

DRAFT SCOPING REPORT

FOR THE INTEGRATED ENVIRONMENTAL IMPACT ASSESSMENT, WASTE MANAGEMENT LICENSE AND WATER USE LICENSE PROCESSES FOR THE WET FLUE GAS DESULFURISATION (WFGD) WASTE DISPOSAL FACILITIES FOR MEDUPI POWER STATION, WITHIN THE JURISDICTION OF LEPHALALE LOCAL MUNICIPALITY, LIMPOPO PROVINCE

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19.	Centre for Environmental Rights (CER)
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SECTION A: EXECUTIVE SUMMARY

EXECUTIVE SUMMARY

I. Background Context

Medupi Power Station is a coal-fired facility commissioned as part of Eskom's capacity expansion programme, located west of Lephalale in the Limpopo Province. With an installed capacity of six units rated in total at 4800MW, the power station uses a technology to improve efficiency and dry-cooling systems to minimise water consumption in this water-scarce region. The power station operates under an Atmospheric Emission Licence (AEL) issued in terms of the National Environmental Management: Air Quality Act, 2004 (Act No. 39 of 2004), which requires the reduction of Sulphur dioxide (SO₂) emissions. In response to regulatory requirements, including the Minimum Emission Standards (MES), Eskom is implementing Wet Flue Gas Desulphurisation (WFGD) technology across all units to achieve significant SO₂ reductions and comply with extended deadlines granted to 2030. The power station has a 50-year operational life span. The WFGD process will utilise limestone to remove more than 90% of SO₂ from flue gas; however, this abatement process generates by-products including gypsum, chemical salts, and sludge. While gypsum may have potential commercial value, all by-products require environmentally responsible management and disposal.

II. Project Description

The WFGD desulphurisation process will produce gypsum, chemical salts and sludge as waste. This application covers the proposed final waste disposal facilities and associated conveyance infrastructure required to transport waste from existing authorised intermediate facilities to the final disposal site. The WFGD plant, Wastewater Treatment Plant (WWTP), and Intermediate Storage Facilities have an existing valid Environmental Authorisation (EA) from the Department of Forestry, Fisheries and Environment (DFFE) and are excluded from this application. The project will also include infrastructure such as Pipelines, Conveyors, Access Roads, Lined Containment Systems, Pollution Control Dams, Stormwater Management infrastructure, and Environmental Monitoring Systems. These proposed facilities will be designed to ensure that all WFGD by-products are handled and disposed of in compliance with applicable legislation, while minimising impacts on the environment. It is anticipated that approximately 5,346.80 t/day of gypsum, 119.76 t/day of chemical salts, and 161 t/day of sludge will be disposed of over an operational period of 45 years for the gypsum disposal facility and 25 years for the chemical salts and sludge disposal facility. The proposed disposal facilities will occupy approximately 105 hectares for the gypsum disposal site and 25.02 hectares for the chemical salts/sludge disposal site, including the associated infrastructure.

III. Proposed Site

A Feasibility Assessment was undertaken during the screening phase to identify the best practicable environmental option for the proposed waste disposal site. However, due to spatial limitations and surrounding land-use constraints, only one preferred site was identified for further investigation during the EIA process (refer to Figure 1). Following completion of the screening exercise, an additional alternative site was identified and will also be assessed as part of the WFGD waste disposal site alternatives during the EIA phase. It should be noted that the preferred site will accommodate a reduced operational lifespan of approximately 25 years, compared with the Applicant's requirement of more than 40 years. As such, an

additional waste disposal site will need to be identified and authorised prior to the depletion of the available airspace capacity at the preferred site.

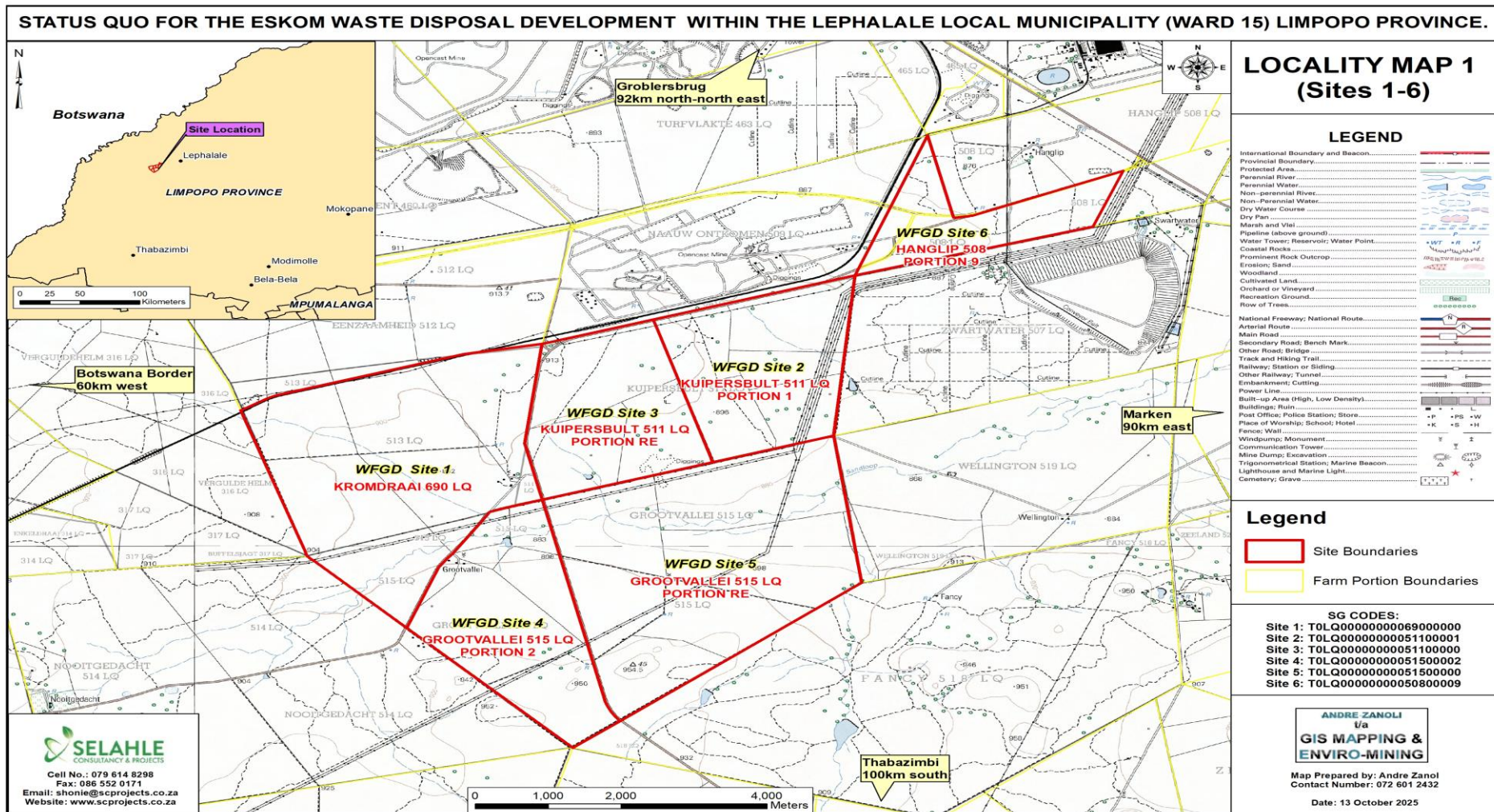


Figure 1: Screened Land Parcels for the WFGD Waste Disposal Facilities Sites

IV. Receiving Environment

The project area is found within the Waterberg District Municipality. It is characterised by a hot, semi-arid climate, with regional air circulation influencing pollutant dispersion. The proposed site falls within the Limpopo-Olifants Water Management Area (WMA). At a finer scale, within the A42J quaternary catchment. The area is underlain by coal-bearing formations of the Ellisras Basin and supports predominantly intact Limpopo Sweet Bushveld vegetation within the Savanna Biome. Both preferred and alternative sites are situated within Ecological Support Area 1 (ESA 1) as defined by the Limpopo Conservation Plan Version 2 and the Waterberg District Bioregional Plan. The terrain comprises gently undulating plains (elevation 860–990 m). The area is located adjacent to the established industrial corridor of Medupi and Matimba Power Stations.

V. Potentially Significant Impacts

The Scoping phase identifies the key biophysical, environmental, including verified sensitivities and socio-economic issues related to the proposed waste disposal facilities for the WFGD at Medupi Power Station. This process confirms that the preferred and alternative site alternatives will require a detailed assessment during the Environmental Impact Assessment (EIA) phase and the development of the Environmental Management Plan (EMPr). The EIA will focus on evaluating the significance of impacts based on environmental sensitivity, social context, and the scale of development, in accordance with the National Environmental Management Act, 1998, and the National Environmental Management: Waste Act, 2008.

The identified socio-economic impacts associated with the proposal included, but are not limited to, disruptions to local communities, health impact risks and changes to the land use of the area. There are anticipated positive impacts associated with the proposal, such as temporary and permanent jobs and contracting opportunities for the local businesses. The proposed development is associated with cumulative impacts, especially from existing industrial activities and the Matimba Power Station, including the ash dumps for both Power Stations.

VI. Public Participation Process

Public participation was undertaken from 19 May 2026 to 19 June 2026 by notifying the public of the proposal and inviting them to participate in the project using various communication platforms. The process was done to invite interested and affected parties (I&APs) to register their interest in the project formally. The public participation process undertaken to date involved;

- Verbally notifying the municipality about the proposal
- Distribution of Background Information Documents (BIDs) and notification letters to I&APs and stakeholders
- Site notices were erected at strategic places along the site and neighbouring areas in accordance with the requirements of the Regulations to announce the project.
- Key stakeholders in the area were informed by telephone, e-mail or facsimile.

Next steps for the Public Participation Process

The Draft Scoping Report will be subjected to a 30–day review period, where;

- Announcement of public review of the DSR and invite all Interested and Affected Parties (I&APs), Organs of State, Stakeholders, Landowners, etc., to public meetings by placing an advertisement in the local newspaper (Mogol Pos);
- All issues received from stakeholders will be captured in the Comments and Response Report (CRR), which will be used to screen and prioritise issues for evaluation;
- Appropriate participation measures will be put in place to deal with the range of cultural, the disadvantages and language requirements of I&APs
- Afford reviewing and commenting on the Draft Scoping Report
- Organises and attends Public Meetings during the Scoping Phase

VII. Plan of Study for EIA

The Final Scoping Report and Plan of Study will be submitted following the 30-day public review period for this Draft Scoping Report.

The Plan of Study for EIA will outline the proposed process and methodology for the EIA phase. It sets out the way forward, including the approach to specialist assessments and the detailed public participation process. This will be submitted together with the Final Scoping Report after the public review.

INFORMATION REQUIRED BY THE COMPETENT AUTHORITY

In terms of Appendix 2 (2) of the EIA Regulations, 2014, as amended, a Scoping Report (SR) must contain the information that is necessary for the competent authority to consider and come to a decision on the application and must include –

SCOPE OF ASSESSMENT & CONTENT OF BASIC ASSESSMENT REPORTS	SECTION
(a) details of (i) the EAP who prepared the report; and (ii) the expertise of the EAP, including a curriculum vitae;	2
(b) the location of the activity , including (i) the 21-digit Surveyor General code of each cadastral land parcel; (ii) where available, the physical address and farm name; (iii) where the required information in items (i) and (ii) is not available, the coordinates of the boundary of the property or properties;	3
(c) a plan which locates the proposed activity or activities applied for at an appropriate scale, or, if it is (i) a linear activity, a description and coordinates of the corridor in which the proposed activity or activities is to be undertaken; or (ii) on land where the property has not been defined, the coordinates within which the activity is to be undertaken;	3
(d) a description of the scope of the proposed activity , including (i) all listed and specified activities triggered; (ii) a description of the activities to be undertaken , including associated structures and infrastructure;	4, 6
(e) a description of the policy and legislative context within which the development is proposed including an identification of all legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks and instruments	6
(f) a motivation for the need and desirability for the proposed development	7
(g) a full description of the process followed to reach the proposed preferred activity, site and location of the development footprint within the site, including i. details of all the alternatives considered; ii. details of the public participation process undertaken in terms of regulation 41 of the regulations, including copies of the supporting documents and inputs; iii. a summary of the issues raised by interested and affected parties , and an indication of the manner in which the issues were incorporated, or the reasons for not including them; iv. the environmental attributes associated with the alternatives focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects; v. the impacts and risks which have informed the identification of each alternative, including the nature, significance, consequence, extent, duration and probability of such identified impacts; vi. the methodology used in identifying and ranking the nature, significance, consequences, extent, duration and probability of potential environmental impacts and risks associated with the alternatives;	4, 9, 10

SCOPE OF ASSESSMENT & CONTENT OF BASIC ASSESSMENT REPORTS	SECTION
vii. positive and negative impacts that the proposed activity and alternatives will have on the environment and on the community that may be affected focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects; viii. the possible mitigation measures that could be applied and level of residual risk; ix. the outcome of the site selection matrix; x. if no alternatives, including alternative locations for the activity were investigated, the motivation for not considering such; and xi. a concluding statement indicating the preferred alternatives, including preferred location of the activity;	
(h) a plan of study for undertaking the environmental impact assessment process to be undertaken, including i. a description of the alternatives to be considered and assessed within the preferred site, including the option of not proceeding with the activity; ii. a description of the aspects to be assessed as part of the environmental impact assessment process; iii. aspects to be assessed by specialists; iv. a description of the proposed method of assessing the environmental aspects, including aspects to be assessed by specialists; v. a description of the proposed method of assessing duration and significance; vi. an indication of the stages at which the competent authority will be consulted; vii. particulars of the public participation process that will be conducted during the environmental impact assessment process; and viii. a description of the tasks that will be undertaken as part of the environmental impact assessment process; ix. identify suitable measures to avoid, reverse, mitigate or manage identified impacts and to determine the extent of the residual risks that need to be managed and monitored;	11
(i) an undertaking under oath or affirmation by the EAP in relation to i. the correctness of the information provided in the report; ii. the inclusion of comments and inputs from stakeholders and interested and affected parties; and iii. any information provided by the EAP to interested and affected parties and any responses by the EAP to comments or inputs made by interested or affected parties;	13
(j) an undertaking under oath or affirmation by the EAP in relation to the level of agreement between the EAP and interested and affected parties on the plan of study for undertaking the environmental impact assessment;	
(k) where applicable, any specific information required by the competent authority; and	N/A
(m) any other matter required in terms of section 24(4)(a) and (b) of the Act.	N/A

**DRAFT SCOPING REPORT
FOR THE PROPOSED INTEGRATED ENVIRONMENTAL IMPACT ASSESSMENT AND
WASTE MANAGEMENT LICENSE PROCESSES FOR THE WET FLUE GAS
DESULFURISATION (WFGD) WASTE DISPOSAL FACILITIES FOR MEDUPI POWER
STATION, LIMPOPO PROVINCE**

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Appendix F1 – Proof of Site Notice Placement

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Appendix F6 – Public Meeting Invitation

Appendix G – Feasibility Report (Screening Report)

Appendix H – Site Sensitivity Verification Report

Appendix I – Screening Tool

Appendix J – EAP CV

Appendix J1 – EAP Declaration

Appendix K – Other Information

Appendix K1 – Pre-Application Meeting Minutes and Presentation

DEFINITIONS

Activity (Development)	An action, either planned or existing, that may result in environmental impacts through pollution or resource use. For 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 through the EAP to the relevant competent authority for environmental authorisation.
Biodiversity	The diversity of animals, plants and other organisms found within and between ecosystems, habitats, and 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 excludes 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) of (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.
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)
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 which 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	This means that no facilities, structures or infrastructure have been developed upon the land or property during the preceding 10 years.
Urban areas	This 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 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 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
WFGD	Wet Flue Gas Desulphurisation

Abbreviations (Definitions are above):

AEL	Atmospheric Emission Licence
AIA	Agricultural Impact Assessment
BPEO	Best Practicable Environmental Option
BBBEE	Broad-Based Black Economic Empowerment
CA	Competent Authority
CBA	Critical Biodiversity Area
C-Plan	Conservation Plan
CI	Conservation Importance
DALRRD	Department of Agriculture, Land Reform and Rural Development
NAAQS	Assessment of National Ambient Air Quality Standards
DFFE	Department of Forestry, Fisheries and the Environment
EA	Environmental Authorisation
EAP	Environmental Assessment Practitioner
EIA	Environmental Impact Assessment
EMF	Environmental Management Framework
EMPr	Environmental Management Programme
ESA	Ecological Support Area
FI	Functional Integrity
GNR	Government Notice Regulation
HIA	Heritage Impact Assessment
ID	Induced Draft
I&AP	Interested and Affected Party
IAIA	International Association for Impact Assessment
IAP	Invasive Alien Plants
IDP	Integrated Development Plan
IEM	Integrated Environmental Management
IUCN	International Union for Conservation of Nature
NDP	National Development Plan
PPP	Public Participation Process
PCD	Pollution Control Dam
Ha	Hectare
LC	Least Concern
LCPv2	Limpopo Conservation Plan Version 2
LEDET	Limpopo Provincial: Department of Economic Development, Environment and Tourism
MW	Megawatts
MES	Minimum Emission Standards
NEMA	National Environmental Management Act
NEM: BA	National Environmental Management: Biodiversity Act
NEM: WA	National Environmental Management: Waste Act
NFEPA	National Freshwater Ecosystem Priority Area
NHRA	National Heritage Resources Act, 1999 (Act No. 25 of 1999)
NWA	National Water Act

OE	Owners Engineer
PAOI	Project Area of Interest
PES	Present Ecological State
PJFFs	Pulse Jet Fabric Filters
PPP	Public Participation Process
RR	Receptor Resilience
RWD	Return Water Dam
S&EIR	Scoping and Environmental Impact Assessment Report
SO ₂	Sulphur Dioxide
SAHRA	South African Heritage Resources Agency
SANBI	South African National Biodiversity Institute
SANS	South African National Standards
SCC	Species of Conservation Concern
SCP	Selahle Consultancy & Projects
SDF	Spatial Development Framework
SEA	Strategic Environmental Assessment
SEI	Site Ecological Importance
SEIA	Socio-Economic Impact Assessment
SIA	Social Impact Assessment
SMP	Social Management Plan
SWMP	Storm Water Management Plan
TBC	The Biodiversity Company
UVB	Unchannelled Valley Bottom
WDM	Waterberg District Municipality
WDEMF	Waterberg District Environmental Management Framework
WESSA	Wildlife and Environment Society of South Africa
WFGD	Wet Flue Gas Desulphurisation
WULA	Water Use License Application
WWTP	Wastewater Treatment Plant

SECTION B: SCOPING PHASE

1 INTRODUCTION

1.1 Project Background

Medupi is a coal-fired power station that forms part of Eskom's capital expansion programme. The word Medupi means “rain that soaks parched lands, giving economic relief” in the Sepedi language. Medupi Power Station is located west of Lephalale in the Limpopo Province. The Power Station has an installed capacity of six (6) x 794-Megawatt (MW) units and utilises supercritical boiler and turbine technologies designed to operate at higher temperatures and pressures. This technology allows for maximum efficiency of the Power Station. Dry-cooling technology is efficient in water-scarce areas, such as Lephalale, and utilises approximately 0.2 litres of water per unit of electricity produced.

The Power Station operates under an Atmospheric Emission Licence (AEL No. H16/1/13-AEL/M1/R1), issued on 1 December 2020, which requires continuous operation of Sulphur Dioxide (SO₂) reduction systems on all six units. The Power Station has a design lifespan of 50 years, and its six units were designed and constructed to accommodate the installation of WFGD technology to ensure compliance with SO₂ emission reduction requirements. In terms of the AEL, continuous operation of SO₂ abatement systems is required on all six generating units. Furthermore, Medupi must comply with the Minimum Emission Standards under the National Environmental Management: Air Quality Act (Act No. 39 of 2004), which set SO₂ limits for coal-fired power stations at 500 mg/Nm³ (new plants) and 3,500 mg/Nm³ (existing plants), at 10% oxygen reference conditions. Eskom appealed the deadline for compliance and, pursuant to advice from the National Environmental Compliance and Appeals Forum (NECA Forum), the Minister issued a directive on 31 March 2025 granting Medupi until 2030 to comply with a limit of 1,000 mg/Nm³.

According to the United States Environmental Protection Agency and the World Health Organisation, the primary concern associated with sulphur dioxide (SO₂) is short-term exposure, which is linked to adverse respiratory health effects. SO₂ also contributes to acid deposition, reduced visibility, and vegetation damage (Medupi FGD: Technology Selection Study Report, 2018). South Africa has therefore established Minimum Emission Standards under the National Environmental Management: Air Quality Act (Act No. 39 of 2004), which set SO₂ limits for coal-fired power stations at 500 mg/Nm³ (new plants) and 3,500 mg/Nm³ (existing plants), at 10% oxygen reference conditions.

The review of Eskom's technology identified wet flue gas desulphurisation (WFGD) as the preferred SO₂ control technology for Medupi due to its proven effectiveness, particularly in coal-fired applications. WFGD systems typically achieve over 98% SO₂ removal efficiency and high reagent utilisation (95–97%), making them suitable for high-sulphur coal and retrofit applications compared to semi-dry and dry FGD systems. The WFGD uses Limestone as a sorbent, whereby Flue Gas is filtered through Pulse Jet Fabric Filters (PJFFs) and scrubbed in an absorber, producing gypsum as a by-product that requires safe disposal at a dedicated waste disposal facility. The WFGD process will produce three by-products: i.e., Gypsum, Chemical Salts, and Sludge, which will require management and disposal at the designated landfill site in accordance with applicable waste management requirements.

1.2 Terms of Reference

The WFGD retrofit generates three by-product waste streams: gypsum, chemical salts, and sludge. All by-products must be disposed of in an environmentally safe manner to prevent impacts on groundwater and surface water. The existing Environmental Authorisation (DEA Ref: 14/12/16/3/3/2/1060) covers the WFGD plant, Wastewater Treatment Plant (WWTP), and intermediate storage facilities. This application is therefore limited to the final waste disposal facilities and related conveyance infrastructure.

Selahle Consultancy and Projects Pty Ltd (SCP) was appointed by Eskom Generation to conduct an Integrated Environmental Authorisation (EA) application in terms of:

- The National Environmental Management Act, 1998 (Act 107 of 1998), as amended, and GN R.982 EIA Regulations, 2014, and related Listing Notices (as amended);
- The National Environmental Management: Waste Act, 2008 (Act 59 of 2008); and
- The Waste Management Activity Listing: GN 921 of 2013, as amended.

The scope was divided into three phases, which are:

- i. Screening Phase
- ii. Integrated Environmental Authorisation; and
- iii. Water Use License Application

2 SCREENING PHASE AND SITE SELECTION

A Feasibility Study appended in Appendix D was undertaken to identify the Best Practicable Environmental Option (BPEO) for the proposed WFGD Waste Disposal Facilities through the assessment of six alternative sites. The evaluation followed a structured and transparent process informed by a site visit, specialist studies, and a multi-criteria analysis covering biodiversity, freshwater, heritage, social, agricultural, technical, climate, potential financial, and legal considerations.

The broader area around Medupi is environmentally and socially sensitive, characterised by Critical Biodiversity Areas (CBAs), Ecological Support Areas (ESAs), Freshwater Systems, and Agricultural Land. As such, the site selection process prioritised the avoidance of high-sensitivity areas and minimisation of cumulative impacts. Sites 4 and 5 were identified as highly sensitive due to their location within CBA 1 areas, intact vegetation, and strong ecological and hydrological connectivity. Site 5 was classified as a “No-Go” alternative due to its irreplaceable ecological value. In contrast, Sites 1, 3, and 6 were found to be within more transformed areas and presented a comparatively lower environmental risk.

From a freshwater perspective, Site 6 was the most favourable as it avoided mapped drainage features, although the presence of a seepage wetland and a pan required confirmation during the EIA phase. Heritage assessments indicate that Site 6 had low sensitivity, while social and land-use assessments confirm its compatibility with existing industrial activities.

Based on the integrated specialist findings and weighted scoring, Site 6 was identified as the Best Practicable Environmental Option, as it offered the most balanced outcome in terms of environmental protection,

technical feasibility, and socio-economic compatibility. Site 1 was considered a secondary alternative, while Sites 3 and 2 are conditionally viable. However, these conditionally viable sites were excluded from the EIA for Waste Disposal Sites as they were designated for other land uses for the Medupi Power Station, whereas Sites 4 and 5 were excluded due to high environmental constraints.

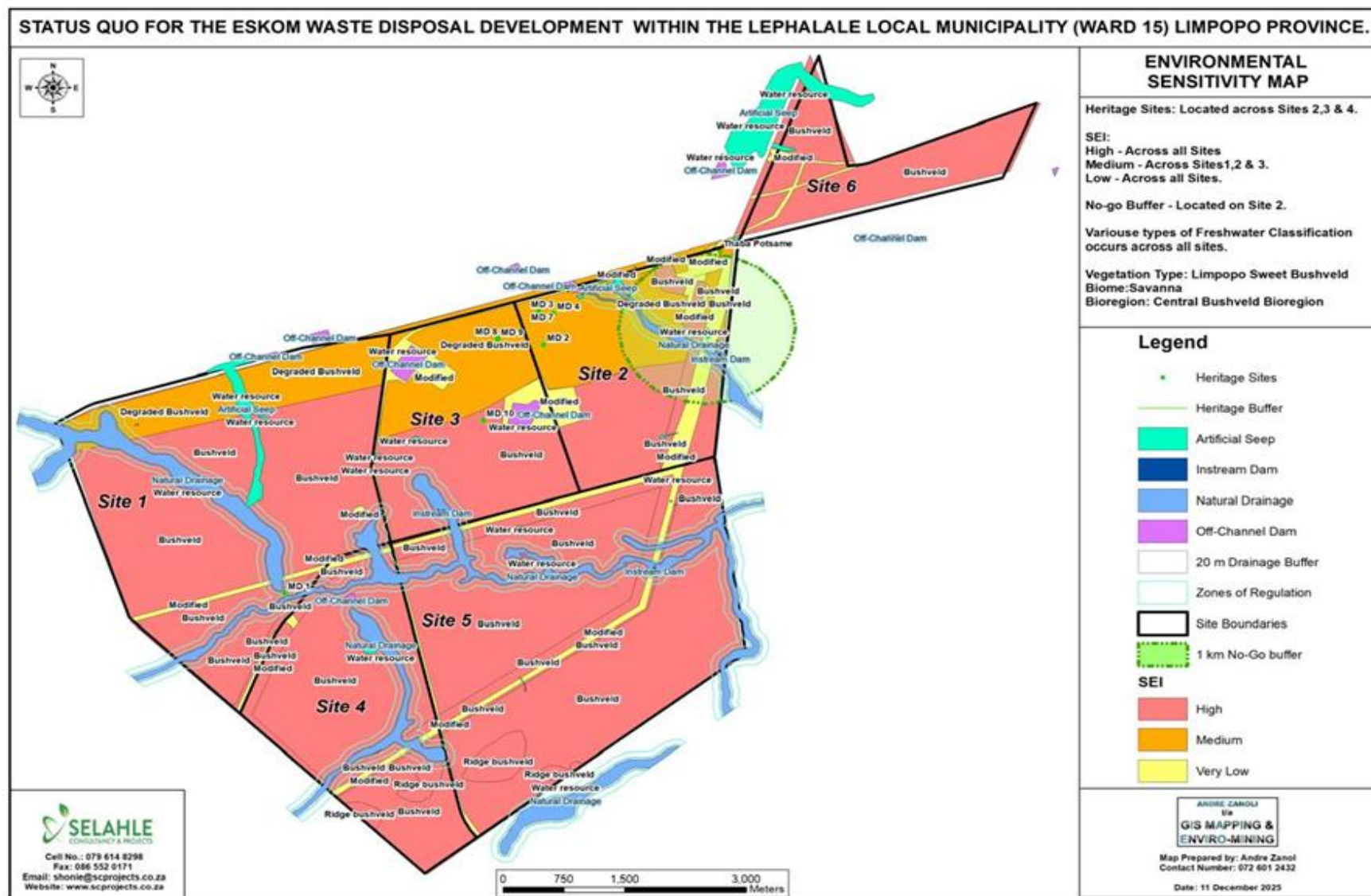


Figure 2: Screened Land Parcels for the WFGD Waste Disposal Sites and associated sensitivities.

