

**ENVIRONMENTAL IMPACT ASSESSMENT PROCESS
DRAFT SCOPING REPORT
PROPOSED RE-ALIGNMENT OF THE
AFGUNS ROAD NEAR MEDUPI POWER STATION,
LEPHALALE**

**LIMPOPO PROVINCE
(DEAT Ref No. 12/12/20/1179)**

May 2008

Prepared for
Eskom Holdings Limited
PO Box 1091
Johannesburg
2000



Prepared by
Savannah

ENVIRONMENTAL (PTY) LTD
Unit G8 Pinewood Square, Pinewood Office Park
33 Riley Road, Woodmead, Gauteng
Tel: +27 (0)11 234 6621 • Fax: +27 (0)86 684 0547
E-mail: karen@savannahsa.com
www.savannahsa.com



PROJECT DETAILS

DEAT Reference No. : 12/12/20/1179

Title : Environmental Impact Assessment Process
Draft Scoping Report: Proposed Afguns Road
Realignment Project, Limpopo Province

Authors : Savannah Environmental (Pty) Ltd
Karen Jodas

Sub-consultants : Bathusi Environmental Consulting cc
MetroGIS
MasterQ Research
National Cultural History Museum

Client : Eskom Holdings Limited (Eskom Generation Division)

Report Status : Draft Scoping Report for public review

Review Period : 27 May 2008 to 26 June 2008

When used as a reference this report should be cited as: Savannah Environmental (2008) Draft Scoping Report: Proposed Afguns Road Realignment Project, Limpopo Province

COPYRIGHT RESERVED

This technical report has been produced for Eskom Holdings Limited. The intellectual property contained in this report remains vested in Savannah Environmental. No part of the report may be reproduced in any manner without written permission from Savannah Environmental (Pty) Ltd.

PURPOSE OF THE DRAFT SCOPING REPORT

Eskom Holdings Limited (Eskom) is currently undertaking an Environmental Impact Assessment (EIA) process to determine the environmental feasibility of the proposed re-alignment of the Afguns Road, near Medupi Power Station in Lephalale, Limpopo Province. Eskom has appointed Savannah Environmental, as independent environmental consultants, to undertake the EIA. The EIA process is being undertaken in accordance with the requirements of the National Environmental Management Act (NEMA; Act No. 107 of 1998).

This Draft Scoping Report represents the outcome of the Scoping Phase of the EIA process and contains the following sections:

- » **Chapter 1** provides background to the proposed Afguns Road realignment and the environmental impact assessment process.
- » **Chapter 2** provides a description of the approach to undertaking the environmental scoping study.
- » **Chapter 3** provides a description of the affected environment, including the social, heritage and ecological components of the study area, and an evaluation of the potential impacts on these aspects of the environment associated with the proposed project.
- » **Chapter 4** provides a Plan of Study for undertaking the EIA study.

In accordance with the EIA Regulations, a primary purpose of the Draft Scoping Report is to provide stakeholders with an opportunity to verify that the issues they have raised to date have been captured and adequately considered within the study, and to raise any additional key issues for consideration. The Final Scoping Report will incorporate all issues and responses prior to submission to the National Department of Environmental Affairs and Tourism (DEAT), the decision-making authority for the project.

PUBLIC REVIEW OF THE DRAFT SCOPING REPORT

The Draft Scoping Report has been made available for public review at the following public places in the project area from **27 May 2008 to 26 June 2008**:

- » Lephalale Municipal Offices
- » Lephalale Library
- » Matimba Power Station
- » Lephalale Co-op (Botha Avenue)
- » Marapong Clinic (Tlou Street, Marapong)

The report is also available on:

- » www.eskom.co.za/eia
- » www.savannahSA.com

Please submit your comments to
Nonka Byker or Ingrid Snyman of MasterQ Research PO Box 148, Sunninghill, 2157 Tel: 011 477 3265 Cell: 082 940 3694 – Nonka or 082 779 2750 - Ingrid Fax: 086 612 8122 E-mail: nonka@masterq.co.za
The due date for comments on the Draft Scoping Report is 26 June 2008

Comments can be made as written submission via fax, post or e-mail.

TABLE OF CONTENTS

	PAGE
PURPOSE OF THE DRAFT SCOPING REPORT	II
PUBLIC REVIEW OF THE DRAFT SCOPING REPORT.....	III
TABLE OF CONTENTS.....	IV
DEFINITIONS AND TERMINOLOGY	VI
ABBREVIATIONS AND ACRONYMS.....	IX
CHAPTER 1: INTRODUCTION	1
1.1. BACKGROUND AND NEED FOR THE PROPOSED PROJECT.....	1
1.2. REQUIREMENT FOR AN ENVIRONMENTAL IMPACT ASSESSMENT PROCESS.....	1
1.3. OBJECTIVES OF THE SCOPING STUDY	4
1.4. DETAILS OF SAVANNAH ENVIRONMENTAL'S EXPERTISE TO CARRY OUT APPLICABLE SCOPING PROCESSES	5
CHAPTER 2: APPROACH TO UNDERTAKING THE SCOPING STUDY	6
2.1. OBJECTIVES OF THE SCOPING PROCESS	6
2.2. LEGISLATION AND GUIDELINES THAT HAVE INFORMED THE PREPARATION OF THIS REPORT	7
2.3. OVERVIEW OF THE SCOPING PROCESS UNDERTAKEN FOR THE PROPOSED PROJECT ...	9
2.3.1. <i>Authority Consultation and Application for Authorisation in terms of GN No R385 of 2006</i>	<i>9</i>
2.3.2. <i>Notification of the EIA Process</i>	<i>10</i>
2.3.3. <i>I&AP identification and maintaining project database</i>	<i>10</i>
2.3.4. <i>Public Involvement and Consultation.....</i>	<i>10</i>
2.3.5. <i>Evaluation of issues identified through the Scoping Process.....</i>	<i>11</i>
2.3.6. <i>Public Review of Draft Scoping Report.....</i>	<i>11</i>
2.3.7. <i>Final Scoping Report.....</i>	<i>12</i>
CHAPTER 3: DESCRIPTION OF THE AFFECTED ENVIRONMENT & EVALUATION OF THE PROJECT.....	13
3.1. DESCRIPTION OF THE PROPOSED PROJECT	13
3.2. LOCATION OF THE STUDY AREA.....	13
3.3. PROJECT RATIONALE AND THE CONSIDERATION OF ALTERNATIVES.....	15
3.4. SOCIAL CHARACTERISTICS OF THE STUDY AREA.....	16
3.4.1. <i>Demographic and Economic Profile</i>	<i>16</i>
3.4.2. <i>Geographical and Land-use Profile.....</i>	<i>17</i>
3.4.3. <i>Potential Impacts on the Social Environment as a result of the proposed project</i>	<i>17</i>
3.5. HERITAGE PROFILE	18
3.5.1. <i>Stone Age.....</i>	<i>18</i>

3.5.2.	<i>Iron Age</i>	18
3.5.3.	<i>Historic period</i>	19
3.5.4.	<i>Potential Impacts on Heritage Sites as a result of the proposed project</i>	19
3.6.	BIOPHYSICAL CHARACTERISTICS OF THE STUDY AREA	19
3.6.1.	<i>Potential Impacts on Ecology as a result of the proposed project..</i>	20
3.7.	CONCLUSIONS OF EVALUATION OF POTENTIAL IMPACTS	23
3.7.1.	<i>Impacts on the social environment</i>	24
3.7.2.	<i>Impacts on Heritage Sites</i>	24
3.7.3.	<i>Impacts on Ecology</i>	25
CHAPTER 4: PLAN OF STUDY FOR ENVIRONMENTAL IMPACT ASSESSMENT		
.....		26
4.1.	AIMS OF THE EIA	26
4.1.	AUTHORITY CONSULTATION	26
4.2.	SPECIALIST STUDIES	27
4.2.1.	<i>Issues not requiring Further Investigation</i>	27
4.2.2.	<i>Specialist Studies required to be undertaken within the EIA</i>	27
4.2.3.	<i>Assessment of Potential Impacts</i>	27
4.3.	INTEGRATION AND PREPARATION OF THE EIA REPORT	29
4.4.	PUBLIC PARTICIPATION PROCESS	30
4.5.	KEY MILESTONES OF THE PROGRAMME FOR THE EIA	30
APPENDICES		
Appendix A:	Colour plan indicating the Afguns Road re-alignment	
Appendix B:	EIA Project Consulting Team CVs	
Appendix C:	Correspondence with Environmental Authorities during Scoping	
Appendix D:	Copies of Newspaper and Site Advertisements and Notifications to I&APs	
Appendix E:	Database	
Appendix F:	Focus Group Meeting Notes	
Appendix G:	Letter regarding Heritage	

DEFINITIONS AND TERMINOLOGY

Alternatives: Alternatives are different means of meeting the general purpose and need of a proposed activity. Alternatives may include location or site alternatives, activity alternatives, process or technology alternatives, temporal alternatives or the 'do nothing' alternative.

