

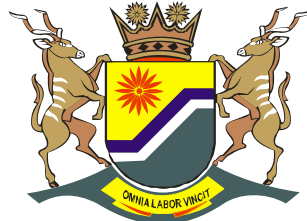
DRAFT SCOPING REPORT

SWARTFONTEIN SECURE CARE CENTRE

Prepared for:

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Submitted to:

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S T R A T E G I C E N V I R O N M E N T A L F O C U S

August 2014

MDEDET REF NO: 17/2/3-292

SEF Project Code: 505965

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PURPOSE OF DOCUMENT

A period of 40 calendar days (**Friday, 22 August 2014 to Thursday, 2 October 2014**) has been provided for the review and commenting phase of the Draft Scoping Report. All Interested and Affected Parties (I&APs) as well as State Departments have been notified of this review period.

The Draft Scoping Report contains the following information:

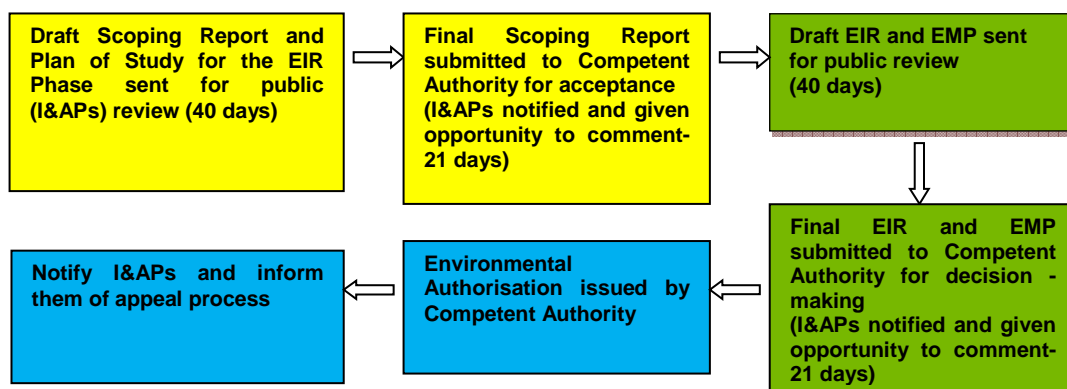
- A description of the project, including project motivation;
- Discussion of applicable alternatives;
- A description of the environment affected by the project;
- The public participation process; and
- The plan of study for the Environmental Impact Reporting (EIR) phase.

The Draft Scoping Report can be viewed at the following venue:

Name of public venue	Name of Contact Person	Contact Number	Viewing Times
Sabie Pubic Library. 8th Avenue, Sabie	Ms. Emmerentia Ubisi	Tel: 076 823 8028	09:00-17:00 Weekdays 09:00-12:00 Saturdays

Should you wish to participate in the S&EIR process by contributing issues of concerns/comments, please register as an I&AP by completing the enclosed Registration and Comment Sheet or you can visit SEF’s website at <http://www.sefsa.co.za>. To register as an I&AP or comment on the project, click on “Stakeholder Engagement”. Click on the “register” button and complete the compulsory fields to register as an I&AP. On completion of these fields, you will receive an email titled “**Stakeholder Engagement – New Registration**”. Click on client login and use the emailed details to login in and view the Draft Scoping Report for the proposed **505965 Swartfontein Secure Care Centre** Should you have any problems in obtaining the information from the Internet, please feel free to contact SEF for assistance.

Following the commenting period, the Scoping Report will be updated and submitted to the Mpumalanga Department of Economic Development Environment and Tourism (MDEDET) for consideration. After the acceptance of the Scoping Report, the EIR phase will be initiated. The flow diagram below highlights the phases in the project where I&APs have the opportunity to participate within the process.



PROJECT SUMMARY

Project Name	Swartfontein Secure Care Centre
Preferred Site	The Farm Swartfontein 227, Portion 0
Surveyor-General 21 Digit Code	TOJT00000000022700000
Development Footprint	Approximately 108 hectares
Site Photographs	Refer to Appendix 2
Confirmation of Supply:	
Water (Construction & Operational Phases)	Construction Phase = borehole / Blinkwaterspruit Operational Phase = borehole / Blinkwaterspruit
Sewage (Construction & Operational Phases)	Construction Phase = Portable toilets provided by contractor Operational Phase = Waste Water Treatment Package Plant
Electricity (Construction & Operational Phases)	Construction Phase = To be provided by the contractor Operational Phase = to be confirmed
Solid Waste (Construction & Operational Phases)	Construction Phase = To be managed by contractor Operational Phase = Waste Transfer Facility End Receiver: to be confirmed

ENVIRONMENTAL ASSESSMENT PRACTITIONER

Strategic Environmental Focus (Pty) Ltd (SEF) is a privately owned company and was formed in 1997 with the objective of providing **expert solutions to pressing environmental issues. SEF is one of Africa's largest multi-disciplinary environmental consultancies**, offering sustainable environmental solutions to private and public sector clients. With our integrated services approach in the management of natural, built and social environments; and with over a decade of experience, we bring a wealth of knowledge and expertise to each project.

SEF's Vision

SEF is a national sustainability consultancy that provides integrated social, biophysical & economic solutions by forging strategic stakeholder relationships, underpinned by SEF's core values.

SEF's Mission

SEF offers holistic sustainable solutions in response to global change.

SEF has assembled a team of professionals, consisting of a core of environmental experts with extensive experience in dealing with Environmental Impact Assessments (EIAs), Public Participation Processes, Architectural and Landscape Architecture, Mining and Environmental Management. SEF also has a team of specialist practitioners such as specialists in Heritage Impact Assessments (HIA), Wetland Delineation and Functional Assessments; Wetland/ Riparian Rehabilitation, Aquatic Assessments; Ecological (Fauna, Avifauna and Flora) Assessment, Visual Impact Assessments (VIAs), Soils and Agricultural Potential Assessments, Socio-Economic Assessments, etc.

SEF is a Qualifying Small Enterprise and a **Level 2 contributor in terms of the Broad Based Black Economic Empowerment Act, 2003 (Act No. 53 of 2003)** and has a procurement recognition level of 156%.

SEF commits itself to comply with the requirements and the implementation of a Quality Management System. The Quality Management System will be reviewed and implemented to continually improve efficiency and effectiveness of the organisation.

SEF uses a "green" approach to anything we embark on. We believe in using technology to our and the environment's best advantage. We encourage the use of green alternatives such as telephone and video conferencing instead of travelling for workshops and meetings and CDs instead of printed material, where possible. The following project team members are involved in this S&EIR application process.

Table 1: Project Team Members

Name	Organization	Project Role
Carene Kruger	SEF	Project Manager
Hanlie Van Greunen	SEF	Environmental Manager
Kagiso Motlhasedi	SEF	Public Participation Practitioner
Karin van der Walt	SEF	Ecological Specialist
Mamoluoane Seliane	SEF	Heritage Specialist

Carene Kruger (Project Manager)

Carene holds a BSc (Honours) Degree in Environmental Management (University of Johannesburg) and has been an EAP for over 6 years. She is employed as a Project Manager at SEF and has been with the company for 5 years. Her working experience varies from small to large scale projects pertaining to master planning, commercial, residential, mining and municipal infrastructure projects. Carene has excellent

knowledge of the NEMA and has dealt with legal processes such as the Gautrain Variant Assessment High Court Interdict and other appeal processes. She also worked in the United Kingdom as a commercial recycling advisor. Key projects include: Lonmin Platinum EMPR amendment applications, Wonderboom Airport expansion, Gautrain Variant Assessment EIA, SKA- Meerkat infrastructure and Hazeldean Node Master Plan.

Hanlie Van Greunen (Environmental Manager)

Hanlie has 8 years of professional experience as a Landscape Technologist and holds a BSc LArch degree. She also completed a BSc Hons degree in Environmental Monitoring and Modeling in 2010. Hanlie spent 5 years in the UK working as a Landscape Architect at a charitable environmental regeneration organisation where she gained skills in community consultation along with the design and implementation of community led landscape projects. Hanlie is currently an Environmental Manager at SEF and has 3 years' experience in environmental management. She is involved in the compilation of Basic Assessments, Scoping Reports, EIA's and EMPR's in terms of NEMA and the MPRDA. Hanlie also conducts visual impact assessment studies (VIA's) for various types of development.

Kagiso Motlhasedi (Public Participation Practitioner)

Kagiso has obtained her BSC Degree in Environmental Science with specialization in Geology and Geography (University of Johannesburg) and is currently studying for her honors degree in Environmental Science (UNISA). She was previously employed as a compliance officer for a waste management company. She is currently an Environmental Assistant at SEF, whereby her duties include the drafting of Basic Assessment reports as well as both Scoping & Environmental Impact Assessment reports. In addition to the above, Kagiso is also actively involved in the development of Water Use License applications and public participation processes as relevant to the National Environmental Management Act (Act No 108 of 1998) and Minerals & Petroleum Resources Development Act (Act No 28 of 2002).

Karin van der Walt (Ecological Specialist)

Karin has more than 10 years' experience in the field of Nature Conservation. After working as a wilderness trails ranger in the Kruger National Park for five years, she was employed to manage a project on threatened and medicinal plants in South Africa. Through this she was exposed to extensive fieldwork, plant population assessments, threat assessments and biodiversity management plans. She has presented nationally and internationally on ecological and conservation issues. Currently, as a specialist ecologist for SEF, she is doing faunal and floral assessments, ecological management plans, impact assessments and mitigations.

