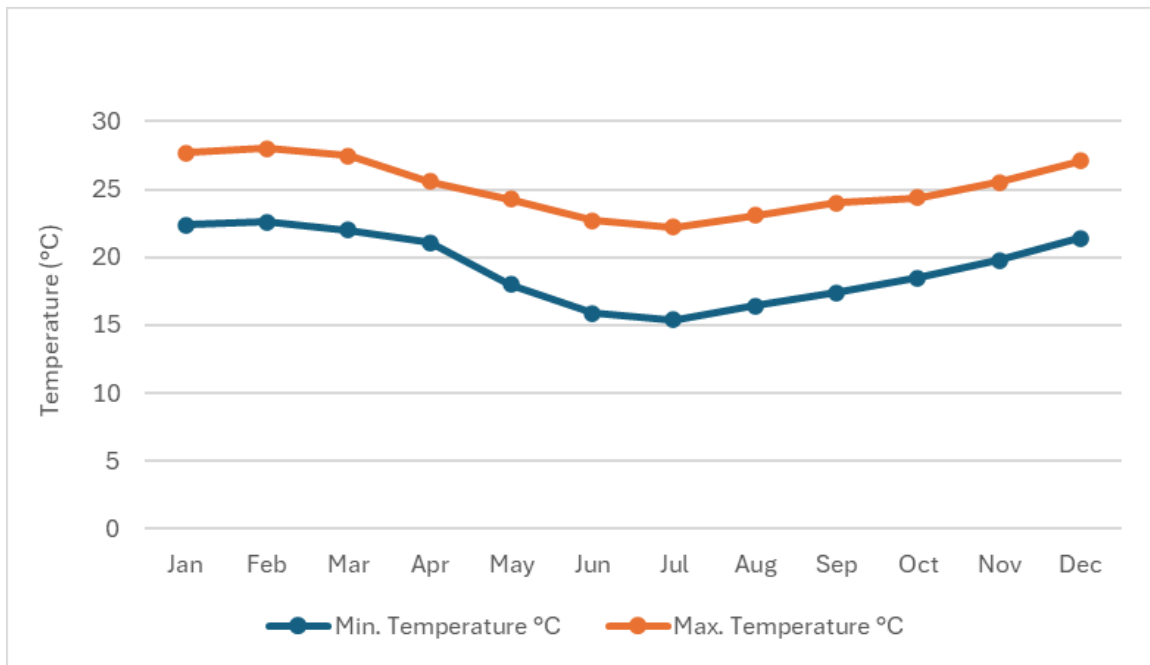


Figure 4: Monthly Average Temperature in Richards Bay (According to the Köppen-Geiger climate classification).

5.2 Geology and Soils

The proposed powerline route is underlain by unconsolidated sands (Qs) associated with the Upper Pleistocene to Holocene deposits of the Quaternary Era. The site is anticipated to be predominantly underlain by Harbour Bed sands, overlain by more recent, unconsolidated and cohesionless sandy deposits. Geologically, the Richards Bay area is dominated by Quaternary-aged coastal dune systems and marine sediments forming part of the Maputaland Group, which overlie older Cretaceous siltstones and Tertiary-aged deposits.

The region is characterised by an extensive sandy coastal plain, relatively shallow groundwater conditions, and heavy mineral-bearing dune sands, which are typical of the coastal geological environment of northern KwaZulu-Natal. Figure below is the geological map for the proposed development.

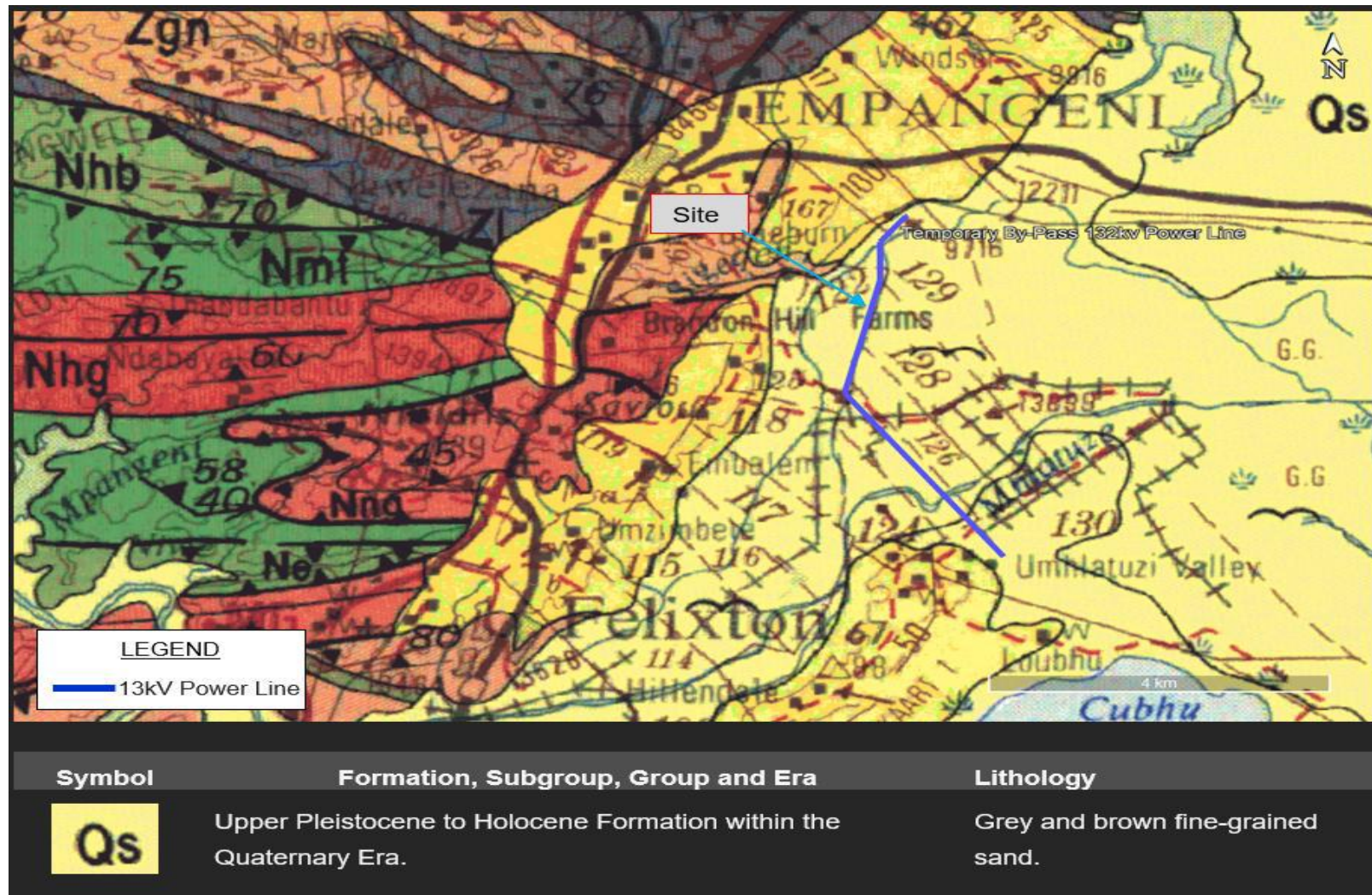


Figure 5: Geological Map of the proposed Powerline

5.3 Vegetation

The study area is situated within the Endangered Maputaland Coastal Belt vegetation type and the Northern Coastal Forest vegetation type. The majority of the proposed development footprint has been significantly modified by historical and ongoing human activities. The study area is characterised by existing electricity infrastructure, commercial sugarcane cultivation, urban development, forestry plantations, roads, illegal dumping, invasive alien plant infestations and other anthropogenic disturbances. As a result, much of the natural vegetation has been removed or substantially degraded.

5.4 Topography

The topography is relatively gentle with steep terrain, with the minimum elevation at 9m, a maximum of 25m and an average of 13m. The steep terrain increases towards the southern side of the powerline route. The route occurs at heights varying between 8m in the north to 25m above mean sea level in the southeast. The figure below shows the elevation of the proposed powerline route.

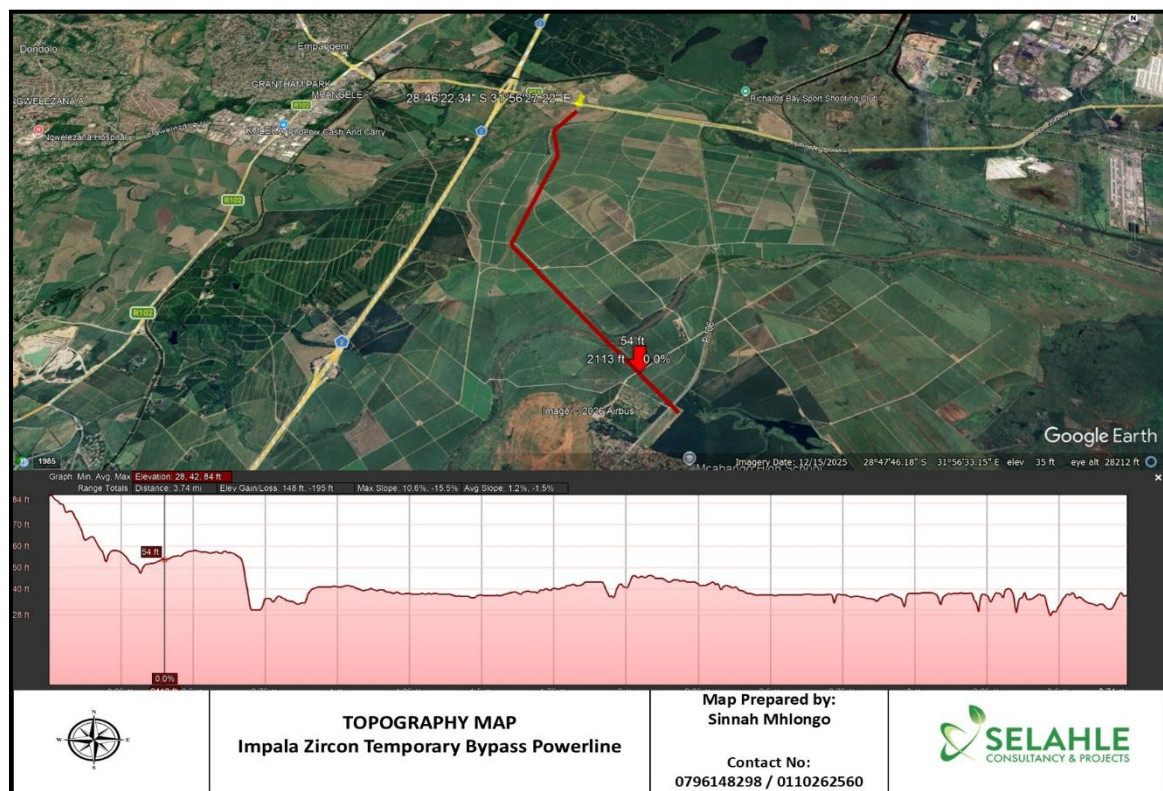


Figure 6: Topography Aral Map

5.5 Hydrology

The proposed development falls within the Pongola Mtamvuna Water Management Catchment Area under the W12F Quaternary Catchment Boundaries, under the Sub-management area of Mhlatuze managed by the Department of Water and Sanitation. The proposed powerline transverses through one of the major rivers: The Mhlatuze River, perennials and non-perennial rivers. The figure below depicts the status quo of the project area.

**PROPOSED CONSTRUCTION OF THE IMPALA ZIRCON TEMPORARY BY-PASS 132KV POWERLINE WITH ASSOCIATED INFRASTRUCTURE
AND THE MAINTENANCE OF THE EXISTING IMPALA ZIRCON 132KV MAIN LINE WITHIN
THE UMHLATHUZE MUNICIPALITY IN KWAZULU NATAL PROVINCE**

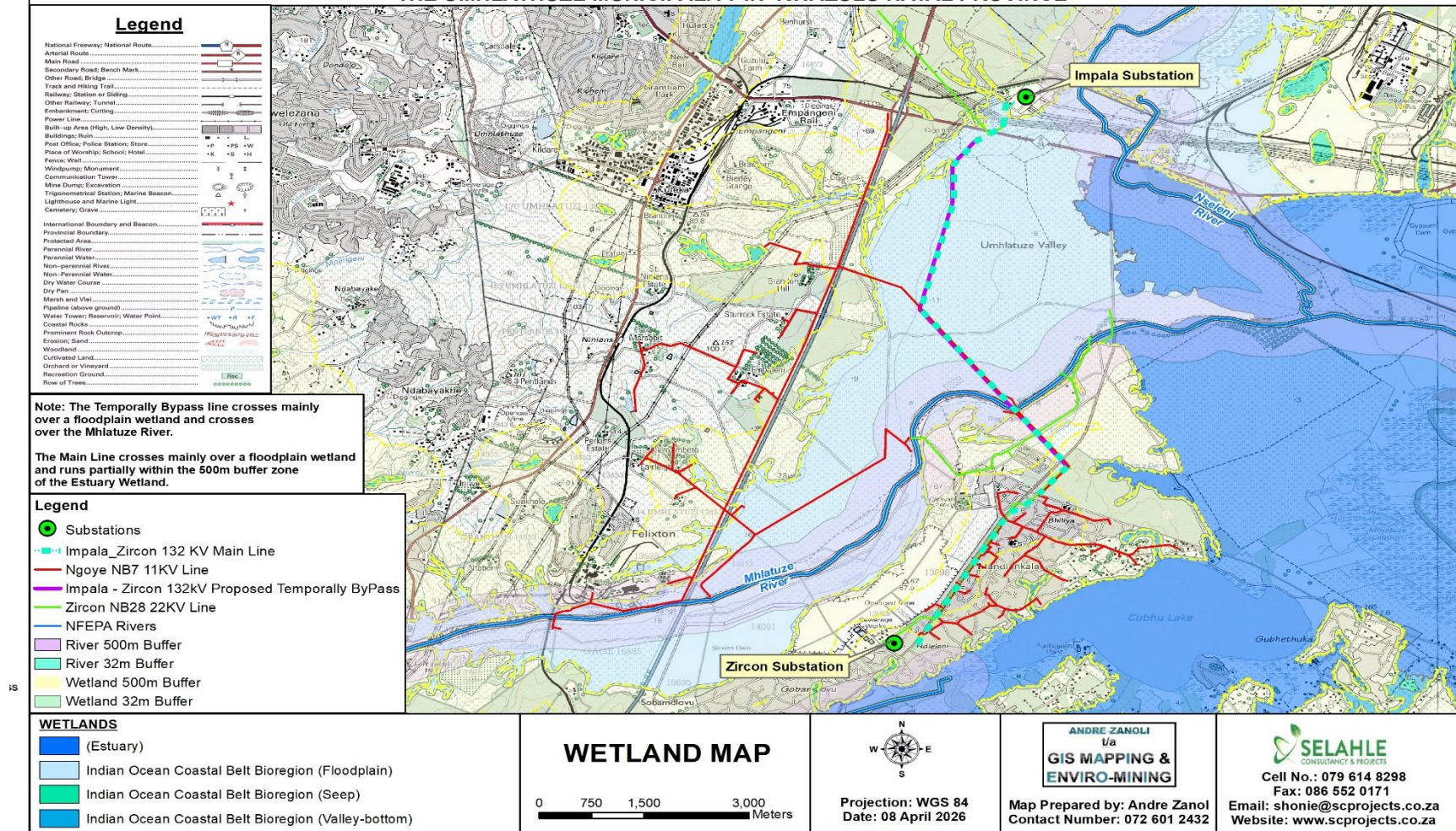


Figure 7: Hydrological Map for the proposed development

5.6 Current Land-Use

The study area is situated within a landscape that has been extensively transformed by agricultural activities, predominantly sugarcane cultivation. The majority of the powerline traverses actively cultivated agricultural land. Agricultural activities have historically transformed much of the natural vegetation within the study area, resulting in a landscape that is characterised by commercial farming, existing electricity infrastructure and local access roads.

Other land uses are:

- Local Businesses
- Municipal and Regional Roads.

See the figure below for current land use associated with the site.



Figure 8: Land Use Map for the proposed 132kv Powerline

SECTION 2: PURPOSE OF THE MAINTENANCE MANAGEMENT PLAN

6 PURPOSE OF THE MAINTENANCE MANAGEMENT PLAN

This document is applicable to the current construction/maintenance activities, including future maintenance activities related to the maintenance of the Impala Zircon 132kV Powerline, in uMhlathuze Local Municipality, KwaZulu-Natal Province.

The aim of this MMP is a guiding framework to manage and maintain the proposed maintenance and rehabilitation activities timeously, effective, sensitive and in accordance with applicable legislation.

This MMP serves to identify the required management prescriptions for the successful. The overall purpose of the MMP is to prescribe principles and management methods necessary for the avoidance, prevention or mitigation of adverse environmental impacts undertaken during maintenance work.

The MMP has the following objectives:

- Ensure compliance with the necessary legislative framework;
- Identifying construction activities that might have detrimental impacts on the environment;
- To minimise management commitments by providing vegetation that regenerates naturally, and which stabilises disturbed soil around the development;
- To reduce soil erosion and the instability of the surrounding environment;
- To minimise impacts on the river crossings, during the construction, operation and maintenance of the infrastructure;
- To outline mitigation measures for construction activities that might have detrimental impacts on the environment;
- To assign roles and responsibilities to parties regarding the implementation of the MMP; and
- To establish a procedure for environmental monitoring and auditing of rehabilitation work.

It is also important to acknowledge that this MMP should be dynamic and reviewed on a regular basis to assess the success of the implemented interventions/intervention in maintaining the integrity of the area, as well as to address any shortcomings and make the necessary improvements.

Moreover, Eskom is mindful that this MMP does not absolve from the general “Duty of Care” set out in Section 28(1) of the NEMA, viz.: ***“Every person who causes, has caused or may cause significant pollution or degradation of the environment must take reasonable measures to prevent such pollution or degradation from occurring, continuing or recurring, or, in so far as such harm to the environment is authorised by law or cannot reasonably be avoided or stopped, to minimize and rectify such pollution nor degradation of the environment”***.