Cumulative impacts: Impacts that result from the incremental impact of the proposed activity on a common resource when added to the impacts of other past, present or reasonably foreseeable future activities (e.g. discharges of nutrients and heated water to a river that combine to cause algal bloom and subsequent loss of dissolved oxygen that is greater than the additive impacts of each pollutant). Cumulative impacts can occur from the collective impacts of individual minor actions over a period of time and can include both direct and indirect impacts.

Direct impacts: Impacts that are caused directly by the activity and generally occur at the same time and at the place of the activity (e.g. noise generated by blasting operations on the site of the activity). These impacts are usually associated with the construction, operation or maintenance of an activity and are generally obvious and quantifiable

'Do nothing' alternative: The 'do nothing' alternative is the option of not undertaking the proposed activity or any of its alternatives. The 'do nothing' alternative also provides the baseline against which the impacts of other alternatives should be compared.

Endangered species: Taxa in danger of extinction and whose survival is unlikely if the causal factors continue operating. Included here are taxa whose numbers of individuals have been reduced to a critical level or whose habitats have been so drastically reduced that they are deemed to be in immediate danger of extinction.

Endemic: An "endemic" is a species that grows in a particular area (is endemic to that region) and has a restricted distribution. It is only found in a particular place. Whether something is endemic or not depends on the geographical boundaries of the area in question and the area can be defined at different scales.

Environment: the surroundings within which humans exist and that are made up of:

- i. the land, water and atmosphere of the earth;
- ii. micro-organisms, plant and animal life;
- iii. any part or combination of (i) and (ii) and the interrelationships among and between them; and

- iv. the physical, chemical, aesthetic and cultural properties and conditions of the foregoing that influence human health and well-being.

Environmental Impact: An action or series of actions that have an effect on the environment.

Environmental impact assessment: Environmental Impact Assessment (EIA), as defined in the NEMA EIA Regulations and in relation to an application to which scoping must be applied, means the process of collecting, organising, analysing, interpreting and communicating information that is relevant to the consideration of that application.

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.

Environmental management plan: An operational plan that organises and coordinates mitigation, rehabilitation and monitoring measures in order to guide the implementation of a proposal and its ongoing maintenance after implementation.

Indigenous: All biological organisms that occurred naturally within the study area prior to 1800

Indirect impacts: Indirect or induced changes that may occur as a result of the activity (e.g. the reduction of water in a stream that supply water to a reservoir that supply water to the activity). These types of impacts include all the potential impacts that do not manifest immediately when the activity is undertaken or which occur at a different place as a result of the activity.

Interested and Affected Party: Individuals or groups concerned with or affected by an activity and its consequences. These include the authorities, local communities, investors, work force, consumers, environmental interest groups and the general public.

Rare species: Taxa with small world populations that are not at present Endangered or Vulnerable, but are at risk as some unexpected threat could easily cause a critical decline. These taxa are usually localised within restricted geographical areas or habitats or are thinly scattered over a more extensive range. This category was termed Critically Rare by Hall and Veldhuis (1985) to distinguish it from the more generally used word "rare".

Red data species: Species listed in terms of the International Union for Conservation of Nature and Natural Resources (IUCN) Red List of Threatened

Species, and/or in terms of the South African Red Data list. In terms of the South African Red Data list, species are classified as being extinct, endangered, vulnerable, rare, indeterminate, insufficiently known or not threatened (see other definitions within this glossary).

Significant impact: An impact that by its magnitude, duration, intensity or probability of occurrence may have a notable effect on one or more aspects of the environment.

ABBREVIATIONS AND ACRONYMS

DEAT	National Department of Environmental Affairs and Tourism
DEDET	Limpopo Department of Economic Development, Environment and Tourism
DWAF	Department of Water Affairs and Forestry
EIA	Environmental Impact Assessment
EMP	Environmental Management Plan
GIS	Geographical Information Systems
GG	Government Gazette
GN	Government Notice
I&AP	Interested and Affected Party
LUPO	Rezoning and Subdivision in terms of Land Use Planning Ordinance, Ordinance 15 of 1985
NEMA	National Environmental Management Act (Act No 107 of 1998)
NHRA	National Heritage Resources Act (Act No 25 of 1999)
NGOs	Non-Governmental Organisations
RAL	Roads Agency Limpopo
SAHRA	South African Heritage Resources Agency

INTRODUCTION

CHAPTER 1

Eskom Holdings Ltd (Eskom) is proposing a minor realignment and extension of the Afguns road (Provincial road D2001, previously known as the D2649) passing adjacent to and south of the Medupi coal-fired Power Station, which is currently under construction on the farm Naauw Ontkomen 509 LQ in the Lephalale area, Limpopo Province. The nature and extent of this proposed project, as well as potential environmental impacts associated with the construction of a project of this nature is explored in more detail in this Scoping Report.

1.1. Background and Need for the Proposed Project

The Medupi Power Station, which is currently under construction, is situated on the farm Naauw Ontkomen 509 LQ. The construction of the Medupi Power Station on this property required that the Steenbokpan Road (Provincial road D1675) which crossed this property be realigned to the north. This realignment is currently under construction and passes through the properties Hanglip 508 LQ and Naauw Ontkomen 509 LQ (refer to Figure 1.1). Eskom is to utilise the portion of the Steenbokpan Road which remains after realignment as an additional entrance road or service road to the Medupi Power Station.

The existing Afguns Road (D2001) intersects at-grade (at 90°) with the original alignment of Steenbokpan Road (D1675). With the re-alignment of the Steenbokpan Road, the intersection between the D2001 and the deviated D1675 is required to be re-aligned in order to avoid posing a potential traffic safety risk. Therefore, the existing Afguns Road is proposed to be realigned for a distance of approximately 700 m in order to intersect at-grade with the recently deviated Steenbokpan Road (refer to the dotted green line on the map included as Appendix A). The extent of this road realignment is limited to a portion of the property Hanglip 508 LQ which is owned by Eskom. The proposed realignment is to be undertaken by Eskom as part of the construction works for the Medupi Power Station. Following the construction phase, the road is to be operated and maintained by the Limpopo Roads Agency (RAL).

1.2. Requirement for an Environmental Impact Assessment Process

The proposed realignment of Afguns Road is subject to the requirements of the Environmental Impact Assessment Regulations (EIA Regulations) published in terms of Section 24(5) of the National Environmental Management Act (NEMA, No 107 of 1998). This section provides a brief overview of EIA Regulations and their application to this project.