Table 1: A Summary of Specialists' Findings during the Screening Phase

Specialist Study	Site 1	Site 2	Site 3	Site 4	Site 5	Site 6
Biodiversity Assessment	High Sensitivity (CBA 1; seepage wetlands; intact vegetation)	High Sensitivity (ESA 1; intact conservation area)	Medium Sensitivity (partially disturbed)	Very High Sensitivity (Sandloop River; connectivity corridor)	Very High Sensitivity (No-Go Area; pristine habitat)	Medium Sensitivity (fragmented by infrastructure)
Biodiversity Recommendation	Strict controls and ecological buffers required	Infrastructure limited to existing servitudes	Suitable within disturbed areas with rehabilitation	Avoid where possible	No-Go Area	Development can focus on transformed areas
Heritage Assessment	Low heritage sensitivity; preferred	Potential graves and stone walling	Previously disturbed by mining; low heritage value	Heritage and environmental constraints present	Potential isolated archaeological tools	Low archaeological sensitivity
Heritage Recommendation	Preferred Site	Not recommended	Conditionally acceptable	Not recommended	Conditionally acceptable	Preferred Secondary Site
Avifaunal Assessment	Habitat for Species of Conservation Concern (SCC)	SCC habitat and Saddle-billed Stork nest	SCC habitat; preferred avifaunal option	SCC habitat	SCC habitat	SCC habitat
Avifaunal Recommendation	Mitigation required	Walkdown to confirm nest activity	Preferred Option	Mitigation required	Mitigation required	Mitigation required
Freshwater Assessment	High Risk; extensive drainage network	Moderate Risk	Low-Moderate Risk	Moderate-High Risk	Highest Risk	Lowest Risk
Freshwater Sensitivity	High	Moderate	Low-Moderate	High	Very High	Low
Freshwater Recommendation	Layout optimisation required	Maintain setbacks from drainage features	Preferred from freshwater perspective	Extensive mitigation required	Not preferred	Preferred Site
Socio-Economic Assessment	Moderate sensitivity	High sensitivity	Moderate sensitivity	Moderate-High sensitivity	Moderate sensitivity	Low sensitivity
Socio-Economic Suitability	Suitable	Unsuitable	Conditionally Suitable	Moderate Sensitivity	Conditionally Suitable	Most Suitable
Agricultural / Soil Assessment	Most suitable; Calcic Luvisols; moderate fertility	Fertile soils but environmental constraints	Moderate suitability; erosion concerns	Fertile soils; active farming	Ecologically sensitive conservation area	Disturbed by infrastructure; limited developable area
Agricultural Recommendation	Preferred Site	Not preferred	Moderate suitability	Not preferred	Not preferred	Secondary Option
Land Use / Existing Disturbance	Existing industrial corridor; grazing land	Conservation and heritage features	Quarry and industrial disturbance	Active farming area	Conservation buffer zone	Existing railway and conveyor corridor
Overall Environmental Sensitivity	Moderate-High	High	Moderate	High	Very High	Low-Moderate

However, Eskom Holdings SOC Limited concluded the site selection process by selecting Site 6 as the preferred option and reducing the storage duration from 45 to 25 years to accommodate all identified by-product wastes (gypsum, chemical salts, and chemical sludge).

Despite environmental constraints identified through specialist studies, Site 6 remains the most feasible option. These constraints will be assessed in detail during the Environmental Impact Assessment (EIA) phase.

Furthermore, another land parcel was also identified as a feasible site that can be assessed for the same Waste Disposal Facilities. In addition, Portions of Sites 2 and 3 were also identified to be utilised for the waste transport routes, with conveyor belt systems. Figure 3 illustrates the demarcation of the proposed sites to accommodate all WFGD by-product waste associated conveyor routes.

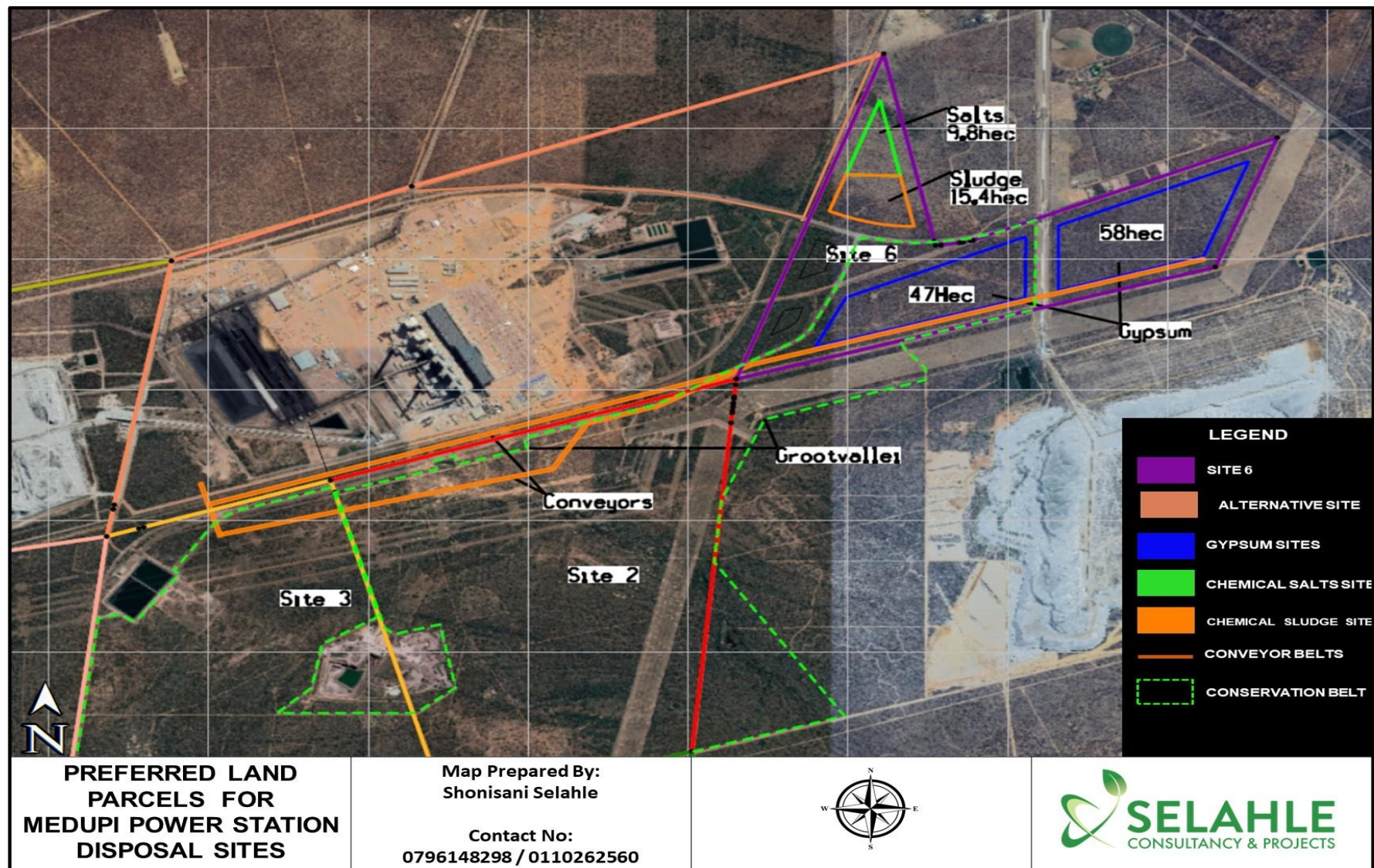


Figure 3: Preferred Land Parcels and associated routes for the WFGD Waste Disposal By-Products.

3 SCOPING AND EIA PHASE

The environmental impacts associated with the proposed project require an assessment in accordance with the Environmental Impact Assessment (EIA) Regulations, 2014 (as amended), promulgated in terms of Section 24(5) of the National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA). The proposed activities also trigger waste management activities listed under the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) (NEM: WA).

An Integrated Environmental Authorisation (IEA) process is therefore being undertaken, as both a Waste Management Licence (WML) and an Environmental Authorisation (EA) are required for the proposed Waste Disposal Facilities. In terms of the applicable legislation, the Department of Forestry, Fisheries and the Environment (DFFE) is the Competent Authority (CA) responsible for considering the application and issuing a decision, in addition to the fact that Eskom is a state-owned entity. As the activities applied for are also under Listing Notice 2 and Category B of the Waste Activities, Scoping and EIA are undertaken per the EIA regulations. The process is undertaken in two phases (Figure 4):

- Phase 1- Scoping: includes the site selection, identification of alternatives and the Plan of Study for Environmental Impact Assessment;
- Phase 2- EIA, which entails compiling an Environmental Management Programme (EMPr) to manage the impacts identified and assessed.

The first phase involves the Scoping Phase, which includes the site selection, identification of alternatives and the Plan of Study for Environmental Impact Assessment; and the second phase involves the Environmental Impact Assessment Phase, which will entail compiling an Environmental Management Programme (EMPr) to manage the impacts identified and assessed.

The scoping process provides an opportunity to identify key environmental and socio-economic issues associated with the proposed development and to determine the scope of specialist assessment required for the EIA phase.

Potential impacts relating to Soil and Agricultural Potential, Surface Hydrology, Geohydrology, Air Quality, Noise, Terrestrial Biodiversity (including Fauna and Flora), Wetlands, Watercourses, Social Aspects, Heritage Resources, Traffic, and Visual Impacts are identified and considered during the scoping phase. Issues identified as potentially significant will be recommended for further detailed investigation and assessment during the EIA phase of the project.

The identification of potential impacts was informed through a Site Sensitivity Verification (SSV), which includes the combination of desktop studies and site visits. Desktop studies include the review of existing information such as previous specialist studies, monitoring reports, feasibility studies, and available environmental databases. These sources, together with observations from the site visit, assist in identifying and highlighting potential significant impacts, both biophysical and socio-economic, that may be associated with the proposed project (see Appendix E for SSV)

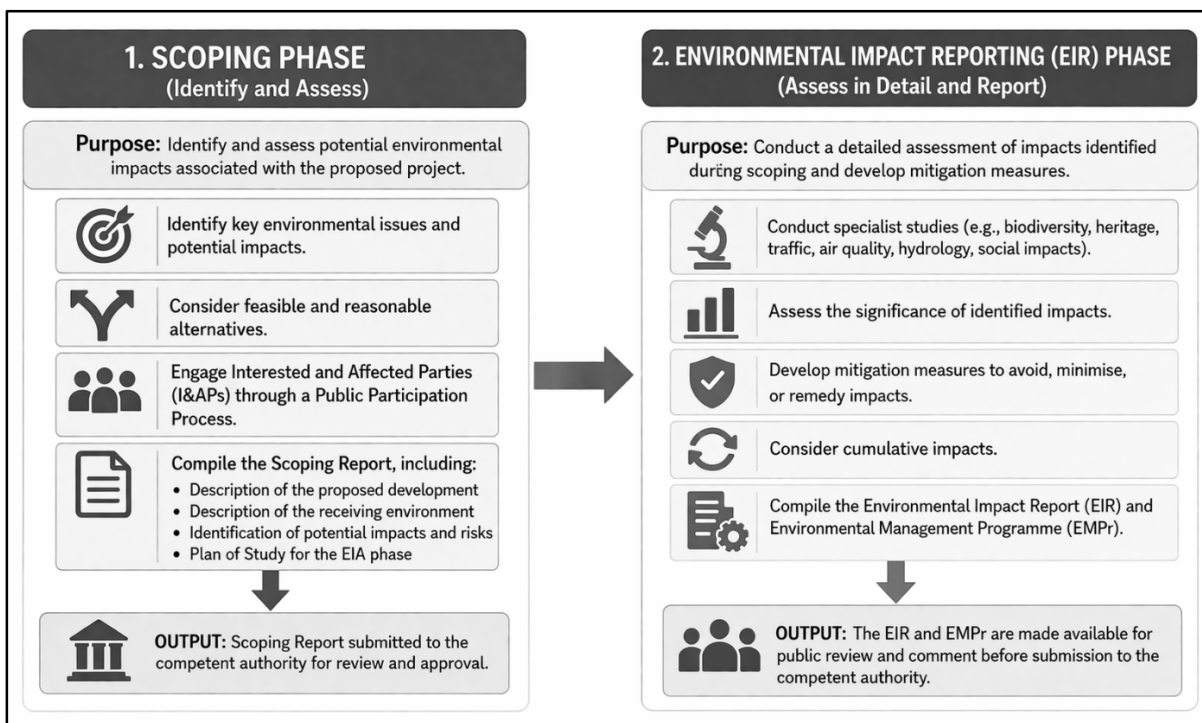


Figure 4: Scoping and Environmental Impact Assessment phases.

4 DETAILS OF THE APPLICANT & EAP

Eskom Generation (Eskom Gx) has appointed Selahle Consultancy and Projects Pty Ltd (herein referred to as SCP) to undertake an application for an Integrated Environmental Authorisation and Waste Management Licence (WML) in terms of the: National Environmental Management Act, 1998 (Act 107 of 1998) as amended, the EIA Regulations of 2014 as amended, National Environmental Management: Waste Act, 2008 (Act 59 of 2008) and Waste Management Activities List: GNR 921 2013 as amended.

The details of the EAP are indicated in Table 2 and discussed in the subsequent section. Reference is also made to the CV attached in Appendix E.

Table 2: Details of the Applicant

APPLICANT'S DETAILS	
Name of the Applicant	Eskom Holdings SOC Ltd
Name of contact person for applicant	Deidre Herbst
Company Registration Number	2002/015527/30
Physical address	Megawatt Park, Maxwell Drive, Sunninghill, Sandton
Postal address	PO Box 1091, Johannesburg
Postal code	2001
Telephone	011 800 3501
Email:	herbstdl@eskom.co.za
PERSON IN CONTROL OF THE LAND PARCELS	
Name of Person in control of the Land	Thozama Gangi

Telephone	011 516 7105
Email:	gangiTP@eskom.co.za

Table 3: Details of the EAP

DETAILS OF ENVIRONMENTAL ASSESSMENT PRACTITIONER	
NAME AND SURNAME	Shonisani Selahle
COMPANY	Selahle Consultancy & Projects Pty Ltd
PHYSICAL ADDRESS	546 16 th Road, Constantia Park, Block 2, 1 st Floor, Randjespark, 1682
TEL NO:	011 026 2560 / 079 569 5277
FAX NO:	086 685 9567
EMAIL:	shonie@scprojects.co.za / admin@scprojects.co.za

4.1 Expertise of the EAP

- EAPASA Registered EAP: 2020/2646
- SACNASP Registered Scientist: 134271
- SACPCMP Registered Safety Manager: CHSM/1372/2025

Qualifications

- BSc Honours in Environmental Management - (UNISA) 2025
- N. Dip in Geology – (TUT) 2010
- ISO 14001:2015 - WWISA

Summary of the EAP's experience

Shonisani Selahle is an Environmental Consultant with more than 15 years of experience in applying the principles of Integrated Environmental Management and applying the Environmental Legislation to several development projects and initiatives in Southern Africa. She has coordinated and managed several diverse projects and programs related to the Environment and Waste within both the public and private sectors for national and international companies. She has a great understanding of relevant legislation about environmental management (NEMA, ECA, NWA, MPRDA, etc).

Environmental Assessment Practitioner (EAP) Competencies and Expertise

The Environmental Assessment Practitioner (EAP) has the necessary qualifications, experience, and technical expertise to undertake and manage environmental assessment processes in accordance with applicable legislation and international best practice. Key competencies include:

- Conducting international environmental legislation research and integrating relevant requirements into Environmental Impact Assessments (EIAs), Basic Assessments (BAs), and related environmental assessments.

- Applying and interpreting international environmental and social standards, including the World Bank Environmental Guidelines and the Equator Principles, within environmental assessment reports.
- Comprehensive understanding and application of EIA regulatory processes, including pre-consultation processes, environmental screening studies, feasibility and fatal flaw studies, Basic Assessments, Scoping and Environmental Impact Reporting, public participation processes, and appeal procedures.
- Preparation and submission of Environmental Authorisation amendment applications, including both minor and substantive amendments.
- Independent preparation of EIA and Basic Assessment reports, including the integration and synthesis of specialist studies and findings.
- Development of Environmental Management Programmes (EMPr's) and environmental monitoring frameworks.
- Coordination and facilitation of Public Participation Processes, including stakeholder registration, consultation, and the compilation of Comments and Response Reports.
- Conducting environmental assessments for renewable energy projects.
- Performing Environmental Control Officer (ECO) duties, including site inspections, environmental compliance monitoring, and auditing.
- Liaising effectively with clients, authorities, and stakeholders throughout the environmental authorisation process.
- Implementing site rehabilitation and remediation measures, including bioremediation techniques for contaminated sites.
- Conducting Occupational Health and Safety (OHS) compliance monitoring and audits in terms of the Occupational Health and Safety Act, 1993 and Construction Regulations, 2014.
- Preparing and submitting Construction Health and Safety Permit applications to the Department of Employment and Labour.
- Implementing and auditing occupational health and safety management systems, including ISO 45001:2018 and OHSAS 14001:2015 (where applicable), within the project environment.

5 PROJECT LOCATION

Medupi Power Station is situated west of Lephalale township and 60km west of the Botswana West Border. The Power Station is within the jurisdiction of Lephalale Local Municipality, under the Waterberg District Municipality in Limpopo Province, South Africa. Refer to Figure 5 for a locality map. The proposed sites can be accessed via the R510 road. The proposed study area is in Ward 15 of Lephalale Local Municipality, and the earmarked site farm portions are indicated below.

Table 4: Proposed Land Parcel Size in Hectares

Land parcels	Co-ordinates	Farm names	Sizes (Ha)/ Length(km)	21 SG Code
Preferred Site	A: 23°41'4.60"S 27°35'22.65"E B: 23°42'20.54"S 27°34'51.73"E C: 23°41'53.38"S 27°36'41.02"E D: 23°41'24.01"S 27°36'53.19"E E: 23°41'51.41"S 27°35'41.25"E	Portion 9 of Hanglip 508 LQ	295,66	T0LQ000000050800009
Alternative Site	A: 23°41'36.29"S 27°33'43.05"E B: 23°41'43.52"S 27°35'5.56"E C: 23°41'3.98"S 27°35'20.02"E	Naaw Ontkomen 509 LQ	134,79	T0LQ00000000050900000
Route 1	Start: 23°42'56.55"S 27°32'58.25"E Middle: 23°42'24.75"S 27°34'47.05"E End: 23°41'54.47"S 27°36'35.95"E	Naaw Ontkomen 509 LQ	6,51 Km	T0LQ00000000050900000
Route 2	Start: 23°42'51.75"S 27°32'55.48"E Middle: 23°42'51.68"S 27°33'51.35"E End: 23°42'24.75"S 27°34'47.05"E	Kuipersbult 511 LQ	4,57 Km	T0LQ00000000051100000

The proposed sites are surrounded by the following land use:

- Medupi Power Station
- Matimba Power Station
- Exxaro Mine
- Matimba Ash Dam
- Grootvallei Conservation Area
- Railway line
- Regional and dirt/service Roads
- Conveyor Belts
- Overhead Powerlines
- Farms/Agricultural land
- Drainage lines
- Heritage sites

5.1 Site Layout

The site layout identifies designated disposal areas for each waste stream, as illustrated in Figure 5 below. Another alternative site is located adjacent to the proposed site. A railway line divides these two sites that are under consideration.

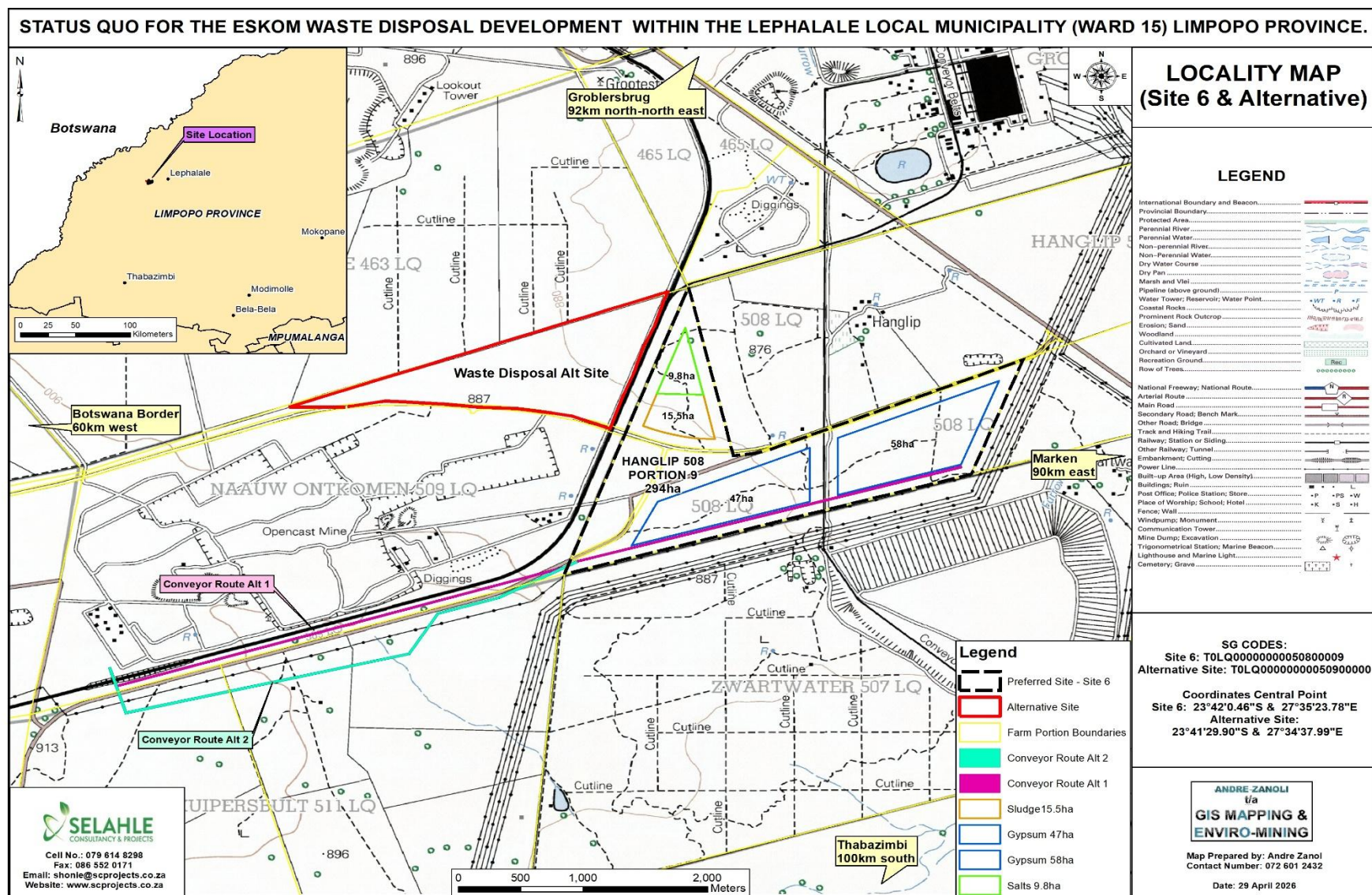


Figure 5: The proposed WFGD Waste Disposal Sites Locality Map

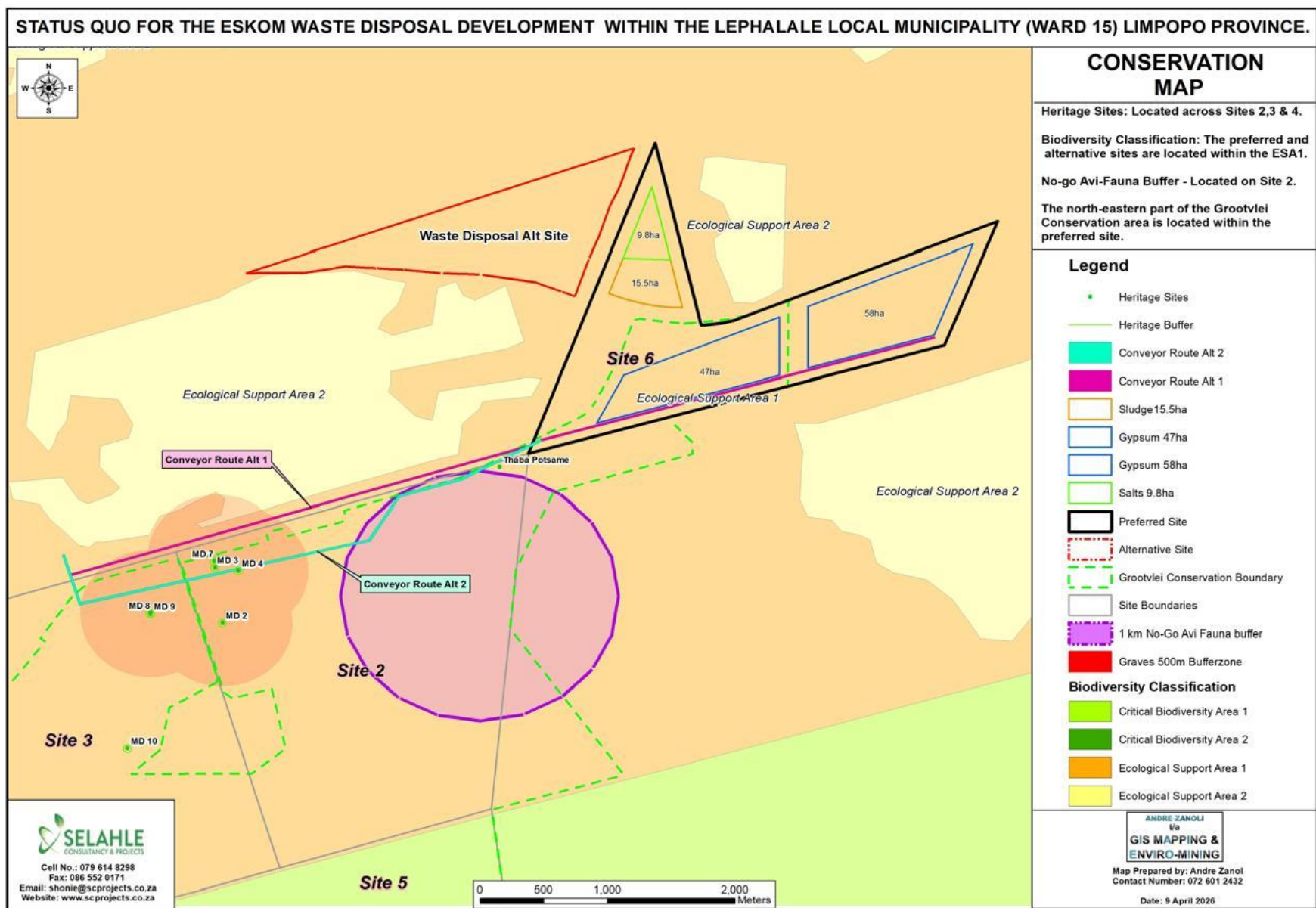


Figure 6: Preliminary Site Plan overlain by Conservation Map

6 PROJECT DESCRIPTION

The WFGD system uses limestone as a sorbent, whereby Flue Gas is filtered through Pulse Jet Fabric Filters (PJFFs) and scrubbed in an absorber, producing gypsum as a by-product that requires safe disposal at a dedicated waste disposal facility. The WFGD process will produce three by-products, namely: gypsum, chemical salts, and sludge, which will require management and disposal at the designated landfill site in accordance with applicable waste management requirements.

The Flue Gas Desulfurization (FGD) technology operates similarly to a wet vacuum cleaner. In this process, water and limestone (CaCO_3) are used to react with flue gas, which helps extract Sulphur dioxide (SO_2) as gypsum (CaSO_4) and water. As a result of the chemical reaction, salts are also produced. The gypsum is trapped in the dirty water, which is then removed for separation and treatment. Dewatered gypsum is either disposed of or resold, depending on its quality. The water used in the process is treated and recycled within the system. Finally, cleaner flue gas is released from the chimney. The main inputs to this process are water and limestone, while the wastes generated include gypsum, salts, and sludge (Zitholele Draft Scoping Report for Medupi FGD, 2014).