7 IMPLEMENTATION OF THE MMP

7.1 Practical Application

A clear understanding is needed of the risks to humans and the natural environment, the effectiveness and the consequences of the various management decisions that are made during the construction and maintenance phase of the development. At all construction, rehabilitation and maintenance sites, the primary goal is to mitigate the impacts of development in as environmentally sensitive manner as possible.

The following aspects are considered central to a successful implementation of MMP:

- Identification of causal mechanisms:
 - Determining the cause of the deterioration and whether it has resulted from natural occurrences or anthropogenic activities.
 - Where human impact is the cause, it should be assessed whether the harmful actions are ongoing and if the prevention or control of such actions is possible.
- Design of rehabilitation/correction measures
 - Identify strategies to remove or control as far as possible the cause of the degradation.
 - With an understanding of the causal mechanisms, identify management interventions, such as the type of earthmoving machinery, vegetation, and the various species to be planted etc.
 - Timely allocation of budget.
- Implementation/Rehabilitation
 - Reinstating and re-vegetation of all disturbed areas (including grasslands).
 - Public consultation through a media statement and informing the local Ward Councillor, etc.
- Maintenance and monitoring
 - To ensure that rehabilitation is a success, maintenance must be ongoing; periodical inspections and evaluations must be conducted until a satisfactory level of vegetation cover is reached.

7.2 Non-compliance with the MMP

Operational difficulties may be encountered that may result in non-compliance. Non-compliance may arise due to poor communication across the Applicant's (Eskom) various line departments, staff turnover, budget shortfalls, logistical challenges, etc. The applicant must put in place measures to ensure that the various departments will remain compliant with the MMP as far as possible.

Non-compliance with the MMP will be logged, and a report compiled on each non-compliance event and will be submitted to the National Department of Forestry, Fisheries and Environment (DFFE) for auditing purposes.

7.3 Amendment to the MMP

No MMP amendments (relaxation or revision of any mitigation measure or procedural requirements) will be allowed without approval from the Department of Forestry, Fisheries and Environment (DFFE). Motivations for amendments must be placed in writing and submitted to the Department for consideration.

8 LEGISLATIONS TO BE CONSIDERED

The following environmental legislations were taken into consideration in the development of this MMP:

- The Constitution of the Republic of South Africa Act 108 of 1996, (Chapter 2: Bill of Rights, Section 24: Environmental right
- National Environmental Management Act, 1998 (Act No. 107 of 1998 as amended).
- Environmental Impact Assessment Regulations, 2014, as amended.
- National Heritage Resources Act 25 of 1999
- National Water Act (Act No: 36 of 1998)
- National Environmental Management: Waste Act: 2008 (Act No. 59 of 2008
- Occupational Health and Safety Act (Act No: 58 of 1993)
- National Environmental Management Act: Air Quality, 2004
- National Environmental Management Act: Biodiversity Act (Act No: 10 of 2004)
- National Appeal Regulations, 2014 and
- Amendments
- DEA Guidelines on Public Participation
- DEA Guidelines on Need and Desirability
- DEA Guidelines on Alternatives
- Water Use Licence Applications & Appeal
- Regulations, 2017
- King Cetshwayo District Municipality Integrated Development Plan 2026-2027
- The City of uMhlathuze Municipality Spatial Development Framework 2022-2027
- National Development Plan
- Civil Aviation Act, 2009 (Act No. 13 of 2009)
- Integrated Energy Plan 2016
- Integrated Resource Plan 2019
- Standard for the Development and Expansion of Power Lines and Substations within Identified Geographical Areas, Revision 2, June 2022
- Hazardous Substances Act, 1973 (Act No. 15 of 1973).
- SANAS Standards
- ISO Standards (45001:2018 and 14001:2015)
- Municipality By-Laws and Policies.

8.1 Environmental Potential Impacts

8.1.1 Proposed Development Area Environmental Sensitivity

The following summary of the development site environmental sensitivities is identified. Only the highest environmental sensitivity is indicated. The footprint environmental sensitivities for the proposed development footprint as identified are indicative only and must be verified on site by a suitably qualified person before the specialist assessments identified below can be confirmed.

Table 2: DFFE Screening Tool Findings

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			

8.2 Triggered Activities

The listed activities that are triggered by the proposed development in terms of the EIA Regulations, 2014 (as amended) are:

Table 3: Applicable Listed Activities

Activity No(s)	Listed Activity	Description of project activity that triggers listed activity
Listing Notice 1 of the EIA Regulations, 2014 as amended		
Activity 19	The infilling or depositing of any material of more than 10 cubic metres into, or the dredging,	The proposed development traverses the Estuarine Functional Zone, where

Activity No(s)	Listed Activity	Description of project activity that triggers listed activity
	excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 10 cubic metres from a watercourse; but excluding where such infilling, depositing, dredging, excavation, removal or moving – is for maintenance purposes undertaken in accordance with a maintenance management plan ".	construction activities, including the excavation of pole foundations and earthworks required for the installation of infrastructure, will be undertaken.
Listing Notice 3 of the EIA Regulations, 2014 as amended		
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". (d) Kwazulu-Natal- (i) Outside urban areas, within 100 metres inland from an estuarine functional zone authority or in bioregional plans	The proposed maintenance of the 132kV Powerline will require the clearance of 300 square metre or more during construction and it is also located within the floodplain

8.3 Type of Environmental Feature

The proposed development falls within the Pongola Mtamvuna Water Management Catchment Area under the W12F Quaternary Catchment Boundaries, under the Sub-management area of uMhlatuze managed by the Department of Water and Sanitation. The proposed powerline transverses through one of the major river: The uMhlatuze River, perennials and non-perennial rivers. The figure below depicts the status quo of the project area.

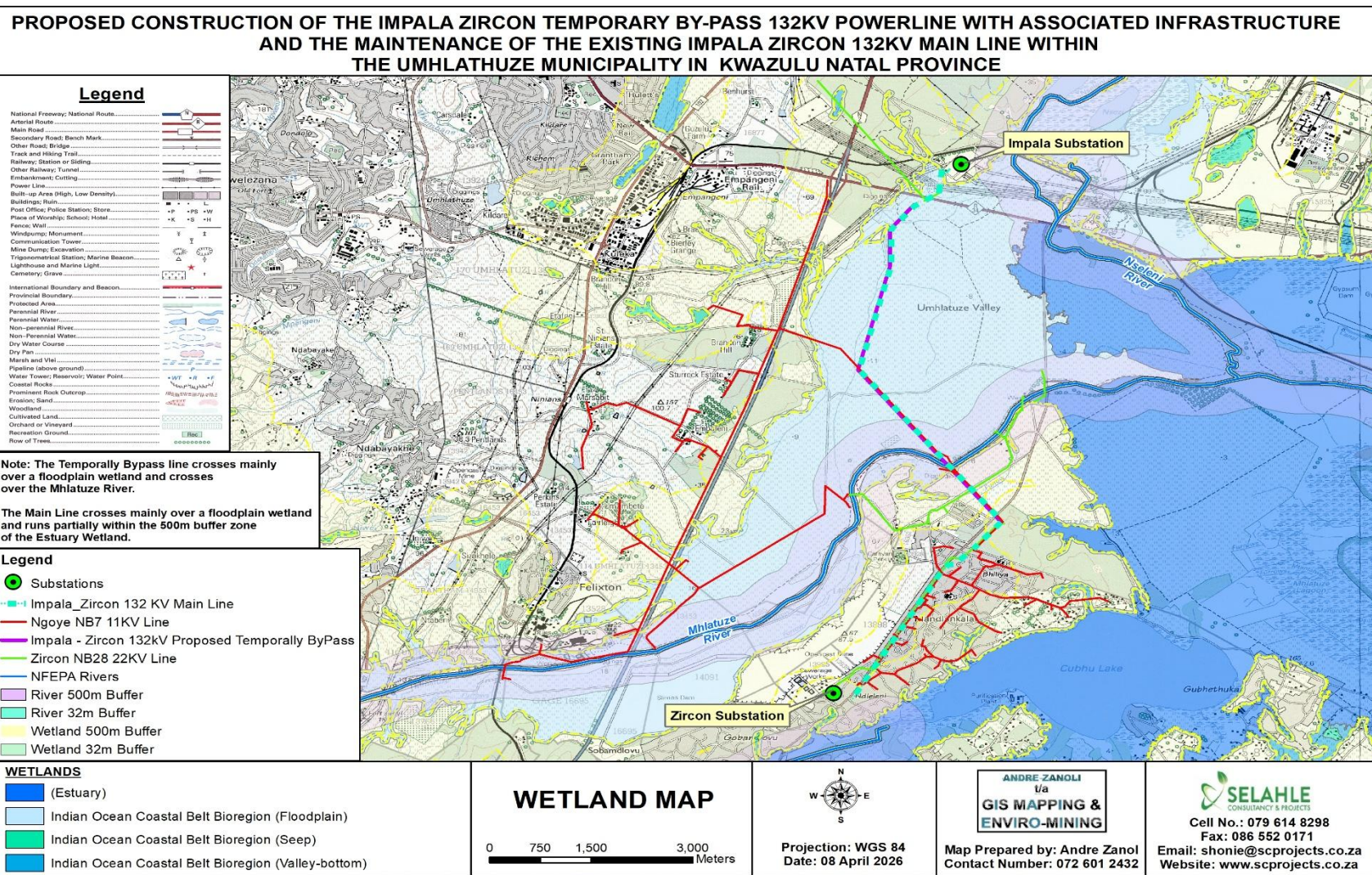


Figure 9: Hydrological Map for the proposed development

Although the proposed development doesn't overlay with any Critical Biodiversity Areas (CBAs), Ecological Support Areas (ESAs), Key Biodiversity Areas (KBAs) or National Protected Areas Expansion Strategy (NPAES) areas, it however it overlaps with several ecologically relevant landscape features including the Zululand Coast Strategic Water Source Area (SWSA), National Freshwater Ecosystem Priority Areas (NFEPA), and South African Inventory of Inland Aquatic Ecosystems (SAIIAE) features, including a poorly protected floodplain and portions of the uMhlatuze River system. Refer to Wetland and Conservation Plan maps below:

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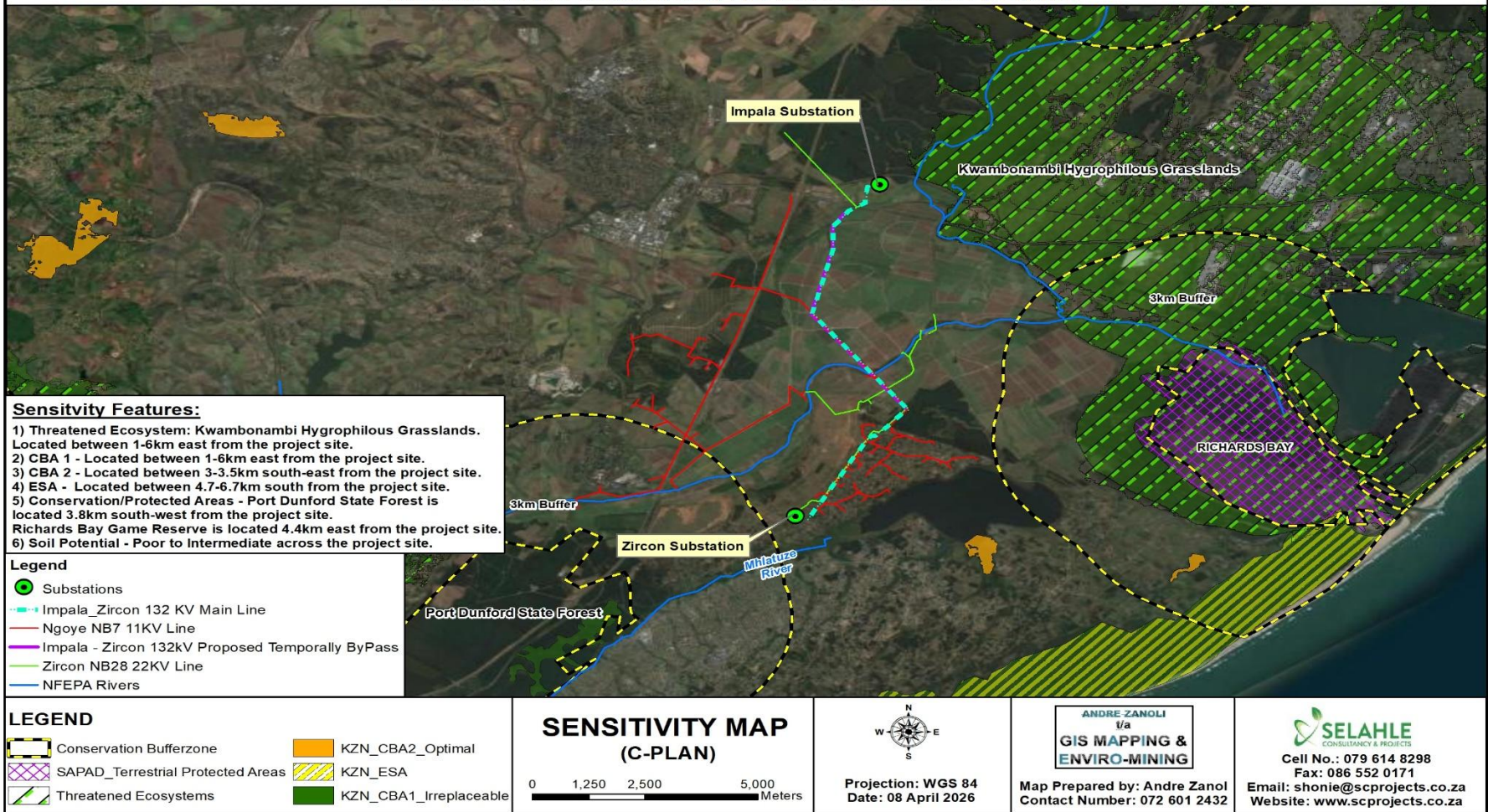


Figure 10: Conservation Plan in relation to the project site

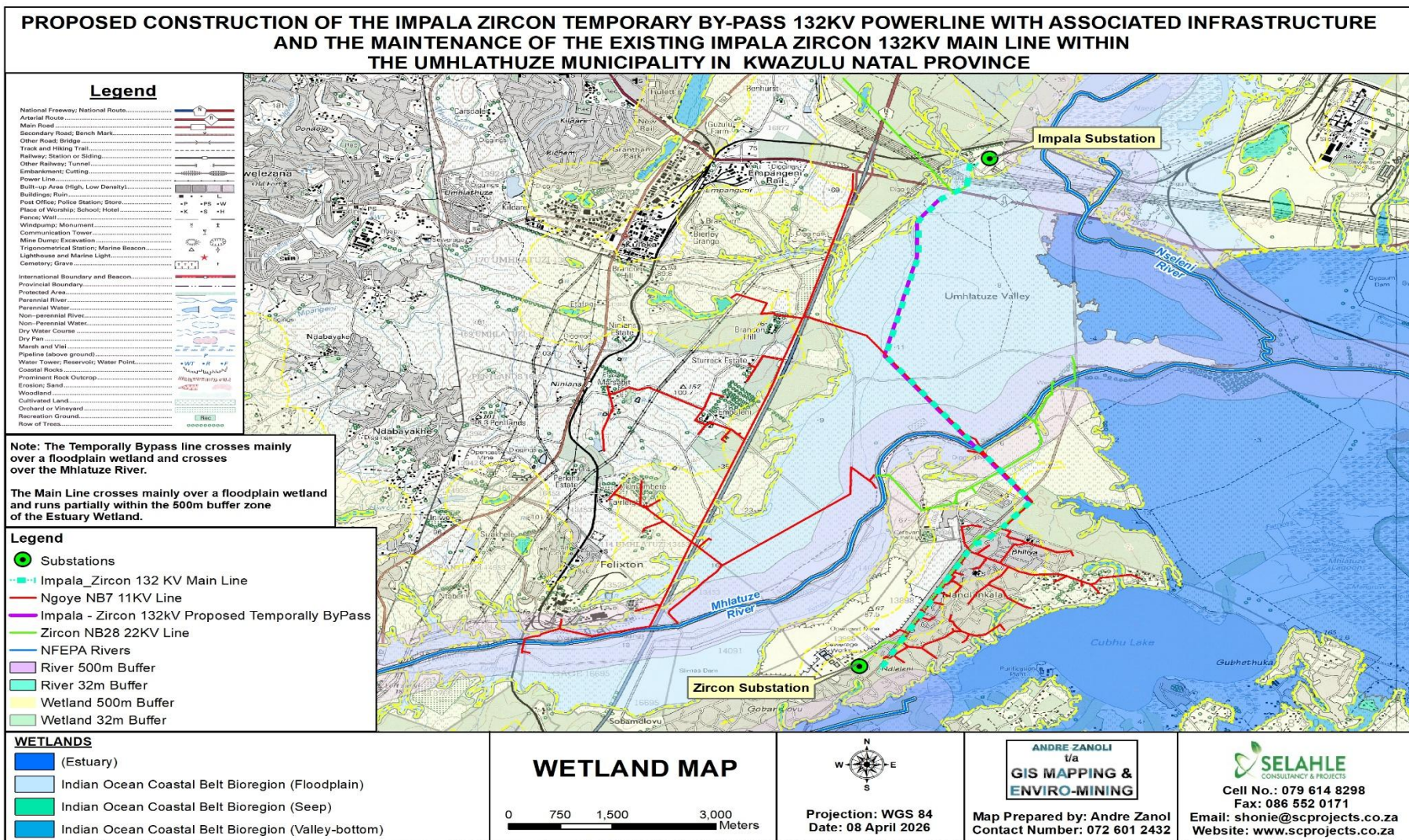


Figure 11: National Freshwater Ecosystem Priority Areas (NFEPA) Wetlands on-site

9 SPECIALIST STUDIES

The Specialist Studies and Compliance Statements were conducted in line with the protocol requirements in accordance with Government Notice No. 648 and Appendix 6 of the EIA Regulations, 2014, as amended. Below are the specialists' findings and impacts.