Mamoluoane Seliane (Heritage Specialist)

Mamoluoane Seliane has an MSc Degree in Environmental and Geographical Science, BSc (Hons) Archaeology and a BSc in Environmental and Geographical Science and Archaeology. She practices as an Environmental Practitioner and Heritage Specialist. Mamoluoane Seliane has been involved in heritage planning, cultural resources management, archaeological field surveys and excavations in South Africa and Lesotho. In particular, she has extensive experience in undertaking Cultural Heritage and Archaeological Impact Assessments (HIAs and AIAs) for various types of developments in areas of varying heritage sensitivities for over 6 years. In addition, she is a professional member of the Association of Southern African Professional Archaeologists (ASAPA) and is accredited by ASAPA to undertake heritage and cultural resources management work in South Africa and the SADC region.

Table 2: Contact Details of Environmental Assessment Practitioner

Name	Contact Details
Carene Kruger	Strategic Environmental Focus (Pty) Ltd Postal Address: PO Box 74785, Lynnwood Ridge, PRETORIA, 0040 Tel: +27 12 349 1307 Fax: +27 12 349 1229 Email: carene@sefsa.co.za

EXECUTIVE SUMMARY

INTRODUCTION

Strategic Environmental Focus (Pty) Ltd (SEF) has been appointed by the Mpumalanga Department of Public Works Roads and Transport (MDPWRT) to undertake an environmental application process for the proposed Swartfontein Secure Care Centre development in the Mbombela Local Municipality, Mpumalanga.

The proposed site for the above development is situated on Portion 0 of the Farm Swartfontein 227 and can be accessed via the D1560 road, either from the R537 between Sabie and White River or from the R40 between White River and Hazyview in Mpumalanga.

A Scoping and Environmental Impact Reporting (S&EIR) process will be conducted for this project based on triggered listed activities within the Environmental Impact Assessment (EIA) Regulations of 2010 (Government Notice (GN) No's 543; 544; 545 and 546) promulgated in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA) as amended.

The purpose of this report, the Draft Scoping Report (DSR), is to provide all interested and affected parties (I&APs) with an opportunity to comment and provide input into the process going forward. All comments received during the 40 day review period will be incorporated into the Final Scoping Report (FSR) for consideration by the Mpumalanga Department of Economic Development Environment and Tourism (MDEDET) as well as the Department of Water and Sanitation (DWS).

The MDEDET will, based on the Final Scoping Report, issue a decision on whether or not the application may proceed to the Environmental Impact Reporting (EIR) phase.

BRIEF PROJECT DESCRIPTION

The proposed development will have a footprint of 107.6 hectares and will include the following infrastructure:

- Single and double storey residential and office buildings;
- Access roads;
- Waste transfer facility;
- Reservoir (storing 250kl/250m³ per day)
- Sports field and services;
- Existing retaining wall Blinkwaterspruit to be upgraded; and
- Waste Water Treatment Package Plant (WWTPP)

KEY IMPACTS

The following key impacts were identified and will be carried forward into the EIR phase for further investigation and assessment:

Biophysical Impacts:

- Potential increase in surface water run-off (viz. increased soil erosion) associated with the establishment of hard internal surfaces and vegetation clearance (mainly during the construction phase);
- Potential impacts on soil as well as ground and surface water quality due to hydrocarbon spillages

- from vehicles during the construction phase of the development;
- Destruction of Flora as a result of site clearance;
- Faunal displacement mainly during the construction phase of the project.

Socio-Economic Impacts:

- Increased dust and noise generation during the construction phase;
- Potential damage to cultural heritage resources;
- The construction phase will cause significant visual change to the site as a result of the necessary earthworks for roads, buildings and services
- Traffic will increase along the D1560 road;
- Job creation during the construction and operational phases of the proposed project (+)

Cumulative Impacts:

- Transformation of arable land fit for Agriculture (specifically forestry) in Mpumalanga.

PROJECT ALTERNATIVES

To give effect to the principles of NEMA and Integrated Environmental Management (IEM), an EIA should assess a number of reasonable and feasible alternatives that may achieve the same end result as that of the preferred project alternative. The following alternatives have been identified as part of this Scoping exercise:

Alternative 1: Site/ Location Alternatives:

The MDPWRT owns the proposed site and therefore site alternatives are not deemed viable and no further site/location alternatives will be investigated.

Alternative 2: Layout/ Design Alternatives:

Environmental sensitivity will be considered in the proposed layout. No other layout alternatives will be considered.

Alternative 3: Technology Alternatives:

Not considered

No-Go option

This option assumes that a conservative approach would ensure that the environment is not impacted upon any more than is currently the case. It is important to state that this assessment is informed by the current condition of the area. Should the MDEDET decline the application, the 'No-Go' option will be followed and the status quo of the site will remain

CONCLUSIONS AND RECOMMENDATIONS

The EIR phase may only commence once the MDEDET accepts the Final Scoping Report and instructs the Environmental Assessment Practitioner (EAP) to continue with the tasks contemplated in the Plan of Study (PoS) for the EIR phase of the environmental application process.

The EAP proposes that, on the basis of the information contained in this Scoping Report, that the MDEDET accept the Scoping Report and Plan of Study for the EIR phase. The more pertinent issues can then be thoroughly investigated and assessed, in terms of their significance. The ability to mitigate any of the impacts identified in this Scoping Report will also be investigated and detailed within a working/ dynamic Environmental Management Programme (EMP) for consideration by I&APs and ultimately by MDEDET.

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LIST OF ABBREVIATIONS AND ACRONYMS

DEA	Department of Environmental Affairs (previously DEAT)
DWS	Department of Water and Sanitation
EAP	Environmental Assessment Practitioner
EIA	Environmental Impact Assessment
EIR	Environmental Impact Reporting
EMP	Environmental Management Programme
GN	Government Notice
ha	Hectares
I&APs	Interested and Affected Parties
IEM	Integrated Environmental Management
MDEDET	Mpumalanga Department of Economic Development Environment and Tourism
ME	Mitigation Efficiency
MDPWRT	Mpumalanga Department of Public Works Roads and Transport
NEMA	National Environmental Management Act, 1998 (Act No. 107 of 1998)
NHRA	National Heritage Resources Act (Act No. 25 of 1999)
NWA	National Water Act, 1998 (Act No. 36 of 1998)
SAHRA	South African Heritage Resources Agency
SEF	Strategic Environmental Focus (Pty) Ltd
SFM	Significance Following Mitigation
S&EIR	Scoping and Environmental Impact Reporting
SDF	Spatial Development Framework
WOM	Without Mitigation Measures
WM	With Mitigation Measures

GLOSSARY OF TERMS

Applicant	Any person who applies for an authorisation to undertake an activity or to cause such activity to be undertaken as contemplated in sections 24(5), 24M and 44 of the National Environmental Management Act, 19998 (Act No. 107 of 1998).
Ecology	The study of the interrelationships between organisms and their environments.
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 wellbeing.
Environmental Impact Assessment	Systematic process of identifying, assessing and reporting environmental impacts associated with an activity and includes basic assessment and S&EIR.
Environmental Management Programme	A working document on environmental and socio-economic mitigation measures, which must be implemented by several responsible parties during all the phases of the proposed project.
Interested and Affected Party	Any person or groups of persons who may express interest in a project or be affected by the project, positively or negatively.
Key Stakeholder	Any person who acts as a spokesperson for his/her constituency and/or community/organization, has specialized knowledge about the project and/or area, is directly or indirectly affected by the project or who considers himself/herself a key stakeholder.
Stakeholder	Any person or group of persons whose live(s) may be affected by a project.
Study Area	Refers to the entire study area encompassing all the alternatives as indicated on the study area or locality map.
Succession	The natural restoration process of vegetation after disturbance.
State Department	Any department or administration in the national or provincial sphere of government exercising functions that involve the management of the environment.

A INTRODUCTION

Strategic Environmental Focus (Pty) Ltd (SEF) has been appointed by the Mpumalanga Department of Public Works Roads and Transport (MDPWRT) to undertake an environmental application process for the proposed Swartfontein Secure Care Centre development in the Mbombela Local Municipality, Mpumalanga.

A-1 DESCRIPTION OF PROPOSED ACTIVITY

A-1.1 Locality

The proposed site for the above development is situated on Portion 0 of the Farm Zwartfontein 227 and can be accessed via the D1560 road, either from the R537 between Sabie and White River or from the R40 between White River and Hazyview in Mpumalanga.

The development footprint is approximately 107.6 ha in size. Central co-ordinates of the site (S 25° 11' 45.99" E 30° 58' 45.62"). Refer to the Locality Map (Figure 1).

A-1.2 Surrounding Land Use

To further place the site in context, the land uses within all four major compass directions are described in the table below.

Table 3: Surrounding Land Use Table

Direction	Land Use	Distance (m)
North	Residential	Adjacent resident (approximately 50 meters to the North)
	Road Infrastructure	D1560 road (directly adjacent)
	Forestry	Approximately 80m to the North
East	Residential	Swartfontein Treatment Centre for Substance Abuse (approximately 1km East)
	Watercourse	Blinkwaterspruit (approximately 600m East)
South	Forestry	Approximately 2.2km East
	Watercourse	Blinkwaterspruit (approximately 700m South)
West	Forestry	Approximately 300m West
	Dam	Klipkoppie Dam (approximately 1km West)