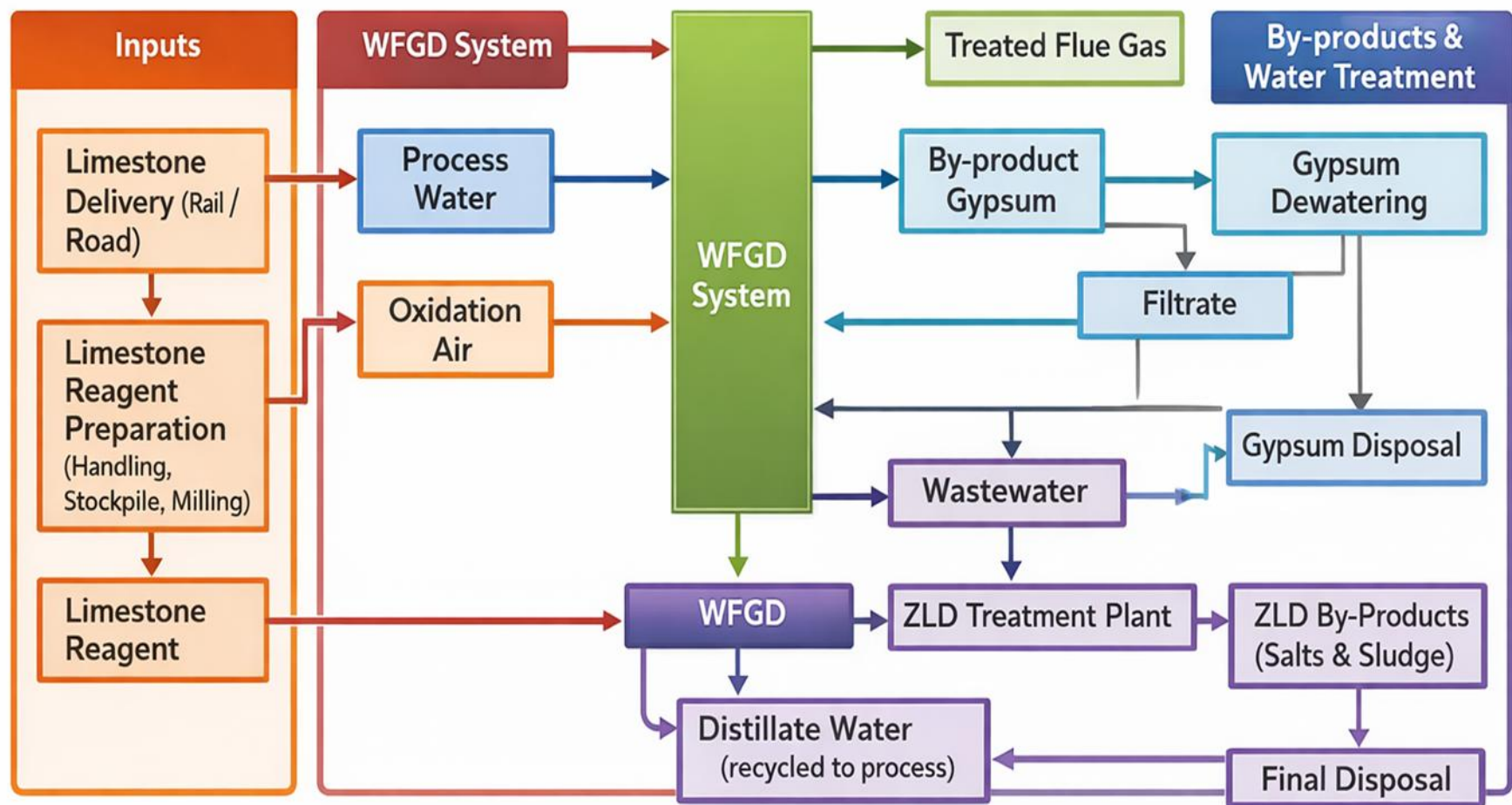


Figure 7: WFGD Process Flow Diagram.

6.1 Existing Facilities

The units at Medupi Power Station have been designed and constructed with space and equipment provisions to accommodate the installation of a wet limestone flue gas desulfurization (FGD) system. Each of the six generating units operates independently, while shared facilities are available for electricity, water, coal supply, and the disposal of coal combustion waste.

Each unit is equipped with fabric filters and induced draft (ID) fans. The fabric filters effectively remove most particulates generated during the coal combustion process, and the ID fans create the necessary draft to overcome system resistance. These fans are specifically designed to handle the additional resistance expected from the installation of the FGD equipment. Currently, the ID fans discharge directly into the chimney flue of each unit.

6.2 Authorised Facilities

The installation and operation of the FGD and associated infrastructure were authorised by DEA (now known as DFFE) with **DEA Reference: 14/12/16/3/3/2/1060**. The following infrastructure was authorised as part of the retrofitting of the FGD system at the Medupi Power Station, see Figure 8 below;

- Railway
- Diesel Storage Facilities
- Wet FDG System
- Intermediate Waste Disposal Site
- Wastewater Treatment Plant
- Handling, treatment and conveyance of gypsum and effluent within the Medupi Power Station
- The construction and operation of a Wastewater Treatment Plant and the management, handling, transport and storage of salts and sludge generated through the wastewater treatment process at a temporary waste storage facility and a complete water management system and
- The transportation of salts and sludge via truck from the temporary waste storage facility to a final waste disposal facility to be contracted by Eskom for the first 5 years of operation of the FGD system.

6.3 Proposed Waste Facilities

The proposed application is limited to the final waste disposal sites and conveyance infrastructure. No co-disposal of waste streams will occur, even in intermediate storage facilities. A formal waste classification study will be undertaken in accordance with GN R.635 (National Norms and Standards for the Assessment of Waste for Landfill Disposal, 2013) to determine hazard type, which will in turn determine the required liner class under GN R.636.

The handling and disposal of WFGD waste may have a potentially significant impact on soil, groundwater, surface water, air quality, and the general environment. There will be no co-disposal of different waste streams, even in the intermediate waste storage facilities. The waste classification study will be required to:

- Classify the three (3) WFGD wastes.
- Classify the requirements of the barrier system for the waste disposal facility according to the classification of the wastes.
- The waste classification is an essential input to the design of the WFGD disposal facility.
- Ash from Medupi and Matimba Power Stations is to be assessed and classified to be considered for use as part of the lining material for the WFGD disposal site/s.

6.3.1 Waste Classification

The Waste Management Requirements from the Medupi FGD: Technology Selection Study Report are primarily based on the classification of waste streams generated by the Wet Flue Gas Desulphurisation (WFGD) process and the corresponding legal requirements for handling, treatment, and disposal.

Table 5: Waste Management Requirements (According to the Medupi FGD: Technology Selection Study Report)

	Hazardous Classification	Waste Management Applied	Landfill Liner Class
WFGD Wastes			
Gypsum	Type 3	Re-use, recovery, disposal	Class C
Chemical Sludge from ZLED Plant	Type 1	Disposal	Class A
Chemical Salts from ZLED Plant	Type 1	Disposal	Class A

6.3.2 Chemical Sludge and Salts Disposal Facility

The facility will cater to chemical salts and sludge and will have to comply with applicable legal requirements based on the waste classification outcome.

6.3.3 Gypsum facility

The facility will cater for gypsum waste and will have to comply with relevant requirements based on the waste classification outcome.

6.3.4 Intermediate storage facilities

There will be a need for an intermediate waste storage facility required especially in case of emergency, and it is to be governed by the applicable National Norms and Standards for Storage of Waste, 2013. The EIA studies will consider site/s that can serve as intermediate waste storage facilities.

6.3.5 Wet Flue Gas Desulphurisation Wastewater Treatment Plant

The WFGD process will result in the production of an FGD wastewater/brine stream which has significantly high concentrations of chlorides, magnesium, calcium, and heavy metals. This wastewater cannot be directly reused elsewhere in the station. This wastewater will require specialised treatment. The Power Station will employ a three-step process of **1) Pre-Treatment, 2) Evaporation/Concentration, and 3) Crystallisation to treat this wastewater**. This will produce a clean water stream that can be reused, which allows the power station to reduce its raw water intake by up to 3%. Wastes will be generated during the pre-treatment step and the crystallisation step. This waste will be in solid form and will consist of the gypsum that will be disposed of at the gypsum disposal facility and the salts from the sludge, which will be disposed of at the proposed Disposal Facility (refer to the figure below illustrating the FGD Wastewater Treatment Process).

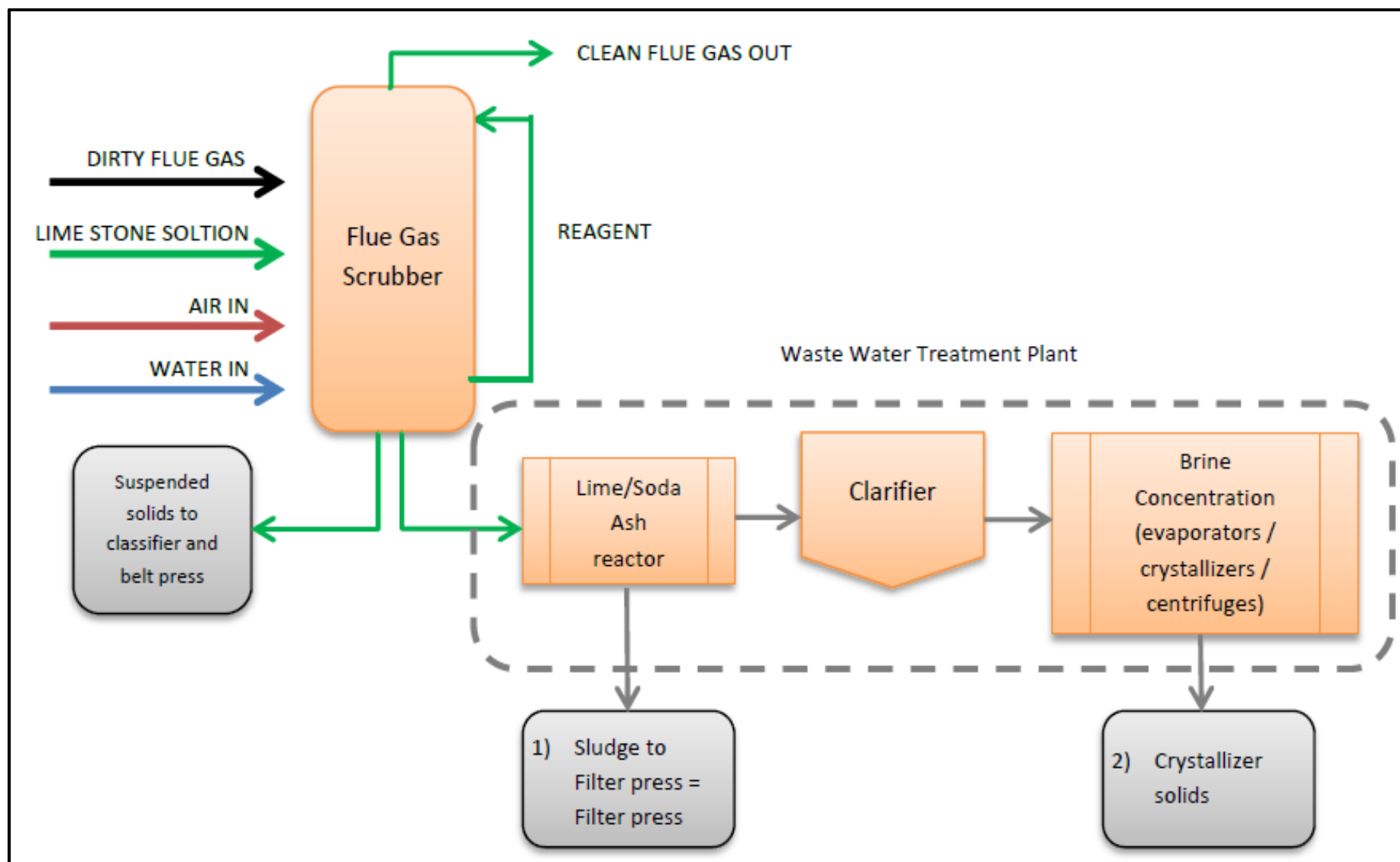


Figure 9: Schematic Diagram of the FGD Wastewater Treatment Process

6.3.6 Waste Conveyance System

The conveyance system for the waste from the FGD plant will include pipelines, conveyor belts, possibly rail and the final routing of the road network for both the construction and operational phases. Conveyance will be dependent on the final location of the disposal sites and access tunnels. Roads to support construction activities (which in some cases may be temporary) and roads that are needed for Operations and Maintenance:

- Temporary access roads during construction
- Temporary site roads during construction
- Permanent access roads
- Maintenance and operations roads (temporary and permanent)

6.3.7 Associated infrastructure

Additional infrastructure may include (but is not limited to):

- Underdrain system
- Compacted clay layer
- HDPE liner
- Leak detection layer
- Drainage layer with perforated pipes
- Dirty water system
- Pollution Control Dam (PCD)
- Return Water Dam (RWD)
- Clean water system
- Diversion berms and channels
- Stormwater Separation (aligned with Best Practice Guidelines under the National Water Act)
- Emergency containment areas
- Groundwater monitoring boreholes (upgradient & downgradient)
- Surface water sampling points
- Leak detection systems
- Site offices/control room
- Weighbridge (if required)
- Workshop/maintenance area
- Security fencing and access control.

6.4 Amount of Waste to be Disposed

It is anticipated that approximately 5,346.80 t/day of gypsum, 119.76 t/day of chemical salts, and 161 t/day of sludge will be disposed of over an operational period of 45 years for the gypsum disposal facility and 25 years for the chemical salts and sludge disposal facility. The proposed disposal facilities will occupy approximately 105 hectares for the gypsum disposal site and 25.02 hectares for the chemical salts/sludge disposal site, including the associated infrastructure. The table below provides a summary of all the waste sites that are being applied for and the total amounts of waste expected to be disposed of at each site.

Table 6: Waste Capacities

Type of Waste	Amount To Be Disposed Of (ton/year)	Amount To Be Disposed Of (ton/day)	Area Required (ha)
Gypsum	1 951 581	5346.80	105
Chemical salts	43712	119.76	9.8
Chemical sludge	58762	161	15.4

7 ALTERNATIVES CONSIDERED

7.1 Background and Legislative Requirement

To give effect to the general objectives of integrated environmental management laid down in Chapter 5 of the National Environment Management Act (Act 107 of 1998) ("NEMA"), the potential impact on the environment of listed activities must be considered, investigated, assessed and reported on to the competent authority. The procedures for the investigation, assessment and communication of the potential impact of activities must, *inter alia*, include with respect to every application for an environmental authorisation -

- An investigation of the environment is likely to be significantly affected by the proposed activity and alternatives thereto;
- An investigation of the potential impact of the activity and its alternatives on the environment and an assessment of the significance of that potential impact, and
- An investigation of mitigation measures to keep adverse impacts to a minimum, as well as the option of not implementing the activity.

It is clear from the above that the consideration of alternatives is an integral part of the EIA process.

In terms of the EIA Regulations 2014, as amended one of the criteria to be taken into account by the competent authority when considering an application is "*any feasible and reasonable alternatives to the activity which is the subject of the application and any feasible and reasonable modifications or changes to the activity that may minimise harm to the environment*". Alternatives are defined in the Regulations as "*different means of meeting the general purpose and requirements of the activity*". It is therefore necessary to provide a description of the need and desirability of the proposed activity and any identified alternatives to the proposed activity that are feasible and reasonable, including the advantages and disadvantages that the proposed activity or alternatives will have on the environment and on the community that may be affected by the activity.

7.2 Site Selection Process

A Feasibility Study appended in Appendix D was undertaken to identify the Best Practicable Environmental Option (BPEO) for the proposed WFGD Waste Disposal Facilities through the assessment of six alternative sites. The evaluation followed a structured and transparent process informed by a site visit, specialist studies, and a multi-criteria analysis covering biodiversity, freshwater, heritage, social, agricultural, technical, climate, potential financial, and legal considerations.

The broader area around Medupi is environmentally and socially sensitive, characterised by Critical Biodiversity Areas (CBAs), Ecological Support Areas (ESAs), Freshwater Systems, and Agricultural Land. As such, the site selection process prioritised the avoidance of high-sensitivity areas and minimisation of cumulative impacts. Sites 4 and 5 were identified as highly sensitive due to their location within CBA 1 areas, intact vegetation, and strong ecological and hydrological connectivity. Site 5 was classified as a “No-Go” alternative due to its irreplaceable ecological value. In contrast, Sites 1, 3, and 6 were found to be within more transformed areas and presented a comparatively lower environmental risk.

From a freshwater perspective, Site 6 was the most favourable as it avoided mapped drainage features, although the presence of a seepage wetland and a pan required confirmation during the EIA phase. Heritage assessments indicate that Site 6 had low sensitivity, while social and land-use assessments confirm its compatibility with existing industrial activities.

Based on the integrated specialist findings and weighted scoring, Site 6 was identified as the Best Practicable Environmental Option, as it offered the most balanced outcome in terms of environmental protection, technical feasibility, and socio-economic compatibility. Site 1 was considered a secondary alternative, while Sites 3 and 2 are conditionally viable. However, these conditionally viable sites were excluded from the EIA for Waste Disposal Sites as they were designated for other land uses for the Medupi Power Station, whereas Sites 4 and 5 were excluded due to high environmental constraints.

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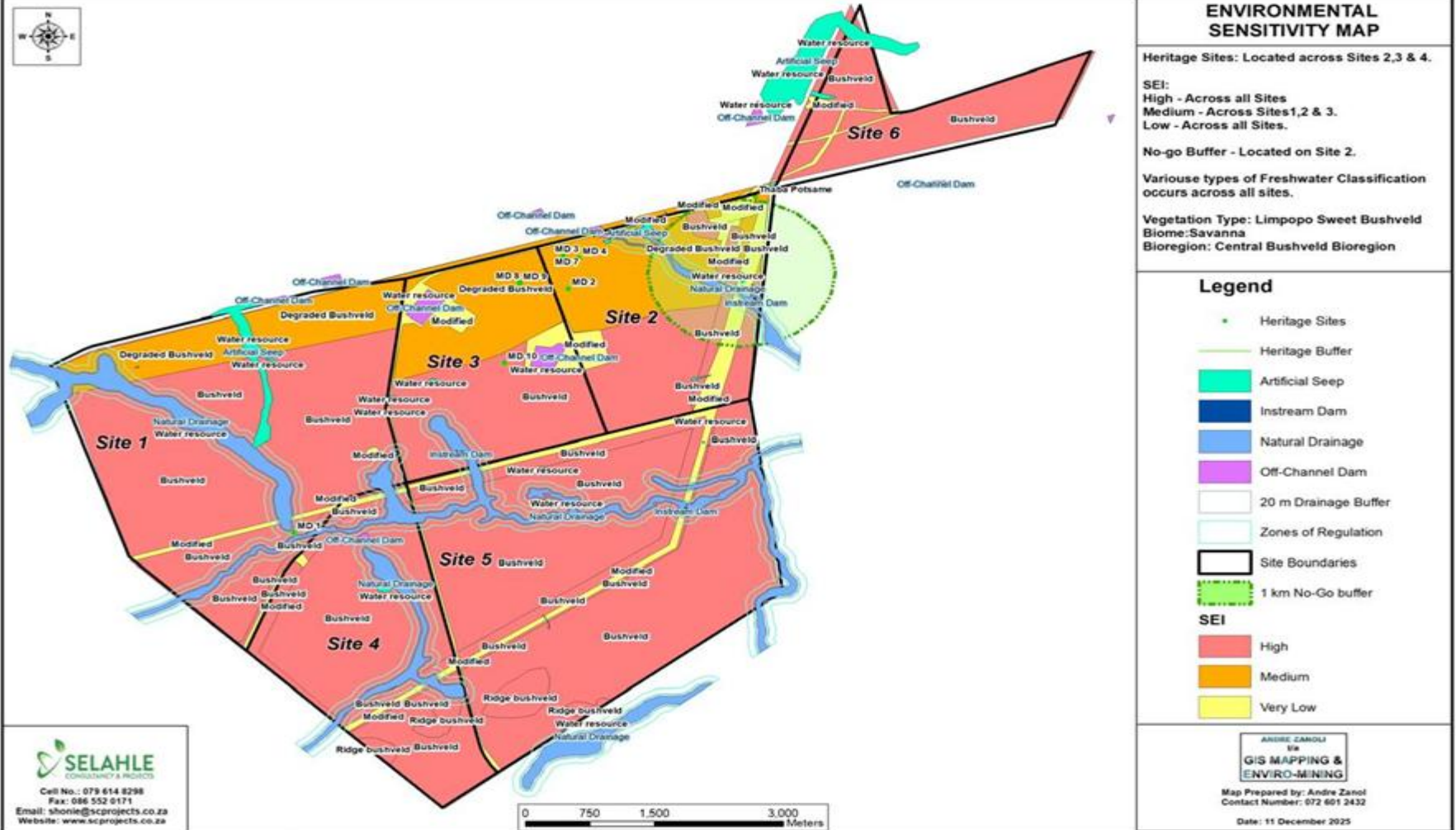


Figure 10: Site Sensitivity Outcome from the Screening Phase (Feasibility Study).

Table 7: Specialists Findings during the Screening Phase

Specialist Study	Site 1	Site 2	Site 3	Site 4	Site 5	Site 6
Biodiversity Assessment	High Sensitivity (CBA 1; seepage wetlands; intact vegetation)	High Sensitivity (ESA 1; intact conservation area)	Medium Sensitivity (partially disturbed)	Very High Sensitivity (Sandloop River; connectivity corridor)	Very High Sensitivity (No-Go Area; pristine habitat)	Medium Sensitivity (fragmented by infrastructure)
Biodiversity Recommendation	Strict controls and ecological buffers required	Infrastructure limited to existing servitudes	Suitable within disturbed areas with rehabilitation	Avoid where possible	No-Go Area	Development can focus on transformed areas
Heritage Assessment	Low heritage sensitivity; preferred	Potential graves and stone walling	Previously disturbed by mining; low heritage value	Heritage and environmental constraints present	Potential isolated archaeological tools	Low archaeological sensitivity
Heritage Recommendation	Preferred Site	Not recommended	Conditionally acceptable	Not recommended	Conditionally acceptable	Preferred Secondary Site
Avifaunal Assessment	Habitat for Species of Conservation Concern (SCC)	SCC habitat and Saddle-billed Stork nest	SCC habitat; preferred avifaunal option	SCC habitat	SCC habitat	SCC habitat
Avifaunal Recommendation	Mitigation required	Walkdown to confirm nest activity	Preferred Option	Mitigation required	Mitigation required	Mitigation required
Freshwater Assessment	High Risk; extensive drainage network	Moderate Risk	Low-Moderate Risk	Moderate-High Risk	Highest Risk	Lowest Risk
Freshwater Sensitivity	High	Moderate	Low-Moderate	High	Very High	Low
Freshwater Recommendation	Layout optimisation required	Maintain setbacks from drainage features	Preferred from freshwater perspective	Extensive mitigation required	Not preferred	Preferred Site
Socio-Economic Assessment	Moderate sensitivity	High sensitivity	Moderate sensitivity	Moderate-High sensitivity	Moderate sensitivity	Low sensitivity
Socio-Economic Suitability	Suitable	Unsuitable	Conditionally Suitable	Moderate Sensitivity	Conditionally Suitable	Most Suitable
Agricultural / Soil Assessment	Most suitable; Calcic Luvisols; moderate fertility	Fertile soils but environmental constraints	Moderate suitability; erosion concerns	Fertile soils; active farming	Ecologically sensitive conservation area	Disturbed by infrastructure; limited developable area
Agricultural Recommendation	Preferred Site	Not preferred	Moderate suitability	Not preferred	Not preferred	Secondary Option

Specialist Study	Site 1	Site 2	Site 3	Site 4	Site 5	Site 6
Land Use / Existing Disturbance	Existing industrial corridor; grazing land	Conservation and heritage features	Quarry and industrial disturbance	Active farming area	Conservation buffer zone	Existing railway and conveyor corridor
Overall Environmental Sensitivity	Moderate-High	High	Moderate	High	Very High	Low-Moderate

However, Eskom Holdings SOC Limited concluded the site selection process by selecting Site 6 as the preferred option and reducing the storage duration from 45 to 25 years to accommodate all identified by-product wastes (gypsum, chemical salts, and chemical sludge).

Despite environmental constraints identified through specialist studies, Site 6 remains the most feasible option. These constraints will be assessed in detail during the Environmental Impact Assessment (EIA) phase.

Furthermore, another land parcel was also identified as a feasible site that can be assessed for the same Waste Disposal Facilities. In addition, Portions of Sites 2 and 3 were also identified to be utilised for the waste transport routes, with conveyor belt systems. Figure 11 illustrates the demarcation of the proposed sites to accommodate all WFGD by-product waste associated with conveyor routes.

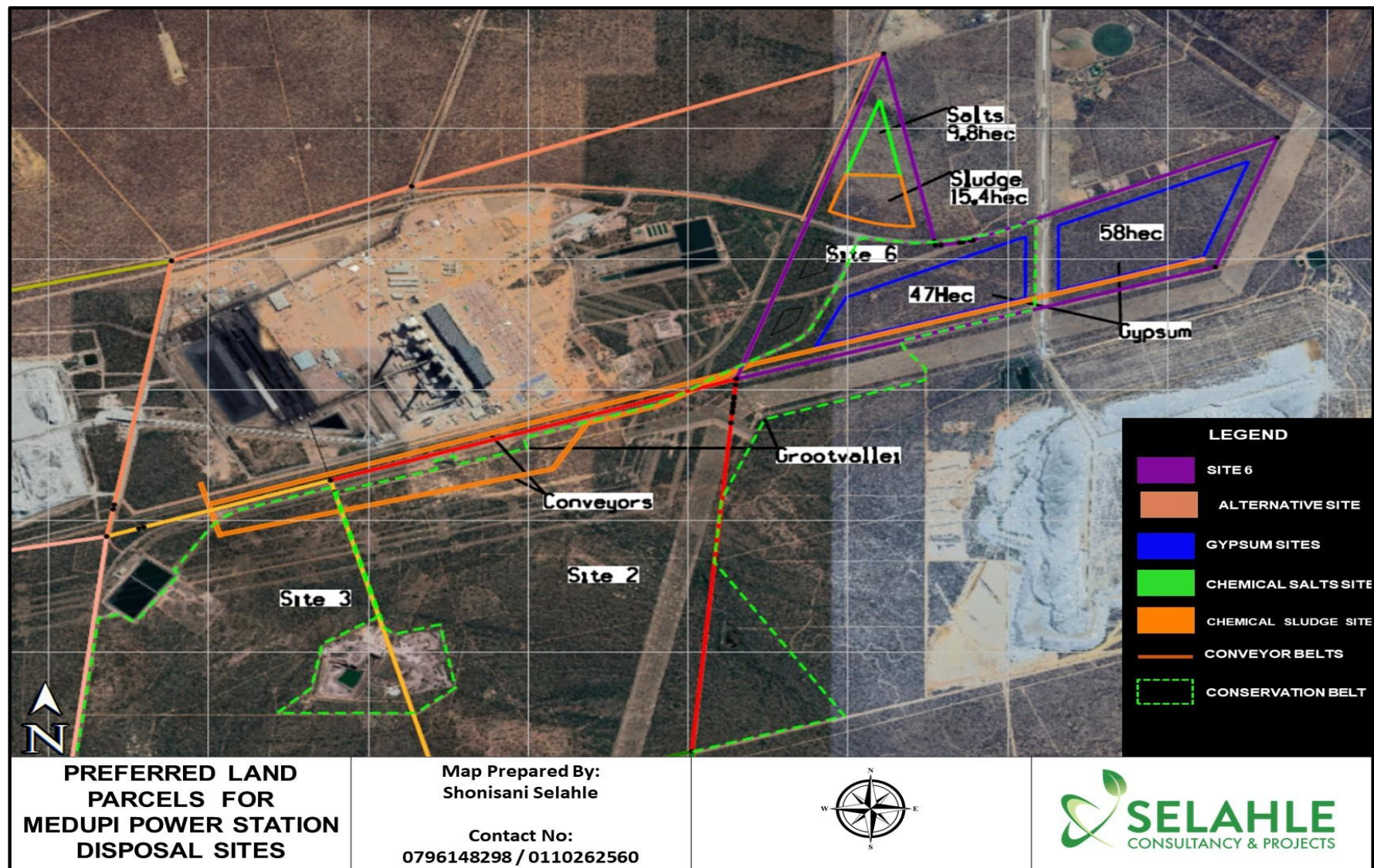


Figure 11: Preferred Land Parcels and associated routes for the WFGD Waste Disposal By-Products

7.2.1 Site/Location Alternative

Eskom Medupi initially identified six land parcels earmarked for the disposal of these by-products. A Feasibility Study (see Appendix D) was undertaken to select sites which could be feasible for the waste disposal of these three waste by-products. Sites were identified as the preferred alternatives, with others remaining as feasible secondary options, as these site options minimised environmental and social risks while supporting Eskom's operational requirements and emission-reduction compliance. However, the preferred option had limited space to accommodate all three WFGD waste by-products within a single footprint for the remaining lifespan of the power station. To address this constraint, a combined or clustered disposal approach was recommended, in which two or more suitable sites would be integrated into a single disposal strategy. This would allow different waste streams or phased disposal areas to be distributed across sites, maximising landfill capacity while avoiding sensitive heritage resources, ecological habitats, freshwater buffers, and Critical Biodiversity Areas. The applicant determined that some of the preferred and secondary sites were designated for 'other' future uses. As a result, the only site available for investigation, which had space constraints, was the preferred site, and it was considered for a shorter lifespan for the proposed waste disposal site. Refer to Figure 8 for the six land parcels that were screened during the Screening (Feasibility) Phase.