9.1 Agricultural Impact Assessment

The assessment found that the study area consists of moderately productive agricultural land currently used mainly for sugarcane cultivation. Potential impacts include temporary soil disturbance, topsoil loss and minor disruption to farming activities. These impacts were assessed as localised, reversible and of low significance.

9.2 Heritage Impact Assessment

No archaeological sites, graves, burial grounds or significant heritage resources were identified within the development footprint. The overall heritage sensitivity of the area was assessed as low. Potential impacts are limited to the unlikely disturbance of previously undiscovered heritage resources during construction.

9.3 Civil Aviation Study

The assessment found that the proposed maintenance of the existing powerline will not significantly affect aviation operations, navigational systems or radar infrastructure. As the bypass largely follows the existing powerline alignment, no material increase in aviation risk is anticipated. The overall impact on civil aviation was assessed as low.

9.4 Radio Frequency Interference Compliance Statement

The study found that the proposed powerline is unlikely to generate Radio Frequency Interference Under normal operating conditions. Potential impacts could arise only from equipment faults, poor installation or inadequate maintenance. Overall, the risk of interference with communication and electronic systems was assessed as low.

9.5 Palaeontological Impact Assessment

The study area has been extensively transformed by agricultural activities and existing infrastructure, reducing the likelihood of significant fossil resources occurring within the footprint. Potential impacts are limited to the accidental disturbance of previously unidentified fossil material during excavation. The anticipated palaeontological impact was assessed as low. See the Palaeontological map below.

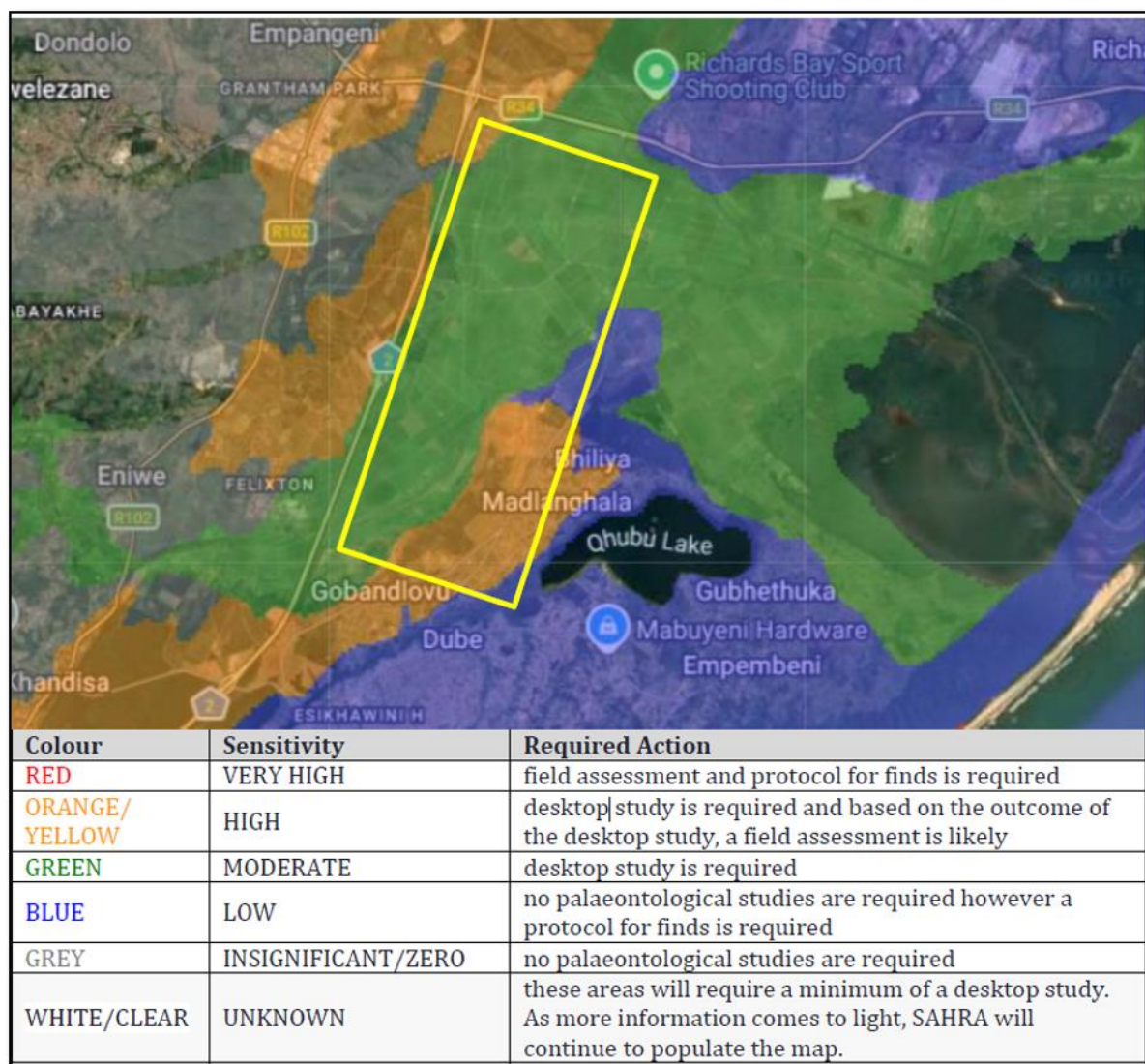


Figure 12: Palaeontology Map

9.6 Visual Impact Assessment

The proposed maintenance of the existing powerline will not introduce a temporary visual element into an already transformed landscape containing existing transmission infrastructure. Potential impacts relate to visual intrusion during construction and operation. These impacts were assessed as low due to the temporary nature of the project and the presence of existing powerline infrastructure. See the map below:

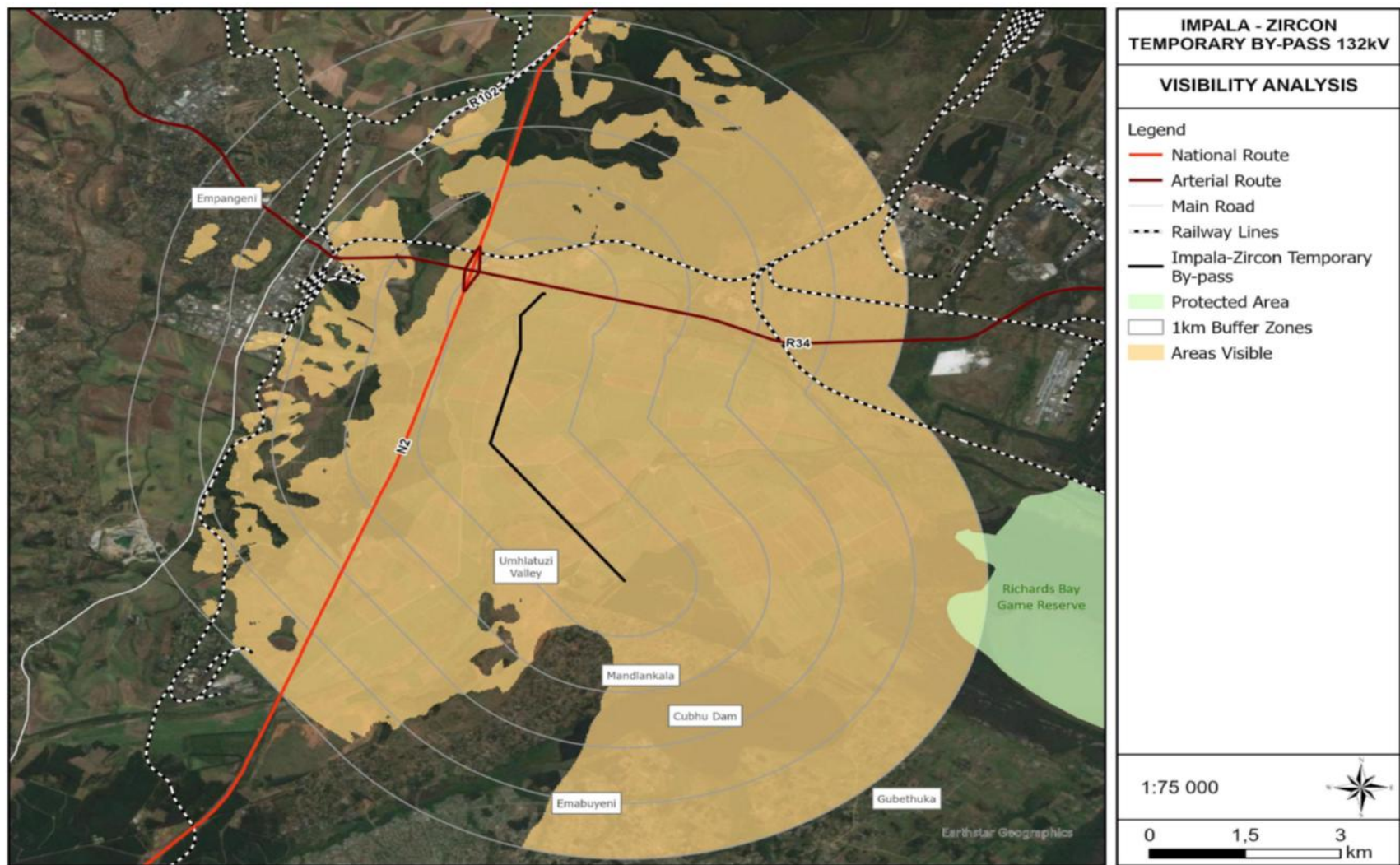


Figure 13: Visibility Analysis Map

9.7 Aquatic Biodiversity Assessment (Wetland Assessment)

The assessment identified wetlands, drainage features and the uMhlathuze River within the broader study area, including systems of high ecological importance and sensitivity. Potential impacts include temporary disturbance of wetlands, alteration of drainage patterns, erosion and sedimentation during construction. However, all aquatic impacts were assessed as low and manageable with the implementation of mitigation and rehabilitation measures. See the maps below that depicts the aquatic features associated with the site.

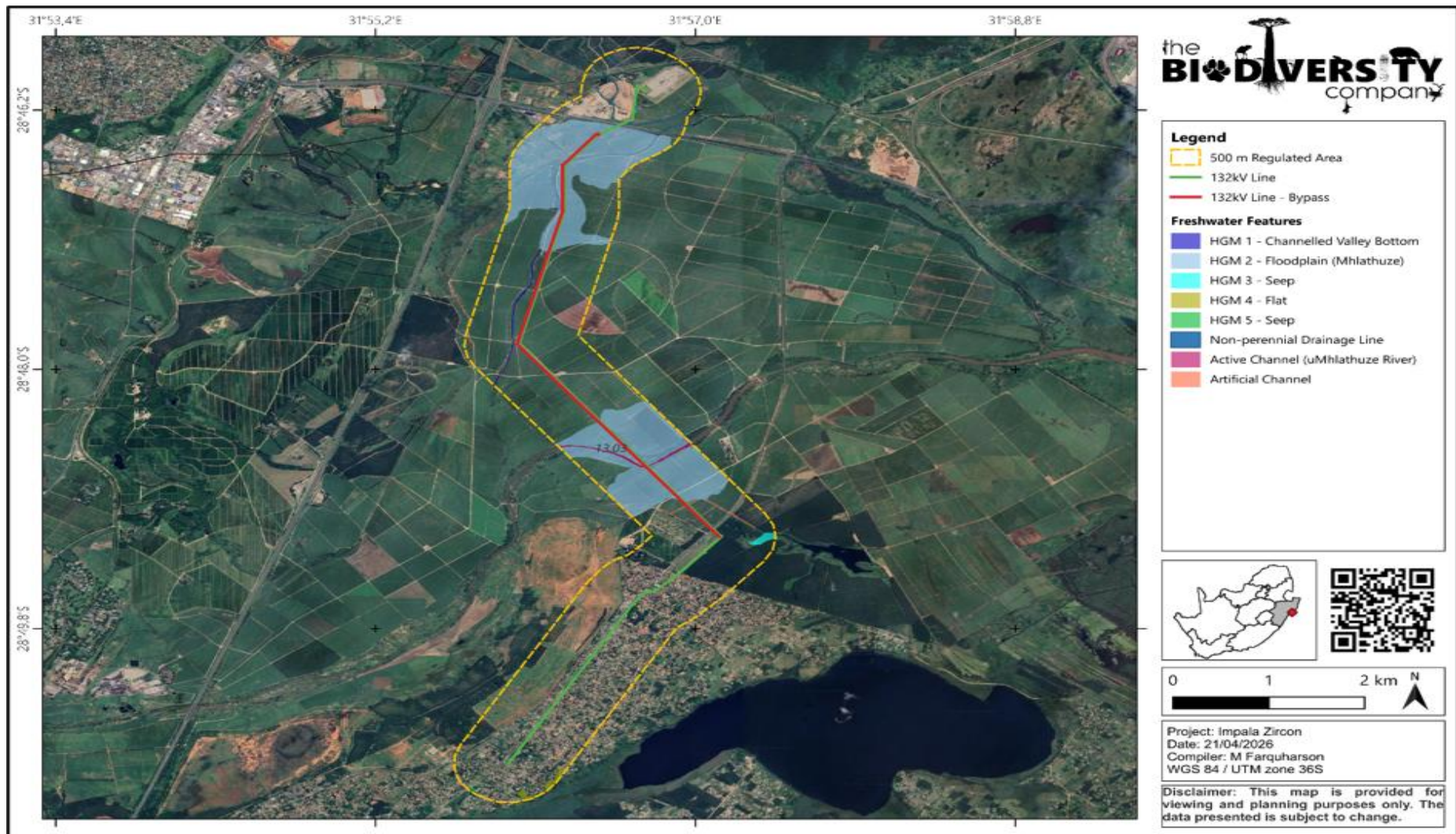


Figure 15: Wetland Delineation Map

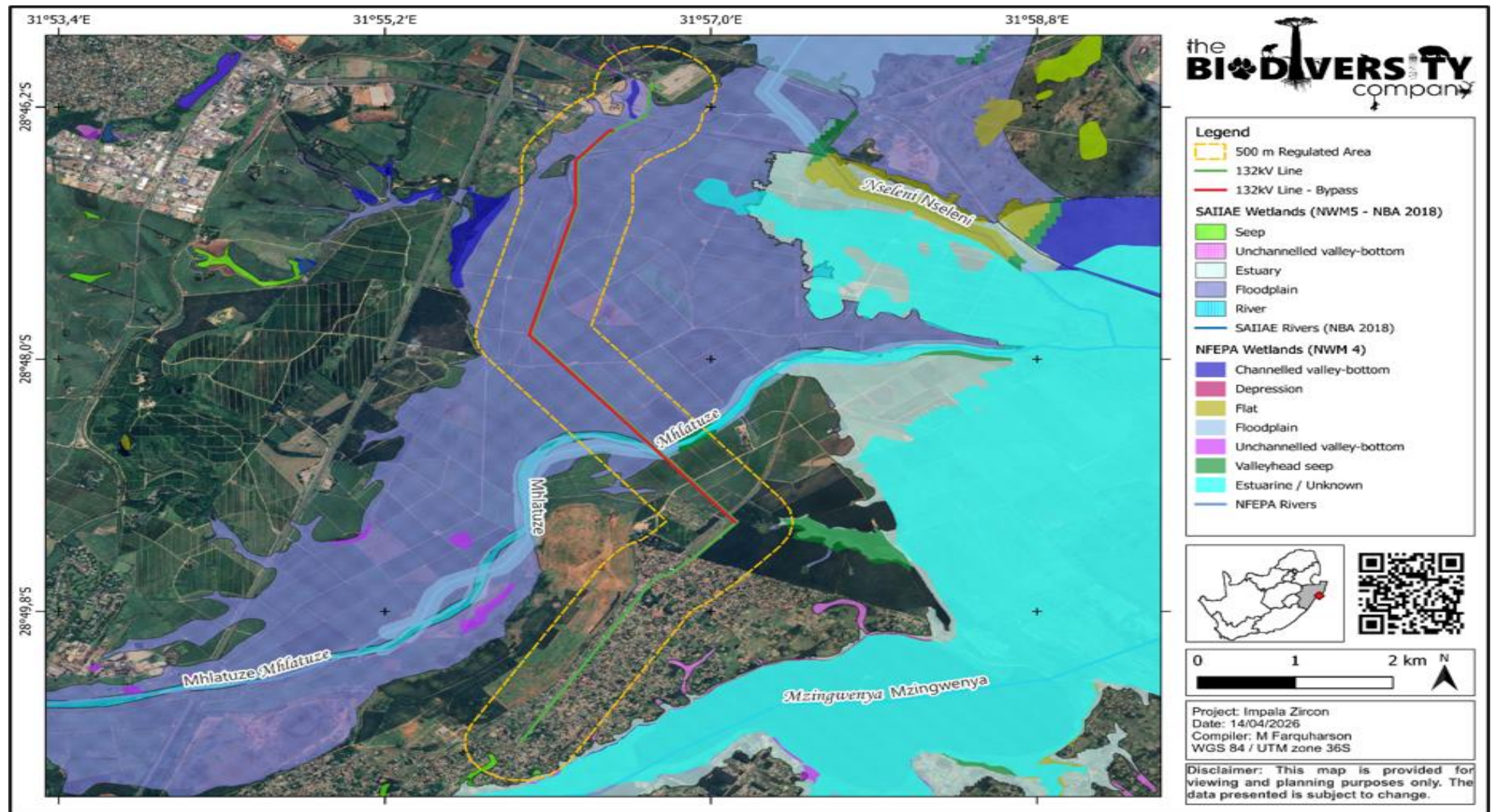


Figure 16: National Freshwater Ecosystem Priority Areas

9.8 Avifauna Assessment Study

The Avifauna Assessment identified that the proposed temporary bypass powerline may result in habitat loss and disturbance, bird collisions with the powerline, electrocution risks, and potential mortalities of Species of Conservation Concern (SCC), particularly within water resource habitats that are important for breeding and congregatory bird species. Without mitigation, these impacts range from moderate to high significance. The study recommends undertaking a pre-construction nest walkdown survey to identify active nests, restricting activities to the approved development footprint, avoiding unnecessary disturbance of sensitive habitats, providing environmental awareness training to all personnel, and installing bird flight diverters and nest-proofing measures to reduce collision and electrocution risks. With the implementation of these mitigation measures, the impacts are considered acceptable and can be reduced to low significance.