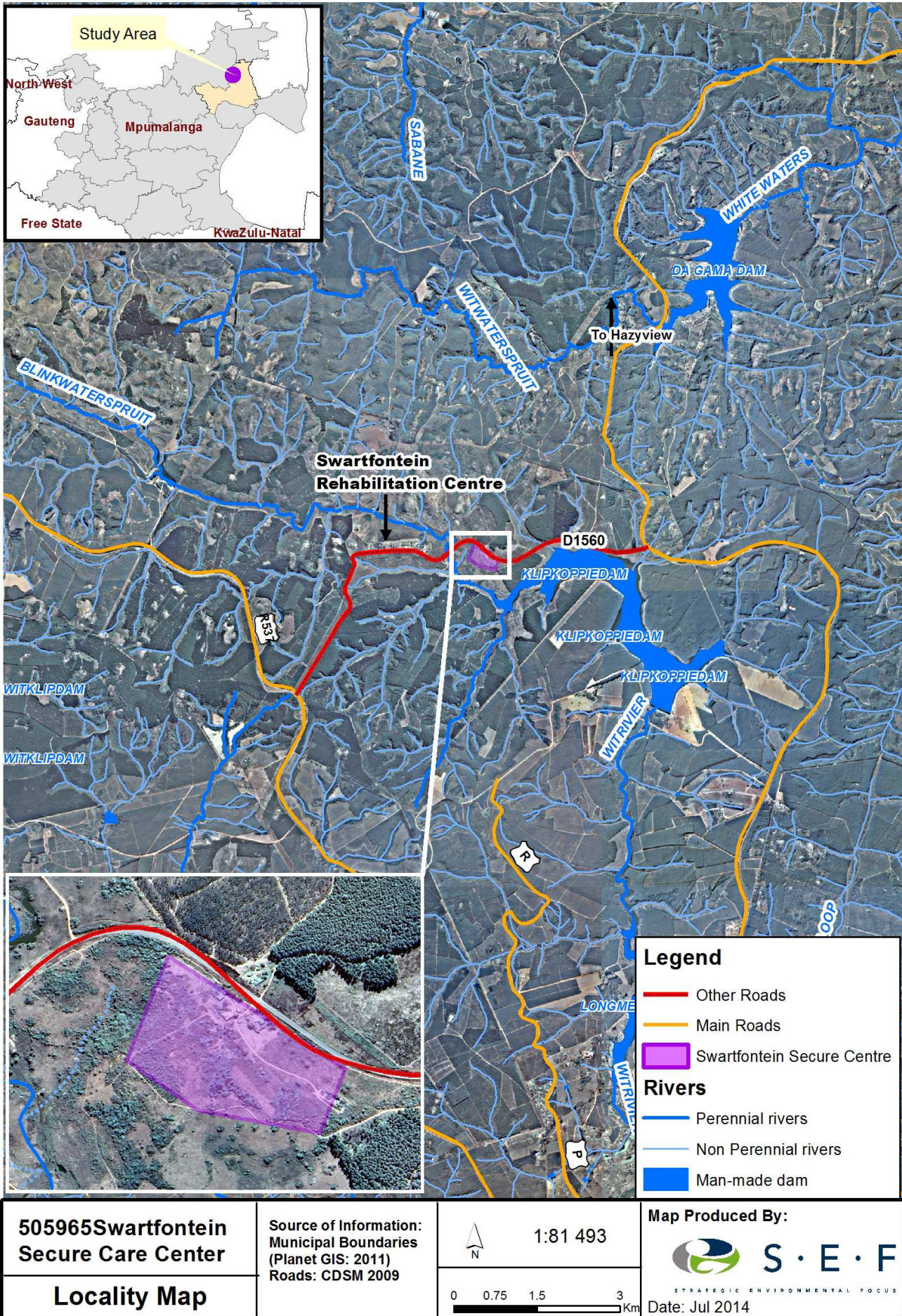


Figure 1: Locality Map

A-1.3 Details of the Project

The MDPWRT proposes to develop the Swartfontein Secure Care Centre, located near the Klipkoppie dam in the Mbombela Local Municipality, Mpumalanga.

The proposed development will have a footprint of 107.6 hectares and will include the following infrastructure:

- Single and double storey residential and office buildings;
- Access roads;
- Waste transfer facility;
- Reservoir (storing 250kl/250m³ per day)
- Sports field and services;
- Existing retaining wall in the Blinkwaterspruit to be upgraded; and
- Waste Water Treatment Package Plant (WWTPP)

A-1.3.1 Water

Potable water

For the supply of potable water to the Secure Care Centre the flow is estimated as follows:

Water users	Water Demand Kl/d
350 residents @ 150l/c.d	52.5
50 shift workers per day @ 70l/c.d	3.5
Total average potable water	56
Including summer peak at 1.5	84

Water demand equates to 84kl/d however a feed rate on 100 kl/day is worked on to allow for 20/24 operating hours, maintenance, sludge and backwash losses.

Assuming no special requirements with regard to treatment, i.e. basic treatment for turbidity reduction, pH adjustment and disinfection, we estimate that the package treatment plant can be accommodated on a 10m by 15m by 150-200mm concrete slab with nominal reinforcing. The plant will consist of:

- Duty/standby submersible pumps for raw water supply;
- Discharge line
- Site preparation and concrete slab;
- Plant pipework and raw flow meter;
- Clarifier unit;
- Container with pressure sand filters and dosing equipment (coagulant, pH correction and chlorine solution);
- Backwash and chlorine contact tanks;
- Sludge ponds; and
- 250 kl clean water reservoir, preferably elevated for gravity feed

Raw water

Untreated water for irrigation is estimated to be in the order of 30 kl/d.

A-1.3.2 Sewage

For the sewage treatment plant at the Secure Care Centre the flow is estimated as follows:

Water users	Water Demand KI/d
350 residents @ 150l/c.d	52.5
50 shift workers per day @ 70l/c.d	3.5
Total grey water flow	56

The proposed plant and specifications will be based on a package plant from WEC Projects and will consist of:

- Gravity feed sewer (supply sewer outside plant supplier scope) into surface buffertank with integrated screen;
- Complete biological nutrient removal activated sludge plant with blowers, fine bubble aeration and integrated clarifier;
- Chlorine dosing system with chlorine contact tank; and
- Waste sludge dewatering system.

A-2 LEGAL REQUIREMENTS APPLICABLE TO THIS APPLICATION

SEF registered the proposed residential development with the MDEDET and the project has been assigned the reference number: **17/2/3-292**. The legislation, guidelines and policies applicable to this project are as follows:

A-2.1 NEMA and the Environmental Impact Assessment Regulations

The EIA Regulations, promulgated under NEMA, focus primarily on creating a framework for co-operative environmental governance. NEMA provides for co-operative environmental governance by establishing principles for decision-making on matters affecting the environment, institutions that will promote co-operative governance and procedures for co-ordinating environmental functions exercised by State Departments and to provide for matters connected therewith.

In terms of the EIA Regulations of 2010 and activities listed in GN No. 544 and 546 (requiring a Basic Assessment process) and GN No. 545 (requiring a S&EIR process), the following listed activities are deemed by the EAP to be applicable to the proposed residential development based on the information provided by the MDPWRT and their consulting engineers (Refer to Table 4).

It must be noted that activities requiring a Basic Assessment process, as well as activities requiring a S&EIR process are triggered by the proposed development. Therefore, according to the above listed activities, a situation arises, whereby; the legal requirements of the activity listed in terms of GN No. 545 of 2010 supersede those of the activities listed in terms of GN No. 544 and 546 of 2010, and as such **this application shall undergo an S&EIR process.**

Table 4: Listed Activities

GN No & Activity Number	Activity Description	Project Description
GN No. 544 of 18 June 2010	11 The construction of: (i) canals; (ii) channels; (iii) bridges; (iv) dams; (v) weirs; (vi) bulk storm water outlet structures; (vii) marinas; (viii) jetties exceeding 50 square metres in size; (ix) slipways exceeding 50 square metres in size; (x) buildings exceeding 50 square metres in size; or (xi) infrastructure or structures covering 50 square metres or more where such construction occurs within a watercourse or within 32 metres of a watercourse, measured from the edge of a watercourse, excluding where such construction will occur behind the development setback line.	The existing retaining wall will be upgraded in order to retain more water to be abstracted by the proposed development.
	55A The construction of facilities for the treatment of effluent, wastewater or sewage with a daily throughput capacity of more than 2000 cubic metres but less than 15 000 cubic metres.	The proposed development is not serviced by the municipality and therefor all sewerage, water and electrical infrastructure will have to be installed. The need for a sewerage treatment package plant has therefor been identified.
GN No. 545 of 18 June 2010	15 Physical alteration of undeveloped, vacant or derelict land for residential, retail, commercial, recreational, industrial or institutional use where the total area to be transformed is 20 hectares or more; except where such physical alteration takes place for	The site is currently zoned as agriculture and the rezoning will be necessary. The site will be transformed from being vacant to allow for development of the Secure Centre and its associated services.

The aforementioned listed activities are deemed to include activities that could potentially have a detrimental impact on the social and biophysical state of an area and as such, are required to undergo an environmental impact assessment process.

A-2.2 National Water Act, 1998 (Act No. 36 of 1998)

The National Water Act, 1998 (Act No. 36 of 1998) (NWA) aims to provide management of the national water resources to achieve sustainable use of water for the benefit of all water users. This requires that the quality of water resources is protected as well as integrated management of water resources with the delegation of powers to institutions at the regional or catchment level. The purpose of the Act is to ensure that the nation's water resources are protected, used, developed, conserved, managed and controlled in responsible ways.

According to the NWA's GNR. 1352, Section 3: any person who uses water in terms of section 21 of the Act must register such use with the Department of Water and Sanitation (DWS) by means of a Water Use License Application.

Water uses identified in terms of **Section 21** of the NWA include (highlighted activities applies to this project):

- a) **taking water from a water resource;**
- b) **storing water;**
- c) **impeding or diverting the flow of water in a watercourse;**
- d) engaging in a stream flow reduction activity contemplated in Section 36 of the Act;
- e) engaging in a controlled activity identified as such in section 37(1) or declared under section 38(1);
- f) **discharging waste or water containing waste into a water resource through a pipe, canal, sewer, sea outfall or other conduit;**
- g) **disposing of waste in a manner which may detrimentally impact on a water resource;**
- h) disposing in any manner of water which contains waste from, or which has been heated in, any industrial or power generation process;
- i) **altering the bed, banks, course or characteristics of a watercourse;**
- j) removing, discharging or disposing of water found underground if it is necessary for the efficient continuation of an activity or for the safety of people; and
- k) using water for recreational purposes.