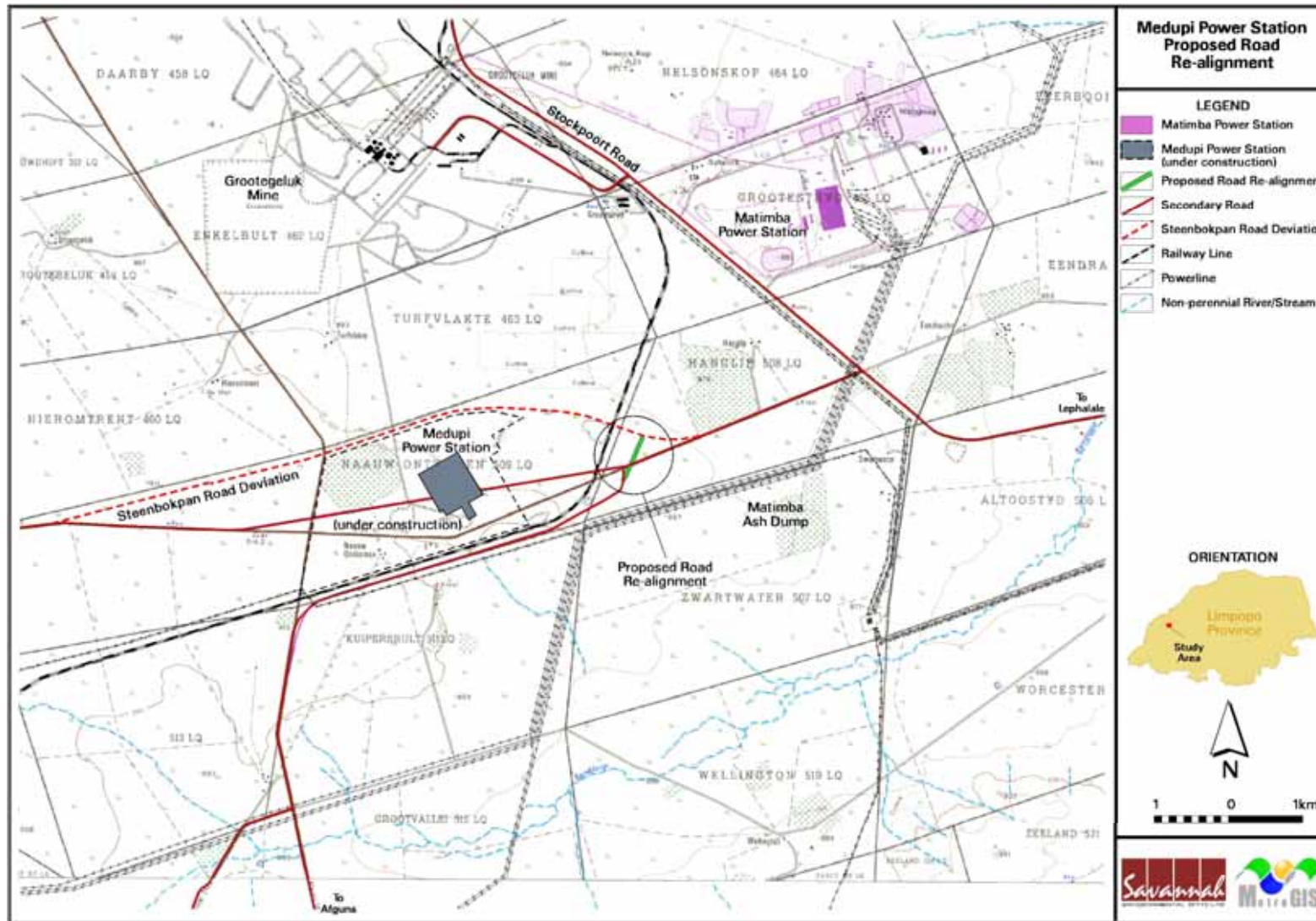


Figure 1.1: Locality map indicating the site of the proposed deviation

NEMA is national legislation that provides for the authorisation of certain controlled activities known as “listed activities”. In terms of Section 24(1) of NEMA, the potential impact on the environment associated with these listed activities must be considered, investigated, assessed and reported on to the competent authority (the decision-maker) charged by NEMA with granting of the relevant environmental authorisation. The National Department of Environmental Affairs and Tourism (DEAT) is the competent authority for this project. Through the decision-making process, DEAT will be supported by the Limpopo Department of Economic Development, Environment and Tourism (DEDET).

The need to comply with the requirements of the EIA Regulations ensures that decision-makers are provided the opportunity to consider the potential environmental impacts of a project early in the project development process, and assess if environmental impacts can be avoided, minimised or mitigated to acceptable levels. Comprehensive, independent environmental studies are required to be undertaken in accordance with the EIA Regulations to provide the competent authority with sufficient information in order for an informed decision to be taken regarding the project.

In terms of sections 24 and 24D of NEMA, as read with Government Notices R385 (Regulations 27–36) and R387, a Scoping and EIA are required to be undertaken for this proposed project as it includes the following activities listed in terms of GN R386 and R387 (GG No 28753 of 21 April 2006):

Number & date of relevant notice	Activity No (s) (in terms of relevant Regulation or notice)	Description of listed activity
Government Notice R387 (21 April 2006)	5	The route determination of roads and design of associated physical infrastructure, including roads that have not yet been built for which routes have been determined before the publication of this notice and which has not been authorised by a competent authority in terms of the Environmental Impact Assessment Regulations, 2006 made under section 24(5) of the Act and published in Government Notice No. R. 385 of 2006, where – (a) it is a national road as defined in section 40 of the South African National Roads Agency Limited and National Roads Act, 1998 (Act No. 7 of 1998); (b) it is a road administered by a provincial authority; (c) the road reserve is wider than 30 metres; or (d) the road will cater for more than one lane of traffic in both directions.

Number & date of relevant notice	Activity No (s) (in terms of relevant Regulation or notice)	Description of listed activity
Government Notice R386 (21 April 2006)	15	The construction of a road that is wider than 4 m or that has a reserve wider than 6 m, excluding roads that fall within the ambit of another listed activity or which are access roads of less than 30 m long.
Government Notice R386 (21 April 2006)	7	The above ground storage of a dangerous good, including petrol, diesel, liquid petroleum gas or paraffin, in containers with a combined capacity of more than 30 m ³ but less than 1 000 m ³ at any one location or site.

This project has been registered with the DEAT, the Competent Authority for this proposed project, under Application Reference Number 12/12/20/1179.

This report documents the scoping evaluation of the potential environmental impacts of the proposed realignment of a portion of Afguns Road. This scoping assessment was conducted in accordance with the requirements of the EIA Regulations in terms of Section 24(5) of the National Environmental Management Act (NEMA; No 107 of 1998).

1.3. Objectives of the Scoping Study

The Scoping Phase of the EIA process refers to the process of identifying potential issues associated with the proposed project, and defining the extent of studies required within the EIA Phase. This has been achieved through an evaluation of the proposed project, involving the project proponent, information from previous specialist studies undertaken for EIAs in the area, and a public consultation process with key stakeholders that includes both government authorities and interested and affected parties (I&APs).

In accordance with the EIA Regulations, the main purpose of the Scoping Phase is to focus the environmental assessment in order to ensure that only potentially significant issues, and reasonable and feasible alternatives are examined in the EIA Phase. The Draft Scoping Report provides stakeholders with an opportunity to verify that the issues they have raised through the process to date have been captured and adequately considered, and provides a further opportunity for additional key issues for consideration to be raised. The Final Scoping Report will incorporate all issues and responses raised during the public review of the Draft Scoping Report prior to submission to DEAT.

The Scoping Report consists of four sections:

- » **Chapter 1** provides background to the proposed Afguns Road realignment and the environmental impact assessment process
- » **Chapter 2** provides a description of the approach to undertaking the environmental scoping study.
- » **Chapter 3** provides a description of the affected environment, including the social, heritage and ecological components of the study area, and an evaluation of the potential impacts on these aspects of the environment associated with the proposed project.
- » **Chapter 4** provides a Plan of Study for undertaking the EIA study.

1.4. Details of Savannah Environmental's Expertise to carry out Applicable Scoping Processes

Savannah Environmental was contracted by Eskom Holdings Limited as an independent environmental assessment practitioner to undertake an EIA for the proposed project, as required by the NEMA EIA Regulations. Savannah Environmental is not a subsidiary of or affiliated to Eskom Holdings Limited. Furthermore, Savannah Environmental does not have any interests in secondary developments that may arise out of the authorisation of the proposed project.

The Savannah Environmental project team has more than ten (10) years experience in environmental assessment and environmental management, and has been actively involved in undertaking environmental studies for a wide variety of projects throughout South Africa. Strong competencies have been developed in project management of environmental EIA processes, as well as strategic environmental assessment and compliance advice, and the identification of environmental management solutions and mitigation/risk minimising measures.

Karen Jodas, the principal author of this Draft Scoping Report, is a registered Professional Natural Scientists (in the practice of environmental science) with the South African Council for Natural Scientific Professions. She has gained extensive knowledge and experience on potential environmental impacts associated with linear developments through her involvement in related EIA processes over the past ten (10) years. She has successfully managed and undertaken EIA processes for other linear developments for various clients throughout South Africa. Karen Jodas is supported by Marius van der Vyver, who has four years experience in the environmental field, and one years experience in environmental management processes. Curricula vitae for the Savannah Environmental project team consultants are included in Appendix B.

APPROACH TO UNDERTAKING THE SCOPING STUDY

CHAPTER 2

An Environmental Impact Assessment (EIA) process refers to that process (dictated by the EIA Regulations) which involves the identification of and assessment of direct, indirect and cumulative environmental impacts associated with a proposed project. The EIA process comprises two phases: **Scoping Phase** and **EIA Phase**. The EIA process culminates in the submission of an EIA Report (including an environmental management plan (EMP)) to the competent authority for decision-making. The EIA process is illustrated below:



The Scoping Phase for the proposed realignment of Afguns Road has been undertaken in accordance with the EIA Regulations published in Government Notice 28753 of 21 April 2006, in terms of Section 24(5) of the National Environmental Management Act (NEMA; No 107 of 1998). This Environmental Scoping Study aimed at identifying potential issues associated with the proposed project, and defining the extent of studies required within the EIA. This was achieved through an evaluation of the proposed project, involving the project proponent, information from specialist studies undertaken for previous EIAs in the area, and a consultation process with key stakeholders that included both relevant government authorities and interested and affected parties (I&APs). This chapter serves to outline the process which was followed during the Scoping Phase of the EIA process.

2.1. Objectives of the Scoping Process

This Scoping process aims to:

- » identify and evaluate potential environmental (biophysical and social) impacts and benefits of all phases of the proposed development (including design, construction and operation) through a desk-top review of existing baseline data and specialist information, and
- » to provide the authorities with sufficient information in order to make a decision regarding the scope of issues to be addressed in the EIA process, as

well as regarding the scope and extent of specialist studies that will be required to be undertaken as part of the EIA Phase of the process.

Within this context, the objectives of this scoping process are to:

- » Clarify the scope and nature of the proposed activity.
- » Identify and evaluate key issues associated with the proposed project and identify issues to be addressed in the Impact Assessment Phase of the EIA.
- » Conduct a participatory and transparent public participation process and facilitate the inclusion of stakeholders' concerns regarding the proposed project in the decision-making process.