9.9 Terrestrial Biodiversity Desktop Assessment

The Terrestrial Biodiversity Assessment concluded that the proposed development will have limited impacts on terrestrial biodiversity because the project is located within a highly transformed environment dominated by agricultural, forestry and existing infrastructure corridors. The primary potential impacts include localised vegetation disturbance, habitat degradation, the spread of alien invasive plant species, soil disturbance, and minor impacts on terrestrial fauna. The study recommends limiting all construction and maintenance activities to clearly demarcated disturbed areas, minimising vegetation clearing, rehabilitating disturbed areas after construction, implementing an Alien Invasive Plant management programme, maintaining good housekeeping practices, and providing environmental awareness training to site personnel. The specialist concluded that, with the implementation of the recommended mitigation measures and EMP requirements, the terrestrial biodiversity impacts will be low and the proposed development is environmentally acceptable.



Figure 17: Site Ecological Importance sensitivity of the proposed development

10 PUBLIC PARTICIPATION PROCESS

The Public Participation Process (PPP) during the Environmental Maintenance Management Plan Process will enable potential I&APs to be given an opportunity to comment on, or raise issues relevant to, the application. According to Section (2)(4)(f) and (o) of NEMA:

- The participation of all Interested and Affected Parties (I&APs) in environmental governance must be promoted, and all people must have the opportunity to develop the understanding, skills and capacity necessary for achieving equitable and effective participation, and participation by vulnerable and disadvantaged persons must be ensured.
- The environment is held in public trust for the people; the beneficial use of environmental resources must serve the public interest, and the environment must be protected as the people's common heritage.

10.1.1 DFFE Pre-Application Meeting

A request for a Pre-Application Meeting was submitted to the Department of Forestry, Fisheries and the Environment (DFFE) on 19 March 2026. On the same day, the Environmental Assessment Practitioner (EAP) received an acknowledgement from DFFE confirming receipt of the request and assigning Reference Number: 2026-03-0033. Following this, the Pre-Application Meeting was scheduled for 21 April 2026. The purpose of the meeting was to discuss the proposed project, confirm the applicable legislative requirements, and obtain agreement on the environmental assessment process, specialist study requirements, public participation process and other procedural aspects prior to the submission of the Environmental Authorisation (EA) application and the Draft Basic Assessment Report (DBAR).

10.1.2 Identification of Interested and Affected Parties

The pre-identified Stakeholders that were consulted during the first phase of the public participation process of the EA Application by submitting and circulating Background Information documents, Notification letters and Comment Forms are, but not limited to:

Table 4: List of Stakeholders

Type of Interested and Affected Party	Directorates
Local communities and residents	Ward Councillors ▪ Richard's Bay, Empangeni Madlanghala and Bhiliya Communities
Government Departments (Organs of State)	- The city of uMhlathuze Municipality - King Cetshwayo District Municipality - Department of Water and Sanitation - South African Civil Aviation Authority - KwaZulu-Natal Amafa and Research Institute - Department of Roads & Transport - South African Heritage Resource Agency - Air Traffic and Navigation Services SOC Limited (ATNS)

Type of Interested and Affected Party	Directorates
	- KwaZulu-Natal Department of Economic Development, Tourism and Environmental Affairs (KZNEDTEA) - Transnet - South African National Roads Agency SOC Limited (SANRAL) - Department of Electricity and Energy (DEE)
Competency Authority – Department of Forestry, Fisheries and Environment	<u>Departments under DFFE</u> - Biodiversity Conservation, Control Biodiversity - Forest Resource Protection Branch: Forestry Management - Integrated Coastal Management - Coastal Pollution Management - DFFE Protected Areas Directorate - DFFE Oceans and Coast Directorate
Provincial commenting Authority- KwaZulu-Natal Department of Economic Development, Tourism and Environmental Affairs (KZNEDTEA)	<u>Departments under KZNEDTEA</u> - Environmental Impact Management - Coastal Management - Biodiversity Management
Business owners and industry groups	- Richards Bay Industrial Development Zone Company - The Umhlatuzi Valley Sugar Company (Pty) Ltd (UVS)
Non-Government Organisations (NGOs)	- Bird Life South Africa - Wildlife and Environment Society of South Africa (WESSA) - Ezemvelo KZN Wildlife - Endangered Wildlife Trust (EWT)
Traditional leaders and landowners	- Tribal Authorities

10.1.3 Stakeholder Mapping

A 5km radius mapping was used to be able to identify stakeholders who would be potentially impacted by the proposed development. This was also aimed at identifying key stakeholders directly impacted by the proposed project. In addition, this map was also used to identify locations for placing site notices, BID distribution and public meeting venues.

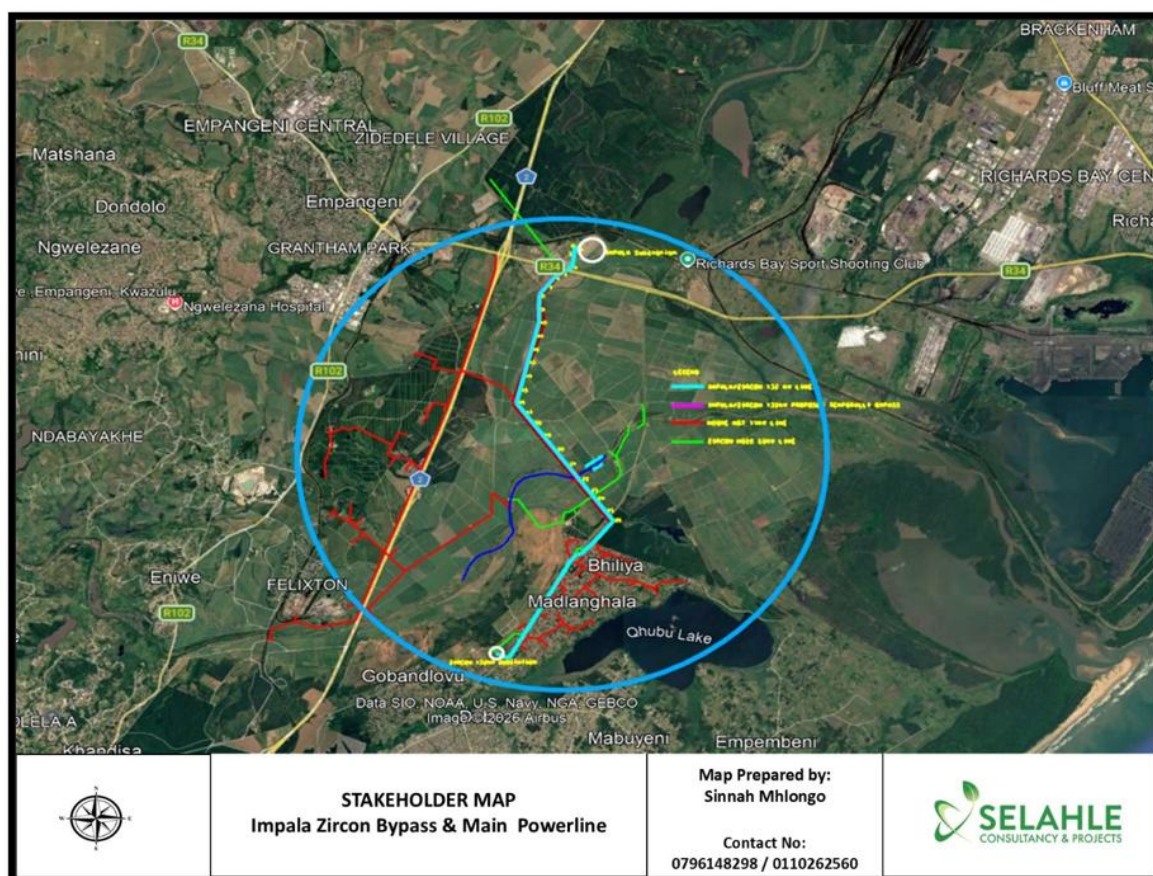


Figure 18: Impala Zircon Stakeholder Map

The Stakeholder Risk Mapping (SRM) method was also employed to identify, analyse and prioritise stakeholders based on the level of risk they might pose in the proposed development. This is to ensure that appropriate engagement manages stakeholder concerns, expectations, influence, and potential impacts on project outcomes.

Table 5: Stakeholders Risk Mapping

IDENTIFIED RISKS	▪ Potential complaints from landowners ▪ Community Unrest ▪ Lack of stakeholder interest or participation in the process. ▪ Increased Crime ▪ Public resistance and lobbying efforts against the project ▪ Low attendance at public meetings and consultation sessions ▪ Misinformation or misunderstanding of project information ▪ Unrealistic stakeholder expectations regarding project outcomes and benefits ▪ Language and communication barriers ▪ Community distrust towards the project proponent or authorities ▪ Community opposition to the project ▪ Failure to identify all relevant stakeholders
MITIGATION MEASURES	▪ Engage directly with affected landowners early in the process and address concerns promptly.

	▪ Maintain continuous and transparent communication with affected communities throughout the project lifecycle. ▪ Use multiple communication channels to encourage stakeholder participation. ▪ Collaborate with local authorities and community structures to monitor and address security concerns. ▪ Provide clear and factual project information to address concerns and reduce misconceptions. ▪ Schedule meetings at convenient times and locations for stakeholders. ▪ Disseminate accurate and easy-to-understand project information through the official communication channel ▪ Clearly communicate the project's scope, limitations, and anticipated benefits. ▪ Translate key project information into the locally spoken language ▪ Ensure transparency and provide regular feedback throughout the public participation process ▪ Engage stakeholders early to identify and address concerns before they escalate. ▪ Conduct a comprehensive stakeholder identification and mapping exercise at the outset of the process
LOCAL SPOKEN LANGUAGES	▪ English ▪ Isizulu
NEWSPAPER	▪ Zululand Observer

10.1.4 Placement of Site Notices

Approximately twenty (20) A2 site notices were placed within a 20 km radius of the Project Area of Influence (PAOI). This was aimed at introducing the project to all Interested and Affected Parties in Empangeni area. The areas that were covered are:

- Esikhaleni
- Empangeni
- Madlankala
- Gobandlovu

Photographic evidence as proof of site notices erection are shown in the figure below. More pictures are included in this Draft Basic Assessment Report.

10.1.5 Circulation of Background Information Document

Background Information Document, together with a Comment Form in two languages (English & Isizulu) were distributed around the PAOI. Comment forms were also provided for all Interested and Affected Parties to complete and return to the SCP Public Participation Office. Furthermore, the same BID, Notification Letters and Comments forms were sent via email to all pre-identified stakeholders, landowners, and Organs of State. Proof of this is appended hereto, and photographic evidence for the distribution of the BID is illustrated herein below in Figures 5.



Figure 19: Proof of Site Notices Erection around the PAOI

10.1.6 Review and Comment on the Draft Maintenance Management Plan

The Draft Maintenance Management Plan (DMMP) will be made available in hard copy at Public Libraries, as well as at other locations identified for document placement. Electronic copies will be distributed via email to all stakeholders identified in Section above, affected landowners, and registered Interested and Affected Parties (I&APs). Access to the DMMP will also be provided through scanning the QR code below and via the SCP website (<https://www.scprojects.co.za/publicdocuments.html>).

The Draft Maintenance Management Plan and its associated annexures will be made available for public review and comment for a period of 30 calendar days. Below are the venues where the DMMP will be available:

Table 6: Venues of where the DMMP will be available

Venue	GPS Location	QR CODE
Gobandlovu Community Hall	https://share.google/zv6slPexoL2ndvQPH	
Madlankala Primary School	https://share.google/jDa6UNrhMqlZ83wqc	
Mcabango High School	https://share.google/lqQRelayVwKJCOjbl	
Empangeni Community Library	https://share.google/TpPnvZ3OmGEzfwhAd	
Esikhaleni Community Library	https://maps.app.goo.gl/JZr6NnKcyNtc1aox8	

SECTION 4: MAINTENANCE MANAGEMENT PLAN ACTIVITIES

All planned activities that would be undertaken during the maintenance phase will have detrimental impacts on the environment and the watercourse. This Maintenance Management Plan will duly address the potential impacts as well as the mitigation measures thereof.

All potential impacts that may be caused by the proposed development will be identified using the following media:

- Views of I&APs;
- Existing information.
- Site visit with the project team; and
- Legislation.

The assessment methodology that would be used in assessing and mitigating these impacts is shown in the table below:

Table 7: Methodology utilised in the rating of significance of impacts

NATURE		
Include a brief description of the impact of environmental parameter being assessed in the context of the project. This criterion includes a brief written statement of the environmental aspect being impacted upon by a particular action or activity.		
The potential impacts of the proposed development were identified through a desktop study, a site verification, and specialist studies.		
In the Maintenance Management Plan, the potential impacts are broadly identified and outlined. An assessment of the potential impacts is provided, identifying the impacts that are potentially significant and recommending management and mitigation measures to reduce the impacts.		
In general, it is recognised that every development has the potential to pose various risks to the environment as well as to the residents or businesses in the surrounding area. Therefore, these possible risks must be taken into account during the planning phase of the development. Risks and key issues were identified and addressed through an internal process based on similar developments and an environmental evaluation. Previous experience has shown that it is often not feasible or practical to only identify and address possible impacts. The rating and ranking of impacts are often a controversial aspect because of the subjectivity involved in attaching values to impacts.		
Significance is determined through a synthesis of impact characteristics. Significance is an indication of the importance of the impact in terms of both physical extent and time scale, and therefore indicates the level of mitigation required.		
GEOGRAPHICAL EXTENT		
This is defined as the area over which the impact will be expressed. Typically, the severity and significance of an impact have different scales and as such bracketing ranges are often required. This is often useful during the detailed assessment of a project in terms of further defining the determined.		
1	Site	The impact will only affect the site
2	Local/district	Will affect the local area or district
3	Province/region	Will affect the entire province or region
4	International and National	Will affect the entire country
PROBABILITY		
This describes the chance of occurrence of an impact		
1	Unlikely	The chance of the impact occurring is extremely low (Less than a 25% chance of occurrence).
2	Possible	The impact may occur (Between a 25% to 50% chance of occurrence).

3	Probable	The impact will likely occur (Between a 50% to 75% chance of occurrence).
4	Definite	Impact will certainly occur (Greater than a 75% chance of occurrence).
REVERSIBILITY		
This describes the degree to which an impact on an environmental parameter can be successfully reversed upon completion of the proposed activity.		
1	Completely reversible	The impact is reversible with implementation of minor mitigation measures
2	Partly reversible	The impact is partly reversible but more intense mitigation measures are required.
3	Barely reversible	The impact is unlikely to be reversed even with intense mitigation measures.
4	Irreversible	The impact is irreversible and no mitigation measures exist.
IRREPLACEABLE LOSS OF RESOURCES		
This describes the degree to which resources will be irreplaceably lost as a result of a proposed activity.		
1	No loss of resource.	The impact will not result in the loss of any resources.
2	Marginal loss of resource	The impact will result in marginal loss of resources.
3	Significant loss of resources	The impact will result in significant loss of resources.
4	Complete loss of resources	The impact is result in a complete loss of all resources.
DURATION		
This describes the duration of the impacts on the environmental parameter. Duration indicates the lifetime of the impact as a result of the proposed activity		
1	Short term	The impact and its effects will either disappear with mitigation or will be mitigated through natural process in a span shorter than the construction phase (0 – 1 years), or the impact and its effects will last for the period of a relatively short construction period and a limited recovery time after construction, thereafter it will be entirely negated (0 – 2 years).
2	Medium term	The impact and its effects will continue or last for some time after the construction phase but will be mitigated by direct human action or by natural processes thereafter (2 – 10 years).

3	Long term	The impact and its effects will continue or last for the entire operational life of the development, but will be mitigated by direct human action or by natural processes thereafter (10 – 50 years).
4	Permanent	The only class of impact that will be non-transitory. Mitigation either by man or natural process will not occur in such a way or such a time span that the impact can be considered transient (Indefinite).
CUMULATIVE EFFECT		
This describes the cumulative effect of the impacts on the environmental parameter. A cumulative effect/impact is an effect which in itself may not be significant but may become significant if added to other existing or potential impacts emanating from other similar or diverse activities as a result of the project activity in question.		
1	Negligible Cumulative Impact	The impact would result in negligible to no cumulative effects
2	Low Cumulative Impact	The impact would result in insignificant cumulative effects
3	Medium Cumulative impact	The impact would result in minor cumulative effects
4	High Cumulative Impact	The impact would result in significant cumulative effects
INTENSITY/ MAGNITUDE		
Describes the severity of an impact		
1	Low	Impact affects the quality, use and integrity of the system/component in a way that is barely perceptible.
2	Medium	Impact alters the quality, use and integrity of the system/component but system/ component still continues to function in a moderately modified way and maintains general integrity (some impact on integrity).
3	High	Impact affects the continued viability of the system/ component and the quality, use, integrity and functionality of the system or component is severely impaired and may temporarily cease. High costs of rehabilitation and remediation.
4	Very high	Impact affects the continued viability of the system/component and the quality, use, integrity and functionality of the system or component permanently ceases and is irreversibly impaired (system collapse). Rehabilitation and remediation often impossible. If possible rehabilitation and

		remediation often unfeasible due to extremely high costs of rehabilitation and remediation.
SIGNIFICANCE		
Significance is determined through a synthesis of impact characteristics. Significance is an indication of the importance of the impact in terms of both physical extent and time scale, and therefore indicates the level of mitigation required. This describes the significance of the impact on the environmental parameter. The calculation of the significance of an impact uses the following formula: (Extent + probability + reversibility + irreplaceability + duration + cumulative effect) x magnitude/intensity. The summation of the different criteria will produce a non-weighted value. By multiplying this value by the magnitude/intensity, the resultant value acquires a weighted characteristic that can be measured and assigned a significance rating.		
Points	Impact Significance Rating	Description
6 to 28	Negative Low impact	The anticipated impact will have negligible negative effects and will require little to no mitigation.
6 to 28	Positive Low impact	The anticipated impact will have minor positive effects.
29 to 50	Negative Medium impact	The anticipated impact will have moderate negative effects and will require moderate mitigation measures.
29 to 50	Positive Medium impact	The anticipated impact will have moderate positive effects.
51 to 73	Negative High impact	The anticipated impact will have significant effects and will require significant mitigation measures to achieve an acceptable level of impact.
51 to 73	Positive High impact	The anticipated impact will have significant positive effects.
74 to 96	Negative Very high impact	The anticipated impact will have highly significant effects and are unlikely to be able to be mitigated adequately. These impacts could be considered "fatal flaws".
74 to 96	Positive Very high impact	The anticipated impact will have highly significant positive effects.