A-2.3 Other Legal Requirements

A-2.3.1 Acts

Constitution of the Republic of South Africa

The Constitution of the Republic of South Africa has major implications for environmental management. The main effects are the protection of environmental and property rights, the change brought about by the sections dealing with administrative law, such as access to information, just administrative action and broadening of the *locus standi* of litigants. These aspects provide general and overarching support and are of major assistance in the effective implementation of the environmental management principles and structures of the NEMA. Section 24 in the Bill of Rights of the Constitution specifically states that:

Everyone has the right -

- To an environment that is not harmful to their health or well-being; and
- To have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that -
 - Prevent pollution and ecological degradation;
 - Promote conservation; and
 - Secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development.

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

The purpose of the Biodiversity Act is to provide for the management and conservation of South Africa's biodiversity within the framework of the NEMA and the protection of species and ecosystems that warrant national protection. As part of its implementation strategy, the National Spatial Biodiversity Assessment was developed.

This Act is applicable to this application for environmental authorisation, in the sense that it requires the project applicant to consider the protection and management of local biodiversity.

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

This Act legislates the necessity for cultural and heritage impact assessment in areas earmarked for development, which exceed 0.5 hectares (ha) and where linear developments (including roads) exceed 300 metres in length. The Act makes provision for the potential destruction to existing sites, pending the archaeologist's recommendations through permitting procedures. Permits are administered by the South African Heritage Resources Agency (SAHRA).

National Environmental Management: Protected Areas Act, 2003 (Act No. 57 of 2003)

The purpose of this Act is to provide for the protection, conservation and management of ecologically viable areas representative of South Africa's biological diversity and its natural landscapes.

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

The Act recognises that everyone has a Constitutional right of access to any information held by the state and by another person when that information is required to exercise or protect any rights. The purpose of the Act is to foster a culture of transparency and accountability in public and private bodies and to promote a society in which people have access to information that enables them to exercise and protect their rights

A-2.3.2 Provincial Policies and/or Guidelines***Integrated Environmental Management (IEM)***

IEM is a philosophy for ensuring that environmental considerations are fully integrated into all stages of the development process. This philosophy aims to achieve a desirable balance between conservation and development (DEAT, 1992). The IEM guidelines intend encouraging a pro-active approach to sourcing, collating and presenting information in a manner that can be interpreted at all levels.

The DEA Integrated Environmental Management Information Series guidelines are also considered during this S&EIR application process.

National Spatial Biodiversity Assessment

The National Spatial Biodiversity Assessment (NSBA) classifies areas as worthy of protection based on its biophysical characteristics, which are ranked according to priority levels.

Protected species – Provincial Ordinances

Provincial ordinances were developed to protect particular plant species within specific provinces. The protection of these species is enforced through permitting requirements associated with provincial lists of protected species. Permits are administered by the Provincial Departments of Environmental Affairs.

Spatial Development Framework - Mbombela Local Municipality

The purpose of the Mbombela SDF is to guide all decisions of a municipality relating to the use, development and planning of land and should have the following key objectives:

- To provide a strategic and indicative forward planning tool to guide decisions on land development;
- To provide a set of policies, principles and directives for spatial development;
- To provide a clear and logical framework for private and public sector investment;
- To promote sustainable development in terms of the natural and built environment;
- To facilitate social, economic and environmental sustainability;
- To provide a framework for dealing with key issues such as natural resource management, land reform and land use management;
- To facilitate the development of aesthetic urban form and landscape; and
- To guide and inform directions of growth and major movement routes.

In order to achieve these objective the following initiative (amongst other) were identified:

Significant investment in infrastructure, including provincial and local roads, bulk water infrastructure and water supply networks, energy distribution, housing, schools and clinics, business centres, sports facilities, and multi-purpose government service centres, including police stations, courts and **correctional facilities**.

A-3 DETAILS OF THE APPLICANT

The details of the project applicant are:

Name of Applicant	Physical Address	Relevant Numbers
Nosipho Mathenjwa - Mpumalanga Department of Public Works Roads and Transport	18 Bell Street Bell Towers Nelspruit	Tel: 013 766 8921 Fax: 013 766 6554 E-mail: mathenjwanp@mpg.gov.za

A-4 NEED AND DESIRABILITY OF THE PROJECT

“Crimes (committed by child offenders) are increasing, becoming more violent and are happening at an earlier age. On the one hand there is a call for being tougher on crime, where heavier penalties and longer sentences are being encouraged. On the other hand children's rights must be kept in mind when holding them responsible for their crimes.” (Professor Jaap Doek, Chairman of the United Nations Committee on the Right of the Child).

Juvenile centres can assist youth from troubled and impoverished homes and communities who have had minor run-ins with the law and provide them with a place of care outside of a juvenile prison where abuse and gangsterism are often problematic. Juvenile centres can provide youth with an environment where they can be rehabilitated into constructive, active and positive citizens.

Juvenile centres is believed to be the answer to over-congestion in jails and has the added benefit to the country in that it provides the young offenders with rehabilitation programmes which can include art, wood work, computer skills and literacy training or a mental programme on life skills which will empower them to participate positively in society.

The Swartfontein Secure Care Centre will strive towards the successful rehabilitation of young offenders and ensure that are given the opportunity to become constructive, active and positive citizens for a safer South Africa.

SECTION B THE RECEIVING ENVIRONMENT

In order to, with any level of confidence, assess the potential impacts of the proposed residential development on the receiving environment, one needs to first assess the baseline conditions found over the study area. Using this *Status Quo* one can then, broadly speaking, determine the likely impacts that will emanate from a specific development typology on a well-defined receiving environment.

B-1 BIOPHYSICAL ENVIRONMENT

B-1.1 Climate

The study area lies within the sub-tropical lowveld climatic region, which is typically characterised by hot rainy summers and warm dry winters. The area normally receives about 722mm of rain per year. Table 2 below shows the average rainfall values for the area per month. It receives the lowest rainfall (3mm) in June and the highest (132mm) in January. The monthly distribution of average daily maximum temperatures (Table 2) shows that the average midday temperatures for range from 20.9°C in June to 27.2°C in January. The region is the coldest during July when the mercury drops to 6°C on average during the night.

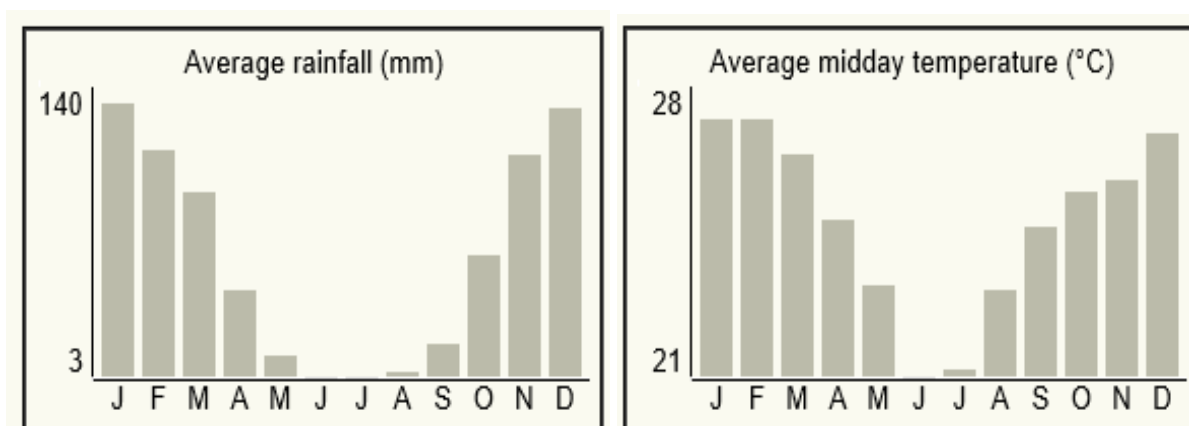


Figure 2: Average rainfall and temperature in the Study Area (source: www.saexplorer.co.za)

B-1.4 Topography

The study area lies on the eastern escarpment of the Drakensberg Mountain range and is situated at approximately 1000m above mean sea level. The area is fairly adulating and mainly surrounded by pine plantations (forestry). The proposed site slopes towards the Blinkblaarspruit which runs to the east and south before it flows into the Klipkoppie dam in the south-west. Refer to Figure 3.



Figure 3: Topography of the Study Area from the south-west

B-1.3 Geology and Soil

The study area consists of highly permeable and erodible, colluvial sands and residual soils overlying dolomite of the Transvaal sequence. The dolomite outcrops are numerous and distinctive. The permeability of the dolomitic soils and the weathered dolomite is very high. This material consists of red brown silty sand known as hill wash, below which lies a silty clayey sand with pebbles and gravel which may have oxidised in places.

The agricultural potential of soils in the study area is classified as “Arable” with moderate to severe limitations (class 3 and 4). The undulating topography will complicate any form of agriculture – hence the strong dominance of forestry in the area.

B-1.5 Hydrology

The study area lies in the X22G quaternary catchment. The Blinkblaarspruit runs to the east and south of the proposed site before it flows into the Klipkoppie dam in the south-west. The Klipkoppie dam flows into the Longmere dam just north of the town, White River.

B-1.5 Geohydrology

The following geohydrological features are of note in the broader area:

The Kanyamazane area is underlain by a granite aquifer which is estimated to store approximately 5 000 m³ of water per square kilometre and receives some 25 000 m³ per annum of recharge from natural rain. The quality of the groundwater is noted as excellent although some contamination is believed to be taking place. Groundwater drainage is in an easterly direction. The area to the north of Nelspruit (relevant study area) is typically underlain by unoxidised residual dolomitic soils however some of the areas appear to be oxidised and as a consequence are likely to be very permeable.

Other areas may have sinkholes forming as a result of the poor drainage and where the dolomite rock is less than 6 m deep.