An additional site that did not form part of the screening exercise was included as part of the scoping phase. The following location alternatives will be investigated as part of the Scoping and EIR.

- Preferred Site
- Alternative Site

7.3 Other Alternatives

7.3.1 Technology

Lining options for the disposal sites would include Ash from Medupi and Matimba Power Stations, which would be assessed and classified to be considered for use as part of the lining material for the WFGD disposal site/.

The type and quality of gypsum that would be produced from the FGD system would determine if the WFGD by-product is dewatered to an average of < 10 per cent moisture content, which is then landfilled. Although the by-product gypsum could be washed to attain acceptable chloride content and be utilised to produce wallboard, this estimate assumes all the by-product will be landfilled (Medupi FGD Technology Study Report, 2018).

The type and quality of Gypsum that would be produced from the WFGD system would be dewatered solids with a moisture content of <10%, and the moisture content of the Sludge/Slurry would possibly be 60%, and 6% moisture content of the Chemical Salts. These moisture contents are considered acceptable in terms of the National Waste Management Strategy, 2020, Norms and Standards for Disposal of Waste to Landfill, 2013 (as amended). The schematic flow diagram below shows the process from gypsum absorbed for WFGD until the landfilling state.

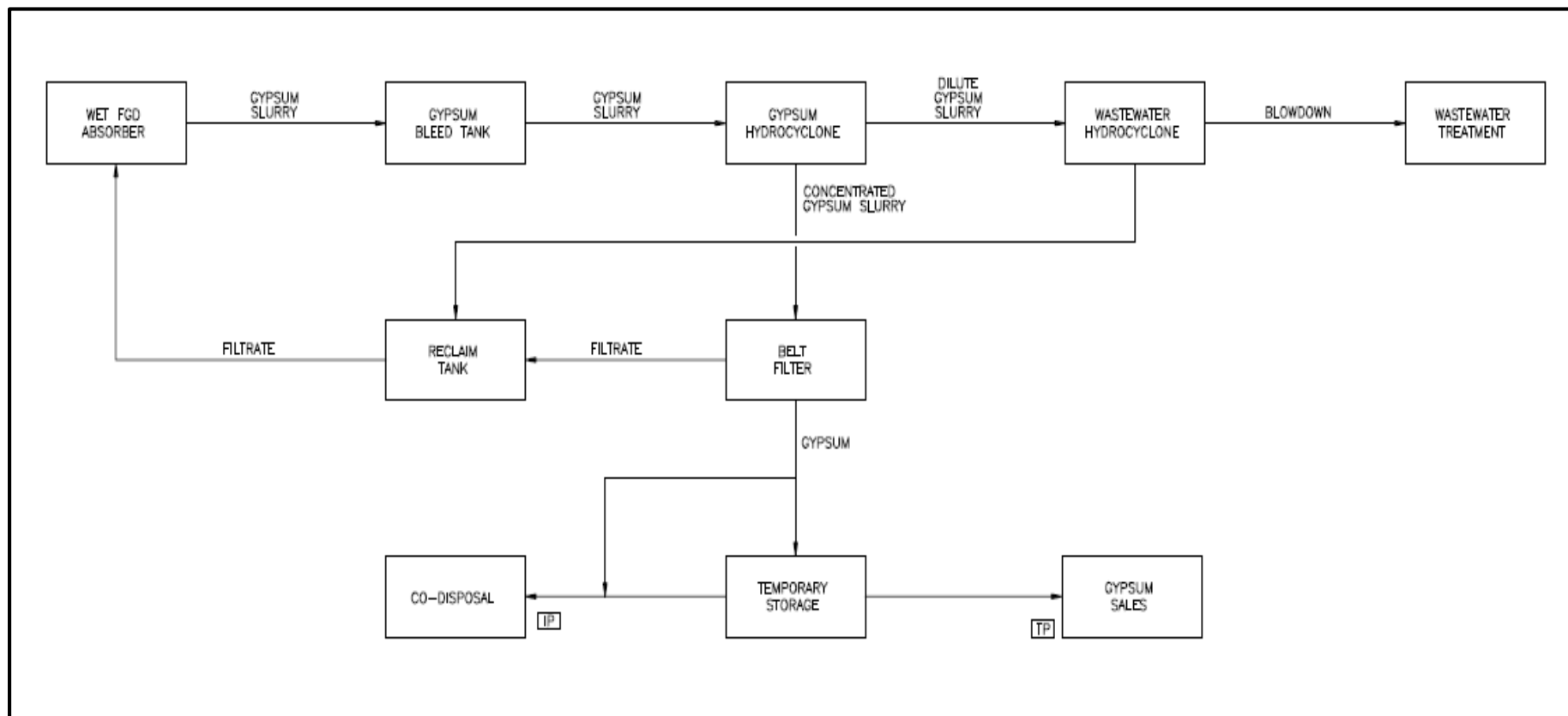


Figure 12: Gypsum Process from WFGD Absorber to Landfilling State.

7.3.2 Layout

The layout and other alternatives will be developed by the Owner's Engineer (OE), who will be contracted by the applicant (Eskom).

7.3.3 Route (transportation) Alternatives

Route Alternatives will be investigated for the method of transportation of waste from the WFGD plant and intermediate waste facilities to the proposed waste disposal sites.

- **Conveyor**

Transportation of waste materials from the Medupi Power Station to the proposed site will be primarily by conveyor. This will reduce the volume of vehicle traffic and will allow for smooth transitions of waste materials from one site to the next. The conveyors will be maintained and monitored to ensure that they are operating efficiently and that there are no significant environmental impacts generated along the conveyor route, i.e. spills. Conveyors can be utilised for transporting waste materials as needed:

- i. Gypsum
- ii. Chemical salts
- iii. Sludge (depending on the physical state)

- **Rail**

A new rail yard siding was authorised with the FGD (EA issued in 2018). The rail yard includes associated infrastructure, such as Limestone Handling Areas and Dirty Water Control Dams. This siding will facilitate the transportation of limestone and other materials to the Medupi Power Station by rail. Furthermore, the proposed sites are bordered by a railway line that can be used to transport the three types of waste. Possible additional railway options and connections will be determined by the engineers during the EIR phase.

- **Truck/Road**

Trucking can be utilised as a backup option for transporting waste materials when conveyors are unsuitable for transporting from the intermediate waste facilities to the proposed disposal facilities.

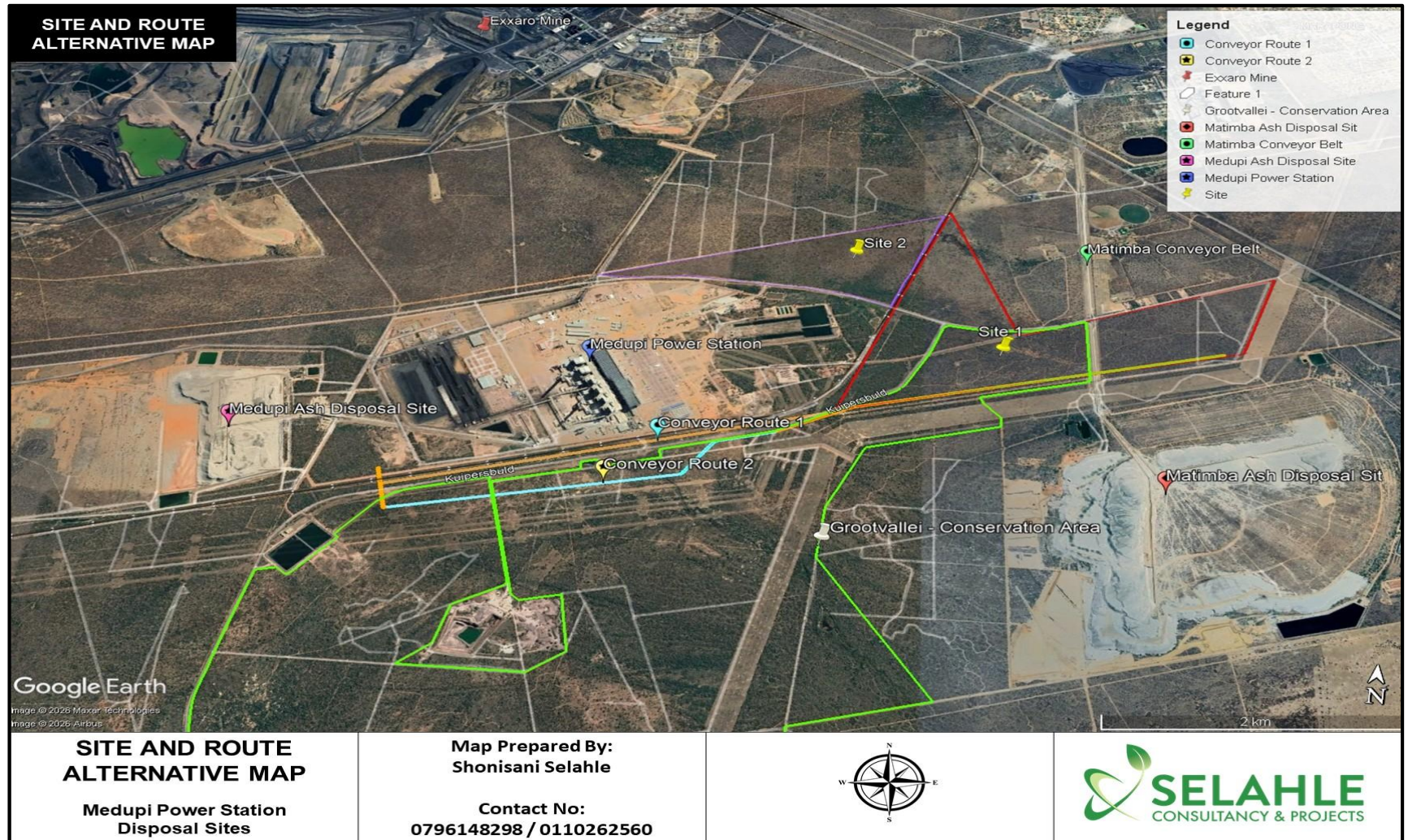


Figure 13: Site and Conveyor Route Alternative for the WFGD Waste Disposal Facilities

7.3.4 No -go Alternative

The No-Go alternative (status quo) and its impacts on the environment and socio-economic context will be investigated during the EIA phase

8 APPLICABLE POLICY AND LEGISLATIVE CONTEXT

8.1 Constitution of the Republic of South Africa Act, 1996 (Act No 108 of 1996)

Section 24 of the Constitution of South Africa No. 108 of 1996 states that "...everyone has the right **(a)** to an environment that is not harmful to their health or well-being; and **(b)** to have the environment protected, for the benefit of present and future generations through reasonable legislative and other measures that **(c)** secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development." This protection encompasses preventing pollution and promoting conservation and environmentally sustainable development. The proposed project will ensure such rights.

8.2 National Environmental Management Act (Act 107 of 1998) – EIA Regulations 2014, as amended

Table 8: Listed Activities Applicable to the Project

Activity No(s)	Listed Activity	Description of the project activity that triggers the listed activity
Relevant Basic Assessment Activity(ies) as set out in Listing Notice 1 of the EIA Regulations, 2014, as amended		
Activity 9	The development of infrastructure exceeding 1 000 metres in length for the bulk transportation of water or storm water- (i) with an internal diameter of 0.36 metres or more; or (ii) with a peak throughput of 120 litres per second or more; excluding where- (a) such infrastructure is for bulk transportation of water or storm water or storm water drainage inside a road reserve or railway line reserve; or (b) where such development will occur within an urban area.	Stormwater infrastructure will be required in and around the waste disposal site (s) on a land parcel measuring approximately 280 hectares. The layout will determine the extent and size of these pipelines.
Activity 10	The development and related operation of infrastructure exceeding 1 000 metres in length for the bulk transportation of sewage, effluent, process water, waste water, return water, industrial discharge or slimes- (i) with an internal diameter of 0.36 metres or more; or	Bulk transportation of sludge/ process water/ wastewater is expected to exceed 1000meters in length and a diameter of approximately 0.36m.

Activity No(s)	Listed Activity	Description of the project activity that triggers the listed activity
	(ii) with a peak throughput of 120 litres per second or more; excluding where- (a) such infrastructure is for the bulk transportation of sewage, effluent, process water, waste water, return water, industrial discharge or slimes inside a road reserve or railway line reserve; or (b) where such development will occur within an urban area.	
Activity 12	The development of – (ii) infrastructure or structures with a physical footprint of 100 square metres or more, where such development occurs- (a) within a watercourse; (b) in front of a development setback; or (c) if no development setback exists, within 32 metres of a watercourse, measured from the edge of a watercourse.	Some of the areas where there are drainage lines or watercourses will be impacted by either the development of a road or linear infrastructure, which will require working within the watercourse or its buffer.
Activity 19	The infilling or depositing of any material of more than 10 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 10 cubic metres from a watercourse, but excluding where such infilling, depositing, dredging, excavation, removal or moving-	Some of the areas where there are drainage lines or watercourses will be impacted by either the development of a road or linear infrastructure, which will require the infilling or depositing of material more than 10 cubic metres into the watercourse.
Activity 24	The development of a road- (i) for which an environmental authorisation was obtained for the route determination in terms of activity 5 in Government Notice 387 of 2006 or activity 18 in Government Notice 545 of 2010; or (ii) with a reserve wider than 13.5 metres, or where no reserve exists where the road is wider than 8 metres; but excluding a road- (a) which is identified and included in activity 27 in Listing Notice 2 of 2014; (b) where the entire road falls within an urban area; or (c) which is 1 kilometre or shorter	The proposal entails the development of access roads that will be from Medupi Power Station to the proposed waste landfill site, as well as internal roads.
Activity 25	The development and related operation of facilities or infrastructure for the treatment of effluent, wastewater or sewage with a daily	Sludge handling – capacity yet to be determined.

Activity No(s)	Listed Activity	Description of the project activity that triggers the listed activity
	throughput capacity of more than 2 000 cubic metres but less than 15 000 cubic metres.	Activity is covered in the EA authorised
Activity 28	Residential, mixed, retail, commercial, industrial or institutional developments where such land was used for agriculture, game farming , equestrian purposes or afforestation on or after 01 April 1998 and where such development: (i) will occur inside an urban area, where the total land to be developed is bigger than 5 hectares; or (ii) will occur outside an urban area, where the total land to be developed is bigger than 1 hectare ; excluding where such land has already been developed for residential, mixed, retail, commercial, industrial or institutional purposes.	The minimum required land parcel development footprint for the proposal is 280 hectares.
Activity 56	The widening of a road by more than 6 metres, or the lengthening of a road by more than 1 kilometre- (i) where the existing reserve is wider than 13,5 metres; or (ii) where no reserve exists, where the existing road is wider than 8 metres; excluding where widening or lengthening occur inside urban areas.	The proposal entails the development of access roads that will be from Medupi Power Station to the proposed waste landfill site, as well as internal roads
Relevant Scoping and EIA Activity(ies) as set out in Listing Notice 2 of the EIA Regulations, 2014 as amended		
Activity 7	The development and related operation of facilities or infrastructure for the bulk transportation of dangerous goods- (i) in gas form, outside an industrial complex, using pipelines, exceeding 1 000 metres in length, with a throughput capacity of more than 700 tons per day; (ii) in liquid form, outside an industrial complex, using pipelines, exceeding 1 000 metres in length, with a throughput capacity of more than 50 cubic metres per day; or (iii) in solid form, outside an industrial complex, using funiculars or conveyors with a throughput capacity of more than 50 tons per day.	Subject to interpretation – To determine the throughput capacity and whether the area is considered agricultural or industrial complex.
Activity 15	The clearance of an area of 20 hectares or more of indigenous vegetation, excluding where such	The proposal will entail the clearance of approximately 280 hectares of indigenous

Activity No(s)	Listed Activity	Description of the project activity that triggers the listed activity
	clearance of indigenous vegetation is required for- (i) the undertaking of a linear activity; or (ii) maintenance purposes undertaken in accordance with a maintenance management plan.	vegetation to allow for the development of waste disposal sites and related infrastructure
Relevant Scoping and EIA Activity(ies) as set out in Listing Notice 2 of the EIA Regulations, 2014 as amended		
Activity 4	The development of a road wider than 4 metres with a reserve less than 13.5 metres. (e) Limpopo - (i) Outside urban areas: (cc) Sensitive areas as identified in an environmental management framework as contemplated in Chapter 5 of the Act and as adopted by the competent authority; (ee) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans;	Service roads to be developed within the landfill sites that are located within CBA's and/or ESA's.
Activity 12	The clearance of an area of 300 square metres or more of indigenous vegetation except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan. (e) Limpopo- (ii) Within critical biodiversity areas identified in bioregional plans;	Clearance of approximately more than 500 hectares of primary vegetation of an ESA, CBA or threatened ecosystem will be undertaken for the proposed activity.
Activity 14	The development of— (ii) infrastructure or structures with a physical footprint of 10 square metres or more. (a) Within 32 metres of a watercourse, measured from the edge of a watercourse; (c) if no development setback has been adopted, within 32 metres of a watercourse, measured from the edge of a watercourse; (e) Limpopo- (ff) Critical biodiversity areas or ecosystem service areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans;	Some of the areas where there are drainage lines or watercourse will be impacted upon by either the development of a road or linear infrastructure which will require working within the watercourse or its buffer.

Activity No(s)	Listed Activity	Description of the project activity that triggers the listed activity
	(hh) Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core area of a biosphere reserve;	

8.3 National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008)

Section 19(1) of the National Environmental Management: Waste Act (No. 59 of 2008), a list of waste management activities (GN R.718) which have, or are likely to have, a detrimental effect on the environment, was published. In terms of this Act, no person may commence, undertake or conduct a waste management activity listed in GN R.718 unless a license is issued in respect of that activity. This list of applicable waste activities requiring a Waste Management License for this project, in terms of the NEM: WA, is presented in the Table below. In addition to that, Category C activities are subject to the following Norms and Standards:

- National Norms and Standards for the Assessment of Waste for Landfill Disposal, 2013 (GN R635)
- National Norms and Standards for Disposal of Waste to Landfill, 2013 (GN R636)
- National Norms and Standards for the Storage of Waste, 2013 (GN 926)

The legislation provides guidelines for the waste classification and the corresponding type of waste management applied (i.e. re-use, recycling, recovery, treatment and disposal). The wastes are classified based on the quantity, physical, chemical and leachability properties depending on laboratory testing of actual samples.

The WFGD wastes are classified as hazardous and vary in type, with Type 0 being the most hazardous and Type 3 being the least hazardous. The disposal of all these wastes requires a liner protection with Class A being the most conservative (and most expensive) and Class D being the least conservative (and least expensive) (Medupi FGD: Technology Selection Study Report, 2018).

Table 9: Listed Activities Applicable to the project

Activity No(s)	Listed Activity	Description of the project activity that triggers the listed activity
Activity numbers (as listed in the Waste Management Activity list): Category B		
(1)	The storage of hazardous waste in lagoons, excluding storage of effluent, wastewater or sewage.	Storage of sludge – physical state to be determined.
(7)	The disposal of any quantity of hazardous waste to land.	The disposal of gypsum, chemical salts and chemical sludge on land.
(10)	The construction of a facility for a waste management activity listed in Category B of this Schedule (not in isolation to associated waste management activity).	The construction of a landfill site for all three wastes and associated infrastructure. The type of waste will be determined as per the Waste Act.
Activity numbers (as listed in the Waste Management Activity list): Category C		

Activity No(s)	Listed Activity	Description of the project activity that triggers the listed activity
(2)	The storage of hazardous waste at a facility that has the capacity to store in excess of 80 m of hazardous waste at any one time, excluding the storage of hazardous waste in lagoons or temporary storage of such waste.	The storage, including temporary storage, of hazardous waste such as gypsum, salts and sludge from the WFGD process prior to disposal on site.

8.4 National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004)

The project needs to comply with the National Environmental Management: Biodiversity Act (No. 10 of 2004) [NEM: BA] in providing cooperative governance in biodiversity management and conservation. The NEM: BA also provides for:

- The National Biodiversity Framework
- Bioregional Plans;
- Biodiversity Management Plans
- Biodiversity Management Agreements
- The identification, listing and promotion of threatened or protected ecosystems; and
- **Alien invasive species control and enforcement.**

Since the proposed sites are not located within any threatened ecosystem, the need to eradicate alien invasive species is a requirement in terms of NEM: BA. An alien invasive species eradication programme will be developed and implemented during the operational phase of the project.

8.5 National Environmental Management: Air Quality Act (No 39 of 2004)

The NEM: Air Quality Act, 2004, serves to repeal the Atmospheric Pollution Prevention Act, 1965 (Act 45 of 1965). This Act regulates air quality to protect the environment. It provides reasonable measures for the prevention of pollution and ecological degradation and for securing ecologically sustainable development while promoting justifiable economic and social development.

The purpose of the Act is to set norms and standards that relate to:

- Institutional frameworks, roles and responsibilities;
- Air Quality management planning;
- Air Quality monitoring and information management;
- Air Quality management measures;
- General compliance and enforcement

The Power Station operates under an Atmospheric Emission License (AEL) (License no. H16/1/13-AEL/M1/R1), issued on 01 December 2020. In terms of the AEL, the station shall ensure that it continuously operates and maintains an SO₂-reducing plant on all six units by implementing the WFGD system. The WFGD system requires waste disposal facilities to dispose of the waste it will produce, hence the proposal.

8.6 National Water Act, 1998 (Act No. 36 of 1998)

The purpose of this Act is to ensure that the nation's water resources are protected, used, developed, conserved, managed and controlled in ways that take into account, amongst other factors, the following:

- Meeting the basic human needs of present and future generations;
- Promoting equitable access to water;
- Promoting the efficient, sustainable and beneficial use of water in the public interest;
- Reducing and preventing pollution and degradation of water resources;
- Facilitating social and economic development; and
- Providing for the growing demand for water use.

The proposal will occur within the 500m or within a buffer zone of a watercourse. In terms of the National Water Act, 1998 (Act No. 36 of 1998), any activities within a watercourse and/or its regulated area require authorisation through a Water Use License (WUL). WFGD waste requires a Water Use License as they will trigger water uses listed activities in terms of Section 21 of the National Water Act.

The Water Use Licence Application (WULA) for this application is underway and the possible water uses that will be triggered by the proposed development are outline herein the table below:

Table 10: Water Uses triggered by the proposed WFGD

Activity No(s)	Listed Activity	Description of the project activity that triggers the listed activity
21(c)	Impeding or diverting the flow of water in a watercourse. Construction of structures/facilities within surface water resources, e.g. weirs, bridges, pipelines, etc.	The available water resources on site are most likely to be impeded by construction activities and also during operation of the Waste Disposal Facilities.
21(g)	Disposing of waste in a manner which may detrimentally impact on a water resource. Disposal of effluent into a water containment facility, dust suppression and stockpiles..	The management and operation of the Waste Disposal Facilities have a potential to impact water resources detrimentally by leachate and incorrect lining.
21(h)	Disposing of waste in a manner which contains waster from or which has been heated in any industrial or power generation process. Discarding of industrial/power generation waste water or water which has been heated.	The proposed Abatement Technology will use power generated process and this will generate by-products (gypsum, chemical salts and sludge) that will be disposed in the proposed Waste Disposal Facilities which can impact the water resources on site
21(i)	Altering the bed, banks, courses or characteristics of a watercourse.	Construction activities of the Waste Disposal Facilities has potential of altering the beds, banks courses of the water resources that have been identified on site.

Activity No(s)	Listed Activity	Description of the project activity that triggers the listed activity
	Construction of structures/facilities within surface water resources, e.g. weirs, bridges, pipelines, etc. Introduction of unnatural characteristic to the resource.	
21(j)	Removing, discharging or disposing of water found underground if it is necessary of the efficient continuation of an activity or for the safety of the people. Extraction of water from underground workings for safe continuation of activities.	During construction of the Waste Disposal Facilities, underground/groundwater seepage is most likely to be found on site, which will be have to be removed in pursuit of the efficient continuation of an activity.

8.7 National Heritage Resources Act (No. 25 of 1999)

In terms of Section 38 of the National Heritage Resources Act (No. 25 of 1999) [NHRA], any person who intends to undertake a development categorised as:

- **The construction of a road, wall, power line, pipeline, canal or other similar form of linear development or barrier exceeding 300 m in length;**
- The construction of a bridge or similar structure exceeding 50 m in length;
- Any development or other activity which will change the character of a site:
- **Exceeding 5,000 m² in extent;**

requires developers to notify the responsible heritage resources authority (such as SAHRA or provincial bodies) at the earliest stage of planning for projects that exceed the abovementioned thresholds.

Section 36 and other relevant sections regarding the protection and avoidance of burial grounds and graves will be investigated in detail during the EIA phase.

8.8 World Bank

The FGD technology retrofit aims at significantly reducing the power station emissions of SO₂, thereby complying with the National Environmental Management: Air Quality Act (Act 39 of 2004) minimum emissions standards. Additionally, the reduction in SO₂ emissions will meet one of the conditions in the World Bank Loan Agreement, which is essential for the funding of the Medupi Power Station. The proposed WFGD waste disposal site must be in accordance with the following applicable World Bank Environmental and Social Standards:

- **ESS1 – Assessment and Management of Environmental and Social Risks and Impacts**
ESS1 applies to the WFGD waste disposal facilities as it requires the identification, assessment, management and monitoring of environmental and social risks throughout the project lifecycle. Key considerations include potential impacts on surface and groundwater resources, air quality, biodiversity, climate change, geotechnical stability, and the development of appropriate mitigation and monitoring measures.

- **ESS2 – Labour and Working Conditions**

ESS2 applies to the construction and operation phases of the project and aims to protect the health, safety and wellbeing of workers. The standard requires the implementation of occupational health and safety measures, fair labour practices, emergency preparedness procedures and appropriate management of contractor and workforce-related risks.

- **ESS3 – Resource Efficiency and Pollution Prevention and Management**

ESS3 is highly relevant to the proposed WFGD waste disposal facilities as it focuses on the efficient use of resources and the prevention of pollution. The standard addresses the management of gypsum, sludge and chemical salt wastes, as well as measures to prevent soil, groundwater and surface water contamination, control dust emissions, manage leachate and minimise greenhouse gas emissions.

- **ESS4 – Community Health and Safety**

ESS4 applies to where project activities may pose risks to surrounding communities. Potential concerns associated with the WFGD waste disposal facilities include increased traffic, dust generation, accidental releases of waste materials and potential infrastructure failures. The standard requires measures to minimise risks to public health and safety throughout the project lifecycle.

- **ESS6 – Biodiversity Conservation and Sustainable Management of Living Natural Resources**

ESS6 is applicable since the project activities have the potential to affect natural habitats, ecosystems or species of conservation concern. For the WFGD waste disposal facilities, the standard is particularly relevant since the proposed sites occur within or near sensitive ecological areas, wetlands, conservation areas or important biodiversity features requiring protection and management.