10.2 Summary of Impacts Associated with the Proposed Project

The EAP, together with the appointed specialists for this project, has identified several potential impacts on the environment that may be associated with the proposed maintenance and operation

of the stream and associated infrastructure. The identified impacts and their significance are rated before and after mitigations.

Table 8: Summary of impacts and their significance before and after mitigation.

IMPACT	SIGNIFICANCE (before mitigation)	SIGNIFICANCE (after mitigation)
MAINTENANCE PHASE		
Removal of the existing 132kv powerline	Medium	Low
Generation of demolition waste from removal of damaged and corroded infrastructure components	Medium	Low-
Dust generation during dismantling activities	Medium	Low
Noise from demolition equipment and vehicles	High	Medium
Soil erosion and compaction due to movement of heavy machinery	High	Medium
Vegetation clearing around tower sites and access routes	Medium	Low
Disturbance to wetlands and drainage lines	High	Medium
Spread of alien invasive plant species	Medium	Low
Disturbance of fauna and avifauna	Medium	Low
Soil erosion and sedimentation	Medium	Low
Waste generation from replacement of infrastructure components	Medium	Low
Disturbance to agricultural activities	Medium	Low
Temporary traffic and access impacts	Medium	Low
Employment Creation and Local Business Development	High (Positive)	High (Positive)
Contamination of soil and water resources from fuel and oil spills	High	Medium
OPERATIONAL PHASE		
Electrocution and collision risk to avifauna	Medium	Low
Spread of alien invasive species	Medium	Low
Visual impact of the powerline infrastructure	Medium	Low
Improved electricity network reliability and security of supply	High (Positive)	High (Positive)

10.3 Environmental Objectives and Targets

In order to meet the commitments included within the environmental specifications of this Environmental Maintenance Management Plan, the Proponent shall develop environmental objectives and targets to be met throughout the duration of any reconstruction or maintenance activities. The objectives and targets must conform to and comply with the following criteria:

- The objectives and targets shall constitute the overall goals for environmental performance identified in the Environmental Maintenance Management Plan;

- When establishing objectives and targets, the Proponent shall take into account the identified environmental aspects and associated environmental impacts, as well as the relevant findings from environmental reviews and audits;
- The targets must be set to achieve objectives within a specified timeframe;
- Targets should be specific and measurable;
- When the objectives and targets are set, the Proponent must establish measurable Key Performance Indicators (KPIs). The latter will be used by the contractor as the basis for an Environmental Performance Evaluation System, and can provide information on both the environmental management and the operational systems;
- Objectives and targets need to apply broadly across the entire project, as well as to site-specific and individual activities; and
- Objectives and targets must be reviewed from time to time in view of changed operational circumstances and/or changes in environmental legal requirements and need to take into consideration the views of the I&APs.

10.4 Maintenance Management Principles

The following are overarching principles to be used by management and their contractors when considering the implementation of the Environmental Maintenance Management Plan:

- The anticipation and prevention of negative impacts and risks, then minimisation, rehabilitation or 'repair', where a sequence of possible mitigation measures to avoid, minimise, rehabilitate and/or remedy negative impacts is explicitly considered;
- Avoid and reduce unnecessary maintenance;
- Maintenance and management must be informed by the condition of the physical and ecological processes that drive and maintain the relevant ecosystems within the area, relative to the desired state of the affected system;
- Management actions must aim to prevent further deterioration to the condition of the affected environment and, overall, be guided by a general commitment to improving and maintaining ecological infrastructure for the delivery of ecosystem services;
- Managers and contractors must identify, address, and, where feasible, eliminate the factors that necessitate intrusive, environmentally damaging maintenance; and
- A process of continuous management improvement must be applied, namely by the following phased approach:
 - i. Planning;
 - ii. Implementing;
 - iii. Checking (monitoring, auditing, determining corrective action); and
 - iv. Acting (management review).

11 ENVIRONMENTAL METHOD STATEMENTS

The Method Statements may comprise the way in which the plan is to be set out, materials handling and storage, the use of labour, and the method that the Contractor proposes to use to carry out an

activity. The Method Statement must include sufficient details so that the ECO and Project Manager can assess whether the Contractor's proposal is in accordance with the requirements of the Environmental Maintenance Management Plan and good environmental practice. The Contractor must sign each Method Statement, along with the ECO, the Project Manager, and/or the Proponent, to formalise the approval of the documents.

A Method Statement is a “**live document**” in that modifications are negotiated between the Contractor and the ECO or project management team, as circumstances unfold. A Method Statement describes the scope of the intended work in a step-by-step description for the ECO to understand the Contractor's intentions. This will enable them to assist in devising any mitigation measures, which would minimise environmental impact during these tasks. A Method Statement indicates the following:

- **What** – a brief description of the work to be undertaken;
- **How** – a detailed description of the process of work, methods and materials;
- **Where** – a description/sketch map of the locality;
- **When** – the sequencing of actions with due commencement dates and completion date estimates;
- **Who** – the person responsible for undertaking the works described in the Method Statement.

Table 9: Summary of the Environmental Methods Statement and Control Measures

1. Activity – Decommissioning of the Impala-Zircon 132kV Main Powerline and for maintenance and refurbishment. The extent of the powerline is approximately 10,582 km in length. 2. Relevant Site Characteristics – Zululand Coast Strategic Water Source Area (SWSA), National Freshwater Ecosystem Priority Areas (NFEPA), and South African Inventory of Inland Aquatic Ecosystems (SAIIAE) features, including a poorly protected floodplain and portions of the Mhlatuze River system.
3. Materials and Equipment ▪ TLB ▪ Bobcat ▪ Trucks ▪ Vehicles ▪ Concrete mixer ▪ Conductors and Insulators ▪ Structural steel and hardware 4. Method ▪ Site Clearance – Removal of debris and clearing working area. ▪ Removal of vegetation – Removal and Preserving topsoil. ▪ Surveying: Levels Setting Out ▪ Excavation: Trench excavation

3. Layout



Figure 20: Pictorial towers of the Main Line



Figure 21: Pictorial towers of the Main Line

4. Method statements	5. Control measures
a) Site and vegetation clearance. b) Exposing of Existing Services – Hand excavation. c) Demolishing of Existing structures i.e. Manholes, Stormwater pipes. d) Excavation: Trench	1. Minimise the spatial extent of disturbance and the frequency of, or requirement for, maintenance activities. The disturbance footprint should be clearly demarcated. No activities should take place outside of this area. 2. Do not impede the movement of aquatic and riparian biota through construction of fences, walls or trenches within the riverine corridor. 3. Manual labour is preferred to the use of mechanical equipment in order to minimise physical disturbance around the activity location.

	4. Any cleared sediment, vegetation or spoil material associated with the maintenance activity should be removed out of the river channel, to an approved disposal site. ▪ After construction, any areas within the maintenance footprint that have been degraded from their condition prior to construction and as a result of the maintenance activities must be restored to their former condition. If required, disturbed areas should be revegetated with appropriate indigenous plant species). ▪ Removed material should be taken out of the channel completely and should not be utilised to block the river flow or to create berms on the top of the stream banks. ▪ Disturbed areas on the banks of the river should be revegetated with indigenous plant species. ▪ Avoid trampling or clearing of indigenous vegetation by using established paths where possible. ▪ Clear felled alien vegetation should be removed from the river corridor. Larger tree stumps can be left to minimise erosion of the cleared area ▪ Where necessary revegetate cleared areas with suitable indigenous vegetation. ▪ Ongoing monitoring and clearing of regrowth of alien plants within these areas will be required. ▪ It is recommended that weekly monitoring for alien vegetation regrowth be conducted. ▪ Should chemicals be used, only those that are not harmful to soil bacteria and aquatic biota should be used. The type of chemicals used, date and location of application must always be recorded in the monthly reports to be prepared by the conservator. ▪ No highly persistent pesticides or herbicides will be purchased or used. ▪ The storage and handling procedures specified by the manufacturer of the chemical must be followed. ▪ Chemical application should be avoided on windy days and before heavy rains. ▪ Disturbed or cleared areas should be revegetated with indigenous plant species.
6. Emergency/disaster incident and reaction procedures.	
▪ Emergencies happen due to a variety of reasons or events including: ▪ Natural disasters/ accidents (e.g.	▪ Implement climate change resilient designs. ▪ Implement detailed planning and budgeting during design phase. ▪ Routine inspection, monitoring, and preventative maintenance programmes should be established to identify leaks and defects.

floods, windstorms, droughts, earthquakes), ▪ Inappropriate or poor design and planning (e.g. inappropriate budgeting) ▪ System neglect or poor maintenance. ▪ Poor operations (e.g. use of incompetent skilled staff) ▪ Vandalism (e.g. pipe breaks) ▪ Exposure of pipes above the ground	▪ Operational risks can be mitigated by appointing qualified personnel, providing regular training, and establishing standard operating procedures. ▪ Implement security measures such as fencing, surveillance, restricted access, and patrols to reduce vandalism and theft.
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12 ROLES AND RESPONSIBILITIES FOR MMP IMPLEMENTATION

The effective implementation of this generic MMP is dependent on established and clear roles, responsibilities and reporting lines within an institutional framework. This section of the MMP gives guidance to the various environmental roles and reporting lines, however, project specific requirements will ultimately determine the need for the appointment of specific person(s) to undertake specific roles and or responsibilities. As such, it must be noted that in the event that no specific person, for example, an environmental control officer (ECO) is appointed, the holder of the EA remains responsible for ensuring that the duties indicated in this document for action by the ECO are undertaken.

Table 10: Guide to Roles and Responsibilities for Implementation of an MMP

Responsible Person (s)	Role and Responsibilities
Developer's Project Manager (DPM)	<u>Role</u> The Project Developer is accountable for ensuring compliance with the MMP and any conditions of approval from the competent authority (CA). Where required, an environmental control officer (ECO) must be contracted by the Project Developer to objectively monitor the implementation of the MMP according to relevant environmental legislation, and the conditions of the environmental authorisation (EA). The Project Developer is further responsible for providing and giving mandate to enable the ECO to perform responsibilities, and he must ensure that the ECO is integrated as part of the project team while remaining independent. <u>Responsibilities</u> - Be fully conversant with the conditions of the EA; - Ensure that all stipulations within the MMP are communicated and adhered to by the Developer and its Contractor(s); - Issuing of site instructions to the Contractor for corrective actions required; - Monitor the implementation of the MMP throughout the project by means of site inspections and meetings. Overall management of the project and MMP implementation; and - Ensure that periodic environmental performance audits are undertaken on the project implementation.
Developer Site Supervisor (DSS)	<u>Role</u>

Responsible Person (s)	Role and Responsibilities
	The DSS reports directly to the DPM, oversees site works, liaises with the contractor(s) and the ECO. The DSS is responsible for the day to day implementation of the MMP and for ensuring the compliance of all contractors with the conditions and requirements stipulated in the MMP. <u>Responsibilities</u> - Ensure that all contractors identify a contractor's Environmental Officer (cEO) - Must be fully conversant with the conditions of the EA. Oversees site works, liaison with Contractor, DPM and ECO; - Must ensure that all landowners have the relevant contact details of the site staff, ECO and cEO; - Issuing of site instructions to the Contractor for corrective actions required; - Will issue all non-compliances to contractors; and - Ratify the Monthly Environmental Report.
Environmental Control Officer (ECO)	<u>Role</u> The ECO should have appropriate training and experience in the implementation of environmental management specifications. The primary role of the ECO is to act as an independent quality controller and monitoring agent regarding all environmental concerns and associated environmental impacts. In this respect, the ECO is to conduct periodic site inspections, attend regular site meetings, pre-empt problems and suggest mitigation and be available to advise on incidental issues that arise. The ECO is also required to conduct compliance audits, verifying the monitoring reports submitted by the cEO. The ECO provides feedback to the DSS and Project Manager regarding all environmental matters. The Contractor, cEO and dEO are answerable to the Environmental Control Officer for non-compliance with the Performance Specifications as set out in the EA and MMP. The ECO provides feedback to the DSS and Project Manager, who in turn reports back to the Contractor and potential and Registered Interested & Affected Parties' (RI&AP's), as required. Issues of non-compliance raised by the ECO must be taken up by the Project Manager, and resolved with the Contractor as per the conditions of his contract. Decisions regarding environmental procedures, specifications and requirements which have a cost implication (i.e. those that are

Responsible Person (s)	Role and Responsibilities
	deemed to be a variation, not allowed for in the Performance Specification) must be endorsed by the Project Manager. The ECO must also, as have specified by the EA, report to the relevant CA as and when required. <u>Responsibilities</u> The responsibilities of the ECO will include the following: - Be aware of the findings and conclusions of all EA related to the development; - Be familiar with the recommendations and mitigation measures of this MMP; - Be conversant with relevant environmental legislation, policies and procedures, and ensure compliance with them; - Undertake regular and comprehensive site inspections / audits of the construction site according to the generic MMP and applicable licenses in order to monitor compliance as required. - Educate the construction team about the management measures contained in the MMP and environmental licenses; - Compilation and administration of an environmental monitoring plan to ensure that the environmental management measures are implemented and are effective; - Monitoring the performance of the Contractors and ensuring compliance with the MMP and associated Method Statements; - In consultation with the Developer Site Supervisor order the removal of person(s) and/or equipment which are in contravention of the specifications of the MMP and/or environmental licenses; - Liaison between the DPM, Contractors, authorities and other lead stakeholders on all environmental concerns - Compile a regular environmental audit report highlighting any non-compliance issues as well as satisfactory or exceptional compliance with the MMP; - Validating the regular site inspection reports, which are to be prepared by the contractor Environmental Officer (cEO); - Checking the cEO's record of environmental incidents (spills, impacts, legal transgressions etc) as well as corrective and preventive actions taken;

Responsible Person (s)	Role and Responsibilities
	- Checking the cEO's public complaints register in which all complaints are recorded, as well as action taken; - Assisting in the resolution of conflicts; - Facilitate training for all personnel on the site – this may range from carrying out the training, to reviewing the training programmes of the Contractor; - In case of non-compliances, the ECO must first communicate this to the Senior Site Supervisor, who has the power to ensure this matter is addressed. Should no action or insufficient action be taken, the ECO may report this matter to the authorities as non-compliance; - Maintenance, update and review of the MMP; - Communication of all modifications to the MMP to the relevant stakeholders.
developer Environmental Officer (dEO)	<u>Role</u> The dEOs will report to the Project Manager and are responsible for implementation of the MMP, environmental monitoring and reporting, providing environmental input to the Project Manager and Contractor's Manager, liaising with contractors and the landowners as well as a range of environmental coordination responsibilities. <u>Responsibilities</u> - Be fully conversant with the MMP; - Be familiar with the recommendations and mitigation measures of this MMP, and implement these measures; - Ensure that all stipulations within the MMP are communicated and adhered to by the Employees, Contractor(s); - Confine the development site to the demarcated area; - Conduct environmental internal audits with regards to MMP and authorisation compliance (on cEO); - Assist the contractors in addressing environmental challenges on site; - Assist in incident management: - Reporting environmental incidents to developer and ensuring that corrective action is taken, and lessons learnt shared; - Assist the contractor in investigating environmental incidents and compile investigation reports;

Responsible Person (s)	Role and Responsibilities
	- Follow-up on pre-warnings, defects, non-conformance reports; - Measure and communicate environmental performance to the Contractor; - Conduct environmental awareness training on site together with ECO and cEO; - Ensure that the necessary legal permits and / or licenses are in place and up to date; - Acting as Developer's Environmental Representative on site and work together with the ECO and contractor;
Contractor	<u>Role</u> The Contractor appoints the cEO and has overall responsibility for ensuring that all work, activities, and actions linked to the delivery of the contract are in line with the MMP and that Method Statements are implemented as described. External contractors must ensure compliance with this MMP while performing the onsite activities as per their contract with the Project Developer. The contractors are required, where specified, to provide Method Statements setting out in detail how the impact management actions contained in the MMP will be implemented during the development or expansion for overhead electricity distribution infrastructure activities. <u>Responsibilities</u> - project delivery and quality control for the development services as per appointment; - employ a suitably qualified person to monitor and report to the Project Developer's appointed person on the daily activities on-site during the construction period; - ensure that safe, environmentally acceptable working methods and practices are implemented and that equipment is properly operated and maintained, to facilitate proper access and enable any operation to be carried out safely; - attend on site meeting(s) prior to the commencement of activities to confirm the procedure and designated activity zones; - ensure that contractors' staff repair, at their own cost, any environmental damage as a result of a contravention of the specifications contained in MMP, to the satisfaction of the ECO.
contractor Environmental Officer (cEO)	<u>Role</u>

Responsible Person (s)	Role and Responsibilities
	Each Contractor affected by the MMP should appoint a cEO, who is responsible for the on-site implementation of the MMP (or relevant sections of the MMP). The Contractor's representative can be the site agent; site engineer; a dedicated environmental officer; or an independent consultant. The Contractor must ensure that the Contractor's Representative is suitably qualified to perform the necessary tasks and is appointed at a level such that she/he can interact effectively with other site Contractors, labourers, the Environmental Control Officer and the public. As a minimum the cEO shall meet the following criteria: <u>Responsibilities</u> - Be on site throughout the duration of the project and be dedicated to the project; - Ensure all their staff are aware of the environmental requirements, conditions and constraints with respect to all of their activities on site; - Implementing the environmental conditions, guidelines and requirements as stipulated within the EA, MMP and Method Statements; - Attend the Environmental Site Meeting; - Undertaking corrective actions where non-compliances are registered within the stipulated timeframes; - Report back formally on the completion of corrective actions; - Assist the ECO in maintaining all the site documentation; - Prepare the site inspection reports and corrective action reports for submission to the ECO; - Assist the ECO with the preparing of the monthly report; and - Where more than one Contractor is undertaking work on site, each company appointed as a Contractor will appoint a cEO representing that company.