B-1.6 Flora and Fauna

The study area is situated in the Savanna Biome and the vegetation type is classified as Lowveld Sour Bushveld. The area is characterised by mountains with steep sided valleys containing pockets of Afromontane forests. The Afromontane forests contain a wealth of tree species including Yellowwoods, Cape Beach, Lemon Wood and Forest Waterwood (Odendall 1984). The forests provide ideal habitat for various species of terrestrial and epiphytic orchids, ferns and mosses and small mammals such as Red Duiker and tree dassies. Between the forest patches there is open savannah with characteristic trees such as Kiaat, Natal Mahogany and Broad-leaved Boekenhout. According the Mpumalanga Conservation Plan's Terrestrial layer a large part of the study area is already modified and falls within the "Least Concern" category with regards to biodiversity. Refer to Figure 4.

A full ecological study will however be commissioned as part of the EIA Process.

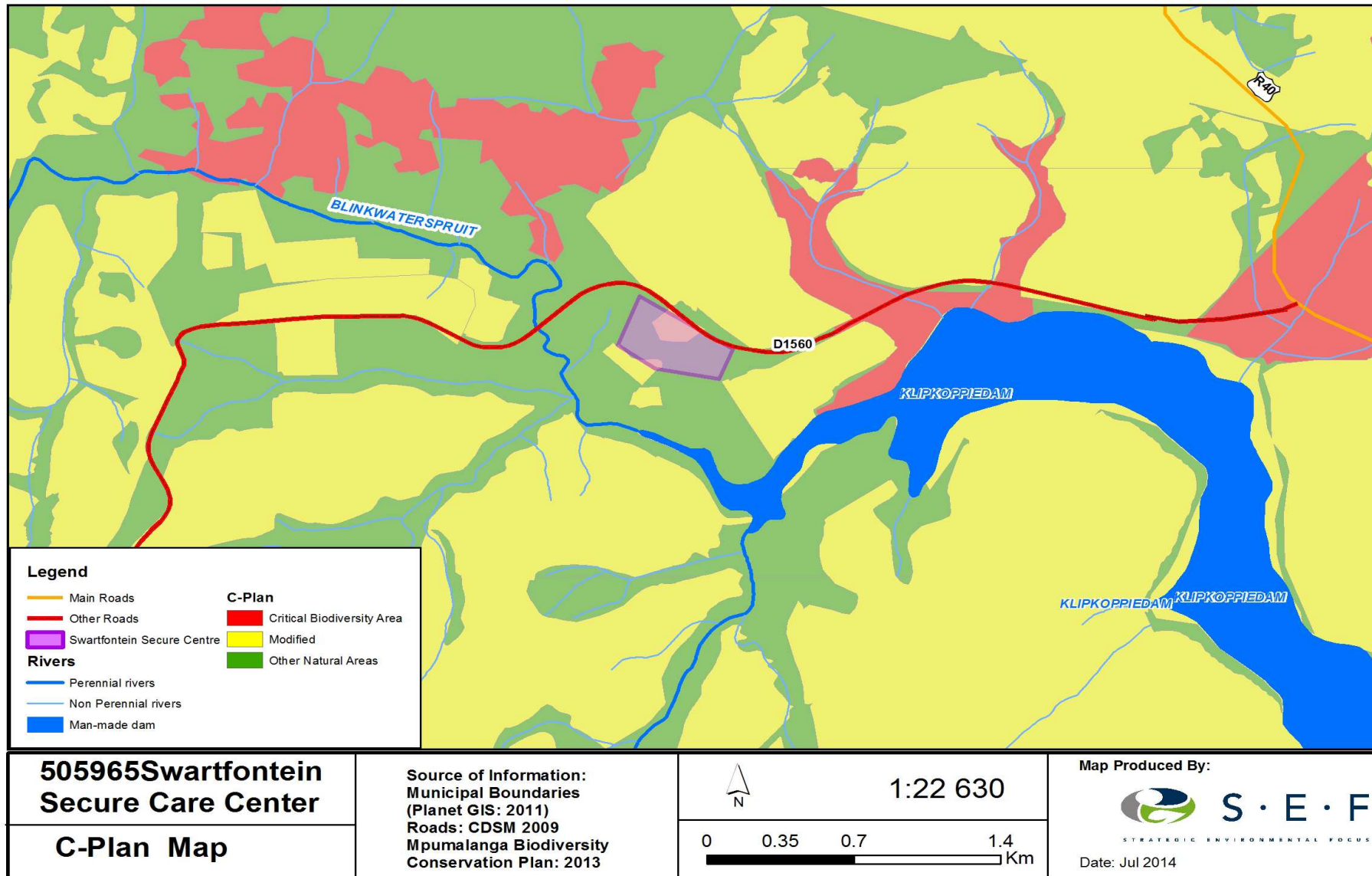


Figure 4: Mpumalanga Conservation Plan

B-1.2 SOCIAL ENVIRONMENT

B-1.2.1 Demographics

The proposed project is located in Ward 8 of the Mbombela Local Municipality in Mpumalanga. According to the latest Census information (2011) this Ward has a total population of 16 404 people with a 50-50% split between male and female. Population groups are represented as follows: Black African (88%), White (11%) and Coloured (1%). Records also show that 33% of the population is under 18 years old. The language most spoken in this area is SiSwati. The official employment rate of the area is 41.6% and 35.4% of the population completed a matric or a higher qualification. Access to basic services in the Ward is as follows: piped water (20%); borehole water (22%); electricity (88.1%); toilet facilities (23.1%); and refuse disposal (10.5%).

B-1.2.2 Visual

The proposed site lies within a fairly adulating area and is predominantly surrounded by pine plantations (forestry). The site is completely isolated apart from a dwelling across the road as well as the existing Swartfontein Treatment Centre situated approximately 1km to the East. There are three existing houses and a number of outbuildings on the site. All buildings and structures are in a very poorly maintained state but seems to be inhabited. Vegetation on site is completely overgrown which obstructs access as well as views from the site in all directions.

B-1.2.3 Heritage

As per the National Heritage Resources Act, 1999 (Act No. 25 of 1999), the proposed development will undergo a Phase 1 Heritage Impact Assessment, due to the size of the development exceeding 0.5 ha. Should any heritage artefacts (such as buildings older than 60 years and/graves) be uncovered, the relevant heritage agency will be appropriately consulted.

B-1.2.4 Dust and Noise

The Residents across the road on Zwartfontein 227 as well as residents of the Swartfontein Treatment Centre will be subjected to an elevated level of ambient dust and noise caused by construction activities. An increased level of traffic will also be experienced on the D1560 as a result of the proposed construction and operational activities. These impacts, however, can be reduced through the successful implementation of mitigation measures.

SECTION C ENVIRONMENTAL IMPACT ASSESSMENT (EIA) PROCESS

C-1 APPROACH TO THE EIA

An Environmental Impact Assessment (EIA) is an effective environmental planning tool. It identifies the environmental impacts of a proposed project and assists in ensuring that a project will be environmentally acceptable and integrated into the surrounding environment in a sustainable way.

The EIA for this project complies with the requirements of the National Environmental Management Act, 1998 (Act 107 of 1998) [NEMA] and the NEMA EIA Regulations, 2010 of the DEA. The guiding principles of an EIA are listed below.

Definition of the term “environment”

The term “environment” is used in the broadest sense in an environmental impact assessment. It covers the physical, biological, social, economic, cultural, historical, institutional and political environments.

C-2 GUIDING PRINCIPLES FOR AN EIA

The EIA must take an open participatory approach throughout. This means that there should be no hidden agendas, no restrictions on the information collected during the process and an open-door policy by the proponent. Technical information must be communicated to stakeholders in a way that is understood by them and that enables them to meaningfully comment on the project.

There should be on-going consultation with Interested and Affected Parties (I&APs) representing all walks of life. Sufficient time for comment must be allowed. The opportunity for comment should be announced on an on-going basis. There should finally be opportunities for input by specialists and members of the public. Their contributions and issues should be considered when technical specialist studies are conducted and when decisions are made.

The eight guiding principles that govern the entire process of EIA are as follows (see Figure 5 below):

- **Participation:** An appropriate and timely access to the process for all interested parties.
- **Transparency:** All assessment decisions and their basis should be open and accessible.
- **Certainty:** The process and timing of the assessment should be agreed in advanced and followed by all participants.
- **Accountability:** The decision-makers are responsible to all parties for their action and decisions under the assessment process.
- **Credibility:** Assessment is undertaken with professionalism and objectivity.
- **Cost-effectiveness:** The assessment process and its outcomes will ensure environmental protection at the least cost to the society.
- **Flexibility:** The assessment process should be able to adapt to deal efficiently with any proposal and decision making situation.
- **Practicality:** The information and outputs provided by the assessment process are readily usable in decision making and planning.

An S&EIR process is considered as a project management tool for collecting and analysing information on the environmental effects of a project. As such, it is used to:

- Identify potential environmental impacts;
- Examine the significance of environmental implications;
- Assess whether impacts can be mitigated;

- Recommend preventive and corrective mitigating measures;
- Inform decision makers and concerned parties about the environmental implications; and
- Advise whether development should go ahead.