- **ESS8 – Cultural Heritage**

ESS8 applies since cultural heritage resources such as archaeological sites, historical features, or graves are present along associated infrastructure corridors. The standard requires the protection of such resources, and the implementation of chance-find procedures should be followed if previously unidentified heritage resources are encountered during construction.

- **ESS10 – Stakeholder Engagement and Information Disclosure**

ESS10 applies to the project and requires meaningful engagement with stakeholders throughout the planning, assessment and implementation phases. The standard promotes transparent communication, public participation, information disclosure and the establishment of grievance mechanisms to ensure that concerns raised by affected and interested parties are appropriately addressed.

8.9 United Nations Sustainable Development Goals

The proposed WFGD waste disposal facilities align with several United Nations Sustainable Development Goals (SDGs), particularly those related to environmental protection, health, and sustainable industry:

- SDG 3: Good Health and Well-being – The installation and related waste disposal facilities will reduce human exposure to air pollutants like SO₂, significantly improving respiratory health.
- SDG 6: Clean Water and Sanitation – The installation of a lining system for the proposed disposal facilities will assist in minimising impacts on water resources.
- SDG 9: Industry, Innovation and Infrastructure – The FGD sulphur abatement technology supports the adoption of advanced pollution control technologies and sustainable industrial infrastructure.
- SDG 12: Responsible Consumption and Production – Along with the provision of electricity, the abatement technology and associated proposed waste facilities encourage responsible waste management that will include safe disposal and potential reuse of by-products like gypsum.
- SDG 13: Climate Action - While WFGD targets air pollutants rather than CO₂, it contributes to cleaner energy production and environmental compliance.

8.10 Climate Change Act (Act No. 22 of 2024)

The objective of this Act is to enable the development of an effective climate change response and a long-term, just transition to a low-carbon and climate-resilient economy and society for South Africa in the context of sustainable development.

The proposed WFGD Waste Disposal Facility at Medupi Power Station is aligned with South Africa's obligations under international climate change instruments, including the United Nations Framework Convention on Climate Change, the Kyoto Protocol, and the Paris Agreement. These frameworks require the reduction of greenhouse gas emissions and the implementation of mitigation measures to limit climate change impacts. The installation of WFGD technology at Medupi forms part of Eskom's emission reduction strategy by significantly reducing sulphur dioxide (SO₂) emissions, thereby contributing indirectly to improved air quality and supporting broader climate and environmental objectives.

The Climate Change Act gives effect to these commitments through instruments such as carbon budgets and mitigation measures, which are relevant to large emitters such as coal-fired power stations. Furthermore, the proposed waste disposal facility has been designed to ensure that the management of WFGD by-products does not result in secondary environmental impacts, such as greenhouse gas emissions or groundwater contamination, thereby supporting South Africa's transition towards a lower-carbon and environmentally sustainable energy sector.

8.11 Limpopo Conservation Plan Version 2

The Waterberg District Bioregional Plan (WDBP), prepared by LEDET (2016) and based on the Limpopo Conservation Plan v2 (LCPv2), serves as a spatial biodiversity management tool that guides land-use planning, environmental assessment, and decision-making across the district. The Waterberg District, largely within the Savanna Biome with elements of the Grassland Biome on elevated areas, contains a high diversity of endemic and near-endemic vegetation types, covering approximately 70% of the district. The district

supports 64 plant species of conservation concern, including 22 threatened species, as well as 45 mammal species of special concern, 21 threatened bird species, and 3 reptile species of conservation concern.

Approximately 84.8% of the district remains in a natural or near-natural condition, with only 1.3% urbanised and 10.9% under dryland agriculture. This intactness underpins the region's ecological infrastructure, which provides ecosystem services such as carbon storage, forage production, water regulation, and climate resilience. According to the plan, terrestrial CBAs and ESAs together cover about 65.8% of the Waterberg District. The analysis revealed that the proposed sites and routes are situated within Ecological Support Area 1.

8.12 Waterberg District Environmental Management Framework Report

The Medupi Power Station proposed sites and routes fall within Zones 5 and 11 of the Waterberg District Environmental Management Framework.

- Zone 5: This zone represents areas in proximity to major coal fields (Exxaro Coal mine) which are in line with industrial activities to benefit the mineral product and where infrastructure like power generation facilities (Medupi and Matimba Power Stations) are currently in operation. The zone's relationship to existing and likely future transportation infrastructure and necessary urban development is also important. All solid waste should be discarded at permitted solid waste sites. Sufficient permitted solid waste disposal sites should be established at key locations to deal with the waste generated in this zone. Strict enforcement and proper management at such sites are necessary to minimise negative impact. Recycling collection points should be encouraged wherever possible.
- Zone 11: Major infrastructure corridors. This zone represents areas where the concentration of proposed and existing linear infrastructure is intended to prevent the unnecessary large impact that uncoordinated infrastructure location would have on the district. The following was considered in defining the corridors:
 - The environmental management zones with their underlying sensitivities;
 - Existing infrastructure and routes;
 - Expected future development; and
 - Existing and potential future links outside the district.

8.13 Other relevant legislative requirements

8.13.1 International Legislation

- Environmental, Health and Safety Guidelines (EHSG), both for general and sector
- The International Finance Corporation (IFC) Performance Standards
- Good International Industry Practices (GIIP)

8.13.2 National Legislation & Regulations

- National Environmental Management: Protected Areas Act (Act No. 57 of 2003)
- Conservation of Agricultural Resources Act, 1983 (Act No. 43 of 1983) (CARA)

- National Environmental Management Act No 107 of 1998 (with reference to noise and prevention of pollution)
- National Forest Act No 84 of 1998 (in respect of protected trees)
- National Veld and Forest Fire Act No 101 of 1998
- Promotion of Access to Information Act No 2 of 2000 (in respect of record-keeping and interested and affected parties and monitoring of environmental impacts)
- Threatened or Protected Species Regulations and lists (No. R. 152 of Government Gazette No. 29657 of 23 February 2007, and No. R. 1187 of Government Gazette No. 30568 of 14 December 2007)
- Alien and Invasive Species Regulations and Alien and Invasive Species List 2014-2020, published under NEMBA
- National Development Plan 2030
- Electricity Regulation Act, 2006 (Act 4 of 2006)
- National Infrastructure Plan 2050
- Carbon Tax Act 15 of 2019
- GN R1179 (GG 16536 of 25 August 1995) – Hazardous Chemical Substances Regulations promulgated in terms of the Occupational Health and Safety Act No 85 of 1993;
- GN R1179 (GG 16536 of 25 August 1995) – Hazardous Chemical Substances Regulations promulgated in terms of the Occupational Health and Safety Act No 85 of 1993;
- Hazardous Substances Act No 15 of 1973
- Explosives Act No 26 of 1956 and Regulation 1604 of 8 September 1972;
- National Key Points Act, 1980 (Act 102 of 1980)
- Fencing Act (No 31 of 1963)

8.13.3 Provincial Legislation

- Limpopo Environmental Management Act, 2003 (Act No. 7 of 2003)

8.13.4 Municipal By-laws and Planning Documents

- Waterberg Bojanala Priority Area Air Quality Management Plan in terms of the National Environmental Management: Air Quality Act No 39 of 2004
- Lephalale Local Municipality IDP
- Lephalale Local Municipality By-laws

8.13.5 Guidelines

- DEA Guidelines on Public Participation
- DEA Guidelines on Alternatives
- DEA Guidelines on Need & Desirability
- Procedures for the Assessment and Minimum Criteria for Reporting on Identified Environmental Themes in terms of Sections 24(5)(a) and (h) and 44 of the National Environmental Management Act, 1998, GNR 320 of Government Gazette 43110 (March 2020); and GNR 1150 of Government Gazette 43855 (October 2020).

9 NEED AND DESIRABILITY

The need and desirability of the proposed WFGD Waste Disposal Facilities have been assessed in accordance with the Department of Environmental Affairs (DEA) Guideline on Need and Desirability (2017), within the framework of the National Environmental Management Act. A detailed Need and Desirability question and answer in accordance with the Guideline is provided in the table below.

Table 11: Need and Desirability for the WFGD Disposal Facility Sites

NEED & DESIRABILITY	RESPONSE
How will this development (and its separate elements/aspects) impact the ecological integrity of the area?	The proposed WFGD waste disposal facilities have been planned with due consideration of ecological aspects and applicable environmental planning instruments. The site selection process was informed by specialist studies and spatial environmental datasets to avoid or minimise impacts on sensitive ecological features. Threatened ecosystems and areas of high biodiversity value were identified and considered during the screening and site selection process. Where sensitive habitats occur, mitigation measures will be incorporated to reduce habitat loss and fragmentation. Sensitive and vulnerable ecosystems, including drainage features, wetlands and associated ecological corridors, were assessed to ensure that development avoids direct impacts where possible and maintains ecological functioning. CBAs and ESAs identified in the Limpopo biodiversity plans were considered during site selection, with preference given to areas already transformed or disturbed by existing mining and power generation activities. Conservation targets and ecological processes such as hydrological flow, habitat connectivity and species movement were taken into account to maintain ecosystem functionality. The proposed development was further assessed against the Waterberg District Environmental Management Framework and relevant Spatial Development Frameworks to ensure alignment with regional environmental planning objectives. Global and international environmental responsibilities were also considered. The WFGD system itself forms part of Eskom's initiative to reduce sulphur dioxide emissions, thereby contributing to improved air quality and supporting climate change mitigation objectives through reduced atmospheric pollution. No internationally protected areas, such as RAMSAR wetlands, are expected to be directly affected by the proposed facilities, as they do not occur within or in proximity to the development area.
How will this development disturb or enhance ecosystems and/or result in the loss or protection of biological diversity? What measures were explored to firstly avoid these negative impacts, and where these negative	The development will result in the transformation of portions of terrestrial habitat associated with the establishment of waste disposal facilities and associated conveyance infrastructure. Potential impacts include vegetation clearing, habitat loss, disturbance to fauna and localised fragmentation of habitats. However, the project is located within an area already influenced by industrial, mining and power generation activities, thereby reducing the extent of impacts on undisturbed natural

NEED & DESIRABILITY	RESPONSE
impacts could not be avoided altogether, what measures were explored to minimise and remedy (including offsetting) the impacts? What measures were explored to enhance positive impacts?	ecosystems. Avoidance measures included the assessment of alternative disposal sites and routes to minimise encroachment into environmentally sensitive areas. Where impacts cannot be completely avoided, mitigation measures will include restricting the development footprint, implementing rehabilitation programmes, controlling erosion, managing stormwater, preventing the spread of invasive species and rehabilitating disturbed areas following construction. Positive impacts include the provision of a dedicated and environmentally managed disposal solution for WFGD waste streams, reducing the risk of uncontrolled waste management practices and supporting compliance with environmental legislation. Long-term environmental management and monitoring will contribute to the protection of surrounding ecosystems and biodiversity.
How will this development pollute and/or degrade the biophysical environment? What measures were explored to firstly avoid these impacts, and where impacts could not be avoided altogether, what measures were explored to minimise and remedy (including offsetting) the impacts? What measures were explored to enhance positive impacts?	Potential impacts on the biophysical environment include dust generation during construction and operation, potential contamination of soil and groundwater from waste disposal activities, increased traffic-related emissions and disturbance associated with infrastructure development. The disposal of gypsum, sludge and chemical salts requires careful management to prevent environmental degradation. Avoidance and mitigation measures include the design of engineered waste disposal facilities incorporating liners, leachate collection systems, stormwater management infrastructure and groundwater monitoring programmes. Dust suppression measures, spill prevention procedures and environmental management controls will be implemented throughout the project lifecycle. These measures are intended to minimise risks to soil, groundwater, surface water and air quality. The development will provide a controlled and regulated disposal facility for WFGD waste products, thereby reducing the likelihood of uncontrolled environmental pollution and supporting improved sustainable performance of Medupi Power Station.
What waste will be generated by this development? What measures were explored to firstly avoid waste, and where waste could not be avoided altogether, what measures were explored to minimise, reuse and/or recycle the waste? What measures have been explored to safely treat and/or dispose of unavoidable waste?	The primary waste streams associated with the development comprise WFGD by-products, including gypsum, wastewater treatment chemical salts and sludge generated during the flue gas desulphurisation process. Construction activities may also generate limited quantities of general construction waste, packaging material and domestic waste. Waste avoidance opportunities are limited due to the nature of the WFGD process; however, beneficial reuse opportunities for gypsum will continue to be explored where feasible and economically viable. Waste minimisation measures include optimising waste handling, storage and

NEED & DESIRABILITY	RESPONSE
	transport systems to reduce losses and contamination. Unavoidable waste will be disposed of within purpose-designed disposal facilities engineered to meet regulatory requirements and minimise environmental risks. Waste management practices will be aligned with the waste hierarchy principles of avoidance, reduction, reuse, recycling, treatment and safe disposal.
How will this development disturb or enhance landscapes and/or sites that constitute the nation's cultural heritage? What measures were explored to firstly avoid these impacts, and where impacts could not be avoided altogether, what measures were explored to minimise and remedy (including offsetting) the impacts? What measures were explored to enhance positive impacts?	The proposed development may alter the visual character of the surrounding landscape through the establishment of waste disposal facilities and associated infrastructure. Potential impacts on cultural heritage resources, including archaeological sites, graves and other heritage features, were assessed through specialist investigations during the screening phase. The preferred sites and routes were selected to avoid known heritage resources where possible. Where avoidance is not feasible, mitigation measures include demarcating and protecting heritage resources, implementing chance-find procedures during construction and obtaining the necessary heritage permits where required. Visual impacts will be reduced through appropriate site design, rehabilitation of disturbed areas and ongoing environmental management. The development supports the continued operation of Medupi Power Station and its emission reduction programme while ensuring that waste generated by the WFGD process is managed in a responsible and environmentally acceptable manner. This contributes positively to sustainable development objectives by balancing environmental protection, economic development and energy security.
How will this development use and/or impact non-renewable natural resources? What measures were explored to ensure responsible and equitable use of the resources? How have the consequences of the depletion of non-renewable natural resources been considered? What measures were explored to firstly avoid these impacts, and where impacts could not be avoided altogether, what measures were explored to minimise and remedy (including offsetting) the impacts? What measures were explored to enhance positive impacts?	The proposed WFGD waste disposal facilities will require the use of non-renewable resources such as construction materials, fuel, steel, geosynthetic liners and other engineered infrastructure components. The project has sought to optimise the use of these resources through the utilisation of existing infrastructure corridors; the selection of sites located in proximity to Medupi Power Station and the adoption of efficient facility designs that minimise material requirements. The depletion of non-renewable resources associated with the project is considered low relative to the strategic environmental benefits achieved through the management of flue gas desulphurisation waste and compliance with air quality requirements.

NEED & DESIRABILITY	RESPONSE
How will this development use and/or impact renewable natural resources and the ecosystem of which they are part? Will the use of the resources and/or impact on the ecosystem jeopardise the integrity of the resource and/or system, taking into account carrying capacity restrictions, limits of acceptable change, and thresholds? What measures were explored to firstly avoid the use of resources, or if avoidance is not possible, to minimise the use of resources? What measures were taken to ensure responsible and equitable use of the resources? What measures were explored to enhance positive impacts?	Renewable resources and ecosystem services potentially affected by the development include soil resources, vegetation communities, groundwater recharge functions, biodiversity habitats and ecological corridors. The preferred sites were selected following environmental screening and specialist assessments to avoid or minimise impacts on sensitive ecological features, Critical Biodiversity Areas, Ecological Support Areas and drainage features. The development footprint has been limited to the smallest practicable area, and disturbed areas will be rehabilitated progressively to maintain ecosystem functioning.
Does the proposed development exacerbate the increased dependency on increased use of resources to maintain economic growth or does it reduce resource dependency (i.e. de-materialised growth)?	The project does not significantly increase dependency on natural resources but rather provides the infrastructure required to support the operation of the WFGD system, which reduces atmospheric sulphur dioxide emissions and contributes to improved regional air quality. The location adjacent to existing power generation infrastructure reduces transportation distances, infrastructure duplication and associated resource consumption. Considering the operational requirements of Medupi Power Station, the proposed use of land for waste disposal represents the most practicable and environmentally responsible option available.
How was a risk-averse and cautious approach applied in terms of ecological impacts? What are the limits of current knowledge? What is the level of risk associated with the limits of current knowledge? Based on the limits of knowledge and the level of risk, how and to what extent was a risk-averse and cautious approach applied to the development?	A risk-averse and cautious approach was applied throughout the assessment process. Specialist investigations identified ecological sensitivities, potential groundwater risks, biodiversity constraints and cumulative impacts. Uncertainties remain regarding long-term climatic variability, future land-use changes and the response of ecological systems to cumulative industrial development. However, these uncertainties are considered manageable through conservative engineering design, groundwater monitoring, stormwater management systems, adaptive management measures and regular environmental audits.

NEED & DESIRABILITY	RESPONSE
What will the ecological impacts be resulting from this development on people's environmental rights in terms of negative and positive impacts?	Potential negative impacts on environmental rights include habitat transformation, visual intrusion, dust generation, traffic impacts, potential groundwater contamination and loss of natural vegetation. Mitigation measures include engineered containment systems, leachate collection infrastructure, groundwater monitoring networks, stormwater diversion structures, dust suppression measures, rehabilitation programmes and biodiversity management plans. Positive impacts include improved air quality resulting from the operation of the WFGD system, reduced risks associated with uncontrolled waste disposal and enhanced environmental compliance.
Describe the linkages and dependencies between human wellbeing, livelihoods and ecosystem services applicable to the area in question and how the development's ecological impacts will result in socioeconomic impacts?	Human wellbeing in the area is closely linked to ecosystem services such as water resources, grazing land, biodiversity, cultural landscapes and environmental quality. Protection of these ecosystem services through appropriate mitigation and environmental management will reduce potential socioeconomic impacts and contribute to sustainable development.
Based on all of the above, how will this development positively or negatively impact the ecological integrity objectives/targets/considerations of the area?	The project may result in localised ecological impacts; however, these are outweighed by the broader environmental benefits associated with sulphur dioxide emission reductions and responsible waste management.
Considering the need to secure ecological integrity and a healthy biophysical environment, describe how the alternatives identified (in terms of all the different elements of the development and all the different impacts being proposed), resulted in the selection of the "best practicable environmental option" in terms of ecological considerations?	Alternative sites, layouts and transport routes were assessed to identify the Best Practicable Environmental Option (BPEO). Preference was given to locations characterised by lower ecological sensitivity, proximity to existing infrastructure and reduced requirements for additional disturbance. The selected alternatives therefore represent the option that best balances environmental protection, technical feasibility and operational requirements.
Describe the positive and negative cumulative ecological/biophysical impacts bearing in mind the size, scale, scope and nature of the project in relation to its location and existing and other planned developments in the area?	Cumulative ecological impacts may arise from the combined effects of mining activities, power generation infrastructure, transportation networks and other industrial developments within the Waterberg region. Potential cumulative impacts include habitat fragmentation, biodiversity loss, groundwater stress, increased dust generation and landscape transformation. Positive cumulative impacts include improved regional air quality through the implementation of flue gas desulphurisation

NEED & DESIRABILITY	RESPONSE
	technology and strengthened environmental management practices associated with waste disposal activities.
What is the socio-economic context of the area, based on, amongst other considerations, the IDP, spatial priorities and characteristics?	The proposed development is located within the Waterberg District Municipality and Lephalale Local Municipality, an area identified as a strategic economic growth node due to the concentration of energy generation, mining and associated industrial activities. The development aligns with the objectives of the Integrated Development Plan (IDP), Spatial Development Framework (SDF), Environmental Management Framework (EMF) and Local Economic Development (LED) strategies, which recognise the importance of maintaining energy security, supporting industrial development and promoting sustainable economic growth while protecting environmental resources.
How will this development address the specific physical, psychological, developmental, cultural and social needs and interests of the relevant communities?	The project will contribute positively to local and regional socio-economic objectives through temporary employment opportunities during construction, indirect economic benefits associated with procurement and service provision, and long-term support for the continued operation of Medupi Power Station. The development complements existing economic initiatives by sustaining employment associated with power generation and creating opportunities for local contractors, suppliers and skilled workers.
Will the development result in equitable (intra- and inter-generational) impact distribution in the short- and long-term? Will the impact be socially and economically sustainable in the short- and long-term?	The development addresses social and developmental needs by supporting reliable electricity generation, which underpins economic growth, service delivery and social development throughout South Africa. While the project will not directly provide housing or social infrastructure, it contributes to national energy security and regional economic stability. Impacts and benefits are expected to be distributed equitably over time through sustained economic activity and improved environmental performance associated with emission reduction technologies.
In terms of location, describe how the placement of the proposed development will result in the creation of employment opportunities close together, reduce the need for transport, provide access to public and non-motorised transport, complement surrounding uses and align with area planning, optimize existing resources and infrastructure, correct spatial imbalances and use surplus infrastructure, encourage	The location of the proposed facilities adjacent to existing industrial infrastructure minimises the need for additional transportation infrastructure, optimises the use of existing services and reduces environmental disturbance. The development complements existing land uses associated with power generation and mining activities and is consistent with regional planning frameworks. The project does not promote urban sprawl but rather consolidates industrial development within an established energy and mining precinct.

NEED & DESIRABILITY	RESPONSE
sustainable development and consider special locational factors and maximize socio-economic returns and respect local heritage?	
How was a risk-averse and cautious approach applied in terms of socio-economic impacts?	Potential socio-economic risks include nuisance impacts such as dust, noise, increased traffic volumes, visual impacts and concerns regarding waste disposal. These risks will be assessed and mitigation measures incorporated into project design and operational management plans. Remaining uncertainties relate primarily to future economic conditions, cumulative development pressures and demographic changes in the region. A risk-averse approach has been adopted through comprehensive impact assessment, stakeholder engagement and adaptive management commitments.
How will be the socio-economic impacts of this development on people's environmental rights?	The development supports environmental justice by ensuring that environmental impacts are identified, assessed and mitigated in accordance with regulatory requirements.
What measures were taken to ensure the participation of all interested and affected parties, provide all people with an opportunity to develop the understanding, skills and capacity necessary for achieving equitable and effective participation, ensure participation by vulnerable and disadvantaged persons, promote community wellbeing and empowerment through environmental education, the raising of environmental awareness, the sharing of knowledge and experience and other appropriate means, ensure openness and transparency, and access to information in terms of the process, ensure that the interests, needs and values of all interested and affected parties were taken into account, and that adequate recognition were given to all forms of knowledge, including	Public participation processes provide opportunities for all interested and affected parties, including vulnerable and disadvantaged communities, to participate in decision-making. Information about the proposed WFGD waste disposal site has been made available through public notices and stakeholder databases. Consultation meetings and reporting processes will be undertaken to ensure transparency and inclusivity.

NEED & DESIRABILITY	RESPONSE
traditional and ordinary knowledge, and ensure that the vital role of women and youth in environmental management and development were recognised and their full participation therein were be promoted.	
Considering the interests, needs and values of all the interested and affected parties, describe how the development will allow for opportunities for all the segments of the community (e.g. a mixture of low-, middle-, and high-income housing opportunities) that are consistent with the priority needs of the local area (or that is proportional to the needs of an area)?	The project will generate temporary employment opportunities during construction and support existing permanent employment associated with Medupi Power Station. Employment benefits are expected to accrue primarily to residents of Lephalale and surrounding areas, subject to skills availability. Procurement policies should prioritise local businesses and historically disadvantaged individuals where feasible. The project is not expected to result in significant opportunity costs or displacement of existing economic activities due to its location within an established industrial area.
Describe how the development will impact on job creation	Employment benefits are expected to accrue primarily to residents of Lephalale and surrounding areas, subject to skills availability. Procurement policies should prioritise local businesses and historically disadvantaged individuals where feasible.
What measures were taken to ensure that there were intergovernmental coordination and harmonisation of policies, legislation and actions relating to the environment, and that actual or potential conflicts of interest between organs of state were resolved through conflict resolution procedures?	Intergovernmental coordination has been facilitated through engagement with relevant national, provincial and local authorities responsible for environmental management, water resources, heritage resources, biodiversity conservation, municipal planning and economic development.
What measures were taken to ensure that the costs of remedying pollution, environmental degradation and consequent adverse health effects and of preventing, controlling or minimising further pollution, environmental	Compliance with environmental legislation, permit conditions and licence requirements ensures that the costs associated with pollution prevention, environmental management and rehabilitation remain the responsibility of the project proponent in accordance with the polluter-pays principle.

NEED & DESIRABILITY	RESPONSE
damage or adverse health effects will be paid for by those responsible for harming the environment?	
Considering the need to secure ecological integrity and a healthy bio-physical environment, describe how the alternatives identified (in terms of all the different elements of the development and all the different impacts being proposed), resulted in the selection of the best practicable environmental option in terms of socio-economic considerations?	The selected alternative represents the Best Practicable Environmental Option from a socio-economic perspective because it optimises existing infrastructure, minimises additional land disturbance, supports national energy security objectives, reduces transportation requirements and provides a responsible waste management solution for WFGD by-products.
Describe the positive and negative cumulative socio-economic impacts, bearing in mind the size, scale, scope and nature of the project in relation to its location and other planned developments in the area?	Cumulative socio-economic benefits include sustained economic activity, improved environmental compliance, support for regional development objectives and long-term energy sector stability. Potential cumulative negative impacts include increased industrialisation, traffic volumes, visual intrusion and pressure on local services; however, these impacts are expected to remain manageable through the implementation of mitigation measures and coordinated regional planning.

9.1 Need for the Project

The WFGD System is required to ensure compliance with the National Environmental Management: Air Quality Act (No. 39 of 2004) and the MES regulation for SO₂. The Power Station was said to meet an SO₂ emission limit of 1000 mg/Nm³ by 31 March 2025, as required by the National Environmental Management: Air Quality Act, 2004 (Act No. 39 of 2004) and the MES Regulations for the SO₂. Eskom appealed the deadline, and a decision from the Minister, based on advice from the NECA Forum, granted Eskom until 2030. This directive was issued on 31 March 2025. The six (6) units in the Power Station were designed and constructed to accommodate the installation of a WFGD technology to ensure compliance with sulphur dioxide (SO₂) emission reduction requirements.

The Power Station also operates under an Atmospheric Emission License (AEL) (License no. H16/1/13-AEL/M1/R1), issued on 01 December 2020. In terms of the AEL, the power station shall ensure that it continuously operates and maintains an SO₂ reducing plant on all six units. Medupi Power Station was designed and constructed to be WFGD-ready, utilising limestone (CaCO₃) as a sorbent.

Currently, there is no adequate existing infrastructure within the Medupi Power Station to accommodate all three waste by-products. An alternative was investigated during the Scoping and EIR phases for the installation of the FGD system at the Medupi Power Station. This alternative included waste to be trucked to the Holfontein hazardous landfill site in Mpumalanga Province for final disposal; however, there were implications regarding this option as it included significant environmental impact related to loading, trucking and off-loading and associated trucking incidents and distance of travel. Other implications involved the potential impact that would spread to a larger distance from the Medupi area, and the carbon emissions from the vehicle exhaust fumes associated with this alternative were considered. The proposed waste disposal facility is therefore necessary to:

- Ensure lawful and environmentally sound management of WFGD waste;
- Prevent uncontrolled disposal that could result in soil, surface water, and groundwater contamination;
- Support Eskom's compliance with emission reduction obligations and environmental authorisations;
- Enable the continued operation of Medupi Power Station in line with regulatory requirements.

Without the proposed waste disposal facilities, Eskom runs a risk of non-compliance with relevant environmental legislation, continuing to emit sulphur dioxide above the MES, conflict with financial agreements and operational constraints at the power station. It is important to note that the Medupi Power Station is funded by the World Bank. As part of the conditions outlined in the World Bank loan agreement, Medupi must effectively reduce Sulphur dioxide (SO₂) emissions. The Medupi Power Station is a key component of a comprehensive plan to ensure that Eskom can meet the electricity demand for its life span.

9.2 Desirability

The proposed development is desirable due to its location (i.e., in proximity to the source of waste), environmental context (minimal environmental attributes) and alignment with planning frameworks. The Lephalale area is an established energy generation hub with existing industrial infrastructure, making it appropriate for associated waste management facilities.