13 REPORTING

13.1 Administration

Before the contractor begins each construction activity, the Contractor shall give to the ECO and the engineer a written method statement setting out the following:

- The type of construction activity.
- Locality where the activity will take place.
- Identification of impacts that might result from the activity.
- Identification of activities or aspects that may cause an impact.
- Methodology and/or specifications for impact prevention for each activity or aspect.
- Methodology and/or specifications for impact containment for each activity or aspect.
- Emergency/disaster incident and reaction procedures.
- Treatment and continued maintenance of the impacted environment.

The contractor may provide such information in advance of any or all construction activities, provided that new submissions shall be given to the ECO and/or engineer whenever there is a change or variation to the original.

The ECO and/or engineer may provide comments on the methodology and procedures proposed by the Contractor, but they shall not be responsible for the contractor's chosen measures of impact mitigation and emergency/disaster management systems. However, the contractor shall demonstrate at inception and at least once during the contract that the approved measures and procedures function properly.

13.2 Good Housekeeping

The contractor shall undertake "good housekeeping" practices during construction. This will help avoid disputes on responsibility and allow for the smooth running of the contract as a whole. Good housekeeping extends beyond the wise practice of construction methods that leave production in a safe state from the ravages of weather to include the care for and preservation of the environment within which the site is situated.

13.3 Documentation

13.3.1 Method Statements

Method Statements are written submissions by the Project Manager to the Proponent, detailing how work should be executed on site. The Proponent further share these with the contractor, who again expedites on how he/she will execute the work as per the request by the ECO, Project Manager, and/or the Proponent. The Method Statements may comprise the way in which the plan

is to be set out, materials handling and storage, the use of labour, and the method that the Contractor proposes to use to carry out an activity. The Method Statement must contain the appropriate details such that the ECO and Project Manager are able to assess whether the Contractor's proposal is in accordance with the requirements of the Environmental Maintenance Management Plan and good environmental practice. The Contractor must sign each Method Statement along with the ECO, Project Manager and/or Proponent in order to formalise the approval of the documents.

All Method Statements must be submitted for approval prior to the commencement of an activity. Any changes to the method of works must be reflected by amendments to the original approved Method Statement. Any changes in this regard must be approved by the ECO and/or Project Manager on the understanding that such changes will be environmentally acceptable and are in line with the requirements of this Environmental Maintenance Management Plan.

13.3.2 Complaints/Incident Registers

The Contractor shall be responsible for responding to the ECO in writing with respect to queries and/or complaints relating to construction activities. The Contractor shall notify the ECO of any complaints being lodged by a third party (e.g. members of the public, registered I&APs, neighbouring landowners, etc.). The Contractor shall be responsible for maintaining a complaints register in which all complaints and corresponding actions taken are recorded. This register shall be made available to the Project Manager and/or ECO/ESO on request. The complaints register must be kept in the site office and must always be available to the ECO/ESO and/or the applicable officials. All complaints received must be investigated, and a response shall be given to the complainant within seven (7) days. The following information must be provided:

- Name, time, date, location and nature of the incident/complaint lodged;
- Date and method of letting the ECO/ESO know of such incident/complaint lodged; and
- The description of the actions taken to mitigate such incident/complaint lodged, date of such actions taken and by whom.

During the operational phase, the Proponent shall be responsible for maintaining a complaints register relating to operational activities. The Proponent shall notify the ECO of any complaints being lodged by a third party (e.g., members of the public, registered I&APs, neighbouring landowners, etc.). All complaints received must be investigated, and a response shall be given to the complainant within seven (7) days.

13.3.3 Emergency Preparedness Procedure

The Contractor shall ensure that there is an emergency preparedness procedure on site before commencing with activities. The Contractor must ensure that site staff are familiar with all emergency procedures to be followed and must ensure that the list of all emergency telephone numbers/contact people is kept up to date and that all numbers and names are posted at the site

office at all times. The Contractor shall appoint a Safety, Health and Environmental (SHE) Officer to conduct environmental and health & safety audits at the required intervals. All environmental, health, and safety incidents occurring on the site must be recorded in an environmental, health, and safety incidents report.

The following information, as a minimum, must be provided:

- Name, time, date, location and nature of the incident;
- The name, time and date of the person contacted to report the incident(s);
- Description of the corrective/emergency actions taken; and
- When corrective/emergency actions were taken and by whom

Furthermore, during the operational phase, the Proponent shall ensure that there is an emergency preparedness procedure that takes cognisance of, amongst others, the following potential emergencies:

- Litter thrown in the stream that results in an odour nuisance
- Alien and Invasive species overgrowing along and within the stream

13.4 Record Keeping

The engineer and the ECO will continuously monitor the contractor's adherence to the approved impact prevention procedures and the engineer shall issue to the contractor a notice of non-compliance whenever transgressions are observed. The ECO should document the nature and magnitude of the non-compliance in a designated register, the action taken to discontinue the non-compliance, the action taken to mitigate its effects and the results of the actions. The noncompliance shall be documented and reported to the engineer in the monthly report. These reports shall be made available to the competent authority when requested.

The Contractor shall ensure that an electronic filing system identifying all documentation related to the MMP is established.

A list of reports likely to be generated during the proposed maintenance activities is provided below, and all applicable documentation must be included in the environmental filing system catalogue or document retrieval index.

- Relevant Environmental Approvals
- Final design documents and diagrams issued to and by the Contractor.
- All communications detailing changes of design/scope that may have environmental implications.
- Daily, weekly, and monthly site monitoring reports.
- Complaints register.
- Medical reports.
- Training manual.
- Training attendance registers.
- Incident and accident reports.

- Emergency preparedness and response plans.
- Copies of all relevant environmental legislation.
- Permits and legal documents, including letters authorising specific personnel of their duties as part of emergency preparedness teams, e.g., fire teams, etc.
- Crisis communication manual.
- Disciplinary procedures.
- Monthly site meeting minutes during construction.
- All relevant permits.
- All method statements from the Contractor for all phases of the project.

13.5 Document Control

The Contractor and the resident engineer shall be responsible for establishing a procedure for electronic document control. The document control procedure should comply with the following requirements:

- Documents must be identifiable by organisation, division, function, activity and contact person.
- Every document should identify the personnel and their positions, who drafted and compiled the document, who reviewed and recommended approval, and who finally approved the document for distribution.
- All documents should be dated, provided with a revision number and reference number, filed systematically, and retained for five years.

The Contractor shall ensure that documents are periodically reviewed and revised, where necessary, and that current versions are available at all locations where operations essential to the functioning of the MMP are performed. All documents shall be made available to the independent external auditor.

14 MITIGATION AND MANAGEMENT SECTION

14.1 Conditions and Monitoring Requirements

This Environmental Maintenance Management Plan and the specifications contained herein shall form part of the Contract Documentation for the Contractor and for all Sub-Contractors. The Contractor shall help ensure that their staff members comply with the plan, with the conditions of approval and adoption contained in the Maintenance Management Plan and other applicable licences/permits. In addition, the construction activities must remain compliant with any additional relevant legislation. The Contractor shall deal with acts of non-compliance or malicious damage to the environment by any staff member. Failure to do so shall entitle the Project Manager to certify the imposition of a penalty as detailed below.

The Contractor will be considered non-compliant if:

- Is there any evidence of violating the Environmental Maintenance Management Plan or conditions of adoption contained in the MMP and any other license and permits?
- Any environmental damage on site has occurred as a result of negligent construction activities;
- The Contractor fails to comply with any instructions issued by the ECO timeously or by the authorities within the specified timeframes; and
- The Contractor does not sufficiently or timeously respond to public complaints brought to his/her attention by the ECO.

State officials shall be allowed access to the site to assess and monitor environmental compliance at all reasonable times, and all available monitoring and auditing records shall be made available to them for inspection. In addition, copies of the Environmental Authorisation, any relevant permits/licences, and this Environmental Maintenance Management Plan must be available on site at all times.

14.1.1 Penalties

Fines shall be issued for incidents of non-compliance at the discretion of the Project Manager. The penalties issued shall be determined in consultation with the ECO and the Proponent. Non-compliance shall be determined by means of environmental auditing, which will be undertaken by the ECO in terms of the Environmental Maintenance Management Plan. In addition to payment of the penalty, the Contractor responsible for the non-compliance incident shall also be liable for the cost of any corrective action taken to amend the environmental damage that occurred.

14.1.2 Suspension of Works

The Project Manager may instruct the Contractor to remove any person(s) who, in his/her opinion, is guilty of misconduct, or is incompetent, negligent, or constitutes an undesirable presence on site. Where the Project Manager deems the Contractor to be in breach of any of the requirements of this Specification, or if serious non-compliance incidents have taken place, he/she may issue a work stoppage order. The ECO may recommend suspension of works if he/she identify major non-compliances with the conditions of the EA and/or Environmental Maintenance Management Plan and/or continued minor non-compliances that are not being rectified by the construction team.

During the ongoing operational phase, the ECO/ dEO may recommend penalties or suspension of certain operations if he/she identify major non-compliances with the conditions of the EA and/or the Environmental Maintenance Management Plan. The authorities may issue a letter of non-compliance to the Proponent and/or instruct the Proponent to cease all operations on site.

15 CONDITIONS AND MONITORING REQUIREMENTS

Environmental impacts associated with the project, as well as appropriate mitigation measures, have been identified using specialist input for the various components of the affected environment, along with more general maintenance-related impacts and accepted mitigation measures. There

are a number of additional management actions that are relevant to this particular site and must be implemented on an ongoing basis, but especially during maintenance activities.

The impact management outcomes described in Chapter 9, together with the impact management actions provided below, will undergo environmental monitoring, especially during any maintenance activities. The monitoring method, frequency and mechanism is provided, together with the responsible person(s) assigned to the particular impact management outcome.

The table below discusses the monitoring method, frequencies, and mechanisms that will be used during the pre-maintenance, maintenance, and post-maintenance phases of the project. This table also includes the designated role and responsibilities assigned for each impact management outcome.

Table 11: Maintenance Management Plan and Mitigation Measures

15.1 Environmental awareness training

Impact management outcome: All onsite staff are aware and understands the individual responsibilities in terms of this EMPr

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
- All staff must receive environmental awareness training prior to commencement of the activities; - The Contractor must allow for sufficient sessions to train all personnel with no more than 20 personnel attending each course; - Refresher environmental awareness training is available as and when required; - All staff are aware of the conditions and controls linked to the EA and within the EMPr and made aware of their individual roles and	-cEO -DEO.	-Induction -Toolbox talks	-Prior to commencement. -Monthly or as and when required.	- DEO - cEO - ECO	-Weekly & monthly (as required) audits.	-Signed attendance register -Induction Presentation

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
responsibilities in achieving compliance with the EA and EMPr; - The Contractor must erect and maintain information posters at key locations on site, and the posters must include the following information as a minimum: a) Safety notifications; and b) No littering. - Environmental awareness training must include as a minimum the following: a) Description of significant environmental impacts, actual or potential, related to their work activities; b) Mitigation measures to be implemented when carrying out specific activities; c) Emergency preparedness and response procedures; d) Emergency procedures;						

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
e) Procedures to be followed when working near or within sensitive areas; f) Wastewater management procedures; g) Water usage and conservation; h) Solid waste management procedures; i) Sanitation procedures; j) Fire prevention; and k) Disease prevention. - A record of all environmental awareness training courses undertaken as part of the EMPr must be available; - Educate workers on the dangers of open and/or unattended fires; - A staff attendance register of all staff to have received environmental awareness training must be available.						

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
- Course material must be available and presented in appropriate languages that all staff can understand.						

15.2 Site Establishment Development

Impact management outcome: Impacts on the environment are minimised during site establishment and the development footprint are kept to demarcated development area.

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
- A method statement must be provided by the contractor prior to any onsite activity that includes the layout of the construction camp in the form of a plan showing the location of key infrastructure and services (where applicable), including but not limited to offices,	-DSS. -DEO -cEO -Contractor	-Method statement with layout plan of the construction camp / laydown area.	-Prior to site Establishment.	-DEO. -ECO	-Once prior to construction.	-Approved method Statements. -Approved construction camp and laydown area layout plan.

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
overnight vehicle parking areas, stores, the workshop, stockpile and lay down areas, hazardous materials storage areas (including fuels), the batching plant (if one is located at the construction camp), designated access routes, equipment cleaning areas and the placement of staff accommodation, cooking and ablution facilities, waste and wastewater management; - Location of camps must be within approved area to ensure that the site does not impact on sensitive areas identified in the environmental assessment or site walk through; - Sites must be located where possible on previously disturbed areas; - The camp must be fenced in accordance with Section 5.5:						

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
<i>Fencing and gate installation;</i> and - The use of existing accommodation for contractor staff, where possible, is encouraged.						

15.3 Access Restricted Areas

Impact management outcome: Impact management outcome: Access to restricted areas prevented.

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
- Identification of access restricted areas is to be informed by the environmental assessment, site walk through and any additional areas identified during development; - Erect, demarcate and maintain a temporary barrier with clear signage	-DSS. -	-Jersey barrier signs at boundaries of no-go areas.	-Prior to site establishment.	-DEO. -ECO.	-Weekly. -Once off	-Barriers and signage maintained in good condition.

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
around the perimeter of any access restricted area, colour coding could be used if appropriate; and - Unauthorised access and development related activity inside access restricted areas is prohibited.						

15.4 Access Roads

Impact management outcome: Minimise impact to the environment through the planned and restricted movement of vehicles on site.

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
- Access to the servitude and tower positions must be negotiated with the relevant landowner and must fall within the assessed and authorised area; - An access agreement must be formalised and signed by the DPM,	-DSS. -DPM.	- Written access agreement.	-Prior to site establishment.	-DEO -ECO	Ongoing throughout the construction and operational phases.	-Access roads used as agreed.

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
Contractor and landowner before commencing with the activities; - The access roads to tower positions must be signposted after access has been negotiated and before the commencement of the activities; - All private roads used for access to the servitude must be maintained and upon completion of the works, be left in at least the original condition - All contractors must be made aware of all these access routes. - Any access route deviation from that in the written agreement must be closed and re-vegetated immediately, at the contractor's expense; - Maximum use of both existing servitudes and existing roads must be made to minimize further disturbance through the development of new roads; - In circumstances where private roads must be used, the condition of						

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
the said roads must be recorded in accordance with section 4.9: photographic record; prior to use and the condition thereof agreed by the landowner, the DPM, and the contractor; - Access roads in flattish areas must follow fence lines and tree belts to avoid fragmentation of vegetated areas or croplands - Access roads must only be developed on pre-planned and approved roads.						

15.5 Fencing and Gate installation

Impact management outcome: Minimise impact to the environment and ensure safe and controlled access to the site through the erection of fencing and gates where required.

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
- Use existing gates provided to gain access to all parts of the area authorised for development, where possible; - Existing and new gates to be recorded and documented in accordance with section 4.9: photographic record; - All gates must be fitted with locks and be kept locked at all times during the development phase, unless otherwise agreed with the landowner; - At points where the line crosses a fence in which there is no suitable gate within the extent of the line servitude, on the instruction of the DPM, a gate must be installed at the approval of the landowner; - Care must be taken that the gates must be so erected that there is a gap of no more than 100 mm between the bottom of the gate and the ground;	-cEO	-Access measures implemented.	-Throughout Construction.	-ECO - cEO -DEO	- Weekly and Monthly.	-Evidence of access control.

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
- Where gates are installed in jackal proof fencing, a suitable reinforced concrete sill must be provided beneath the gate; - Original tension must be maintained in the fence wires; - All gates installed in electrified fencing must be re-electrified; - All demarcation fencing and barriers must be maintained in good working order for the duration of overhead transmission and distribution electricity infrastructure development activities; - Fencing must be erected around the camp, batching plants, hazardous storage areas, and all designated access restricted areas, where appropriate and would not cause harm to the sensitive flora; - Any temporary fencing to restrict the movement of life-stock must only be erected with the permission of the land owner.						

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
- All fencing must be developed of high quality material bearing the SABS mark; - The use of razor wire as fencing must be avoided; - Fenced areas with gate access must remain locked after hours, during weekends and on holidays if staff is away from site. Site security will be required at all times; - On completion of the development phase all temporary fences are to be removed; - The contractor must ensure that all fence uprights are appropriately removed, ensuring that no uprights are cut at ground level but rather removed completely.						

15.6 Water Supply Management

Impact management outcome: Undertake responsible water usage.

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
- All abstraction points or bore holes must be registered with the DWS and suitable water meters installed to ensure that the abstracted volumes are measured on a daily basis; - The Contractor must ensure the following: a) The vehicle abstracting water from a river does not enter or cross it and does not operate from within the river; b) No damage occurs to the river bed or banks and that the abstraction of water does not entail stream diversion activities; and c) All reasonable measures to limit pollution or sedimentation of the downstream watercourse are implemented.	N/A	N/A	N/A	N/A	N/A	N/A

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
- Ensure water conservation is being practiced by: a) Minimising water use during cleaning of equipment; b) Undertaking regular audits of water systems; and c) Including a discussion on water usage and conservation during environmental awareness training. d) The use of grey water is encouraged.						

15.7 Storm and Wastewater Management

Impact management outcome: impacts to the environment caused by storm water and wastewater discharges during construction are avoided.