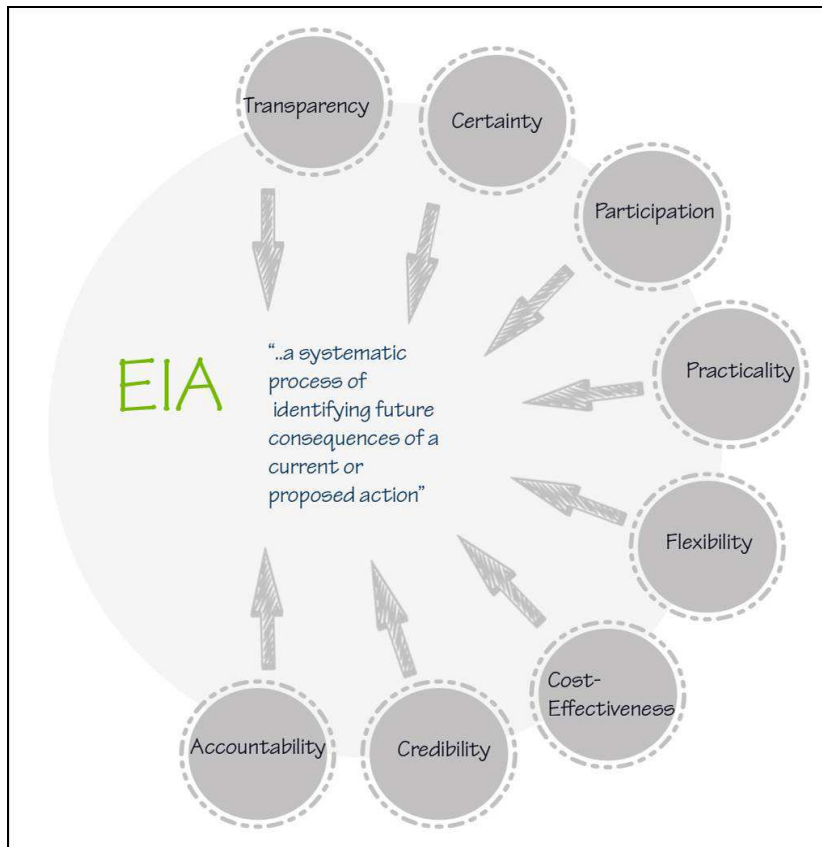


Figure 5: The eight guiding principles for the EIA process

An S&EIR process typically has four phases, as illustrated in Figure 6 below. The Public Participation process forms an integral part of all four phases and is discussed in greater detail in Section C – 4 of this Draft Scoping Report.

C-3 S&EIR TECHNICAL PROCESS

This section provides a summary of the technical process to be followed for this S&EIR process.

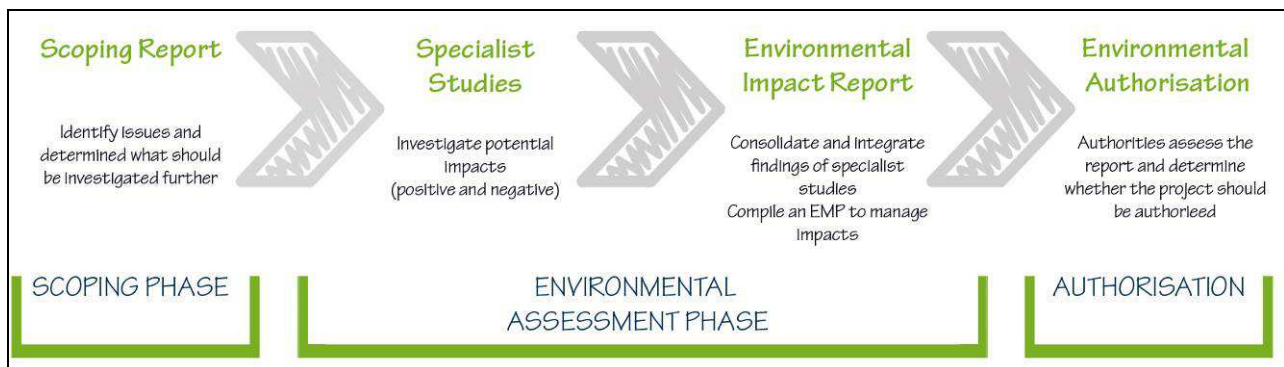


Figure 6: Flow diagram of the Scoping and EIR process

C-3.1 Consultation with the Competent Authorities

The EAP conducting the S&EIR process for the Applicant, in support of their application for an environmental authorisation, is deemed to have a good understanding of the information requirements of the MDEDET and the DWA for the proposed development, such that the two Department's specific information requirements are deemed to have been met for the scoping phase of this project.

C-3.2 Application for Authorisation

The application form informing the MDEDET of intent to obtain an environmental authorisation was submitted to the MDEDET on 5 August 2014. The project was subsequently registered and assigned the reference number MDEDT Ref: **17/2/3-292**.

C-3.3 Information Gathering

Early in process, the technical specialists identified the information that would be required for the impact assessment and the relevant data was obtained. In addition, the specialists sourced available information about the receiving environment from reliable sources, I&APs, previous documented studies in the area and previous EIA Reports.

C-3.4 Specialist Studies

The following specialist studies were identified to be undertaken during the EIR phase:

- Ecological Impact Assessment – Karin Van der Walt
- Phase 1 Heritage Impact Assessment – Mamoluane Seliane

C-4 PUBLIC PARTICIPATION PROCESS

The principles of NEMA govern many aspects of the S&EIR process, including consultation with I&APs. These principles include the provision of sufficient and transparent information to I&APs on an on-going basis, to allow them to comment; and ensuring the participation of historically disadvantaged individuals, including women, the disabled and the youth.

The principal objective of public participation is thus to inform and enrich decision-making. This is also the key role in the scoping phase of the process.

C-4.1 Identification of Interested and Affected Parties

I&APs representing the following sectors of society have been identified in terms of Regulation 55 of the EIA Regulations R543 of 2010 (see Appendix 5 for a complete preliminary I&AP distribution list):

- Provincial Authorities;
- Local Authorities;
- Ward Councillors;
- Parastatal/ Service Providers;
- Non-governmental Organisations;
- Local forums/ unions; and
- Adjacent Landowners.

C-4.2 Public Announcement of the Project

The project was announced on **Friday, 22 August 2014** in the following manner (see Appendix 5 for public announcement documentation):

- Publication of media advertisements in a local newspaper in English (Lowvelder);
- On-site notices advertising the S&EIR process were placed on and around the site, and
- Distribution of letters by fax/ by hand/ post/ email to I&APs including Registration and Comment Sheets.

C-4.3 Draft Scoping Report

I&APs and relevant State Departments have been given the opportunity to raise issues either in writing, by telephone or email on the Draft Scoping Report for a period of 40 days (**Friday, 22 August 2014 to Thursday, 2 October 2014**). The availability of the Draft Scoping Report has been announced by means of personal letters to all the registered I&APs on the distribution list, and by adverts placed in the abovementioned newspapers.

In addition, the Draft Scoping Report was distributed for comment as follows:

- Left in public venue (Sabie Public Library);
- Hand-delivered/ couriered to the relevant authorities; and
- Posted on SEF's website at <http://www.sefsa.co.za>.

All the comments and concerns raised by I&APs during the S&EIR process will be captured in a Comment and Response Report. I&APs will receive letters and/or e-mails acknowledging their contributions.

C-4.4 Final Scoping Report

The Draft Scoping Report will be updated with comments and/or concerns raised by I&APs. The Comment and Response Report will also be attached to the Final Scoping Report. The Final Scoping Report will then be submitted to the MDEDET and registered I&APs simultaneously for review and comment for a period of 21 days. Registered I&APs will be advised to submit any additional comments on the Final Scoping Report directly to the MDEDET prior to the lapsing of the 21 day review period.

C-4.5 Public participation during the Impact Assessment Phase

Public participation during the Impact Assessment Phase of the S&EIR process will revolve around a review of the findings of the Environmental Impact Report (EIR) and inputs into the Environmental Management Programme (EMP). The findings will be presented in a Draft Environmental Impact Report and EMP (including the specialist studies conducted), which will be available for public review and comment.

SECTION D IDENTIFICATION OF IMPACTS

D-1 IDENTIFICATION OF IMPORTANT ENVIRONMENTAL IMPACTS

The key environmental impacts listed in the following section have been determined through:

- Legislation; and
- Experience of the Environmental Assessment Practitioner (EAP).

The following issues were identified and will be carried forward into the EIR phase for further investigation and assessment:

D-1.1 Biophysical Impacts

- Potential increase in surface water run-off (viz. increased soil erosion) associated with the establishment of hard internal surfaces and vegetation clearance (mainly during the construction phase);
- Potential impacts on soil as well as ground and surface water quality due to hydrocarbon spillages from vehicles during the construction phase of the development;
- Destruction of Flora as a result of site clearance;
- Traffic will increase along the D1560 road; and
- Faunal displacement mainly during the construction phase of the project.

D-1.2 Socio-Economic Impacts

- Increased dust and noise generation during the construction phase;
- Potential damage to cultural heritage resources;
- The construction phase will cause significant visual change to the site as a result of the necessary earthworks for roads, buildings and services;
- Traffic will increase along the D1560 road; and
- Job creation during the construction and operational phases of the proposed project (+)

D-2 IDENTIFICATION OF CUMULATIVE IMPACTS

Cumulative impacts, as illustrated below, occur as a result from the combined effect of incremental changes caused by other activities together with the particular project. In other words, several developments with insignificant impacts individually may, when viewed together, have a significant cumulative adverse impact on the environment (see Figure 7 below).

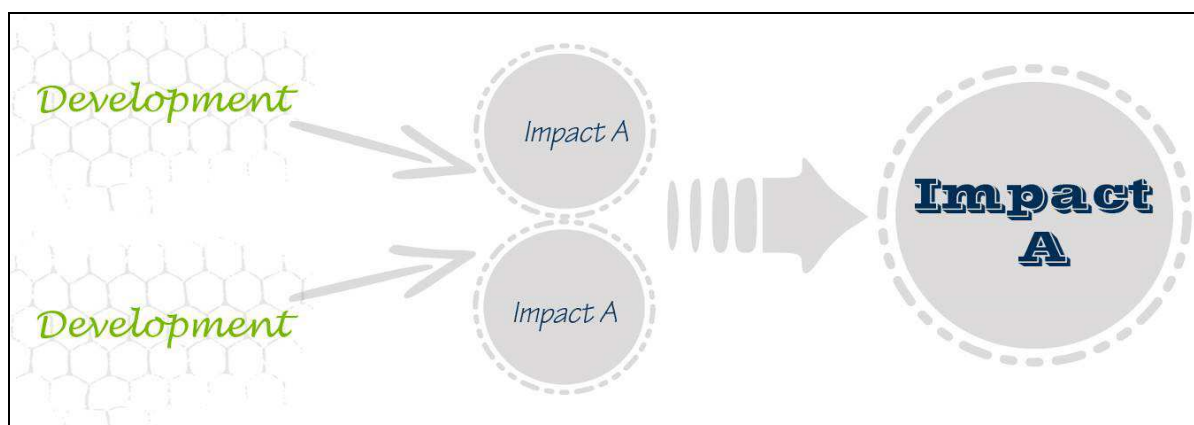


Figure 7: The identification of Cumulative Impacts

The following cumulative impacts have been identified in terms of the proposed development and warrant further investigation during the assessment phase:

- Transformation of arable land fit for Agriculture in Mpumalanga.