The site selection process prioritised:

- Avoidance of environmentally sensitive areas such as Critical Biodiversity Areas (CBAs), wetlands, and heritage resources;
- Minimisation of cumulative impacts within an already transformed landscape;
- Proximity to the source of waste generation, thereby reducing transportation impacts and associated risks.

The preferred and alternative sites and associated routes are located within a disturbed, agricultural and industrially influenced area, making it the most suitable option in terms of minimising environmental and social impacts. Furthermore, the development supports national priorities relating to energy security, while ensuring that environmental impacts will be appropriately managed through mitigation measures and an EMP. The proposed WFGD Waste Disposal Facilities are both necessary and desirable as it enables compliance with environmental legislation, World Bank loan agreement, support emission reduction initiatives, and ensure the responsible management of waste within an appropriate industrial context. The proposed development represents a sustainable and practical solution that balances environmental protection with socio-economic and operational requirements.

From a national perspective, the National Development Plan 2030 emphasises the need to ensure a reliable and secure supply of electricity while transitioning to a cleaner energy mix. South Africa's continued reliance on coal-fired power generation necessitates the implementation of emission abatement technologies such as the FGD. The proposed waste facilities will enable continued electricity generation from existing infrastructure while significantly reducing sulphur dioxide (SO₂) emissions, thereby supporting energy security alongside improved air quality and compliance with environmental standards.

At a local level, the Lephalale Local Municipality Integrated Development Plan identifies Lephalale as a strategic energy hub, driven by large-scale power generation and mining activities. However, the IDP also highlights environmental degradation and air quality concerns as key challenges. The FGD facility is therefore necessary to mitigate the environmental impacts associated with existing energy infrastructure, ensuring that economic development is balanced with environmental protection and community well-being.

Regionally, the Waterberg District Environmental Management Framework recognises the Waterberg area as environmentally sensitive, with increasing cumulative pressures from industrial activities. The EMF supports developments that incorporate pollution control and mitigation measures to reduce ecological degradation. The proposed FGD waste disposal sites align with these guidelines by proactively addressing atmospheric emissions, thereby reducing cumulative impacts and supporting sustainable development within the district. The FGD waste facilities are desirable as they will assist in enhancing environmental compliance, support sustainable industrial development, and align with strategic planning frameworks aimed at balancing economic growth with environmental stewardship in the Waterberg region.

10 DESCRIPTION OF THE RECEIVING ENVIRONMENT

10.1 Climate and Temperature

According to the Waterberg District Municipality Air Quality Management Plan (2009), the northern and western regions of the area experience a hot and semi-arid climate. The southern and eastern regions are more humid and slightly cooler. The mean circulation of the atmosphere over southern Africa is anticyclonic throughout the year. Air circulation has implications for the dispersion of air pollution and is influenced by a variety of factors. According to Mucina & Rutherford (2006), the dominant vegetation type that the project area overlaps with is the Limpopo Sweet Bushveld. This region is characterised by summer rainfall with very dry winters. The mean annual precipitation ranges from 350 mm in the northeastern areas to 500 mm in the southwestern areas (Figure 13). Frost occurs frequently with mean monthly maximum and minimum temperatures for Lephalale recorded at 38.2 °C and 2.1 °C during December and June, respectively.

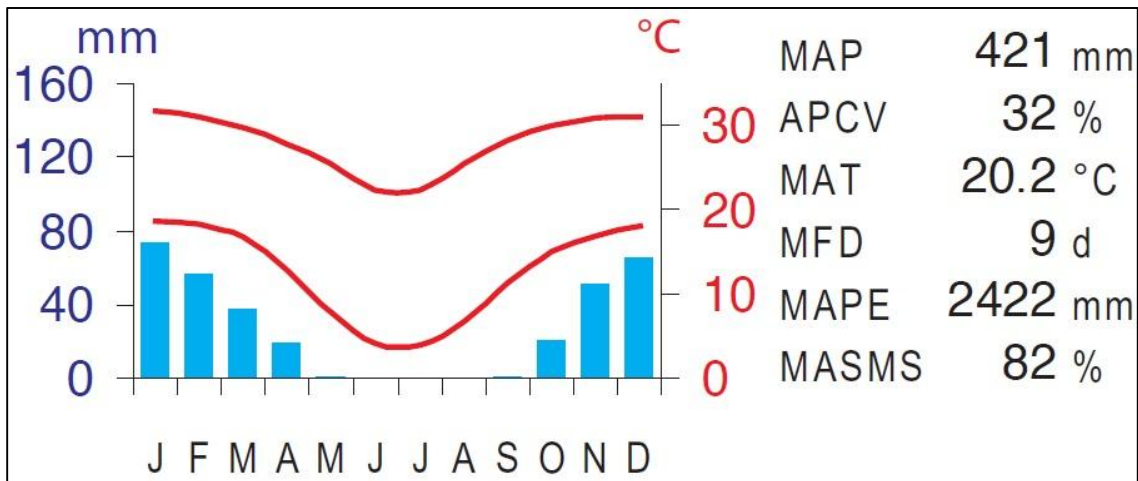


Figure 14: Climate for the Limpopo Sweet Bushveld (Mucina & Rutherford, 2006).

10.2 Drainage & Hydrology

The PAOI falls within the Limpopo Plain Ecoregion, within the Limpopo-Olifants Water Management Area (WMA). At a finer scale, within the A42J quaternary catchment. The fine-scale hydrological features are presented in the following section.

10.2.1 Topographical River Lines and Inland Water Areas

The topographical inland and river line data for the “2327” dataset indicated the presence of one inland water area, classified as a dam. Furthermore, multiple non-perennial drainage features were identified. The identified dam is located within the stream path of a non-perennial drainage feature

10.2.2 South African Inventory of Inland Aquatic Ecosystems

According to the SAIIAE database, no wetland types were identified within the PAOI. Only one river line was identified and is known to be the Sandloop River (see Figure 11). The river was classified as being in a “Moderately Modified” state, according to the dataset.

10.2.3 National Freshwater Ecosystem Priority Ecosystems

One wetland type was identified within the PAOI, namely an unchanneled valley-bottom wetland, together with one river (Figure 12). According to the dataset, the identified wetland feature was classified as having a “Z3 – Heavily/Critically Modified” condition. Furthermore, the feature was classified as being artificial and as “Vulnerable” and “Not Protected” in terms of Ecosystem Threat Status and Ecosystem Protection Level, respectively. The identified river, Sandloop River, was classified as being in a “Moderately Modified” state.

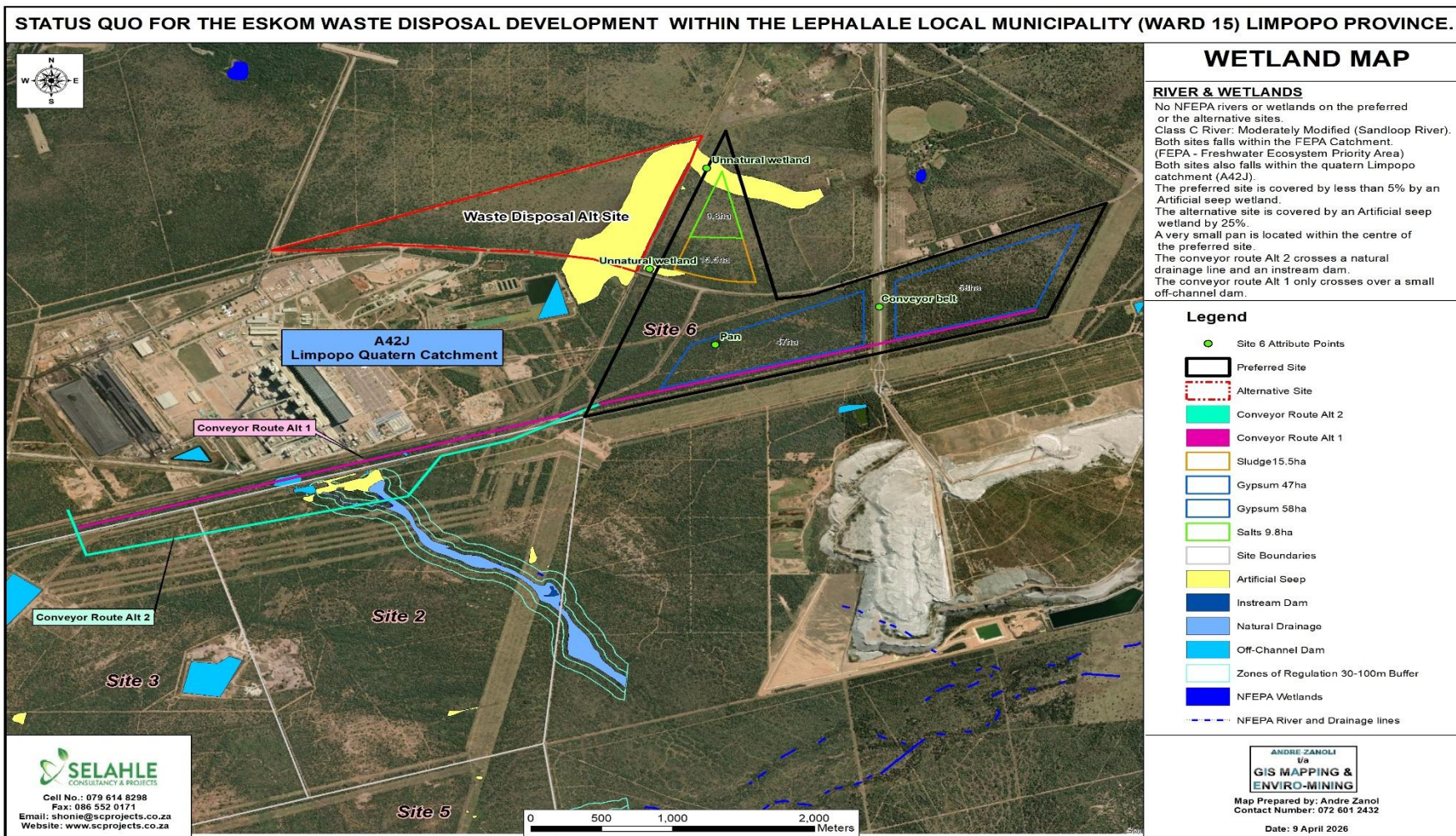


Figure 15: Topographical Inland Water Areas and River Lines that intersect the project area of influence.

10.3 Geology and Soils

The Ellisras Basin is important economically for coal, especially the Grootgeluk Formation and interfingering Goedgedacht Formation, which are being mined by Exxaro for export and for the Matimba Power Station. According to the maps by the Geological Survey, both sites are in the undifferentiated Permian and Triassic deposits, with very old rocks to the south and east of Lephalale.

According to the land type database (Land Type Survey Staff, 1972 - 2006), the project area is predominantly characterised by land type Ah 86 and Bd 46. The Ah land type is characterised by freely drained red-yellow apedal soils with a high base status. The soils within this land type are characterised by less than 15% clay. The Bd land type consists of plinthic catena. Upland duplex and marginal soils are rare, and eutrophic and/or mesotrophic red soils are not widespread. The geology of the project area is characterised by metasediments, gneisses and metavolcanics of the Malala Drift Group, Beit Bridge Complex, dominant within the northern areas of the Limpopo Sweet Bushveld vegetation type. The Letaba Formation basalts (from the Karoo Supergroup's Lebombo Group) dominate the northeastern areas, with the Karoo Supergroup's Clarens Formation sandstone, mudstone and siltstones dominating the southern and western areas together with the Matlabas Subgroup. The low-lying areas and plains are covered in calcrete, surface limestone layers and sandy Clovelly soil forms. Shallow, sandy soils dominate the undulating areas with localised areas characterised by clayey soils (Valsrivier or Arcadia) and Kalahari sands (Mucina & Rutherford, 2006).

10.4 Agriculture

The project area is dominated by Calcic Luvisols, Rhodic Lixisols, Chromic Lixisols, and Rubic Arenosols, representing a gradient from moderate to low fertility. Laboratory results revealed generally acidic soils (pH 4.1–5.0), low organic carbon (<1%), and moderate to low Cation Exchange Capacity (CEC 7–20 cmol(+)/kg), consistent with the low nutrient-holding capacity typical of the region's soils. The overall land capability ranges from Class III (moderate potential) to Class VI (low potential), supporting extensive grazing but unsuitable for intensive cropping without irrigation and significant soil amendment. The sites also comprise Rubic Arenosols but are heavily disturbed by conveyor and railway infrastructure, providing only conditional suitability due to engineering limitations and restricted developable space.

The sites where the transport routes traverse contain fertile Rhodic Lixisols but coincide with Critical Biodiversity Areas (CBAs), water bodies, and active agricultural holdings, rendering them environmentally and socioeconomically sensitive. While moderately fertile, the route has limited usable area due to servitudes and existing infrastructure and exhibits visible erosion along disturbed slopes.

10.5 Palaeontology

The sites lie in the Ellisras Basin, an equivalent of the main Karoo basin where the lower Karoo Supergroup strata are exposed. These sediments unconformably overlie the much older Waterberg Group quartzites. Much of the area is overlain by aeolian sands and alluvium, especially along the rivers and streams.

The Palaeoproterozoic rocks of southern Africa occur in Limpopo, Mpumalanga and Gauteng Provinces and extend westwards into Botswana, and occur in three basins. Three main strata are recognised, the Soutspansberg Group, the Waterberg Group and the Blouberg Formation. Some attempts have been made to correlate the strata in the different basins, the Waterberg Basin, the Soutspansberg Basin and the Middelburg Basin.

Both sites lie on potentially very highly sensitive rocks of the Swartrand Formation; however, the preferred site as well as the sites for the conveyor have a medium sensitivity, and it is unlikely that any fossils are present on the land surface.

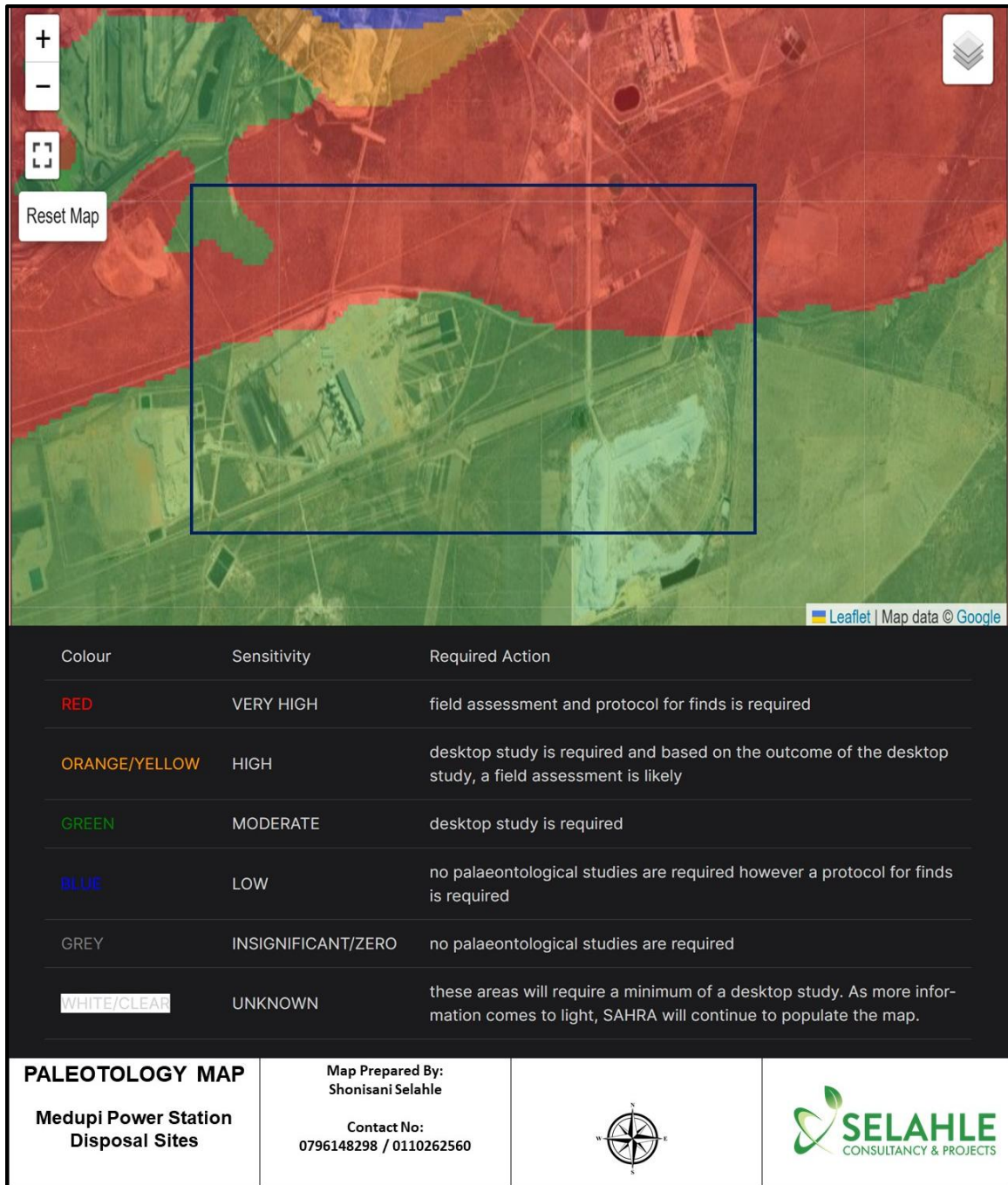


Figure 16: Palaeontology Map for the PAOI.

10.6 Vegetation

The Waterberg District, largely within the Savanna Biome with elements of the Grassland Biome on elevated areas, contains a high diversity of endemic and near-endemic vegetation types, covering approximately 70% of the district. The Savanna Biome is the project area is dominated by bushveld vegetation that sustains a variety of faunal assemblages, including large herbivores and carnivores that traverse between conservation areas, Ecological Support Areas (ESAs), and

surrounding cattle and game farming properties. The district supports 64 plant species of conservation concern, including 22 threatened species, as well as 45 mammal species of special concern, 21 threatened bird species, and 3 reptile species of conservation concern.

Approximately 84.8% of the district remains in a natural or near-natural condition, with only 1.3% urbanised and 10.9% under dryland agriculture. This intactness underpins the region's ecological infrastructure, which provides ecosystem services such as carbon storage, forage production, water regulation, and climate resilience.

Both sites are located entirely within the Limpopo Sweet Bushveld vegetation type (Mucina & Rutherford, 2006), part of the Savanna Biome. This vegetation is characterised by open to moderately closed bushveld with *Sclerocarya birrea* (*Marula*), *Vachellia nilotica*, *Senegalia nigrescens*, and *Boscia albitrunca* as dominant tree species. According to the Revised National List of Ecosystems that are Threatened and in Need of Protection (NEMBA 2022), the Limpopo Sweet Bushveld is classified as “**Least Concern**”, indicating no current national-level threat.

10.6.1 Ecological Support Areas (ESA)

Spatial overlay with the Limpopo Conservation Plan v2 (2013) confirmed that all sites, including the conveyance routes, fall within Ecological Support Areas 1 & 2.

10.6.2 Protected Areas and Important Bird Areas

None of the proposed sites overlaps formally declared protected areas; however, part of the preferred site and the conveyance route overlap with the Eskom Medupi Conservation Area, which includes an on-site conservation office and ecological monitoring programme. The Waterberg System Important Bird Area (IBA) lies outside the PAOI, but the sites form part of the broader avifaunal corridor. A detailed Avifaunal Specialist Study by *The Biodiversity Company (Pty) Ltd* provides species-specific data for integration with this report.

STATUS QUO FOR THE ESKOM WASTE DISPOSAL DEVELOPMENT WITHIN THE LEPHALALE LOCAL MUNICIPALITY (WARD 15) LIMPOPO PROVINCE.

RIVER & WETLANDS

No NFEPA rivers or wetlands on the preferred or the alternative sites.
 Class C River: Moderately Modified (Sandloop River).
 Both sites falls within the FEPA Catchment. (FEPA - Freshwater Ecosystem Priority Area)
 Both sites also falls within the quatern Limpopo catchment (A42J).
 The preferred site is covered by less than 5% by an Artificial seep wetland.
 The alternative site is covered by an Artificial seep wetland by 25%.
 A very small pan is located within the centre of the preferred site.
 The conveyor route Alt 2 crosses a natural drainage line and an instream dam.
 The conveyor route Alt 1 only crosses over a small off-channel dam.

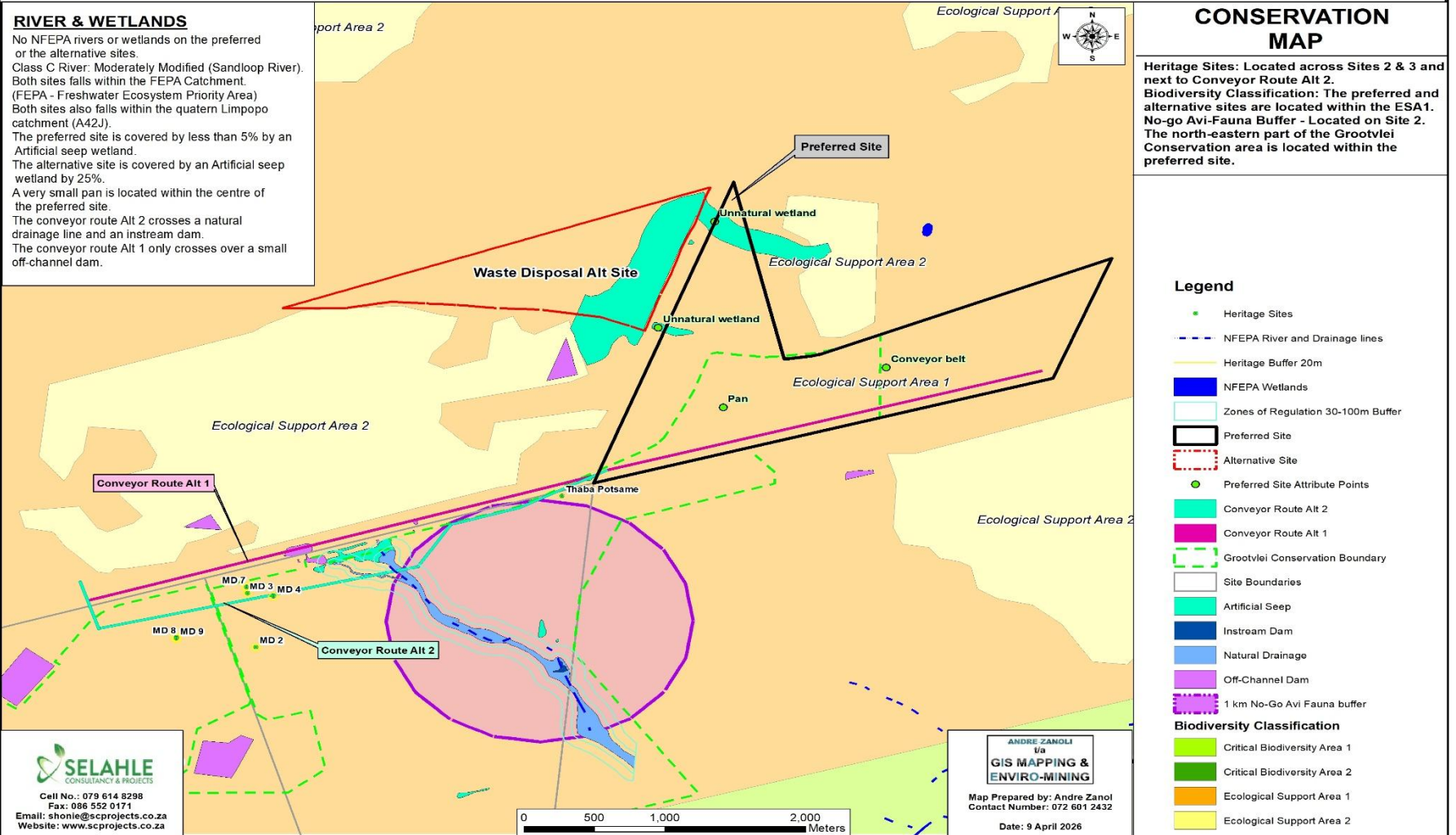


Figure 17: Conservation Map for the WFGD Waste Disposal Facilities.

10.7 Topography

The terrain generally comprises gently undulating plains and low ridges, supporting a mosaic of woody and herbaceous vegetation that provides important forage for livestock and wildlife alike. See Figures 9 – 11 for the site's elevation, which ranges from 990 m to 860 m.

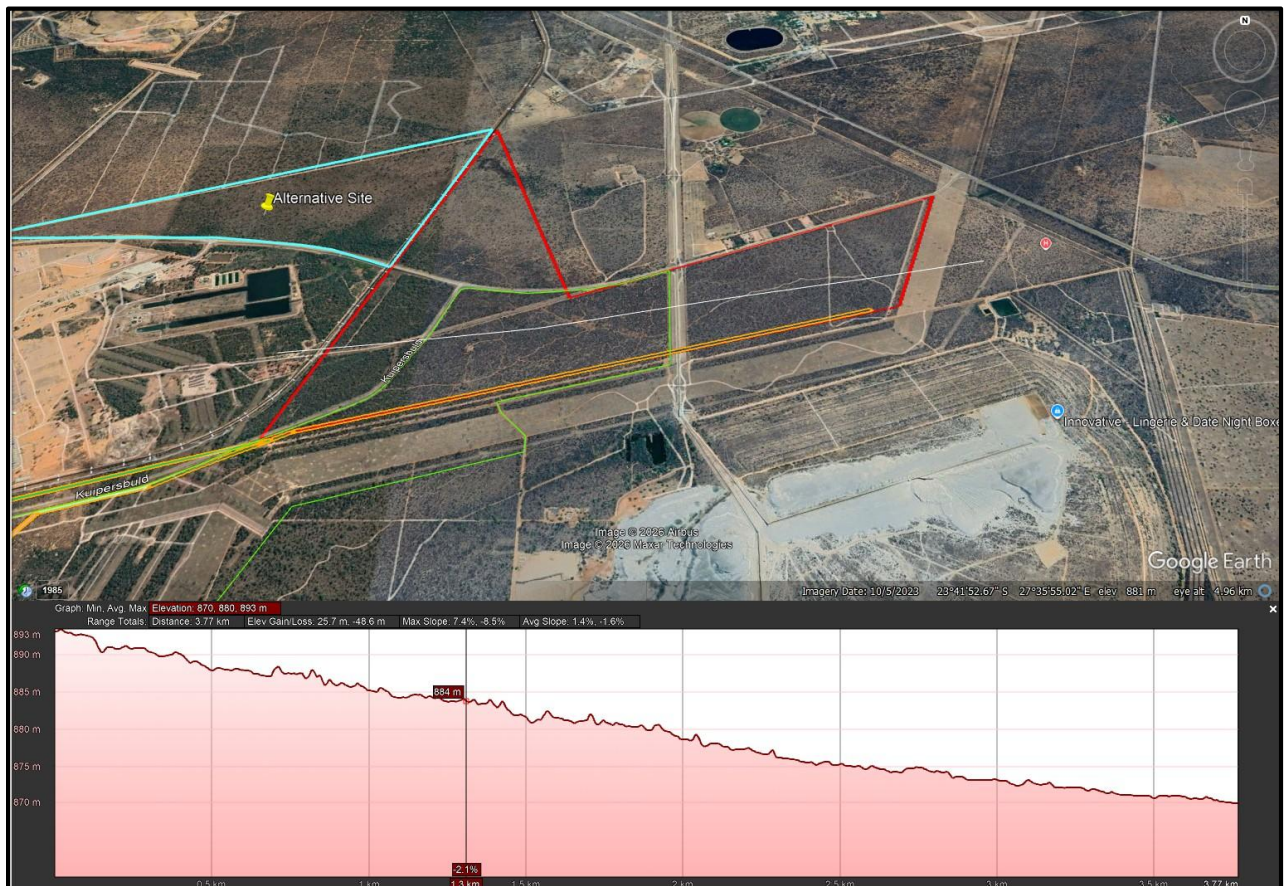


Figure 18: Elevation Map for the Preferred Site demarcated in red.