Due to the primary driver for the extension/realignment of the Afguns Road being road traffic safety, particularly as a result of large/heavy vehicle movement in the vicinity of the Medupi Power Station, no technically feasible alternatives exist for this road realignment other than the alignment presented for assessment. This Scoping Report does, however, ensure due consideration of the 'do nothing' option with regards to the proposed project (refer Chapter 3).

2.2. Legislation and guidelines that have informed the preparation of this report

The scope and content of this draft Scoping Report has primarily been informed by the following legislation and guidelines:

- » National Environmental Management Act (NEMA), Act No 107 of 1998
- » EIA Regulations, published under Chapter 5 of the NEMA (GN R385, GN R 386 and GN R387 in Government Gazette 28753 of 21 April 2006)
- » Guidelines published in terms of the NEMA EIA Regulations, in particular:
 - * Guideline 3: General Guide to Environmental Impact Assessment Regulations, 2006 (DEAT, June 2006)
 - * Guideline 4: Public Participation in support of the Environmental Impact Assessment Regulations, 2006 (DEAT, May 2006)
 - * Guideline 5: Assessment of alternatives and impacts in support of the Environmental Impact Assessment Regulations, 2006 (DEAT, June 2006)

Several other Acts, standards or guidelines have also informed the scope of issues to be addressed in the EIA (particularly in terms of the scope and methodology of specialist studies). An initial listing of such legislation is provided in Table 2.1.

Table 2.1: Initial review of relevant policies, legislation, guidelines and standards applicable to the Afguns Road Realignment Project EIA

Legislation	Applicable Sections
Constitution of the Republic of South Africa (Act No 108 of 1996)	<ul style="list-style-type: none"> » Bill of Rights (S2) » Environmental Rights (S24) – i.e. the right to an environment which is not harmful to health and well-being » Rights to freedom of movement and residence (S22) » Property rights (S25) » Access to information (S32) » Right to just administrative action (S33)
National Environmental Management Act (Act No 107 of 1998)	<ul style="list-style-type: none"> » Strategic environmental management goals and objectives of the government applicable throughout the Republic to the actions of all organs of state that may significantly affect the environment (S2) » NEMA EIA Regulations (GN R385, 386 & 387 of 21 April 2006) (Chapter 5) » Duty of Care (S28) requiring that reasonable measures are taken to prevent pollution or degradation from occurring, continuing or recurring, or, where this is not possible, to minimise & rectify pollution or degradation of the environment » Procedures to be followed in the event of an emergency incident which may impact on the environment (S30)
National Heritage Resources Act (Act No 25 of 1999)	<ul style="list-style-type: none"> » Stipulates assessment criteria and categories of heritage resources according to their significance (S7) » Provides for the protection of all archaeological and palaeontological sites, and meteorites (S35) » Provides for the conservation and care of cemeteries and graves by SAHRA where this is not the responsibility of any other authority (S36)
Conservation of Agricultural Resources Act (Act No 43 of 1983)	<ul style="list-style-type: none"> » Prohibition of the spreading of weeds (S5) » Classification of categories of weeds & invader plants (Regulation 15 of GN R1048) » Requirement to implement control measures for alien and invasive plant species (Regulation 15E of GN R1048)

Legislation	Applicable Sections
National Water Act (Act No 36 of 1998)	<ul style="list-style-type: none">» Duty of Care to prevent and remedy the effects of pollution to water resources (S19)» Procedures to be followed in the event of an emergency incident which may impact on a water resource (S20)

2.3. Overview of the Scoping Process undertaken for the proposed project

Key tasks undertaken within the environmental scoping process included:

- » Consultation with relevant decision-making and regulating authorities.
- » Submission of a completed application form for authorisation in terms of Government Notice No. R385 of 2006 to the competent authority.
- » Undertaking of a public participation process throughout the Scoping process in accordance with the EIA Regulations in order to identify issues and concerns associated with the proposed project.
- » Preparation of an Environmental Scoping Report and Plan of Study for EIA in accordance with the requirements of the EIA Regulations.
- » Preparation of a Comments and Response Report detailing key issues raised by I&APs as part of the EIA Process.

These tasks are discussed in detail below.

2.3.1. Authority Consultation and Application for Authorisation in terms of GN No R385 of 2006

As Eskom is a State-owned Enterprise, the National Department of Environmental Affairs and Tourism (DEAT) is the relevant competent authority for this proposed project. As the project falls within the Limpopo Province, the Limpopo Department of Economic Development, Environment and Tourism (DEDET) acts as a commenting authority for the project. Consultation with these authorities has been undertaken through the Scoping process. This consultation has included the following:

- » Pre-application consultation regarding the proposed project and the EIA process to be undertaken.
- » Submission of an application for authorisation to DEAT, with a copy submitted to DEDET. This application was approved and the DEAT reference number 12/12/20/1179 allocated to the project. Authorisation was therefore granted to continue with the Scoping Phase of the project.

A record of authority correspondence during the Scoping Phase is included within Appendix C.

2.3.2. Notification of the EIA Process

In order to notify and inform the public of the proposed project and invite members of the public to register as interested and affected parties (I&APs), the project and EIA process was advertised in the local newspaper, the Mogol Pos.

Key stakeholders were notified in writing of the EIA process, including:

- » The Municipality which have jurisdiction in the area.
- » Business organisations and mining companies in the study area.
- » Adjacent landowners.
- » Any organ of state having jurisdiction in respect of any aspect of the activity (e.g. Roads Agency Limpopo, DWAF, LHRA, etc).

Copies of the advertisements placed and notices distributed are contained in Appendix D of this report.

2.3.3. I&AP identification and maintaining project database

The first step in the public participation process was to identify key stakeholders and interested and/or affected parties (I&APs). This process was undertaken through existing contacts and databases, responses to newspaper advertisements, and networking. Stakeholder groups identified include Provincial and local government departments (including DEAT, DEDET, RAL, DWAF, LHRA, Lephalale Local Municipality etc) and neighbouring property owners or users of the road (i.e. local I&APs).

All I&AP information (including contact details have been recorded within a comprehensive database of affected parties (refer to Appendix E). The project database will be updated on an on-going basis throughout the project process, and will act as a record of the public involvement process.

2.3.4. Public Involvement and Consultation

The public involvement and consultation process during the scoping process was undertaken by **MasterQ Research**, specialist public participation consultants. This process provides information to I&APs in an objective manner to assist them to:

- » raise issues of concern and suggestions for enhanced benefits;

- » assist the environmental specialist in identifying issues that needs to be assessed during the scoping phase; and
- » verify that their issues have been captured.

Through consultation with key stakeholders and I&APs, issues for inclusion within the issues-based scoping study were identified and confirmed.

A focus group meeting was held with the Lephalale Local Municipality during the scoping phase of the public consultation process in order to ensure that the Municipality was aware of the project and that any potential issues were captured through the EIA process. Record of consultation undertaken is included within Appendix F.

Networking with I&APs will continue through-out the duration of the EIA process.

2.3.5. Evaluation of issues identified through the Scoping Process

Potential direct, indirect and cumulative impacts associated with the proposed project identified within the scoping process have been evaluated through desk-top studies. In order to evaluate issues, it was necessary to identify the characteristics of each potential issue/impact:

- » *the nature*, which includes a description of what causes the effect, what will be affected and how it will be affected.
- » *the extent*, wherein it is indicated whether the impact will be local (limited to the immediate area or site of development) or regional.

The evaluation of the issues resulted in a statement regarding the potential significance of the identified issues, as well as recommendations regarding further studies required within an EIA.

2.3.6. Public Review of Draft Scoping Report

The availability of the Scoping Report for review as well as the duration of the public review process was advertised in the Mogol Post. Registered I&APs were notified of the availability of the report for review by letter.

The draft Scoping Report has been made available at the following:

www.eskom.co.za/eia	www.savannahSA.com
Lephalale Municipal Offices	Matimba Power Station
Lephalale Library	Lephalale Co-op (Botha Avenue)
Marapong Clinic (Tlou Street, Marapong)	

The period for review is **27 May 2008 to 26 June 2008**. I&APs were requested to submit written comment on the draft Scoping report by 26 June 2008.

2.3.7. Final Scoping Report

The final stage in the Scoping Phase will entail the capturing of responses from I&APs on the draft Scoping Report in order to refine this report. The Final Scoping Report will then be submitted to DEAT (and DEDET) for review. It is this final report upon which the decision-making Environmental Authorities provide comment, recommendations and acceptance to undertake the EIA phase of the process.

DESCRIPTION OF THE AFFECTED ENVIRONMENT & EVALUATION OF THE PROJECT

CHAPTER 3

This chapter of the Scoping Report provides a description of the environment that may be affected by the proposed Afguns Road Realignment Project, together with an evaluation of potential impacts associated with the project. Aspects of the biophysical and social environments that could potentially be affected by, or could affect, the proposed development have been described and evaluated in order to assist the reader in understanding the possible effects of the proposed project on the environment.