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
-Runoff from the cement/ concrete batching areas must be strictly controlled, and contaminated water must be collected, stored and either treated or disposed of off-site, at a location approved by the project manager; - All spillage of oil onto concrete surfaces must be controlled by the use of an approved absorbent material and the used absorbent material disposed of at an appropriate waste disposal facility; - Natural storm water runoff not contaminated during the development and clean water can be discharged directly to watercourses and water bodies, subject to the Project Manager's approval and support by the ECO; - Water that has been contaminated with suspended solids, such as soils and silt, may be released into watercourses or water bodies only	-Contractor -cEO	-Use of absorbent materials in concrete mixing areas. -Disposal of contaminated water at suitable facility.	-Ongoing.	-cEO	-Weekly or ongoing as and when the spillage occurs.	-Contaminated water disposal records.

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
once all suspended solids have been removed from the water by settling out these solids in settlement ponds. The release of settled water back into the environment must be subject to the Project Manager's approval and support by the ECO.						

15.8 Solid and Hazardous Waste Management

Impact management outcome: Waste is appropriately stored, handled and safely disposed of at a recognised waste facility.

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
- All measures regarding waste management must be undertaken using an integrated waste management approach;	-DSS. -cEO	-Separated disposal bins. -All waste containers have lids.	-Ongoing.	-DEO -ECO -cEO	-Weekly & Monthly	-Contract with waste contractor. -Safe disposal certificates.

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
- Sufficient, covered waste collection bins (scavenger and weatherproof) must be provided; - A suitably positioned and clearly demarcated waste collection site must be identified and provided; - The waste collection site must be maintained in a clean and orderly manner; - Waste must be segregated into separate bins and clearly marked for each waste type for recycling and safe disposal; - Staff must be trained in waste segregation; - Bins must be emptied regularly; - General waste produced onsite must be disposed of at registered waste disposal sites/ recycling company; - Hazardous waste must be disposed of at a registered waste disposal site;		- A waste contractor must be appointed. - Daily to weekly site cleanups.				-Employee knowledge and practice of waste separation. - No overflowing bins on site.

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
- Certificates of safe disposal for general, hazardous and recycled waste must be maintained.						

15.9 Protection of Watercourses and Estuaries

Impact management outcome: Pollution and contamination of the watercourse environment and or estuary erosion are prevented

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
- All watercourses must be protected from direct or indirect spills of pollutants such as solid waste, sewage, cement, oils, fuels, chemicals, aggregate tailings, wash and contaminated water or organic material resulting from the Contractor's activities;	-DSS -cEO	- Spill control kits are available on site and operators must be trained to use them. -Spills cleaned promptly to	-Ongoing.	-DEO -ECO	-Weekly and Monthly	-Spills controlled. - Training records for spill Prevention. -No evidence of water contamination from

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
- In the event of a spill, prompt action must be taken to clear the polluted or affected areas; - Where possible, no development equipment must traverse any seasonal or permanent wetland - No return flow into the estuaries must be allowed and no disturbance of the Estuarine Functional Zone should occur; - Development of permanent watercourse or estuary crossing must only be undertaken where no alternative access to tower position is available; - There must not be any impact on the long term morphological dynamics of watercourses or estuaries; - Existing crossing points must be favored over the creation of new crossings (including temporary access) - When working in or near any watercourse or estuary, the following		prevent water contamination. –Designated and limited crossing points for watercourses. –Watercourses to be off-limits during construction.				construction activities. –Watercourse crossing points maintained.

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
environmental controls and consideration must be taken: a) Water levels during the period of construction; b) No altering of the bed, banks, course or characteristics of a watercourse c) During the execution of the works, appropriate measures to prevent pollution and contamination of the riparian environment must be implemented e.g. including ensuring that construction equipment is well maintained; d) Where earthwork is being undertaken in close proximity to any watercourse, slopes must be stabilised using suitable materials, i.e. sandbags or						

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
geotextile fabric, to prevent sand and rock from entering the channel; and e) Appropriate rehabilitation and re-vegetation measures for the watercourse banks must be implemented timeously. In this regard, the banks should be appropriately and incrementally stabilised as soon as development allows.						

15.10 Vegetation Clearing

Impact management outcome: Vegetation clearing is restricted to the authorised development footprint of the proposed infrastructure.

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
General: - Indigenous vegetation which does not interfere with the development must be left undisturbed; - Protected or endangered species may occur on or near the development site. Special care should be taken not to damage such species; - Search, rescue and replanting of all protected and endangered species likely to be damaged during project development must be identified by the relevant specialist and completed prior to any development or clearing; - Permits for removal must be obtained from the Department of Agriculture, Forestry and Fisheries prior to the cutting or clearing of the affected species, and they must be filed;	-DSS. -DEO.	-Areas of natural vegetation to be clearly demarcated and protected. - Plant rescue plan to be compiled and implemented.	-Prior to site establishment	-DEO -cEO -ECO	-Weekly & Monthly	-No access to protected areas of the site. -Vegetation Permits from DFFE.

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
- The Environmental Audit Report must confirm that all identified species have been rescued and replanted and that the location of replanting is compliant with conditions of approvals; - Trees felled due to construction must be documented and form part of the Environmental Audit Report; - Rivers and watercourses must be kept clear of felled trees, vegetation cuttings and debris; - Only a registered pest control operator may apply herbicides on a commercial basis and commercial application must be carried out under the supervision of a registered pest control operator, supervision of a registered pest control operator or is appropriately trained; - A daily register must be kept of all relevant details of herbicide usage; - No herbicides must be used in estuaries;						

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
- All protected species and sensitive vegetation not removed must be clearly marked and such areas fenced off in accordance to Section 5.3: Access restricted areas. Servitude: - Vegetation that does not grow high enough to cause interference with overhead transmission and distribution infrastructures, or cause a fire hazard to any plantation, must not be cut or trimmed unless it is growing in the road access area, and then only at the discretion of the Project Manager; - Where clearing for access purposes is essential, the maximum width to be cleared within the servitude must be in accordance to distance as agreed between the land owner and the EA holder - Alien invasive vegetation must be removed according to a plan (in line						

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
with relevant municipal and provincial procedures, guidelines and recommendations) and disposed of at a recognised waste disposal facility; - Vegetation must be trimmed where it is likely to intrude on the minimum vegetation clearance distance (MVCD) or will intrude on this distance before the next scheduled clearance. MVCD is determined from SANS 10280; - Debris resulting from clearing and pruning must be disposed of at a recognised waste disposal facility, unless the landowners wish to retain the cut vegetation; - In the case of the development of new overhead transmission and distribution infrastructures, a one metre "trace-line" must be cut through the vegetation for stringing purposes only and no vehicle access must be cleared along the "trace-						

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
line". Alternative methods of stringing which limit impact to the environment must always be considered.						

15.11 Protection of Fauna

Impact management outcome: Minimise disturbance to fauna.

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
- No interference with livestock must occur without the landowner's written consent and with the landowner or a person representing the landowner being present; - The breeding sites of raptors and other wild birds species must be	-DSS -cEO	-Areas of natural vegetation that provide habitat for animals not to be disturbed clearly demarcated.	-Throughout Construction	DEO cEO ECO	Ongoing	- No evidence of hunting or trapping animals on site. - Training records available including

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
taken into consideration during the planning of the development programme; - Breeding sites must be kept intact and disturbance to breeding birds must be avoided. Special care must be taken where nestlings or fledglings are present; - Nesting sites on existing parallel lines must be documented; - Special recommendations of the avian specialist must be adhered to at all times to prevent unnecessary disturbance of birds; - Bird guards and diverters must be installed on the new line as per the recommendations of the specialist; - No poaching must be tolerated under any circumstances. All animal dens in close proximity to the works areas must be marked as Access restricted areas; - No deliberate or intentional killing of fauna is allowed;		-Any fauna encountered must not be harmed and must be allowed to disperse naturally or be relocated by a suitably qualified specialist where necessary. -				hunting prohibition.

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
- In areas where snakes are abundant, snake deterrents to be deployed on the pylons to prevent snakes climbing up, being electrocuted and causing power outages; and - No Threatened or Protected species (ToPs) and/or protected fauna as listed according NEMBA (Act No. 10 of 2004) and relevant provincial ordinances may be removed and/or relocated without appropriate authorisations/permits.						

15.12 Protection of Heritage Resources

Impact management outcome: Minimise impact to heritage resources.

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
- Identify, demarcate and prevent impact to all known sensitive heritage features on site in accordance with the No-Go procedure in Section 5.3: Access restricted areas; - Carry out general monitoring of excavations for potential fossils, artefacts and material of heritage importance; - All work must cease immediately, if any human remains and/or other archaeological, palaeontological and historical material are uncovered. Such material, if exposed, must be reported to the nearest museum, archaeologist/palaeontologist (or the South African Police Services), so that a systematic and professional investigation can be undertaken. Sufficient time must be allowed to remove/collect such material before development recommences.	-DSS -DEO -Heritage Specialist	- Implement chance finds Procedure immediately upon uncovering heritage material. - Training in chance finds for all employees.	- Throughout construction.	-DEO -cEO -ECO	-Weekly & Monthly	- Chance finds records. - Training records of chance finds.

15.13 Safety of the Public

Impact management outcome: All precautions are taken to minimise the risk of injury, harm or complaints.

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
Identify fire hazards, demarcate and restrict public access to these areas as well as notify the local authority of any potential threats e.g. large brush stockpiles, fuels etc.; - All unattended open excavations must be adequately fenced or demarcated; - Adequate protective measures must be implemented to prevent unauthorised access to and climbing of partly constructed pole positions and protective scaffolding; - Ensure structures vulnerable to high winds are secured; - Maintain an incidents and complaints register in which all	-DSS -cEO	- Maintain access control. - Site hazards to be clearly demarcated. -Incidents and Complaints register accessible at site entrance.	-Throughout Construction	-DEO - cEO -ECO	-Weekly & Monthly	-Access control is effective. -No unauthorised access obtained. -Site hazards signage installed and maintained. -Excavations barricaded.

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
incidents or complaints involving the public are logged.						

15.14 Sanitation

Impact management outcome: Clean and well maintained toilet facilities are available to all staff in an effort to minimise the risk of disease and impact to the environment.

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
- Mobile chemical toilets are installed onsite if no other ablution facilities are available; - The use of ablution facilities and or mobile toilets must be used at all times and no indiscriminate use of the veld for the purposes of ablutions must be permitted under any circumstances;	-DSS - cEO	-Sufficient ablution facilities provided for the number of employees. - Ablution facilities must be within easy access to all work areas.	-Throughout construction.	-DEO - cEO -ECO	-Weekly & Monthly	- Disposal certificates available for effluent. - Records of toolbox talks on sanitation. - No overflowing toilets.

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
- Where mobile chemical toilets are required, the following must be ensured: a) Toilets are located no closer than 100 m to any watercourse or water body; b) Toilets are secured to the ground to prevent them from toppling due to wind or any other cause; c) No spillage occurs when the toilets are cleaned or emptied and the contents are managed in accordance with the EMP;; d) Toilets have an external closing mechanism and are closed and secured from the outside when not in use to prevent toilet paper from being blown out; e) Toilets are emptied before long weekends and workers						

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
holidays, and must be locked after working hours; f) Toilets are serviced regularly and the ECO must inspect toilets to ensure compliance to health standards; g) A copy of the waste disposal certificates must be maintained.						

15.15 Prevention of Disease

Impact management outcome: All necessary precautions linked to the spread of disease are taken.

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
- Undertake environmentally-friendly pest control in the camp area;	-DSS - cEO	- Environmentally friendly pest	-Throughout construction	-DEO - cEO -ECO	Weekly & Monthly	- Records of toolbox talks

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
- Ensure that the workforce is sensitised to the effects of sexually transmitted diseases, especially HIV AIDS; - The Contractor must ensure that information posters on HIV/AIDS are displayed in the Contractor Camp area; - Information and education relating to sexually transmitted diseases to be made available to both construction workers and local community, where applicable; - Free condoms must be made available to all staff on site at central points; - Medical support must be made available; - Provide access to Voluntary HIV Testing and Counselling Services.		control methods employed. -Toolbox Box				(STDs and HIV). - Condoms available in toilets. -Posters about STDs and HIV are displayed.

15.16 Emergency Procedures

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Impact management outcome: Emergency procedures are in place to enable a rapid and effective response to all types of environmental emergencies.

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
- Compile an Emergency Response Action Plan (ERAP) prior to the commencement of the proposed project; - The Emergency Plan must deal with accidents, potential spillages and fires in line with relevant legislation; - All staff must be made aware of emergency procedures as part of environmental awareness training; - The relevant local authority must be made aware of a fire as soon as it starts; - In the event of emergency necessary mitigation measures to contain the spill or leak must be implemented (see Hazardous Substances section 5.17).	-DSS -DEO	-Emergency Response Plan to be compiled and implemented. -Display of authority and emergency response numbers.	-Throughout construction.	-DSS -DEO	-Once off -As and when required.	-Records of ERP drill testing. -Evidence of training. -Emergency response numbers displayed.

15.17 Hazardous Substances

Impact management outcome: Safe storage, handling, use and disposal of hazardous substances.						
Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
- The use and storage of hazardous substances to be minimised and non-hazardous and non-toxic alternatives substituted where possible; - All hazardous substances must be stored in suitable containers as defined in the Method Statement; - Containers must be clearly marked to indicate contents, quantities and safety requirements; - All storage areas must be bunded. The bunded area must be of sufficient capacity to contain a spill / leak from the stored containers; - Bunded areas to be suitably lined with a SABS approved liner; - An Alphabetical Hazardous Chemical Substance (HCS) control	-DSS - cEO	-Hazardous chemical storage aligned with relevant legal requirements. -Bulk Hazardous chemical containers bunded to 110%. -Hazardous chemicals control sheet maintained. -Signage for all chemical hazards.	-Throughout construction.	-DEO - cEO -ECO	-Ongoing	-SDSs for all hazardous chemicals available. -Bunding for bulk containers in good condition. -Training records and knowledge of employees. -Hazardous chemicals control sheet for all chemicals on site.

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
sheet must be drawn up and kept up to date on a continuous basis; - All hazardous chemicals that will be used on site must have Material Safety Data Sheets (MSDS); - All employees working with HCS must be trained in the safe use of the substance and according to the safety data sheet; - Employees handling hazardous substances / materials must be aware of the potential impacts and follow appropriate safety measures. Appropriate personal protective equipment must be made available; - The Contractor must ensure that diesel and other liquid fuel, oil and hydraulic fluid is stored in appropriate storage tanks or in bowers; - The tanks/ bowers must be situated on a smooth impermeable surface (concrete) with a permanent bund. The impermeable lining must extend						-All chemical containers labelled. -Response / cleanup records available for all spillages. - Evidence of spill response training and spill response drills. - Spill kits available

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
to the crest of the bund and the volume inside the bund must be 130% of the total capacity of all the storage tanks/ bowsers (110% statutory requirement plus an allowance for rainfall); - The floor of the bund must be sloped, draining to an oil separator; - Provision must be made for refueling at the storage area by protecting the soil with an impermeable groundcover. Where dispensing equipment is used, a drip tray must be used to ensure small spills are contained; - All empty externally dirty drums must be stored on a drip tray or within a bunded area; - No unauthorised access into the hazardous substances storage areas must be permitted; - No smoking must be allowed within the vicinity of the hazardous storage areas;						

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
- Adequate fire-fighting equipment must be made available at all hazardous storage areas; - Where refueling away from the dedicated refueling station is required, a mobile refueling unit must be used. Appropriate ground protection such as drip trays must be used; - An appropriately sized spill kit kept onsite relevant to the scale of the activity/s involving the use of hazardous substance must be available at all times; - The responsible operator must have the required training to make use of the spill kit in emergency situations; - An appropriate number of spill kits must be available and must be located in all areas where activities are being undertaken; - In the event of a spill, contaminated soil must be collected in containers and stored in a central location and						

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
disposed of according to the National Environmental Management: Waste Act 59 of 2008. Refer to Section 5.7 for procedures concerning storm and waste water management and 5.8 for solid and hazardous waste management .						

15.18 Workshop, Equipment Maintenance and Storage

Impact management outcome: Soil, surface water and groundwater contamination is minimised.

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
- Where possible and practical all maintenance of vehicles and equipment must take place in the workshop area; - During servicing of vehicles or equipment, especially where	-DSS - cEO	- Dedicated vehicle servicing facility with impermeable floor.	- Throughout construction.	- ECO - cEO - DEO	-Weekly & Monthly	-Drip trays used on stationary Vehicles/ when needed.

emergency repairs are effected outside the workshop area, a suitable drip tray must be used to prevent spills onto the soil. The relevant local authority must be made aware of a fire as soon as it starts; - Leaking equipment must be repaired immediately or be removed from site to facilitate repair; - Workshop areas must be monitored for oil and fuel spills; - Appropriately sized spill kit kept onsite relevant to the scale of the activity taking place must be available; - The workshop area must have a bunded concrete slab that is sloped to facilitate runoff into a collection sump or suitable oil / water separator where maintenance work on vehicles and equipment can be performed; - Water drainage from the workshop must be contained and managed in accordance Section 5.7: storm and waste water management.		- Drip trays. - Spill kits.				- No evidence of oil and fuel spillage. - Training records and knowledge of employees in vehicle maintenance. - Response / cleanup records available for all spillages. - Vehicles are well maintained and do not show evidence of leakages.
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15.19 Batching Plants

Impact management outcome: Minimise spillages and contamination of soil, surface water and groundwater.

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
- Concrete mixing must be carried out on an impermeable surface; - Batching plants areas must be fitted with a containment facility for the collection of cement laden water. - Dirty water from the batching plant must be contained to prevent soil and groundwater contamination Bagged cement must be stored in an appropriate facility and at least 10 m away from any water courses, gullies and drains; - A washout facility must be provided for washing of concrete associated equipment. Water used for washing must be restricted; - Hardened concrete from the washout facility or concrete mixer	-Contractor - cEO	-Provide impermeable surface for the mixing of concrete -Implement measures for the control and management of cement laden water -Demarcate and provide a storage area for bagged cement in-line with the listed requirements.	-During the construction phase	-cEO -ECO	-Weekly & Monthly	

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
can either be reused or disposed of at an appropriate licenced disposal facility; - Empty cement bags must be secured with adequate binding material if these will be temporarily stored on site; - Sand and aggregates containing cement must be kept damp to prevent the generation of dust (Refer to Section 5.20: Dust emissions) - Any excess sand, stone and cement must be removed or reused from site on completion of construction period and disposed at a registered disposal facility; - Temporary fencing must be erected around batching plants in accordance with Section 5.5: Fencing and gate installation.						