SECTION E ALTERNATIVES

E-1 IDENTIFICATION OF ALTERNATIVES

The EIA procedures and regulations stipulate that the environmental investigation needs to consider feasible alternatives for any proposed development. Therefore, a number of possible proposals or alternatives for accomplishing the same objectives should be identified and investigated. During the EIR phase of the project, the identified alternatives will be assessed, in terms of environmental acceptability as well as socio-economic feasibility. To define the term alternatives as per Government Notice No. 543 of the NEMA EIA Regulations 2010 means:

“...in relation to a proposed activity, means different means of meeting the general purpose and requirements of the activity, which may include alternatives to:

- (a) The property on which or location where it is proposed to undertake the activity;*
- (b) The type of activity to be undertaken;*
- (c) The design or layout of the activity;*
- (d) The technology to be used in the activity;*
- (e) The operational aspects of the activity; and*
- (f) The option of not implementing the activity.”*

The alternatives below will be further investigated during the EIR phase of the project:

Alternative 1: Site/ Location Alternatives:

The Mpumalanga Department of Public Works, Roads and Transport owns the proposed site and therefore site alternatives are not deemed viable and no further site/location alternatives will be investigated.

Alternative 2: Layout/ Design Alternatives:

Environmental sensitivity will be considered in the proposed layout. No other layout alternatives will be considered.

Alternative 3: Technology Alternatives:

Not considered

No-Go option

This option assumes that a conservative approach would ensure that the environment is not impacted upon any more than is currently the case. It is important to state that this assessment is informed by the current condition of the area. Should the MDEDET decline the application, the 'No-Go' option will be followed and the status quo of the site will remain.

SECTION F PLAN OF STUDY FOR EIR PHASE

F-1 SCOPE AND PURPOSE OF THE EIR PHASE

The EIR phase will focus on the proposed development and the associated impacts thereof. The next step of the S&EIR process is the development of guidelines for the execution of the impact assessment and the compilation of an Environmental Impact Report, as well as an Environmental Management Programme (EMP). The compilation of these documents will take into account all comments and concerns raised by I&APs which are captured within the Comment and Response Report (C&RR) as well as the findings of various specialist studies.

The Final Environmental Impact Report and EMP will be submitted to the MDEDET for consideration towards environmental authorisation.

F-2 METHODOLOGY OF THE EIR PHASE

F-2.1 Specialist Investigations and Terms of Reference

A team of specialists were identified to provide technical and scientific input in assessing the impacts of the proposed solar plant. The following specialist studies will be incorporated into the Draft Environmental Impact Report:

- Ecological (Flora and Fauna) Impact Assessment;
- Phase 1: Heritage Impact Assessment;
- Soil and Agricultural Potential Impact Assessment;
- Wetland Delineation and Functional Assessment; and
- Geo-hydrological Assessment.

The Environmental and Technical Investigation Team of Specialists will focus on discipline-specific problems and examine each significant issue in further detail through the relevant specialist studies.

As per the Environmental Management Guidelines, specialists' Terms of Reference (ToR) must be clearly defined and clarified. This is to ensure that the specialists have covered all the issues and topics in an appropriate manner and at an appropriate level of detail. The proposed studies will take into consideration the present state of the receiving environment and provide an assessment of the impacts likely to be associated with the proposed project, as well as mitigation measures to be used to minimise possible impacts. The ToR for each specialist study is explained in greater detail below.

F-2.1.1 Ecological Impact Assessment

The terms of reference for the floral and faunal assessments were as follow:

- Identify any ecologically sensitive areas and active/potential ecological processes associated with the project area, including data from field surveys as well as from existing databases;
- Highlight any Red Data species or species considered to be of conservation importance, including species identified on-site as well as those potentially occurring;
- Evaluate the sensitivity of the habitat for fauna;
- Note and describe any sensitive systems or species that could be impacted on by the proposed housing development;
- Provide a general biodiversity sensitivity map for the proposed housing development; and

- Determine the impacts of the proposed development on the faunal species and recommend mitigation measures to lessen these impacts.

F-2.1.2 Phase 1: Heritage Impact Assessment

A Heritage Impact Assessment will be undertaken in order to assess the impacts and significance in terms of cultural heritage resources on the site and propose mitigation measures. The ToR includes *inter alia*:

- A desk-top investigation of the area;
- A site visit to the proposed development site;
- Identify possible archaeological, cultural and historic sites within the proposed development area;
- Evaluate the potential impacts of construction and operation of the proposed development on archaeological, cultural and historical resources; and
- Recommend mitigation measures to ameliorate any negative impacts on areas of archaeological, cultural or historical importance.

F-2.1.5 Soil and Agricultural Potential Impact Assessment

The DEA has requested an Agricultural study to be conducted for the proposed site, on a scale of 1:10 000 or finer. As outlined by the DEA the study should include:

- The identification of the soil forms present on site;
- The size of the area where a particular soil form is found;
- GPS readings of the soil survey points;
- The depth of the soil at each survey point;
- Soil colour;
- Limiting factors;
- Clay content;
- Slope of the site;
- A detailed map indicating the locality of the soil forms within the specified area;
- Size of the site;
- Exact locality of the site;
- Current activities on the site, developments, buildings, etc;
- Surrounding developments/ land uses and activities in a radius of 500 m of the site;
- Access routes and the condition thereof;
- Current status of the land (including erosion, vegetation and a degradation assessment);
- Possible land use options for the site;
- Water availability, source and quality (if available);
- Detailed descriptions of why agriculture should or should not be the land use of choice;
- Impact of the change of land use on the surrounding area; and
- A shape file containing the soil forms and relevant attribute data as depicted on the map.

F-2.1.6 Wetland Delineation and Functional Assessment

A wetland delineation and functional assessment of the wetland(s)/ drainage line(s) on site may need to be conducted during the EIR phase of the project. It will identify the current condition of the wetland and identify the potential impacts of the proposed development on the wetland/ drainage line and recommend mitigation measures accordingly.

F-2.1.7 Geo-hydrological Assessment

The terms of reference for in this investigation is as follows:

- Reviewing of all existing information;
- Determine aquifer parameters;
- Using numerical groundwater models to determine viable options;
- Performing risk assessments to determine the sustainability of the options; and
- Drilling

F-3 APPROACH TO ASSESSMENT OF IMPACTS

The EAP in association with the relevant specialists will provide an outline of the approach used in the study. Assumptions and sources of information will also be clearly identified.

F-3.1.1 Impact Identification and Assessment

The EAP must make a clear statement, identifying the environmental impacts of the construction, operation and management of the proposed development. As far as possible, the EAPs must quantify the suite of potential environmental impacts identified in the study and assess the significance of the impacts according to the criteria set out below. Each impact will be assessed and rated. The assessment of the data must, where possible, be based on accepted scientific techniques, failing which the specialist is to make judgements based on his/ her professional expertise and experience.

F-3.1.2 Assessment Procedure: Proposed Impact Assessment Methodology

For the purpose of assessing impacts during the EIR phase of the project to follow, the project will be divided into two phases from which impacting activities can be identified, namely:

Construction Phase: All the construction related activities on site, until the contractor leaves the site.

Operational Phase: All activities, including the operation and maintenance of the proposed development.

The activities arising from each of these phases will be included in the impact assessment tables. This is to identify activities that require certain environmental management actions to mitigate the impacts arising from them.

The assessment of the impacts will be conducted according to a synthesis of criteria required by the integrated environmental management procedure.

Table 5: Impact Assessment Table

Extent The physical and spatial scale of the impact.	Footprint	The impacted area extends only as far as the activity, such as footprint occurring within the total site area.
	Site	The impact could affect the whole, or a significant portion of the site.
	Regional	The impact could affect the area including the neighbouring farms, the transport routes and the adjoining towns.
	National	The impact could have an effect that expands throughout the country (South Africa).
	International	Where the impact has international ramifications that extend beyond the boundaries of South Africa.

Duration The lifetime of the impact, that is measured in relation to the lifetime of the proposed development.	Short Term	The impact will either disappear with mitigation or will be mitigated through a natural process in a period shorter than that of the construction phase.
	Short-Medium Term	The impact will be relevant through to the end of a construction phase.
	Medium Term	The impact will last up to the end of the development phases, where after it will be entirely negated.
	Long Term	The impact will continue or last for the entire operational lifetime of the development, but will be mitigated by direct human action or by natural processes thereafter.
	Permanent	This is the only class of impact, which will be non-transitory. Mitigation either by man or natural process will not occur in such a way or in such a time span that the impact can be considered transient.
Intensity Is the impact destructive or benign, does it destroy the impacted environment, alters its functioning, or slightly alter the environment itself?	Low	The impact alters the affected environment in such a way that the natural processes or functions are not affected.
	Medium	The affected environment is altered, but functions and processes continue, albeit in a modified way.
	High	Function or process of the affected environment is disturbed to the extent where it temporarily or permanently ceases.
Probability The likelihood of the impacts actually occurring. The impact may occur for any length of time during the life cycle of the activity, and not at any given time.	Improbable	The possibility of the impact occurring is none, due either to the circumstances, design or experience. The chance of this impact occurring is zero (0%).
	Possible	The possibility of the impact occurring is very low, due either to the circumstances, design or experience. The chances of this impact occurring is defined as 25%.
	Likely	There is a possibility that the impact will occur to the extent that provisions must therefore be made. The chances of this impact occurring is defined as 50%.
	Highly Likely	It is most likely that the impacts will occur at some stage of the development. Plans must be drawn up before carrying out the activity. The chances of this impact occurring is defined as 75%.
	Definite	The impact will take place regardless of any prevention plans, and only mitigation actions or contingency plans to contain the effect can be relied on. The chance of this impact occurring is defined as 100%.