3.1. Description of the Proposed Project

The Medupi Power Station, which is currently under construction, is situated on the farm Naauw Ontkomen 509 LQ. The construction of the Medupi Power Station on this property required that the Steenbokpan Road (D1675) which traversed this property be realigned to the north. This realignment is currently under construction and passes through the properties Hanglip 508 LQ and Naauw Ontkomen 509 LQ (refer to Figure 3.1 and Appendix A).

The existing Afguns Road (Provincial road D2001, previously known as the D2649) intersects at-grade (at 90°) with the original alignment of Steenbokpan Road (D1675). With the re-alignment of the Steenbokpan Road, the intersection between the D2001 and the deviated D1675 will be at an acute angle, and is required to be re-aligned in order to avoid posing a potential traffic safety risk. Therefore, the existing Afguns Road is proposed to be realigned for a distance of approximately 700 m in order to intersect at-grade (at 90°) with the Steenbokpan Road deviation.

The proposed road realignment is a single-carriage way (one-lane in each direction) with a road reserve of 30 m. The road is to be constructed to Provincial road specifications and will be an asphalt-surfaced road. The total length of the road is less than 700 m. The construction phase will be 6 weeks in duration.

3.2. Location of the Study Area

The extent of the Afguns Road realignment is limited to a portion of the property Hanglip 508 LQ. This affected portion of the property is owned by Eskom Holdings Ltd. The remainder of the farm portion is privately owned (refer Appendix A).

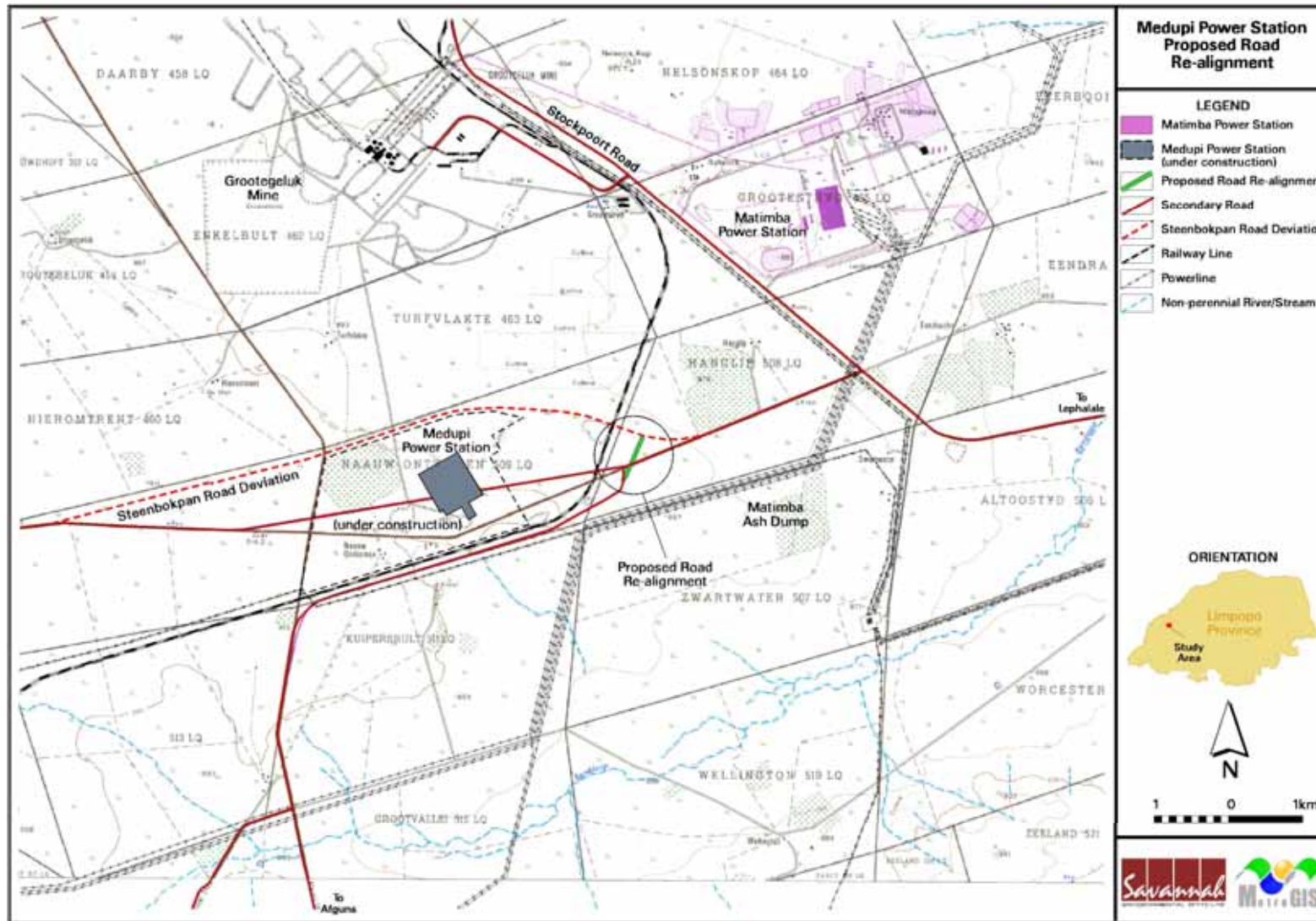


Figure 3.1: Locality map indicating the site of the proposed Afguns Road (D2001) deviation

The study area is within the Limpopo Province, and falls within jurisdiction of the Lephalale Local Municipality (LIM362), which forms part of the Waterberg District Municipality (DC36).

3.3. Project Rationale and the Consideration of Alternatives

The Medupi Power Station, which is currently under construction, is situated on the farm Naauw Ontkomen 509 LQ. The construction of the Medupi Power Station on this property requires that the Provincial road (under the care of Roads Agency Limpopo (RAL)) known as the Steenbokpan Road (D1675) which traverses the power station site be de-proclaimed as a Provincial road, and re-routed to the north of the site.

In the interim, the existing Afguns road (road D2001) has been upgraded to blacktop to serve as a deviation around the south of the site during the period that the D1675 is decommissioned for use, and before the new alignment to the north is complete.

The existing Afguns Road (D2001) intersects at-grade with the original alignment of Steenbokpan Road (D1675). With the re-alignment of the Steenbokpan Road, the intersection between the D2001 and the deviated D1675 is required to be re-aligned in order to avoid posing a potential traffic safety risk. Therefore, the existing Afguns Road is proposed to be realigned for a distance of approximately 700 m in order to intersect at-grade with the Steenbokpan Road deviation.

Once construction on the re-aligned route to the north is complete, or at least the first few hundred metres, then the proposed 700 m section of the D2001 which is the subject of this EIA which joins the re-aligned D1675 to the existing D2001 is proposed to be constructed and used.

The proposed realignment is to be undertaken by Eskom as part of the construction works for the Medupi Power Station. Following the construction phase, the road is to be operated and maintained by the Roads Agency Limpopo.

Due to the approval of and need for the realignment of the Steenbokpan road, there are no other technically feasible project alternatives. This short new section of road is required to address traffic safety issues. This is considered to be the most practicable alternative.

The 'do nothing' alternative would result in the road network not been addressed to comply with Roads Agency Limpopo's safety requirements for the intersection of two roads, specifically those which will be used extensively by heavy vehicle traffic. This alternative is therefore not supported from a social environment perspective, and not considered further in this EIA process.

3.4. Social Characteristics of the Study Area

The Lephalale Local Municipality (LIM362) falls within the Waterberg District Municipality (Limpopo Province), and covers an area of approximately 19 605 km². The total population of Lephalale is estimated at approximately 96 047 people, and represents approximately 15.6% of the total population within the Waterberg District Municipality.

The proposed project falls within Ward 1 of the Lephalale Local Municipality, which includes the Grootgeluk Mine and the residential area of Marapong. The Ward covers an area of approximately 77 km² and has a total population of approximately 5 666 people.

3.4.1. Demographic and Economic Profile

The dominant economic sector in the Lephalale area is electricity generation, which contributes approximately 70% of the area's Gross Geographical Product (GGP). Other pre-dominant sectors include the services sector (14% of GGP), mining (4% of GGP), and agriculture (3% of GGP). The local economic market is still dominated by mining (18%) and community services (34%).

The demographic profile of the study area indicates that the population comprises more males than females. The educational profile reflects that the majority of the adult population within Ward 1 (Marapong) have completed some form of secondary education.

It can therefore be concluded that the study area is characterised by a semi-skilled to skilled male population with a high employment rate. However, very few of the economically active population are employed within the construction industry, with only 4.5% of the employable population in Ward 1 being active within this industry. Even though these statistics relate to individuals who are already *employed* within this industry, it gives an indication of the possible shortage of construction skills in the local area. This would imply that, should local residents be used on a construction team, it might be necessary for either Eskom or its appointed contractors to first provide training on construction processes and techniques before the commencement of the construction phase.