15.20 Dust Emissions

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Impact management outcome: Dust prevention measures are applied to minimise the generation of dust.

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
- Take all reasonable measures to minimise the generation of dust as a result of project development activities to the satisfaction of the ECO; - Removal of vegetation must be avoided until such time as soil stripping is required and similarly exposed surfaces must be re-vegetated or stabilised as soon as is practically possible; - Excavation, handling and transport of erodible materials must be avoided under high wind conditions or when a visible dust plume is present; - During high wind conditions, the ECO must evaluate the situation and make recommendations as to whether dust-damping measures are adequate, or whether working	-DSS - cEO	-Dust suppression methods as directed by the ECO and CR. -Separate topsoil and subsoil during site clearance and stockpile separately. -Spread topsoil on the surface after final shaping. -Adherence to speed limits by vehicles.	- Throughout construction.	-ECO - cEO	-Daily & Monthly	-No evidence of excessive dust generation due to construction. -Dust control measures implemented. -Vehicles do not exceed the 40km/hr speed limit.

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
will cease altogether until the wind speed drops to an acceptable level; - Where possible, soil stockpiles must be located in sheltered areas where they are not exposed to the erosive effects of the wind; - Where erosion of stockpiles becomes a problem, erosion control measures must be implemented at the discretion of the ECO; - Vehicle speeds must not exceed 40 km/h along dust roads or 20 km/h when traversing unconsolidated and non-vegetated areas; - For significant areas of excavation or exposed ground, dust suppression measures must be used to minimise the spread of dust.						

15.21 Blasting

Impact management outcome: Impact to the environment is minimised through a safe blasting practice.

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
- Any blasting activity must be conducted by a suitably licensed blasting contractor; and - Notification of surrounding landowners, emergency services site personnel of blasting activity 24 hours prior to such activity taking place on Site.	N/A	N/A	N/A	N/A	N/A	N/A

15.22 Noise

Impact management outcome: Unnecessary noise is prevented by ensuring that noise from construction activities is mitigated.

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
- The Contractor must keep noise level within acceptable limits, Restrict the use of sound amplification equipment for	-DSS - cEO	-Construction should be only during daylight hours.	- Throughout construction.	-DEO - cEO -ECO	-Weekly & Monthly	-No evidence of noise complaints in the complaints register.

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
communication and emergency only; - All vehicles and machinery must be fitted with appropriate silencing technology and must be properly maintained; - Any complaints received by the Contractor regarding noise must be recorded and communicated. Where possible or applicable, provide transport to and from the site on a daily basis for construction workers; - Develop a Code of Conduct for the construction phase in terms of behaviour of construction staff. Operating hours as determined by the environmental authorisation are adhered to during the development phase. Where not defined, it must be ensured that development activities must still meet the impact management outcome related to noise management.		-Maintain vehicles in good condition. -Toolbox Talks				

15.23

Fire Prevention

Impact management outcome: Prevention of uncontrollable fires.

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
- Designate smoking areas where the fire hazard could be regarded as insignificant; - Firefighting equipment must be available on all vehicles located on site; - The local Fire Protection Agency (FPA) must be informed of construction activities; - Contact numbers for the FPA and emergency services must be communicated in environmental awareness training and displayed at a central location on site; Two-way swap of contact details between ECO and FPA.	-DSS - cEO	-Designated smoking areas Services firefighting equipment –Emergency numbers for the Fire fighter must be displayed.	-Throughout construction.	- cEO -DEO	- Weekly	-Service records for fire extinguishers. –Records of fire-fighting training and drills.

15.24 Stockpiling and stockpile areas

Impact management outcome: Erosion and sedimentation as a result of stockpiling are reduced.

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
- All material that is excavated during the project development phase (either during piling (if required) or earthworks) must be stored appropriately on site in order to minimise impacts to watercourses, and water bodies; - All stockpiled material must be maintained and kept clear of weeds and alien vegetation growth by undertaking regular weeding and control methods; - Topsoil stockpiles must not exceed 2 m in height; - During periods of strong winds and heavy rain, the stockpiles must be covered with appropriate material (e.g. cloth, tarpaulin etc.);	-DSS - cEO	- Soil stockpiles are maintained and protected to prevent erosion.	-Throughout construction.	-ECO -cEO	-Weekly & Monthly	- Minimal evidence of erosion from soil stockpiles. - Stockpiles less than 2m high.

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
- Where possible, sandbags (or similar) must be placed at the bases of the stockpiled material in order to prevent erosion of the material.						

15.25 Finalising Temporary Pole Positions

Impact management outcome: No environmental degradation occurs as a result of the survey and pegging operations.

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
- No vegetation clearing must occur during survey and pegging operations; - No new access roads must be developed to facilitate access for survey and pegging purposes; - Project manager, ECO and contractor to agree on final wooden pole positions based on survey	-DSS - cEO -DEO	-Ensure engineering designs for the towers considered the soil stability.	-Prior to construction.	- Engineers - cEO - ECO	-Once off	-Wooden Poles Layout

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
within assessed and approved areas; - The surveyor is to demarcate (peg) access roads/tracks in consultation with ECO. No deviations will be allowed without the prior written consent from the ECO.						

15.26 *Excavation and Installation of Foundations*

Impact management outcome: No environmental degradation occurs as a result of excavation or installation of foundations.

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
- All excess spoil generated during foundation excavation must be disposed of in an appropriate manner and at a recognised	-DSS -DEO - cEO	-Spread soil excavated from pylon foundations over a	-During Construction	-ECO	-Once off	- Soil excavated from wooden pole foundations

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
disposal site, if not used for backfilling purposes; - Spoil can however be used for landscaping purposes and must be covered with a layer of 150 mm topsoil for rehabilitation purposes; - Management of equipment for excavation purposes must be undertaken in accordance with Section 5.18: Workshop equipment maintenance and storage; and - Hazardous substances spills from equipment must be managed in accordance with Section 5.17: Hazardous substances. - Batching of cement to be undertaken in accordance with Section 5.19 : Batching plants; - Residual cement must be disposed of in accordance with Section 5.8: Solid and hazardous waste management.		surrounding area or used for backfilling.				must be used for backfilling.

15.27

Preparation & Planting of Wooden Pole Structures

Impact management outcome: No environmental degradation occurs as a result of assembly and planting of poles.

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
- ; - In sensitive areas, pole preparation must take place off-site or away from sensitive positions; - The crane used for pole preparation and planting must be operated in a manner which minimises impact to the environment; - Site will be accessed by a 4x4 truck mounted crane, Access will be limited to already disturbed areas and existing tracks. - Consideration must be given to the planting of poles by hand where it is warranted to limit the extent of environmental impact;	-DSS - cEO	- Lowest impact Construction methods appropriate to the site conditions based on topography, proximity to existing transmission lines, availability of existing access roads and degree of	- During and immediately after construction.	- cEO	Daily	- Site inspection during construction confirms that the lowest impact methods appropriate for site conditions are used. - Site inspection after construction confirms

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
- Access to pole positions to be undertaken in accordance with access requirements in specified in Section 8.4: Access Roads; - Vegetation clearance to be undertaken in accordance with general vegetation clearance requirements specified in Section 8.10: Vegetation clearing; - No levelling at pole sites must be permitted unless approved by the Development Project Manager or Developer Site Supervisor; - Topsoil must be removed separately from subsoil material and stored for later use during rehabilitation of such pole sites; - Topsoil must be stored in heaps not higher than 1m to prevent destruction of the seed bank within the topsoil; - Excavated slopes must be no greater than 1:3, but where this is unavoidable, appropriate		existing disturbance				that the extent of damage has been limited to the immediate footprint of the powerline.

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
measures must be undertaken to stabilise the slopes; - ; - Only existing disturbed areas are utilised as spoil areas; - Drainage is provided to control groundwater exit gradient with the spill areas such that migration of fines is kept to a minimum; - Surface water runoff is appropriately channeled through or around spoil areas; - During backfilling operations, care must be taken not to dump the topsoil at the bottom of the foundation and then put spoil on top of that; - The surface of the spoil is appropriately rehabilitated in accordance with the requirements specified in Section 5.29: Landscaping and rehabilitation;						

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
- The retained topsoil must be spread evenly over areas to be rehabilitated and suitably compacted to effect re-vegetation of such areas to prevent erosion as soon as construction activities on the site is complete. Spreading of topsoil must/ may not be undertaken at the beginning of the dry season.						

15.28 Stringing

Impact management outcome: No environmental degradation occurs as a result of stringing.

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
- Where possible, previously disturbed areas must be used for the siting of winch and tensioner	-DSS - cEO -DEO	- Lowest impact Construction	- During and immediately	- cEO	Daily	- Site inspection during construction

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
stations. In all other instances, the siting of the winch and tensioner must avoid Access restricted areas and other sensitive areas; - The winch and tensioner station must be equipped with drip trays in order to contain any fuel, hydraulic fuel or oil spills and leaks; - Refueling of the winch and tensioner stations must be undertaken in accordance with Section 5.17: Hazardous substances; - In the case of the development of overhead transmission and distribution infrastructure, a one metre "trace-line" may be cut through the vegetation for stringing purposes only and no vehicle access must be cleared along "trace-lines". Vegetation clearing must be undertaken by hand, using chainsaws and hand held implements, with vegetation being cut off at ground level. No tracked		methods appropriate to the site conditions based on topography, proximity to existing distribution lines, availability of existing access roads and degree of existing disturbance	after construction.			confirms that the lowest impact methods appropriate for site conditions are used. -Site inspection after construction confirms that the extent of damage has been limited to the immediate footprint of the powerline.

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
or wheeled mechanised equipment must be used; - Alternative methods of stringing which limit impact to the environment must always be considered e.g. by hand or by using a helicopter/drone; - Where the stringing operation crosses a public or private road or railway line, the necessary scaffolding(or equivalent)/protection measures must be installed to facilitate access. If, for any reason, such access has to be closed for any period(s) during development, the persons affected must be given reasonable notice, in writing; - No services (electrical distribution lines, telephone lines, roads, railways lines, pipelines fences etc.) must be damaged because of stringing operations. Where disruption to services is unavoidable, persons affected must						

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
be given reasonable notice, in writing; - Where stringing operations cross cultivated land, damage to crops is restricted to the minimum required to conduct stringing operations, and reasonable notice (10 work days minimum), in writing, must be provided to the landowner; - Necessary scaffolding protection measures must be installed to prevent damage to the structures supporting certain high value agricultural areas such as, orchards, nurseries.						

15.29 *Socio-Economic*

Impact management outcome: Socio-economic development is enhanced.

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
- Develop and implement communication strategies to facilitate public participation; - Develop and implement a collaborative and constructive approach to conflict resolution as part of the external stakeholder engagement process; - Sustain continuous communication and liaison with neighboring owners and residents - ; and - Where feasible, no workers, with the exception of security personnel, must be permitted to stay over-night on the site. This would reduce the risk to local farmers.	-DSS - cEO	-Weekly communication on construction progress through monthly meetings. -Communicate expected number of local jobs and application procedure prior to construction. -Integrate project-related training in existing community development and training programmes. -No accommodation	6 months prior to the start of construction and throughout construction	-ECO - cEO -DEO	Weekly & Monthly	-Recorded grievances/ complaints of community engagements

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
		on site, except for security personnel.				

15.30 Temporary Site Closure

Impact management outcome: Minimise the risk of environmental impact during periods of site closure greater than five days.

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
- Bunds must be emptied (where applicable) and need to be undertaken in accordance with the impact management actions included in sections 5.17: management of hazardous substances and 5.18 workshop, equipment maintenance and storage; - Hazardous storage areas must be well ventilated;	- cEO -DSS	-Place emergency and contact details which are readily available and easily accessible. -Workshop with all security personnel to provide a brief	Upon temporary closure	-ECO -DEO	Once-off	-Proof of the workshop held must be kept on file by the contractor. -Site conditions to indicate compliance

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
- Fire extinguishers must be serviced and accessible. - Service records to be filed and audited at last service; - Emergency and contact details displayed must be displayed; - Security personnel must be briefed and have the facilities to contact or be contacted by relevant management and emergency personnel; - Night hazards such as reflectors, lighting, traffic signage etc. must have been checked; - Fire hazards identified and the local authority must have been notified of any potential threats e.g. large brush stockpiles, fuels etc.; - Structures vulnerable to high winds must be secured; - Wind and dust mitigation must be implemented; - Cement and materials stores must have been secured;		of the project and security requirements. Provide facilities -Regular checks of night hazards must be undertaken.				

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
- Toilets must have been emptied and secured; - Refuse bins must have been emptied and secured; - Drip trays must have been emptied and secured.						

15.31 Landscaping and rehabilitation

Impact management outcome: Areas disturbed during the development phase are returned to a state that approximates the original condition.

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
- All areas disturbed by construction activities must be subject to landscaping and rehabilitation; All spoil and waste must be disposed to a registered waste site and certificates of disposal provided; - All slopes must be assessed for contouring, and to contour only when	-DSS - cEO	-Prepare and implement a site-specific Rehabilitation Plan for all disturbed areas. -Remove all temporary	-Throughout Rehabilitation	-ECO - cEO	-Daily & Monthly	-All disturbed areas rehabilitated. -Topsoil replaced and evenly spread. -Indigenous vegetation

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
the need is identified in accordance with the Conservation of Agricultural Resources Act, No 43 of 1983 - All slopes must be assessed for terracing, and to terrace only when the need is identified in accordance with the Conservation of Agricultural Resources Act, No 43 of 1983; - Berms that have been created must have a slope of 1:4 and be replanted with indigenous species and grasses that approximates the original condition; - Where new access roads have crossed cultivated farmlands, that lands must be rehabilitated by ripping which must be agreed to by the holder of the EA and the landowners; - Rehabilitation of tower sites and access roads outside of farmland; - Indigenous species must be used for with species and/grasses to where it		infrastructure, construction materials, waste and spoil from the site before rehabilitation commences. -Dispose of all waste at a licensed waste disposal facility and retain waste disposal certificates. -Rehabilitate all temporary access roads, tower sites and construction work areas immediately after construction				successfully established. -No visible erosion or sedimentation. -No invasive alien species present. -Temporary access roads and tower sites rehabilitated.

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
compliments or approximates the original condition; - Stockpiled topsoil must be used for rehabilitation (refer to Section 5.24: Stockpiling and stockpiled areas); - Stockpiled topsoil must be evenly spread so as to facilitate seeding and minimise loss of soil due to erosion; - Before placing topsoil, all visible weeds from the placement area and from the topsoil must be removed; - Subsoil must be ripped before topsoil is placed; - The rehabilitation must be timed so that rehabilitation can take place at the optimal time for vegetation establishment; - Where impacted through construction related activity, all sloped areas must be stabilised to ensure proper rehabilitation is effected and erosion is controlled ; - Sloped areas stabilised using design structures or vegetation as specified		has been completed. -Inspect rehabilitated areas regularly for erosion, settlement, vegetation establishment and invasive alien plant growth.				

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
in the design to prevent erosion of embankments. The contract design specifications must be adhered to and implemented strictly; - Spoil can be used for backfilling or landscaping as long as it is covered by a minimum of 150 mm of topsoil. - Where required, re-vegetation including hydro-seeding can be enhanced using a vegetation seed mixture as described below. A mixture of seed can be used provided the mixture is carefully selected to ensure the following: a) Annual and perennial plants are chosen; b) Pioneer species are included; c) Species chosen must be indigenous to the area with the seeds used coming from the area; d) Root systems must have a binding effect on the soil;						

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
e) The final product must not cause an ecological imbalance in the area						

16 CONCLUSION

The environmental, biophysical and social impacts of the project have been assessed to be spread through the project life. Both positive and negative project-related impacts have been identified, but it has been concluded that all of the negative impacts could be ameliorated to acceptable levels or made negligible through the implementation of the mitigation measures contained within this MMP. The following section briefly describes some of the major impacts and proposed mitigation measures within each of the project phases.

16.1 Pre-Construction Phase

The first site activities, before mobilization of equipment, will be a survey for final development designs. There will be negative impacts on land associated with the site preparation and laydown areas (temporary loss), site and vegetation clearing, water supply, excavations, dust, soil erosion, worker safety, storage of hazardous or dangerous materials, vehicle and machinery maintenance. Adequate signage and temporary sanitation and ablution facilities must be provided to mitigate health and safety potential impact. Construction contracts will include environmental monitoring and management procedures and requirements. These must be in place prior to the commencement of any pre-construction activities.

To further minimise the impacts associated with the maintenance activities, a rehabilitation plan inclusive of an alien and invasive plant species management plan/s must be incorporated as part of this MMP.

16.2 Reconstruction and Maintenance Phase

This phase of the project could result in both positive and negative impacts. The positive impacts are employment opportunities offered to the construction workers and any other labourer who will be hired to provide his/her services during the construction phase. The potential negative impacts would include establishment of the construction lay-down area, storage of materials, traffic, soil and geology, erosion control, water use and pollution, surface and groundwater concerns, waste, spills and contamination, biodiversity concerns, dust control, noise, labour impact concerns, occupational health and safety concerns and heritage and palaeontological concerns. Most of the negative impacts are minor and temporary. However, on mitigating negative impacts, the contractor shall ensure that all staff have adequate protective clothing and are adequately trained. The whole range of mitigation measures are, however, outlined in the MMP in this regard.

16.3 Operational Phase

The proposed project will have minimal potential negative effects which mainly relate to decommissioning of the construction site, soil erosion, waste, health and safety concerns and visual concerns. These potential negative impacts are highly unlikely to occur. Mitigation measures stipulated in this MMP outline procedures that should be followed in the event of potential negative impacts occurring.