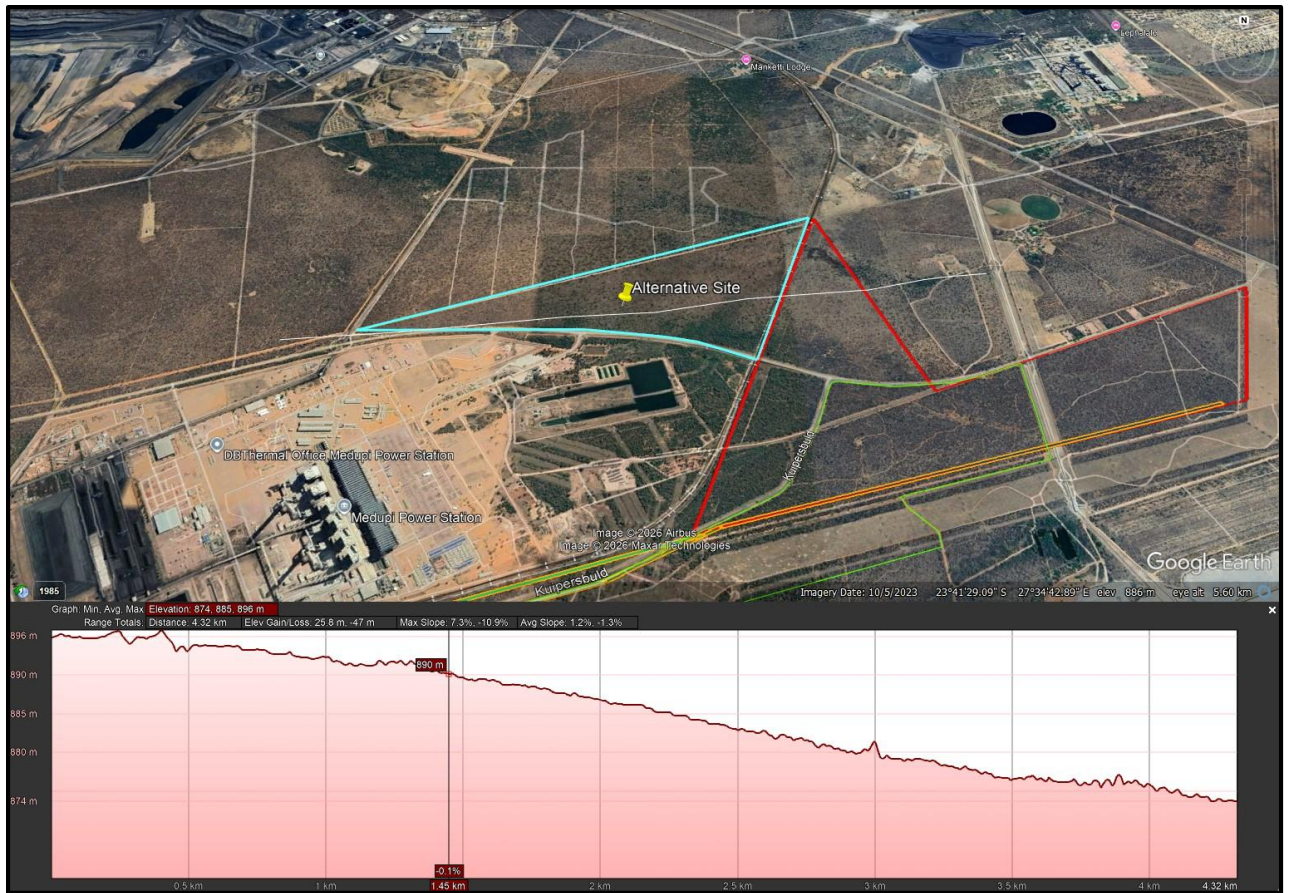


Figure 19: Elevation Map for the Alternative Site demarcated in cyan.

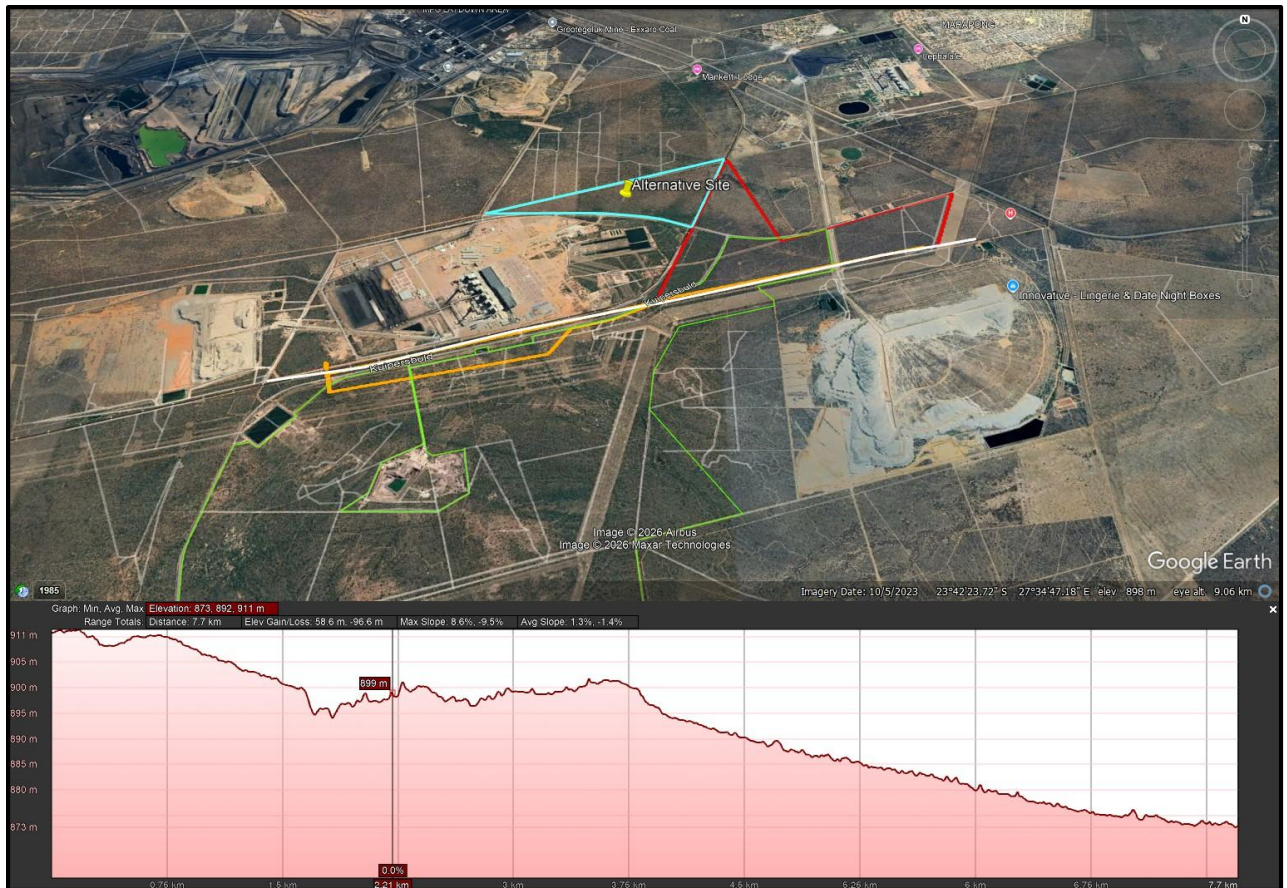


Figure 20: Elevation Map for the Conveyor Routes demarcated in white and yellow lines.

10.8 Socio-Economic Analysis

The Lephalale Municipality is a strategic energy and mining hub, characterised by economic growth alongside persistent challenges such as high unemployment, income inequality, and service delivery pressures. Within this context, the proposed site is located within or adjacent to established industrial corridors associated with the Medupi and Matimba Power Stations. As a result, the site exhibits lower social sensitivity, minimal residential interface, and greater compatibility with existing land uses. Lephalale is situated in the Waterberg District, Limpopo Province, covering approximately 13,794 km². The municipality is named after the Lephalale River, a tributary of the Limpopo. It was formerly known as Ellisras (derived from the surnames of two Afrikaner settlers). It is characterised by:

- The Waterberg Biosphere and mountain range
- Natural attractions including D'Nyala Nature Reserve, Marakele National Park, and Mokolo Dam
- A rich geology with significant rock art heritage

10.8.1 Lephalale Integrated Development Plan

Lephalale carries national development node status and has been identified as a petrochemical cluster under the Limpopo Employment Growth and Development Plan. Its dominant economic sectors are mining, which contributes approximately 59%, followed by agriculture with approximately 39% and electricity contributing 11%. Critically, the Waterberg coalfields hold more than 40% of South Africa's total coal reserves, making Lephalale a strategic energy hub — reflected in the municipality's vision: *"A Vibrant City and the Energy Hub."*

The IDP aligns with:

- The National Development Plan (NDP)
- Agenda 2063 (African Union)
- Sustainable Development Goals (SDGs)
- Limpopo Vision 2030
- The District Development Model (DDM) and One Plan framework

Given its context, Lephalale's IDP must balance:

- Managing energy sector transitions (coal dependency vs. low-carbon economy)
- Addressing spatial inequality — reversing apartheid-era planning
- Expanding infrastructure to support population and industrial growth
- Integrating rural and peri-urban communities into economic activity
- Maintaining the Waterberg Biosphere and ecological corridors amid mining pressure

10.8.2 Population and Household Indicators

Lephalale LM is the largest local municipality in the district in terms of land area (km²). However, in terms of population, it is the third largest Local Municipality with 125 198 people, following Mogalakwena and Modimolle-Mookgophong. The IDP 2023-27 explains that the population increase in Lephalale may be linked to the skills development centres and job opportunities available because of the Waterberg coalfield. The community survey suggested a population increase considerably higher than the provincial growth rate of 0.84% per year for the last five years.

Between 2011 and 2022, Lephalale experienced steady population growth coupled with an increase in the number of households in the municipality. However, the average household size decreased between 2011 and 2022 (source: Stats SA).

10.8.3 Age and Gender Structure

The population distribution by age categories and gender of the Municipality is presented in Figure 21 below. It demonstrates the following:

- Young children (ages 0 to 14) comprise 28,8% of the population.
- Youth (ages 15 to 34 years old) make up 37,2% of the total population of Lephalale.
- Working age (between 15 and 64 years old) contributes to 66,4% of the population.

- Older people (65 and up) comprise 4,9% of Lephalale's population.
- Males (50,1%) make up a slightly higher percentage than females (49,9%).

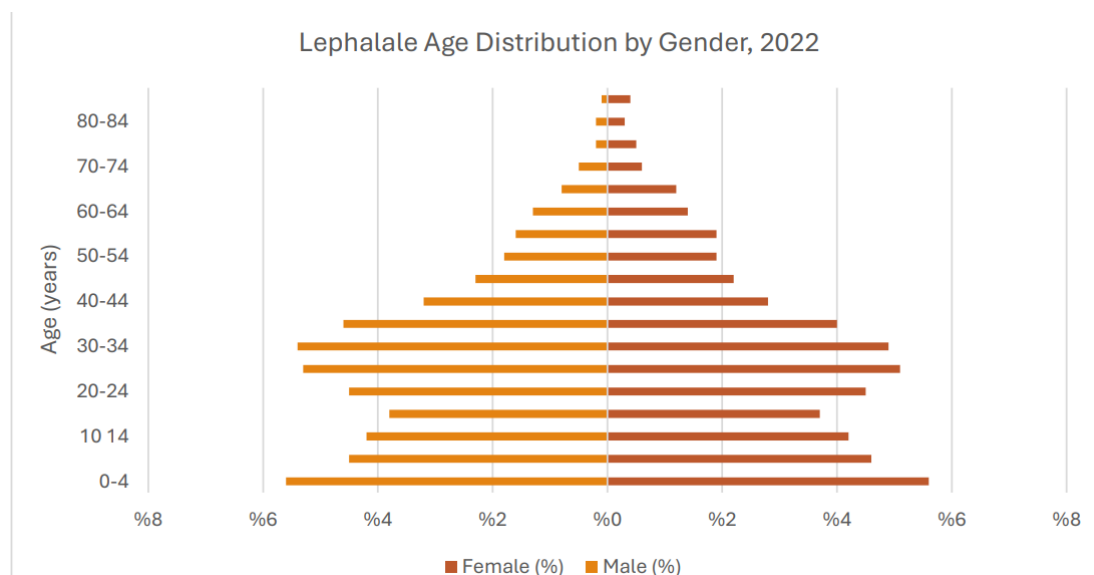


Figure 21: Lephalale Population Pyramid (data source: Stats SA, 2022)

10.8.4 Race

The vast majority of the population of Lephalale LM are Black African, making up 92,3% (Figure 22). White people make up 7%, and Indian or Asian and Coloured groups together make up less than 2% of the population.

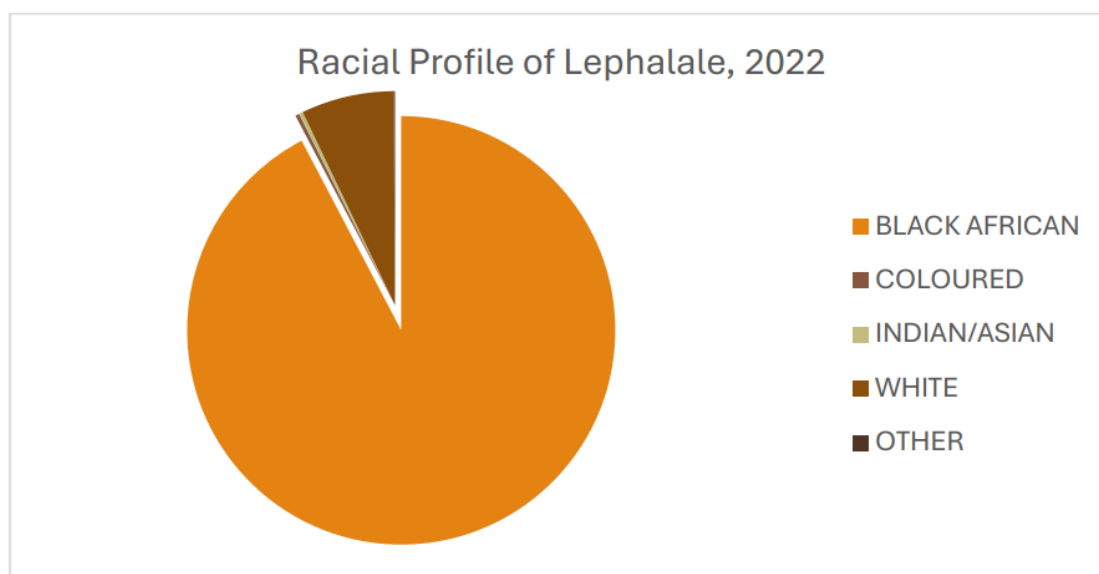


Figure 22: Racial Profile of Lephalale, 2022 (source: Stats SA, 2022).

10.8.5 Education levels

There has been a notable increase in the number of people having completed Grade 12 (Standard 10) in Lephalale from 2011 to 2022, as well as a decrease in the number of people having received 'no schooling'. This indicates a positive increase in education levels in the municipality between 2011 and 2022.

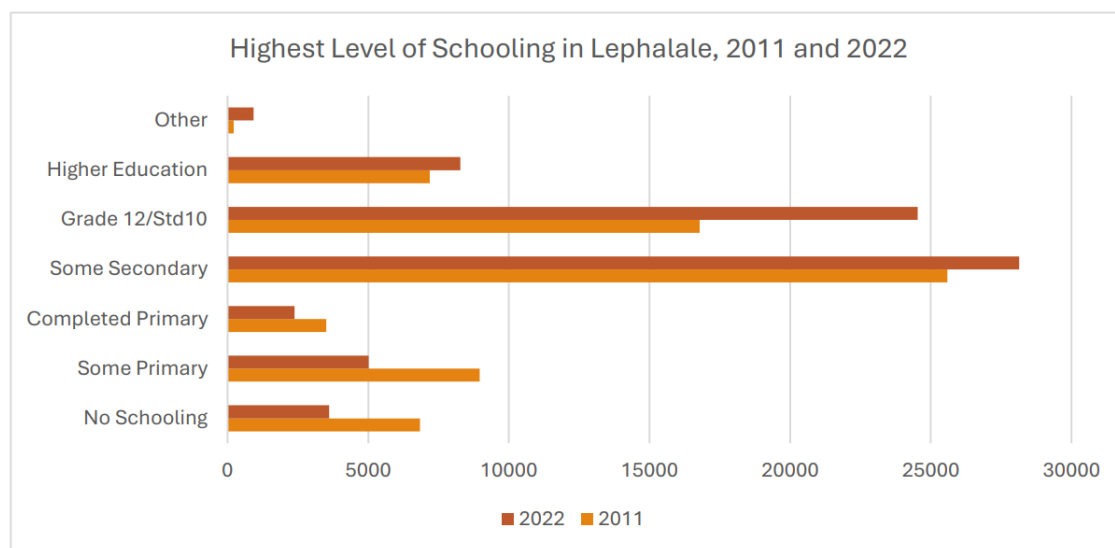


Figure 23: Lephalale Highest Level of Education in 2011 and 2022 (data source: Stats SA, 2022)

10.8.6 Employment Status

The 'labour force' or the 'economically active' population measures the total number of people willing and able to work (including those unemployed and employed) between the ages of 15 and 64 (the working age). More than 20% of the Municipality was unemployed in 2022, an increase over 2011. However, this unemployment rate is lower than the district average of 27,32% in 2022. The rise in Lephalale's unemployment rate (and the District in general) can be linked to several factors, including economic recession, impacts of the Covid-19 pandemic, corruption, lack of job creation, technological improvements, digital divide, and skills mismatch, amongst others.

The 'labour absorption rate', also referred to as the employment rate, has increased slightly between 2011 and 2022, indicating that more work-seekers were employed in 2022 than in 2011. Lephalale's labour absorption rate is also higher than Waterberg's average, indicating that more workers are likely to find employment in Lephalale than experienced on average in the District Municipality.

10.8.7 Household Income and Affordability Levels

The household incomes presented in Figure 19 below for Lephalale LM are based on the statistics provided from the 2011 Census (Stats SA) and are those reflected in the Lephalale IDP 2023-27 and the SDF (2017). Whilst these figures evidently need updating, the household income patterns

nevertheless indicate relative affordability within the municipality. Based on projected future development within the municipality, it is anticipated that income levels will experience a shift. The LLM SDF 2017 estimates that by 2020:

- The middle-income group of households could represent almost 40% of the population
- The higher-income group is almost 29%.
- The lower income group is expected to decline to 31% in 2020, from 38,3% in 2011.

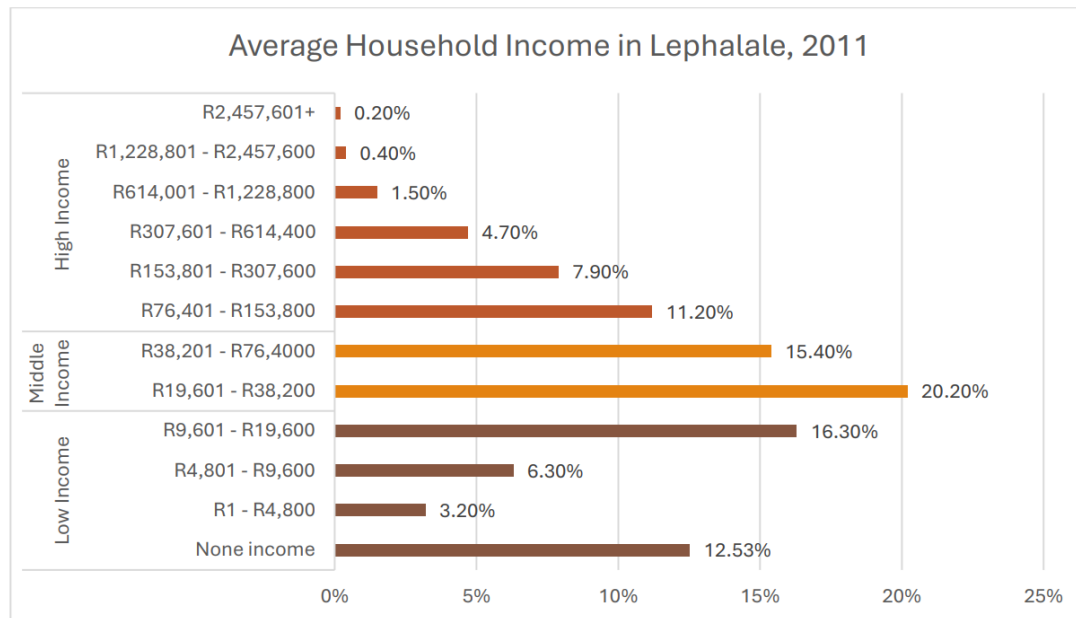


Figure 24: Household Income for Lephalale, 2011 (source: Census 2011, Stats SA).

Between 2011 and 2022, Lephalale experienced a steady population growth coupled with an increase in the number of households in the municipality. These numbers are projected to continue increasing over the next few years due to the skills development centres and job opportunities created by the Waterberg Coalfield. Whilst education levels have shown improvement between 2011 and 2022, the municipality still experienced an increase in unemployment levels, which can be linked to widespread issues like economic recession, impacts of the Covid-19 pandemic, corruption, lack of job creation, technological improvements, digital divide, skills mismatch, amongst others. Lephalale shows a higher 'labour absorption rate' than Waterberg's average, indicating that more workers are likely to find employment in Lephalale than is experienced on average in the District Municipality.

11 PUBLIC PARTICIPATION PROCESS

Public Participation Process (PPP) is the cornerstone of any Environmental Impact Assessment (EIA) process. The PPP will form a fundamental part of the Integrated Environmental Authorisation process and will be one of the most important aspects of the EIA process. The principles of the National Environmental Management Act, 1998 (NEMA) (Act No. 107 of 1998), as well as the EIA Regulations, 2014, as amended, govern the EIA process, including public participation. These include the provision of sufficient and transparent information on an ongoing basis to stakeholders, allowing them to comment, and ensuring the participation of previously disadvantaged groups, including women and youth.

The process aims to provide Interested and Affected Parties (I&APs) with clear, accurate, and comprehensive information about the proposed development, its alternatives, and the associated environmental impacts. Furthermore, it ensures that I&APs are given a fair opportunity to express their viewpoints, raise issues, and voice concerns regarding the proposal, its alternatives, and/or the decisions being made.

Furthermore, social risks arise as a consequence of social development and can be described as the potential for loss, conflict, or instability resulting from specific project-related activities (e.g., investments, policies, or decisions) and the responses of stakeholders who may be negatively affected by the proposed development. While social risks cannot be eliminated, they can be effectively managed to minimise adverse impacts. Therefore, the public participation process serves to address and mitigate identified negative impacts, helping to ensure that proposed projects achieve positive outcomes and contribute to long-term sustainability.

Chapter 6 of the EIA Regulations, 2014, as amended, emphasises the importance of public participation. In terms of the EIA regulations, the public –

- May participate in the application process.
- May comment on any written communication submitted to the competent authority by the applicant or environmental consultant.
- must comment within the timeframes.
- must send a copy of any comments to the applicant if the comments were submitted directly to the competent authority; and
- must disclose any interest that the person has in the application being granted or refused

Moreover, the principles of Public Participation are:

- Communicates the interests of and meets the process needs of all participants;
- Seek to facilitate the involvement of those potentially affected;
- Involves participants in defining how they participate;
- Ensure transparency as far as possible;
- Actively enhances the leadership capacity of community members, leaders, and groups within the community; and

- Utilises a community's diversity to deepen shared understanding and produce outcomes of long-term benefit to the whole community or society.

Therefore, all Interested and Affected Parties, Stakeholders, Organs of State, and Landowners, etc., will be afforded an opportunity to participate in the proposed development and comment in both the Scoping and EIR phases of the proposed application.

11.1 Public Participation Process Followed

The Public Participation Process (PPP) during the Integrated Environmental Application 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.

11.1.1 Identification of Interested and Affected Parties

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

Table 12: List of Stakeholders

Type of Interested and Affected Party	Directorates
Local communities and residents	Ward Councillors Marapong and Onverwacht Communities
Government Departments (Organs of State)	- Waterberg District Municipality - Lephalale Local Municipality - Limpopo Department: Economic Development, Environment, and Tourism - Road Agency Limpopo - Transnet - Limpopo Provincial Heritage Resources Authority (LIHRA) - South African Heritage Resource Agency (SAHRA) - Limpopo: Department of Minerals - Limpopo: Department of Energy - South African Civil Aviation Authority - Department of Agriculture, Land Reform and Rural Development

Type of Interested and Affected Party	Directorates
	- Department of Defence (DoD)
Competency Authority – Department of Forestry, Fisheries and Environment	- Biodiversity and Conservation - Climate Change and Air Quality - Chemicals and Waste Management - Environmental Advisory Services - Forestry Management - Legal, Authorisations, Compliance and Enforcement (LACE)
Business owners and industry groups	- Exxaro Mine - Local Businesses (Contractors & subcontractors)
Non-Government Organisations (NGOs)	- Earthlife Africa, Greenpeace, Centre for Environmental Rights - BirdLife South Africa - Wildlife and Environment Society of South Africa (WESSA) - GroundWork - Centre for Environmental Rights (CER) - Endangered Wildlife Trust (EWT)
Traditional leaders and landowners	- Tribal Authorities – Mokolo Traditional Authority

11.1.2 Stakeholder Mapping

A 20km 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 25 below is a stakeholder map.

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 - Afrikaans - Sepedi
NEWSPAPER	Mogol Pos

11.1.3 Placement of Site Notices

Approximately 60 A2 site notices were placed within a 20 km radius of the Project Area of Influence (POIA). This was aimed at introducing the project to all Interested and Affected Parties in the Medupi area. The areas that were covered are:

- Lephalale town
- Onverwacht
- Steenbokpan

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

11.1.4 Circulation of Background Information Document

Background Information Document, together with a Comment Form in three languages (English, Afrikaans and Sepedi) 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 26 and 27.

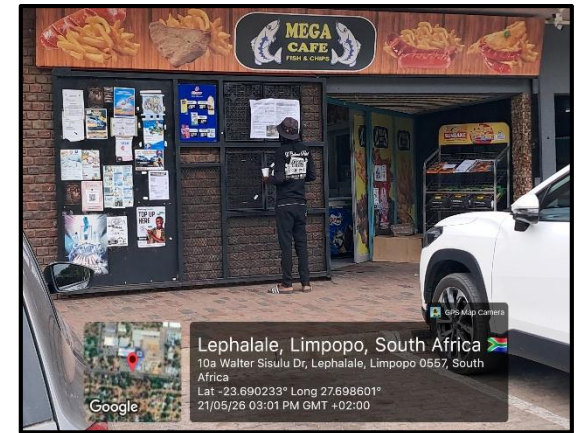
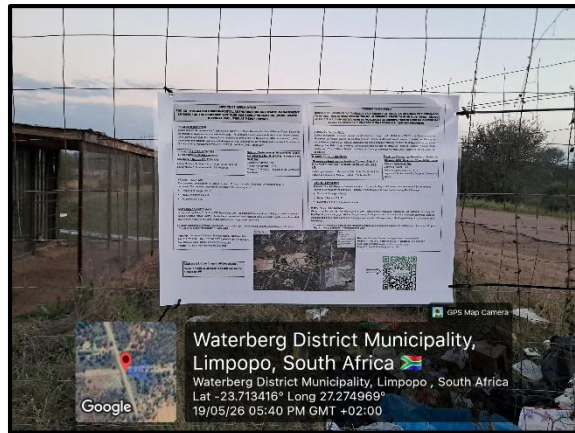


Figure 26: Proof of Site Notices erected around the PAOI

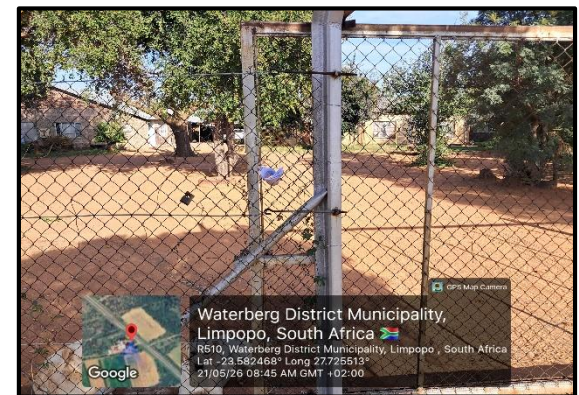
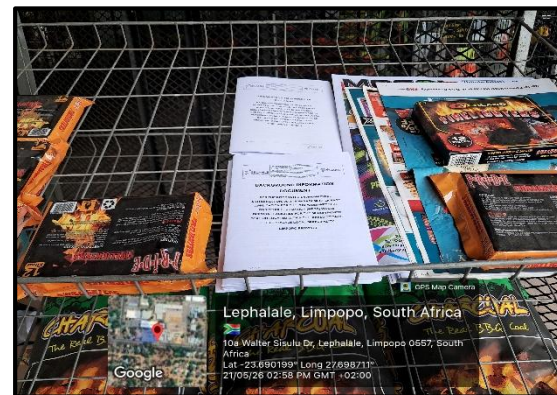


Figure 27: Proof of Distribution of Background Information Documents, Notification Letters, and Comment Forms around the PAOI

11.1.5 Review and Comment on the Draft Scoping Report

The Draft Scoping Report (DSR) 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 11.1.1 above, affected landowners, and registered Interested and Affected Parties (I&APs). Access to the DSR will also be provided through scanning the QR code below and via the SCP website (www.scprojects.co.za).