An overview of the household income levels of the affected areas in relation to the broader context of the study area indicate that, although the majority of households within the Lephalale Local Municipality live below the acceptable minimum standard of at least R20 000 per annum per household, in comparison most households within the affected local area appear to live on par or above the minimum required standard. This economic profile can be linked to both the

educational profile of the study area, as well as the high employment rate. It can therefore be expected that the dependency ratio on the municipality from the study area would be very low.

3.4.2. Geographical and Land-use Profile

The area is characterised by infrastructure associated with mining developments (i.e. the Grootgeluk Mine) and power stations (i.e. Matimba Power Station and Medupi Power Station which is currently under construction). Such infrastructure includes conveyor belts, transmission power lines, roads, railway lines, ash dams, mine tailings dams, coal stockpiles, etc. The area between the Matimba Power station and the Grootgeluk Mine has been earmarked as a heavy industrial area due to the fact that the large amounts of coal deposits in the area form the basis for future industrial development. The presence of this newly established heavy industrial area is expected to lure prospective investors into the area.

The agricultural sector in the study area is dominated by field cropping and animal production. However, during recent years game farming has become a more prominent economic activity in the broader area. The upsurge in eco-tourism and commercial hunting has led to a decrease in traditional agricultural activities.

3.4.3. Potential Impacts on the Social Environment as a result of the proposed project

The proposed Afguns Road realignment comprises only ~ 700 m of road. The proposed realignment is to be undertaken by Eskom as part of the construction works for the Medupi Power Station. There is, therefore, no expectation for the generation of job opportunities, and no influx of workers would be anticipated during the construction phase due to the localised nature and extent of the project.

Following the construction phase, this section of the D2001 road is to be operated and maintained by the Roads Agency Limpopo as part of their road infrastructure maintenance plan.

There are no residents in close proximity to the project development site. Surrounding land use includes a railway line and the Medupi Power Station (on farm Naauwontkomen) to the west, the remainder of Afguns Road as well as a series of parallel transmission power lines to the south, the existing portion of the Steenbokpan Road to the east, and the northern re-alignment of the Steenbokpan Road to the north of the project development site. The remainder of the farm Hanglip to the north east of the proposed road realignment is privately-owned, and is currently utilised for agricultural and small-scale economic activities. There

would, therefore, be no significant impacts relating to noise emanating from the construction or future use of the road. Due to the changing nature of the area surrounding the proposed road realignment, the 700 m realignment will not result in additional visual impacts, or result in a change to the aesthetics of the immediate area or the sense of place (which is already substantially altered through the construction of major infrastructure in the area such as the Medupi Power Station).

The proposed 700 m road realignment will not pose any negative impacts of significance to the social environment during the construction phase. Any impacts likely to occur during the construction phase of the project are local (i.e. limited to the immediate surroundings of the project development site) in extent. The activities associated with this 700 m road re-alignment pale in comparison to those associated with the construction of the Medupi Power Station and even the realignment of the Steenbokpan road to the north.

During operation, this road realignment will benefit the social environment from a road traffic safety perspective. This 700 m realignment is to ensure continued safety at the intersection between the Afguns and Steenbokpan roads (i.e. the realignment ensures an at-grade intersection of these two roads), specifically for anticipated heavy vehicle movement to be associated with the Medupi Power Station. Overall, this project is considered to have positive benefits to safety of the road users.

3.5. Heritage Profile

Few sites of cultural significance are known to occur in the larger geographical area. This is believed to be due to the relatively inhospitable environment, being very flat and with few sources of surface water. In areas where there are outcrops, especially close to rivers, rock art sites and sites dating to the Late Iron Age have been documented. Further a field, to the south, some Early and Late Iron Age sites are known to exist.

3.5.1. Stone Age

Stone tools were recorded at a few select spots in the past, predominantly at outcrops and the small watercourses. As these artefacts were found on the surface, they are not in their original context any more and can yield very little information. As a result, they are viewed to have no significance.

3.5.2. Iron Age

A few pieces of pottery have been previously found in the broader area. However, these did not include any diagnostic pieces and are viewed as having no

significance. The occurrence of pottery pieces would not present any constraint to the proposed development.

3.5.3. Historic period

Cemeteries/graves have been identified in the broader area. There are no known graves which would present any constraint to the proposed development.

3.5.4. Potential Impacts on Heritage Sites as a result of the proposed project

Impacts on sites or artefacts of cultural or heritage value is considered unlikely for the proposed study area, as the occurrence of such sites and/or artefacts is not common in the affected area. The impact of the proposed 700 m of road is highly localised (i.e. limited to the immediate surroundings of the project development site), and the potential for an unknown site of heritage value to occur in this area is considered unlikely. The potential for impacts to occur would be limited to the construction phase of the project (refer Appendix G).

3.6. Biophysical Characteristics of the Study Area

A basic assessment of the topography and landforms revealed that no area of significant slope is present within the study area. No surface water is present within the area. A seasonal pan is located approximately 300 m towards the east. This feature will not be affected by the proposed development.

The Limpopo Sweet Bushveld is the only major vegetation type represented in the study area. This vegetation type is not threatened and although only 1% of it is formally conserved, much of the area occupied by this vegetation type falls within private nature reserves and game farms. Except for the mining areas located to the north and east of the study area and the power stations and their associated infrastructure, the entire vicinity is comprised of natural woodland and some extensive cattle grazing and game farming practices occur in the larger area.

Available PRECIS information (SANBI, 2007) lists 309 plant species within the 2327DA ¼ degree grid in which the study area is situated. The presence of at least 64 plant species within the study area was confirmed during the site investigation. SANBI records for the region indicate the presence of four Red Data flora species, i.e. *Barleria mackenii*, *Barleria rehmannii*, *Euphorbia waterbergensis*, and *Gossypium herbaceum* subsp. *africanum*. These species occur throughout the study area (are considered well represented in the general region outside the study area) and is not restricted to a localised area. This is mainly the result of the homogeneity of the physical habitat conditions. Protected species do not have a Red Listed status, but has a legal (provincial) protected

status and should be afforded consideration during the construction and operational phases of the project. In the case of unavoidable impacts on individuals of these species, permits need to be obtained by Eskom prior to these individuals being damaged or removed. No Threatened species were observed during the site investigation and the likelihood of encountering any of these species are regarded as low.

Three protected tree species were observed within the study area, and include the *Acacia erioloba* (Camel Thorn), *Boscia albitrunca* (Shepard's Tree) and *Sclerocarya birrea subsp. Caffra* (Marula). These species occur throughout the study area and is not restricted to a localised area. This is mainly the result of the homogeneity of the physical habitat conditions. Protected species do not have a Red Listed status, but has a legal (provincial) protected status and should be afforded consideration during the construction and operational phases of the project. In the case of unavoidable impacts on individuals of these species, permits need to be obtained by the client prior to these individuals being damaged or removed.

One red data frog species, one red data reptile species and numerous red data mammal species have been recorded in the broader area surrounding the study area. These species are associated with specific habitat types and are generally sensitive to disturbance. Sensitive habitat types (ridges and riparian habitat types) are particularly suitable for high faunal sensitivity and the presence of Red Listed fauna species. As the area affected by the proposed road realignment does not traverse sensitive habitat types, the likelihood of encountering Red Data fauna species within the study area is regarded as low.

3.6.1. Potential Impacts on Ecology as a result of the proposed project

The physiognomy of the study area comprises homogenous natural woodland with extremely limited and localised variations, and no areas of sensitivity were observed in the study area during the site visit (refer to the aerial image in Figure 3.2).

The natural terrestrial habitat of the study area is described as a mosaic of numerous habitat variations which is repeated throughout the study area. In spite of the pristine appearance of the general vegetation of the study area, it is considered to be moderately degraded as a result of high grazing pressure. The over utilised state of the herbaceous layer and encroached state of the woody layer in some places contribute to an estimated moderate floristic status (refer Figure 3.3).

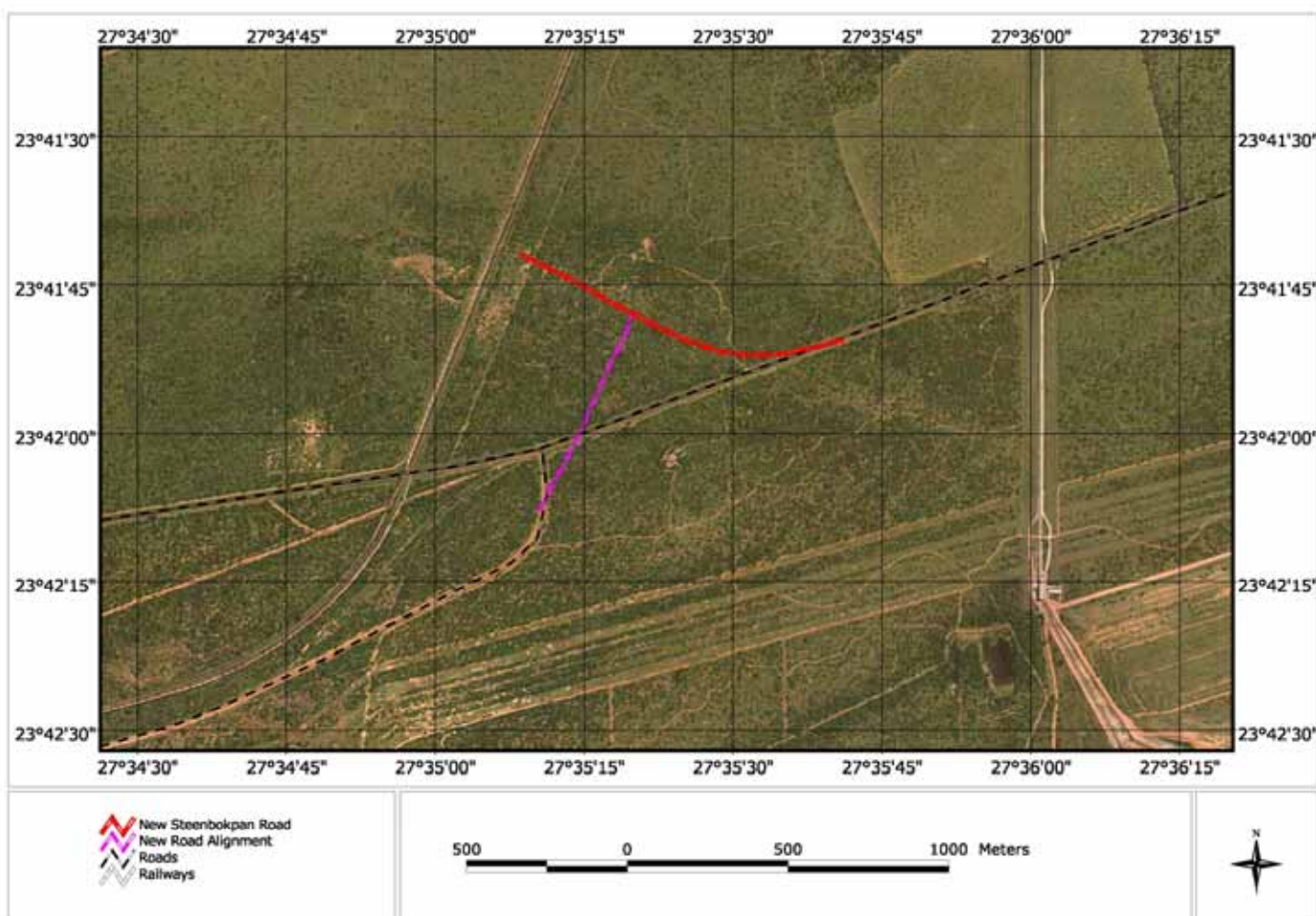


Figure 3.2: Aerial image illustrating the homogenous nature of the vegetation in the localised study area

Two significant variations are present in the region, namely a broadleaf and Acacia variations. The broadleaf variation prevails on deeper, sandy soils that are poor in nutrients as a result of leaching; resulting in sour veld conditions that are characterised by the profusion of tree species such as *Combretum zeyheri*, *C. hereroense*, *Commiphora africana*, *C mollis*, *Terminalia sericea* and *Boscia albitrunca*. This variation is also frequently situated high on the gently undulating slopes.

In contrast, areas that are characterised by soils with slightly higher clay content are dominated by Acacia species. This variation is frequently encountered in bottomland situations. The availability of nutrients in the soil results in more palatable grass species and typically a fine-leaf (Acacia) vegetation type. Due to the prevalence of palatable species, higher accessibility and proximity to water, these variations are frequently over-utilised by game and cattle, leading to a depletion of the grass stratum and an increase in the density of the woody layer, typically of the 1 m to 3 m class (shrubs and low trees).



Figure 3.3: The portion of the existing Afguns road from where the deviation/re-alignment will extend

Acacia species dominate, including *A. tortilis*, *A. erubescens*, *A. mellifera*, together with *Dichrostachys cinerea* and several *Grewia* species. The herbaceous layer is relative poor in species, providing evidence of the over grazed state of the vegetation. The grass sward is dominated by a few species, including *Urochloa mosambicensis*, *Cenchrus ciliaris*, *Digitaria eriantha*, *Eragrostis pallens*, *Enneapogon scoparius*, *Eragrostis lehmanniana*, *Panicum maximum*, *Pogonarthria squarrosa* and *Schmidtia pappophoroides*.

Flora and fauna species of importance that were observed during the site investigation are considered well represented in the general region outside the study area. The proposed project does not represent a threat to the general floristic and faunal diversity of the region. The likelihood of encountering species of importance or protected species within the proposed area is regarded low. A medium ecological sensitivity is attributed to this habitat type. The only significant impact on the biological environment is the expected loss of Protected tree species. Although other minor impacts might occur, the significance is considered to be low and mitigation measures can be effectively implemented in order to control these impacts to a large extent. Specific recommendations can be made and mitigation measures can be implemented to protect individuals that will potentially be affected by the proposed development.

Adverse impacts to ecology resulting from the proposed development in this habitat type include:

- » Loss of biodiversity - Threatened species and associated habitat
- » Loss of biodiversity – Protected tree species
- » Habitat degradation – pristine/sensitive habitat type.

Due to the extensive distribution of this particular habitat type in the general region, a moderate ecological sensitivity is attributed. The proposed 700 m road realignment is unlikely to pose any negative impacts of significance to the ecological environment during the construction phase, and it is regarded unlikely that any biological attribute of significance will be affected adversely. Any impacts likely to occur during the construction phase of the project are local (i.e. limited to the immediate surroundings of the project development site) in extent. Flora species that occur within the proposed reserve occur extensively in the general region, while fauna species will relocate to areas of lower impact and will adapt to localised transformation of habitat.

3.7. Conclusions of evaluation of potential impacts

The scoping evaluation has considered the nature and extent of the proposed 700 m road realignment. Potential issues associated with the proposed project have been identified and considered in the context of the larger land use changes that are taking place in the area, in order to define the extent of studies required within the EIA phase. This evaluation has been achieved through an evaluation of the proposed project, including a consultation process with key stakeholders. Due to the limited scale of the project, no technically feasible project-specific alternatives exist for consideration within the EIA process (this includes the “do nothing” option, which has been ruled out at scoping level).

A summary of the conclusions of the evaluation of the proposed road realignment is provided below. Recommendations regarding investigations required to be undertaken within the EIA Phase are provided within the Plan of Study for EIA (refer to Chapter 4).

Issues identified through this scoping study as being potentially associated with the proposed Afguns Road realignment include potential impacts on biodiversity and ecological processes, including habitat alteration and impacts to fauna, potential impacts on heritage sites/artefacts, and social impacts. The majority of potential impacts identified to be associated with the construction and operation of the proposed 700 m road are anticipated to be localised and restricted to the proposed site/road reserve. No environmental fatal flaws were identified to be associated with the site, and no absolute ‘no-go’ areas were identified within the broader area evaluated. The following impacts were identified and evaluated.

3.7.1. Impacts on the social environment

- » The proposed 700 m road realignment will not pose any negative impacts of significance to the social environment during the construction phase – that is no impacts to residents, noise or visual impacts.
- » Any impacts likely to occur during the construction phase of the project are local (i.e. limited to the immediate surroundings of the project development site) in extent.
- » The project is considered as part of the construction works for the Medupi Power Station, and there is no expectation for the generation of job opportunities, and no influx of workers would be anticipated during the construction phase due to the localised nature and extent of the project.
- » During operation, this road realignment will benefit the social environment from a road traffic safety perspective. This 700 m realignment is to ensure continued safety at the intersection between the Afguns and Steenbokpan roads (i.e. the realignment ensures an at-grade intersection of these two roads), specifically for anticipated heavy vehicle movement to be associated with the Medupi Power Station.

Overall, this project is considered to have positive benefits to safety of the road users. No further consideration of impacts on the social environment is required in the EIA Phase of the project.

3.7.2. Impacts on Heritage Sites

- » Impacts on sites or artefacts of cultural or heritage value is considered unlikely for the proposed study area, as the occurrence of such sites and/or artefacts are not common in the affected area and no known sites have been identified within the proposed road reserve.
- » The impact of the proposed 700 m of road is highly localised (i.e. limited to the immediate surroundings of the project development site), and the potential for an unknown site of heritage value to occur in this area is considered unlikely.
- » The potential for impacts to occur would be limited to the construction phase of the project.

Overall, this project is considered to have no impacts to sites/artefacts of heritage value. No further consideration of heritage impacts is required in the EIA Phase of the project.