The Draft Scoping Report and its associated annexures will be made available for public review and comment for a period of 30 calendar days, from 29 June 2026 to 29 July 2026. The DSR can be reviewed at the following venues:

Table 14: Venues to Review the Draft Scoping Report

VENUE	CONTACT DETAILS	QR CODE
Lephalale Local Municipality, Civic Centre, Onverwacht, Cnr Joe Slovo and Douwater Road, Lephalale	Tel.: 014 762 1409	
Marapong Community Library, 143 Chris Hani Street, Marapong	Tel.: 014 768 3927	
Lephalale Farmers' Association, NTK Building, 1 Jan Louis Botha Avenue, Lephalale	Tel.: 014 763 1888	
SCP Website – Public Documents https://www.scprojects.co.za/publicdocuments.html	Tel.: 011 026 2560 Cel.: 079 569 5277	

11.1.6 Public Meetings

As part of the public participation process, public meetings will be undertaken in the Scoping Phase and also in the EIR phase. Three (3) public meetings will be scheduled during the review and comment period of the DSR. This will take place two (2) weeks from the date the DSR will be released for public review.

The public meeting aims to provide I&APs with information regarding the proposed development and invite I&APs to raise any comments and/or concerns that they may have. All comments and concerns made during the public meeting will be recorded and appended to the Final Scoping Report (FSR). Comment and Response Report (CRR), which includes all issues raised and corresponding responses, will also be appended to the FSR and submitted to the competent Authority.

Public meetings will be held in the late afternoon starting from 17:00 to accommodate various community groups. Table 15 below contains details of the public meeting:

Table 15: Public Meeting Schedule

DATE	TIME	VENUE
Tuesday, 14 July 2026	17:00 – 19:00 (Registration from 16h30)	Lesedi Tshukudu Thusong Centre, Steenbokpan, 0533, Tel: 082 927 2399
Wednesday, 15 July 2026	17:00 – 20:00 (Registration from 16h30)	Mogol Function Hall George Wessels St, Lephalale, 0557 Tel: 014 763 2427
Thursday, 16 July 2026	17:00 – 19:00 (Registration from 16h30)	Ditheku Primary School Mosetla St, Marapong, 0556 Tel: 061 429 2100

SECTION C: IDENTIFICATION OF POTENTIAL IMPACTS

12 IDENTIFICATION OF POTENTIAL IMPACTS

The scope of an environmental assessment is defined by the range of issues and alternatives to be considered, and the approach towards the assessment that will follow during the EIA process, which identifies key environmental and socio-economic issues related to the proposed WFGD waste disposal facilities (DEAT, 2002). This Scoping Study confirms the preferred site(s) and associated routes for transportation for further assessment in the EIA phase and the Environmental Management Programme (EMPr). It considers the proposed activities, the receiving environment, relevant legal frameworks, and the concerns of Interested and Affected Parties (I&APs).

The EIA will focus on assessing identified impacts, particularly their significance, which depends on factors like environmental sensitivity, resource constraints, social considerations, and the scale and rate of the proposed development.

A screening report was generated for the proposed sites and transportation routes. The screening report indicated that the Aquatic Biodiversity, Palaeontology, and Terrestrial Biodiversity themes had very high sensitivity. The agriculture theme indicated a high sensitivity, and the following specialist assessments were identified to be undertaken as part of the impact assessment for the proposal:

- Agricultural Impact Assessment
- Landscape/Visual Impact Assessment
- Archaeological and Cultural Heritage Impact Assessment
- Palaeontology Impact Assessment
- Terrestrial Biodiversity Impact Assessment
- Aquatic Biodiversity Impact Assessment
- Hydrology Assessment
- Noise Impact Assessment
- Traffic Impact Assessment
- Geotechnical Assessment
- Climate Impact Assessment
- Health Impact Assessment
- Socio-Economic Assessment
- Ambient Air Quality Impact Assessment
- Seismicity Assessment
- Plant Species Assessment
- Animal Species Assessment

12.1 Site Sensitivity Verification

Site Sensitivity Verification was undertaken on 14 and 15 April 2026, in terms of GN 320 for the General Requirements for undertaking Site Sensitivity Verifications and Protocols for the Assessment and Minimum Report content requirements for identified environmental impacts for environmental themes in terms of Sections 24(5)(a) and (h) and 44 of NEMA.

The Site Sensitivity Verification is intended to confirm or refute the environmental sensitivity themes relevant to the site and the need to employ specialists as identified in the Screening Tool Report. The Site Sensitivity Verification is undertaken before the commencement of an EIA process. The report is submitted as a supporting document with the application for Environmental Authorisation to the competent authority. Table 16 is the outcome from the screening tool that was generated and Table 17 is the EAP and Specialist motivation as per the site sensitivity verification process. Figure 28 illustrates the Project Area of Influence that is under consideration.

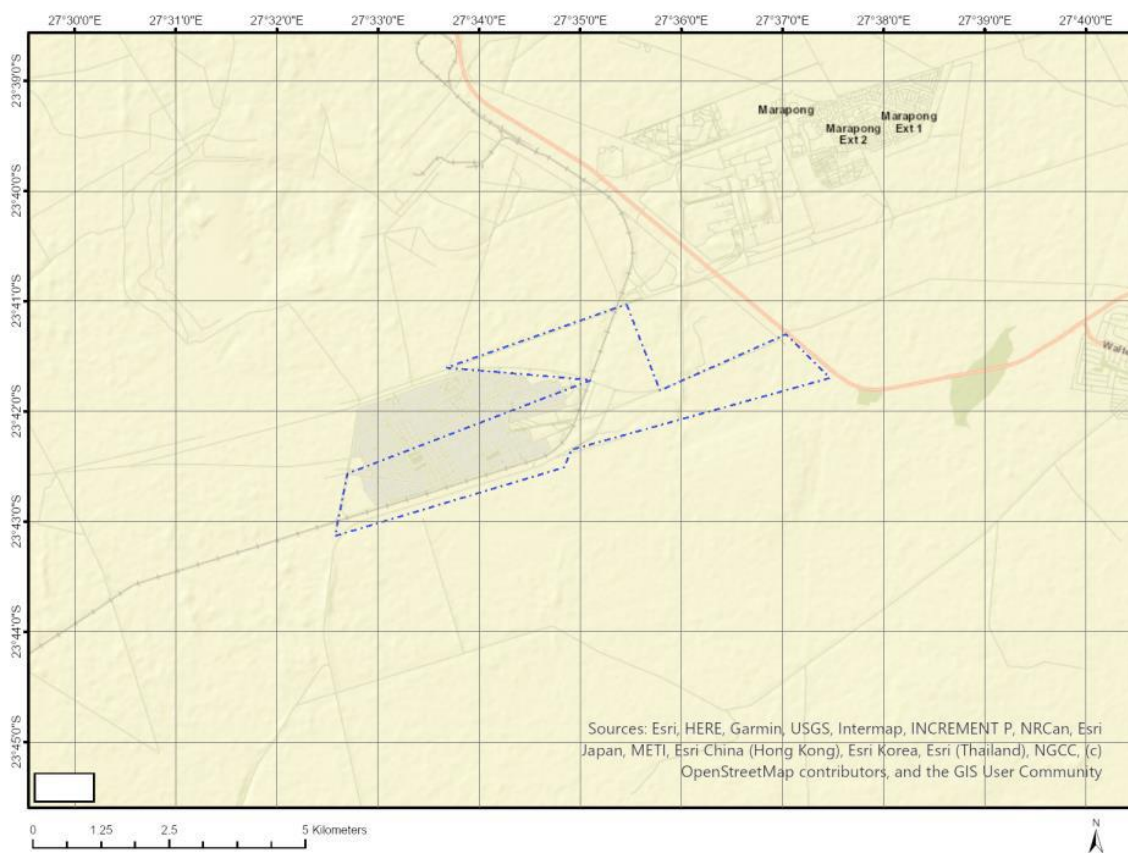


Figure 28: WFGD Waste Disposal Facilities & Associated Infrastructure PAOI

Table 16: 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	X	
Civil Aviation Theme				X
Defence Theme				X
Palaeontology Theme	X			
Plant Species Theme			X	
Terrestrial Biodiversity Theme	X			

Table 17: Screening Tool findings for the Preferred and Alternative Site vs Site Verification Finding

No	Theme	DFFE Sensitivity	Agree/ Disagree	Proposed Sensitivity	Motivation
SCREENING TOOL THEMES					
1	Agriculture Theme	High Sensitivity	Agree	High Sensitivity	An Agricultural Impact Study will be undertaken. The presence of game (wild animals) on site, makes the area suitable for both crop farming and grazing.
2	Animal Species Theme	High sensitivity	Dispute	Low Sensitivity	The Screening Tool identified a High sensitivity rating for the Animal Species Theme; however, field verification indicates that the study area supports substantially lower faunal utilisation habitat and ecological connectivity remain largely undisturbed. The proposed study area exhibits evidence of long-term disturbance associated with existing Medupi operations. The site is fragmented by existing roads, conveyor infrastructure and industrial activity, and the northern portion experiences regular truck movement, noise, dust generation and human activity. These disturbances have reduced the suitability of the site for larger mammals and sensitive fauna.
3	Aquatic Biodiversity Theme	Very High Sensitivity	Agree	Very High Sensitivity	Aquatic Biodiversity Impact Study will be undertaken. Numerous waterbodies in form of pan, tributaries etc, were observed on site. This suggests the high sensitivity of waterbodies that requires further investigation.
4	Archaeological and Cultural Heritage Theme	High Sensitivity	Agree	High Sensitivity	A Heritage Impact Study will be undertaken. Some Archaeological and Cultural feature was observed on site, Section 38 of the National Heritage Resource Act, 1999 is triggered as the extent of the study area exceeds 5000m ² .

No	Theme	DFFE Sensitivity	Agree/ Disagree	Proposed Sensitivity	Motivation
5	Civil Aviation Theme	Low Sensitivity	Agree	Low Sensitivity	A Compliance Statement will be compiled for the proposed area. No aerodrome was observed in proximity of the study area.
6	Defence Theme	Low Sensitivity	Agree	Low Sensitivity	The development will not have any impact on defence-related activities.
7	Palaeontology Theme	Very High Sensitivity	Dispute	Medium Sensitivity	A Compliance Statement will be compiled as there are no palaeontological features that were observed on site.
8	Plant Species	Medium Sensitivity	Agree	Medium Sensitivity	Although proposed study area falls within an Ecological Support Area (ESA 1), the terrestrial biodiversity assessment confirmed that the site does not contain unique or irreplaceable plant communities and is situated within the Limpopo Sweet Bushveld vegetation type, which is classified nationally as a Least Concern ecosystem. The vegetation composition recorded at Site 6 is typical of the broader Medupi landscape and is well represented throughout the surrounding area. A Terrestrial Impact Assessment study will be undertaken.
9	Terrestrial Biodiversity Theme	Very High Sensitivity	Dispute	Medium Sensitivity	Although the Screening Tool assigns a Very High sensitivity rating to the Terrestrial Biodiversity Theme across the broader project area due to the presence of ESAs, FEPA catchments and the proximity of conservation areas, the site-specific terrestrial biodiversity assessment demonstrates that the study area possesses a lower ecological importance. The Site Ecological Importance (SEI) assessment assigned for the proposed study area score of 8, corresponding to a Medium

No	Theme	DFFE Sensitivity	Agree/ Disagree	Proposed Sensitivity	Motivation
					Sensitivity rating. A Terrestrial Impact Assessment study will be undertaken
PROTOCOLS					
1.	Geotechnical and Geohydrological Assessment		Agree		The proposed project involves a conveyor belt and landfill for industrial waste, including salt, sludge, gypsum along with an alternative site assessment. Because these materials present a potential risk for leachate generation and ground contamination, a detailed geotechnical and geohydrological investigation is required. Conducting these studies will ensure the underlying soil conditions, and groundwater are thoroughly evaluated to design proper liners, prevent environmental pollution, and determine which site is safest for development.
2.	Socio-Economic Assessment		Agree	Medium Sensitivity	Although the proposed development will be in a highly dense industrial area, the project has the potential to impact the socio-economic status of the Lephalale area positively. A Socio-Economic Impact Study will be undertaken to assess the negative and positive impacts of the proposed development.
3.	Landscape/Visual Impact Assessment		Agree	Low Sensitivity	The proposed new development will blend into the existing industrial landscape. The construction and operation of the proposed WFGD waste disposal may have a visual impact to users within close proximity of the site. After mitigation, the visual impact for most users is expected to range between moderate and low.
4.	Hydrology Assessment		Agree	High Sensitivity	The presence of Sandloop River, its Tributaries, waterbodies in the form of wetlands, dams, pans, etc., suggests the constraints that can impact the progression of the proposed development should

No	Theme	DFFE Sensitivity	Agree/ Disagree	Proposed Sensitivity	Motivation
					no mitigation measures be put in place. Evident waterbodies further suggest the area as a No-Go area.
5.	Noise Impact Assessment		Agree	Medium Sensitivity	Waste Disposal sites do not generate any amount of significant noise that is outside the acceptable SABS industrial noise levels.
6.	Traffic Impact Assessment		Agree	Low Sensitivity	There will be no traffic impact, since the daily traffic generation will be low and the roads giving access to the identified, but not fixed land portions are surfaced. Although there may be some intersection or intersection control (signals or roundabout) mitigation required, this will not have an environmental impact.
7	Climate Impact Assessment		Agree	High Sensitivity	The region is classified as a high climate change sensitivity area with multiple faceted vulnerabilities. Key climate stressors include: (1) Increased heat stress with El Niño effects and temperatures exceeding 40°C; (2) Increased fire risk with 75+ very hot days annually and fire likelihood across all settlements; (3) Increased extreme rainfall events leading to enhanced erosion and flooding; (4) Drought tendency greatest in northern sections; and (5) Air quality impacts as the Waterberg-Bojanala area is a declared priority area for air quality. The waste disposal facility's location within this high-sensitivity region requires robust design measures including stormwater management for ≥1:50-year events, dust suppression protocols

No	Theme	DFFE Sensitivity	Agree/ Disagree	Proposed Sensitivity	Motivation
					with winter inversion triggers, firebreaks and vegetation management, and heat-stress protocols for workers.
8.	Health Impact Assessment			High Sensitivity	A Health Impact Assessment is undertaken by a different specialist for the entire Medupi Station. The report findings will be incorporated in the Final Environmental Impact Report.
9.	Ambient Air Quality Impact Assessment			High Sensitivity	The handling, transport, and disposal of gypsum, chemical sludge, and crystalliser salts may generate dust (particulate matter) and associated pollutants, which could affect surrounding communities, workers, and sensitive environmental receptors. The assessment will evaluate emission sources, dispersion patterns, and exposure risks, and evaluate mitigation measures such as dust suppression and operational controls to ensure that air quality impacts remain within acceptable limits throughout the project lifecycle.
10.	Seismicity Assessment			Low Sensitivity	South Africa is not prone to having any natural disasters such as hurricanes, tornadoes, etc.; therefore, this study is not deemed relevant for the proposed development as it doesn't directly impact the geology of the site.

12.2 Potential Biophysical and Social Impacts

The development and operation of the proposed FGD waste disposal facilities have the potential to result in a range of biophysical and socio-economic impacts. These impacts may occur during both the construction and operational phases and require detailed assessment during the EIA process in accordance with the NEMA and NEM: WA.

12.2.1 Soil and Geological Impacts

From a geological and soil perspective, there are impacts related to the construction, such as earthworks, excavation, and compaction, which could alter soil structure and stability. The alteration of soil structure and stability will contribute to the risk of erosion, sedimentation, and loss of topsoil. The handling of such hazardous material can lead to soil contamination if there are no lining systems and leak detection in place. This contamination might reduce soil fertility, land capability, and agricultural potential. Therefore, reducing the available arable land for agriculture in the province. Habitat loss and fragmentation will be one of the significant impacts that cannot be mitigated, as there will be a complete loss of vegetation to accommodate the proposed waste disposal sites.

12.2.2 Groundwater Impacts

Groundwater resources are particularly vulnerable to contamination from leachate generated by gypsum, salts, and sludge disposal. If not properly contained through engineered liners and leachate management systems, pollutants such as heavy metals, chlorides, and sulphates may infiltrate aquifers, compromising groundwater quality and usability. In addition, surface compaction and infrastructure development may reduce natural infiltration rates, affect groundwater recharge and alter the local hydrological cycle.

12.2.3 Surface Water-Related Impacts

Surface water systems may be impacted through contaminated runoff, sedimentation, and changes in natural drainage patterns. Poorly managed stormwater and leachate could lead to the deterioration of water quality in nearby streams, wetlands, or drainage lines, with associated impacts on aquatic ecosystems, including reduced biodiversity, altered ecosystem functioning, and loss of ecosystem services such as water purification and habitat provision.

12.2.4 Biodiversity Impacts

Biodiversity impacts include the direct loss and fragmentation of natural habitats due to vegetation clearing and infrastructure development. This may affect both flora and fauna, including threatened and protected species, and disrupt ecological corridors, breeding sites and migration patterns. Faunal species, particularly avifauna, may experience displacement, increased mortality from vehicle collisions, infrastructure interactions, or exposure to contaminated water bodies. The

accumulation of toxins in the environment may also result in bioaccumulation within food chains, posing long-term ecological risks.

12.2.5 Flora and Fauna

The proposal may result in direct and indirect impacts on terrestrial biodiversity, especially game observed on site. Vegetation clearing will lead to the loss of natural habitats, including potential impacts on protected and threatened plant species. Habitat fragmentation may isolate populations and disrupt ecological corridors, affecting species movement and genetic exchange. Faunal species may be displaced due to habitat loss, noise, and increased human activity, while smaller or less mobile species may experience direct mortality during construction. The introduction of waste materials and associated pollutants may degrade surrounding habitats, affecting ecosystem health and functioning. Additionally, the spread of invasive alien species may be facilitated by disturbed areas. These impacts could contribute to a broader decline in biodiversity and may affect South Africa's conservation targets and obligations if not adequately mitigated.

12.2.6 Climate change and air quality impacts

Air quality and climate-related impacts may arise from dust generation during construction, operation, and waste handling activities. Windblown dust from disposal sites can affect surrounding communities, vegetation, and soil quality, while also contributing to cumulative air pollution in the region. Climate change considerations include increased vulnerability to extreme weather events, which may exacerbate erosion, infrastructure failure, or contamination risks, as well as broader impacts on human health, water resources, and food security.

12.2.7 Socio-economic impacts

Waste Disposal Sites

From a social perspective, nearby communities may experience impacts related to air quality (dust), visual intrusion of large waste facilities, increased traffic (if a road alternative is chosen), and potential safety risks. There may also be concerns regarding health impacts associated with exposure to pollutants, including respiratory conditions and long-term chronic illnesses. Changes in land use may affect agricultural activities and livelihoods, while perceptions of environmental risk could influence property values and community well-being. Conversely, the project may provide limited positive impacts such as employment opportunities and support for local businesses.

Conveyor Routes/Alternatives

The proposed waste transport routes might be associated with significant impacts since they will be traversing the proximity of one or two graves. Graves are sensitive heritage resources, and disturbances of these features may lead to community opposition, emotional distress, and potential legal issues, resulting in formal objections during the EIA process. Other possible impacts to these heritage features include hindrance to access to graves due to increased traffic and dust. The use of roads for transporting waste is associated with an increased risk of road accidents for nearby

communities. Furthermore, the project may face delays due to relocations or compensation, which could increase costs and negatively affect local property values. Any disturbances to these sites will require formal permits and consultations with families, which can be a lengthy process.

In order to address the abovementioned impacts by reducing any further delays for the installation and operation of the FGD system at the Medupi Power Station, avoidance of the graves and their buffers will be investigated during the EIA phases.

12.2.8 Heritage and Palaeontology impacts

All heritage resources within the study area may be at risk from ground disturbance activities, necessitating further identification and protection measures to avoid or mitigate impacts on culturally significant sites.

12.2.9 Soil and Agricultural Potential

The establishment of FGD waste disposal facilities may result in both direct and indirect impacts on soil quality and agricultural potential. During construction, vegetation clearing, stripping of topsoil, and earthworks can lead to the permanent loss of fertile topsoil and reduced land capability. The handling and disposal of gypsum, chemical salts, and sludge introduce risks of soil contamination through dust deposition and potential leachate seepage, which may alter soil chemistry, increase salinity, and reduce fertility. These changes can limit the suitability of land for grazing or cultivation. In addition, compaction from heavy machinery may reduce soil permeability, increase runoff and erosion potential while decrease infiltration. Over time, processes such as erosion, waterlogging, salinisation, and organic matter depletion may further degrade soils, resulting in long-term loss of productive agricultural land.

12.2.10 Avifauna

The proposed waste disposal sites may significantly affect avifauna through habitat loss, fragmentation, and disturbance. Vegetation clearing within the project footprint will remove nesting, foraging, and roosting habitats, while ongoing operational activities such as noise, dust, and human presence may lead to the displacement of bird species, including Species of Conservation Concern (SCC). Open water bodies, such as pollution control dams and return water dams, may attract birds, increasing the risk of drowning, exposure to contaminated water, and ingestion of toxic substances. Infrastructure such as pipelines, fencing, and powerlines may pose collision and movement barriers. Increased vehicle activity may also lead to direct mortality (roadkill), while contamination of surrounding habitats could result in bioaccumulation of heavy metals and toxins within bird populations, with potential long-term ecological consequences.

12.2.11 Wetlands and Aquatic Systems

Wetlands and associated aquatic systems are particularly sensitive to changes in hydrology and water quality. The development of disposal facilities may alter natural drainage patterns, leading to reduced water flow to wetlands or, conversely, increased runoff and sedimentation. Leachate from

waste disposal areas, if not adequately contained, may introduce pollutants such as sulphates, chlorides, and heavy metals into nearby wetlands and surface water systems, degrading water quality and affecting ecological functioning. Construction activities may also lead to the direct loss or disturbance of wetland areas. Changes in hydroperiods and water chemistry can impact wetland vegetation and dependent fauna, reducing biodiversity and ecosystem services such as water purification, flood attenuation, and habitat provision.

13 IMPACT ASSESSMENT METHODOLOGY

The objective of the assessment of impacts is to identify and assess all the significant impacts that may arise as a result of the proposed waste disposal site activities. The process of assessing the impacts of the project encompasses the following four activities:

- Identification and assessment of potential impacts;
- Prediction of the nature, magnitude, extent and duration of potentially significant impacts;
- Identification of mitigation measures that could be implemented to reduce the severity or significance of the impacts of the activity; and
- Evaluation of the significance of the impact after the mitigation measures have been implemented, i.e. the significance of the residual impact.

The possible impacts associated with the project were primarily identified in the scoping phase through a site visit and a desktop study. In the impact assessment phase, additional impacts will be identified through more in-depth specialist investigations to be undertaken and through the ongoing consultation process with interested and affected parties. Specialists will be required to assess the significance of potential impacts in terms of the following criteria:

- Cumulative impacts
- Nature of the impact
- Extent of the impact
- Intensity of the impact
- Duration of the impact
- Probability of the impact occurring
- Impact non-reversibility
- Impact on irreplaceable resources and
- Confidence level

The impacts will be assessed in terms of the following criteria:

Table 17: Impact Rating Matrix

NATURE
Include a brief description of the impact of the 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.

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% and 50% chance of occurrence).
3	Probable	The impact will likely occur (Between a 50% and 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 the 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 a marginal loss of resources.
3	Significant loss of resources	The impact will result in a significant loss of resources.
4	Complete loss of resources	The impact results 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 processes 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 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 are 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 cease and are irreversibly impaired (system collapse). Rehabilitation and remediation often impossible. If possible, rehabilitation and remediation are often unfeasible due to the 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 which 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 is 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.

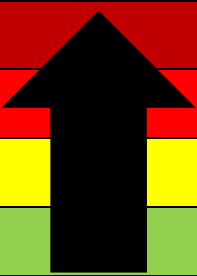
13.1 Cumulative Impacts

Cumulative impacts associated with the proposed development of the waste disposal facilities and operation will be considered within the framework of the existing and planned developments in the region, including other Matimba power stations, Exxaro Mine, and associated ash disposal facilities. These impacts may include the combination impacts related to air emissions, dust, further habitat fragmentation, a reduction in arable land, a reduction in the conservation area/value, as well as the carrying capacity of the conservation area, increased risk of groundwater and surface water, increase in impacts on the hydrological cycle of the catchment. Overall, the significance of these identified cumulative impacts will be based on dynamics including the sensitivity of the site, design layout, as well as the mitigation measures and all of these will be further investigated during the EIA phase.

ENVIRONMENTAL RATING SIGNIFICANCE KEY:

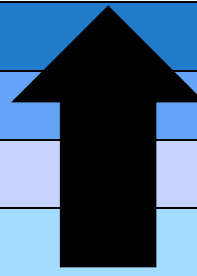
NEGATIVE IMPACTS

SIGNIFICANCE	RATING	FINAL RATING SCORE / VALUE RANGE
Very Significant	Very High	74 – 96
Significant	High	51 – 73
Increasing Significance	Medium	29 – 50
Insignificant	Low	6 – 28



POSITIVE IMPACTS

SIGNIFICANCE	RATING	FINAL RATING SCORE / VALUE RANGE
Very Significant	Very High	74 – 96
Significant	High	51 – 73
Increasing Significance	Medium	29 – 50
Insignificant	Low	6 – 28



14 CONCLUSION

The draft scoping report provides a broad introduction to the issues applicable to the proposed waste disposal sites and routes, which highlights important issues to be investigated during the EIA Phase of the project. Furthermore, the EIA Phase will draw on the above information and make use of the recommended specialist studies to reach an objective decision on the overall impact of the proposed development. The EIA Phase will include mitigation measures to reduce impacts and the identification of sensitive areas within the study area, which may require more specific management measures. Moreover, the EIA Phase will also aim to optimise and improve potential positive impacts that may result from the proposed development.

Specialist studies will be conducted during the EIA phase for the proposed development and will identify any fatal flaws in the project site. However, several potentially significant (positive and negative) environmental impacts have been identified and will need to be evaluated during the detailed EIR phase of the project. In addition, the EIR Phase will provide a more detailed comparative analysis of these potential impacts against the “no-go” alternative. Detailed mitigation and management measures will be developed and incorporated into the Environmental Management Programme (EMPr) for the project in response to the detailed assessment. The EMPr will be undertaken during the EIA phase of the project and submitted with the EIA Report.

It is the opinion of the EIA team that Scoping was executed objectively and that the process and report are in accordance with the requirements of Regulation 21 and Appendix 2 of the EIA Regulations, 2014, as amended, respectively. The Plan of Study for EIA is inclusive and will be adequate to address the significant issues identified during Scoping, to select the BPEO, and to ultimately allow for informed decision-making.

15 UNDERTAKING BY THE ENVIRONMENTAL ASSESSMENT PRACTITIONER (EAP)

Undertaking regarding the correctness of information

I, **Shonisani Selahle**, herewith confirm that the information provided in the scoping report is correct and that the comments and inputs from stakeholders and Interested and Affected Parties received since the project announcement have been correctly recorded in the report. The EAP also confirms that any information regarding the proposed project, including any responses to the inputs received during the Scoping and EIR, will be shared with all relevant stakeholders and I&APs.

Signature of the EAP

Date: 29 June 2026

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