3.7.3. Impacts on Ecology

- » Due to the extensive distribution of this particular habitat type in the general region, a moderate ecological sensitivity is attributed.
- » The proposed 700 m road realignment is unlikely to pose any negative impacts of significance to the ecological environment during the construction phase, and it is regarded unlikely that any biological attribute of significance will be affected adversely.
- » Any impacts likely to occur during the construction phase of the project are local (i.e. limited to the immediate surroundings of the project development site) in extent.
- » Flora species that occur within the proposed reserve occur extensively in the general region.
- » Fauna species will relocate to areas of lower impact and will adapt to localised transformation of habitat.

The ecological impacts of this project will be considered in the EIA Phase of the project. Adverse impacts to ecology resulting from the proposed development in this habitat type could potentially include:

- » Loss of biodiversity - Threatened species and associated habitat
- » Loss of biodiversity – Protected tree species
- » Habitat degradation – pristine/sensitive habitat type.

These aspects will be investigated in further detail through a specialist ecological study to be undertaken the EIA.

PLAN OF STUDY FOR ENVIRONMENTAL IMPACT ASSESSMENT

CHAPTER 4

A detailed description of the proposed Afguns Road Realignment, the Scoping process, as well as the issues identified and evaluated through the Scoping phase (to date) have been included in the draft Scoping Report and provide the context for this Plan of Study for Environmental Impact Assessment (EIA).

This Plan of Study describes how the EIA for the Afguns Road Realignment will proceed during the EIA phase. The EIA phase of the study includes a detailed specialist ecological study, as these those potential impacts were evaluated to be of moderate significance, and would require the implementation of mitigation measures.

4.1. Aims of the EIA

The EIA will aim to achieve the following:

- » Provide an overall assessment of the ecological environment affected by the proposed project.
- » Identify and recommend appropriate mitigation measures for potentially significant environmental impacts.
- » Undertake a public involvement process to ensure that I&AP are afforded the opportunity to participate, and that their issues and concerns are recorded.

The EIA will address potential environmental impacts and benefits (direct, indirect and cumulative impacts) associated with all phases of the project including design, construction and operation, and will aim to provide the environmental authorities with sufficient information in order to make an informed decision regarding the project.

4.1. Authority Consultation

Consultation with the regulating authorities (i.e. DEAT and DEDET) will continue through the EIA process. Consultation will include the following:

- » Submission of a Final Scoping Report following the 30-day public review period.
- » Consultation with DEAT (and DEDET) in order to discuss the findings of the Scoping Study and the issues identified for consideration in the EIA process.
- » Submission of a Final EIA Report following the 30-day public review period.
- » A site inspection, should this be deemed necessary by the DEAT official.

4.2. Specialist Studies

4.2.1. Issues not requiring Further Investigation

Based on the findings of the Scoping Study, the following issues were identified as being of low negative significance, or were regarded as being positive impacts, and therefore not requiring further investigation within the EIA:

- » Potential impacts on the social environment
- » Potential impacts on heritage sites/artefacts. No Phase 1 archaeological survey in accordance with the requirements of Section 38(3) of the National Heritage Resources Act (Act No 25 of 1999) is required to be undertaken.

4.2.2. Specialist Studies required to be undertaken within the EIA

In assessing potential direct, indirect and cumulative impacts associated with the proposed project, Savannah Environmental will be assisted by the following specialist team members:

Table 4.1: Specialist team members

Specialist	Area of Expertise
Riaan Robbeson of Bathusi Environmental Consulting cc	Flora, fauna and ecology

In order to address the potential ecological issues identified through the Scoping Phase, the following will be undertaken as part of the EIA phase:

- » A specialist **ecological study**, including:
 - * An ecological survey of the proposed affected area in order to establish the likelihood of any flora and/or fauna species of concern occurring on this site.
 - * The identification of site-specific mitigation measures required to minimise potentially significant ecological impacts.

4.2.3. Assessment of Potential Impacts

Direct, indirect and cumulative impacts of the above issues, as well as all other issues identified will be assessed in terms of the following criteria:

- » The **nature**, which shall include a description of what causes the effect, what will be affected and how it will be affected.
- » The **extent**, wherein it will be indicated whether the impact will be local (limited to the immediate area or site of development) or regional, and a value will be assigned as follows:

- * local extending only as far as the development site area – 1
- * limited to the site and its immediate surroundings (up to 10 km) – 2
- * will have an impact on the region – 3
- * will have an impact on a national scale -4
- * will have an impact across international borders - 5
- » The **duration**, wherein it will be indicated whether:
 - * the lifetime of the impact will be of a very short duration (0–1 years) – assigned a score of 1;
 - * the lifetime of the impact will be of a short duration (2-5 years) - assigned a score of 2;
 - * medium-term (5–15 years) – assigned a score of 3;
 - * long term (> 15 years) - assigned a score of 4; or
 - * permanent - assigned a score of 5;
- » The **magnitude**, quantified on a scale from 0-10, where 0 is small and will have no effect on the environment, 2 is minor and will not result in an impact on processes, 4 is low and will cause a slight impact on processes, 6 is moderate and will result in processes continuing but in a modified way, 8 is high (processes are altered to the extent that they temporarily cease), and 10 is very high and results in complete destruction of patterns and permanent cessation of processes.
- » The **probability of occurrence**, which shall describe the likelihood of the impact actually occurring. Probability will be estimated on a scale of 1–5, where 1 is very improbable (probably will not happen), 2 is improbable (some possibility, but low likelihood), 3 is probable (distinct possibility), 4 is highly probable (most likely) and 5 is definite (impact will occur regardless of any prevention measures).
- » the **significance**, which shall be determined through a synthesis of the characteristics described above and can be assessed as low, medium or high; and
- » the **status**, which will be described as either positive, negative or neutral.
- » the degree to which the impact can be reversed.
- » the degree to which the impact may cause irreplaceable loss of resources.
- » the *degree* to which the impact can be *mitigated*.

The **significance** is calculated by combining the criteria in the following formula:

$$S=(E+D+M)*P$$

S = Significance weighting

E = Extent

D = Duration

M = Magnitude

P = Probability

The **significance weightings** for each potential impact are as follows:

- » < 30 points: Low (i.e. where this impact would not have a direct influence on the decision to develop in the area),
- » 30-60 points: Medium (i.e. where the impact could influence the decision to develop in the area unless it is effectively mitigated),
- » > 60 points: High (i.e. where the impact must have an influence on the decision process to develop in the area).

4.3. Integration and Preparation of the EIA Report

The results of the ecological specialist study and other available information will be integrated and synthesised by the Savannah Environmental project team. An EIA report will be compiled, and will include:

- » detailed description of the proposed activity
- » a description of the property on which the activity is to be undertaken and the location of the activity on the property
- » a description of the environment that may be affected by the activity and the manner in which the physical, biological, social, economic and cultural aspects of the environment may be affected by the proposed activity
- » details of the public participation process conducted, including:
 - * a database of persons, organisations and organs of state that were registered as interested and affected parties;
 - * a summary of comments received from, and a summary of issues raised by registered I&APs, the date of receipt of these comments and the response to those comments; and
 - * copies of any representations, objections and comments received from registered I&APs
- » a description of the need and desirability of the proposed project, including advantages and disadvantages that the proposed activity may have on the environment and the community that may be affected by the activity
- » an indication of the methodology used in determining the significance of potential environmental impacts
- » a summary of the findings and recommendations of specialist report
- » a description of all environmental issues that were identified during the environmental impact assessment process, an assessment of the significance of each issue and an indication of the extent to which the issue could be addressed by the adoption of mitigation measures
- » an assessment of each identified potentially significant impact
- » a description of any assumptions, uncertainties and gaps in knowledge
- » an environmental impact statement which contains:
 - * a summary of the key findings of the environmental impact assessment;
 - and

- * a comparative assessment of the positive and negative implications of the proposed activity
- * a draft environmental management plan
- » copy of the specialist report

The draft EIA Report will be released for a 30-day public review period (refer to Section 4.4). The comments received from I&APs will be captured within a Comments and Response Report, which will be included within the final EIA Report, for submission to the authorities for decision-making.

4.4. Public Participation Process

A public participation process will be undertaken by **MasterQ research**, and will involve the following parties:

- » Government departments and Local Authorities
- » Surrounding landowners and users of the road

The draft EIA report will be made available for public review for a 30-day period prior to finalisation and submission to DEAT for review and decision-making.

4.5. Key Milestones of the programme for the EIA

The envisaged key milestones of the programme for the Environmental Impact Assessment (EIA) phase of the project are outlined in the table below.

Key Milestone Activities	Proposed completion date
Finalisation of Scoping Report & submission of final Scoping Report to DEAT	30 June 2008
Authority acceptance of the Scoping Report and Plan of Study to undertake the EIA	July 2008
Compile draft EIA Report and draft EMP	July 2008
Make draft EIA Report and draft EMP available to the public, stakeholders and authorities	August 2008
Finalisation of Scoping Report & submission of final EIA Report to DEAT	September 2008