Mitigation – The impacts that are generated by the development can be minimised if measures are implemented in order to reduce the impacts. The mitigation measures ensure that the development considers the environment and the predicted impacts in order to minimise impacts and achieve sustainable development.

Determination of Significance – Without Mitigation – Significance is determined through a synthesis of impact characteristics as described in the above paragraphs. It provides an indication of the importance of the impact in terms of both tangible and intangible characteristics. The significance of the impact “without mitigation” is the prime determinant of the nature and degree of mitigation required. Where the impact is positive, significance is noted as “positive”. Significance will be rated on the following scale:

No significance: The impact is not substantial and does not require any mitigation action;

Low: The impact is of little importance, but may require limited mitigation;

Medium: The impact is of importance and is therefore considered to have a negative impact. Mitigation is required to reduce the negative impacts to acceptable levels; and

High: The impact is of major importance. Failure to mitigate, with the objective of reducing the impact to acceptable levels, could render the entire development option or entire project proposal unacceptable. Mitigation is therefore essential.

Determination of Significance – With Mitigation – Determination of significance refers to the foreseeable significance of the impact after the successful implementation of the necessary mitigation measures. Significance with mitigation will be rated on the following scale:

No significance: The impact will be mitigated to the point where it is regarded as insubstantial; Low: The impact will be mitigated to the point where it is of limited importance;

Low to medium: The impact is of importance, however, through the implementation of the correct mitigation measures such potential impacts can be reduced to acceptable levels;

Medium: Notwithstanding the successful implementation of the mitigation measures, to reduce the negative impacts to acceptable levels, the negative impact will remain of significance. However, taken within the overall context of the project, the persistent impact does not constitute a fatal flaw;

Medium to high: The impact is of major importance but through the implementation of the correct mitigation measures, the negative impacts will be reduced to acceptable levels; and

High: The impact is of major importance. Mitigation of the impact is not possible on a cost-effective basis. The impact is regarded as high importance and taken within the overall context of the project, is regarded as a fatal flaw. An impact regarded as high significance, after mitigation could render the entire development option or entire project proposal unacceptable.

Assessment Weighting – Each aspect within an impact description was assigned a series of quantitative criteria. Such criteria are likely to differ during the different stages of the project's life cycle. In order to establish a defined base upon which it becomes feasible to make an informed decision, it will be necessary to weigh and rank all the identified criteria.

Ranking, Weighting and Scaling – For each impact under scrutiny, a scaled weighting factor will be attached to each respective impact. The purpose of assigning such weightings serve to highlight those aspects considered the most critical to the various stakeholders and ensure that each specialist's element of bias is taken into account. The weighting factor also provides a means whereby the impact assessor can successfully deal with the complexities that exist between the different impacts and associated aspect criteria.

Simply, such a weighting factor is indicative of the importance of the impact in terms of the potential effect that it could have on the surrounding environment. Therefore, the aspects considered to have a relatively high value will score a relatively higher weighting than that which is of lower importance (See Figure 8 below: Weighting description).

Extent	Duration	Intensity	Probability	Weighting Factor (WF)	Significance Rating (SR)	Mitigation Efficiency (ME)	Significance Following Mitigation (SFM)
Footprint 1	Short term 1	Low 1	Probable 1	Low 1	Low 0-19	High 0,2	Low 0-19
Site 2	Short to medium 2	Low to medium 2	Possible 2	Low to medium 2	Low to medium 20-39	Medium to high 0,4	Low to medium 20-39
Regional 3	Medium term 3	Medium 3	Likely 3	Medium 3	Medium 40-59	Medium 0,6	Medium 40-59
National 4	Long term 4	Medium to high 4	Highly Likely 4	Medium to high 4	Medium to high 60-79	Low to medium 0,8	Medium to high 60-79
International 5	Permanent 5	High 5	Definite 5	High 5	High 80-100	Low 1,0	High 80-100

Figure 8: Description of bio-physical assessment parameters with its respective weighting

Identifying the Potential Impacts Without Mitigation Measures (WOM) – Following the assignment of the necessary weights to the respective aspects, criteria are summed and multiplied by their assigned weightings, resulting in a value for each impact (prior to the implementation of mitigation measures).

Equation 1: Significance Rating (WOM) = (Extent + Intensity + Duration + Probability) x
Weighting Factor

Identifying the Potential Impacts With Mitigation Measures (WM) – In order to gain a comprehensive understanding of the overall significance of the impact, after implementation of the mitigation measures, it will be necessary to re-evaluate the impact.

Mitigation Efficiency (ME) – The most effective means of deriving a quantitative value of mitigated impacts is to assign each significance rating value (WOM) a mitigation effectiveness (ME) rating. The allocation of such a rating is a measure of the efficiency and effectiveness, as identified through professional experience and empirical evidence of how effectively the proposed mitigation measures will manage the impact.

Thus, the lower the assigned value the greater the effectiveness of the proposed mitigation measures and subsequently, the lower the impacts with mitigation.

Equation 2: Significance Rating (WM) = Significance Rating (WOM) x Mitigation Efficiency
Or
WM = WOM x ME

Significance Following Mitigation (SFM) – The significance of the impact after the mitigation measures are taken into consideration. The efficiency of the mitigation measure determines the significance of the impact. The level of impact will, therefore, be seen in its entirety with all considerations taken into account.

F-3.1.3 Integration of Specialist's Input

In order to maintain consistency in the impact assessment, it is suggested that all potential impacts to the environment (or component of the environment under review) should be listed in a table similar to the example shown below (more than one table will be required if impacts require assessment at more than one scale). The assessment parameters used in the table should be applied to all of the impacts and a brief descriptive review of the impacts and their significance will then be provided in the text of the specialist reports and consequently in the EIR. The implications of applying mitigation are reviewed in Section F-3.1.4 below.

Table 6: Example of an Impact Table

Nature		Status	-
Impact source(s)			
Affected stakeholders			
Magnitude	<i>Extent</i>		
	<i>Intensity</i>		
	<i>Duration</i>		
	<i>Reversibility</i>		
	<i>Probability</i>		
Significance	<i>Without mitigation</i>		H
	<i>With mitigation</i>		L
Confidence			

F-3.1.4 Mitigation Measures

Mitigation measures will be recommended in order to enhance benefits and minimise negative impacts and they will address the following:

- Mitigation objectives: what level of mitigation must be aimed at: For each identified impact, the specialist must provide mitigation objectives (tolerance limits) which would result in a measurable reduction in impact. Where limited knowledge or expertise exists on such tolerance limits, the specialist must make an “educated guess” based on his/ her professional experience;
- Recommended mitigation measures: For each impact the specialist must recommend practicable mitigation actions that can measurably affect the significance rating. The specialist must also identify management actions, which could enhance the condition of the environment. Where no mitigation is considered feasible, this must be stated and reasons provided;
- Effectiveness of mitigation measures: The specialist must provide quantifiable standards (performance criteria) for reviewing or tracking the effectiveness of the proposed mitigation actions, where possible; and
- Recommended monitoring and evaluation programme: The specialist is required to recommend an appropriate monitoring and review programme, which can track the efficacy of the mitigation objectives. Each environmental impact is to be assessed before and after mitigation measures have been implemented. The management objectives, design standards, etc., which, if achieved, can eliminate, minimise or enhance potential impacts or benefits. National standards or criteria are examples, which can be stated as mitigation objectives.

Once the above objectives have been stated, feasible management actions, which can be applied as mitigation, must be provided. A duplicate column on the impact assessment tables described above will indicate how the application of the proposed mitigation or management actions has reduced the impact. If the proposed mitigation is to be of any consequence, it should result in a measurable reduction in impacts (or, where relevant, a measurable benefit).

F-3.1.5 Approach to the Assessment of Cumulative Impacts

Cumulative impacts can arise from one or more activities. A cumulative impact may result in an additive impact i.e. where it adds to the impact which is caused by other similar impacts or an interactive impact i.e. where a cumulative impact is caused by different impacts that combine to form a new kind of impact. Interactive impacts may be either countervailing (the net adverse cumulative impact is less than the sum of the individual impacts) or synergistic (the net adverse cumulative impact is greater than the sum of the individual impacts).

Possible cumulative impacts of the project will be evaluated in the EIR. In addition, various other cumulative impacts e.g. other external impacts that could arise from the project will be further investigated in the EIR phase of the project.

The assessment of cumulative impacts on a study area is complex; especially if many of the impacts occur on a much wider scale than the site being assessed and evaluated. It is often difficult to determine at which point the accumulation of many small impacts reaches the point of an undesired or unintended cumulative impact that should be avoided or mitigated. There are often factors which are uncertain when potential cumulative impacts are identified.

F-3.1.6 Steps in Assessing Cumulative Impacts

The assessment of cumulative impacts will not be done separately from the assessment of other impacts. Cumulative impacts however, tend to have different time and space dimensions and therefore require specific

steps. This may even mean that some of the actions in the assessment process, that preceded general impact identification, may have to be revisited after potential cumulative impacts have been identified. This will ensure that the scope of the EIR process is adequate to deal with the identified cumulative impacts.

Three (3) general steps, which are discussed below, will be recommended to ensure the proper assessment of cumulative impacts.

F-3.1.7 Determining the Extent of Cumulative Impacts

To initiate the process of assessing cumulative impacts, it is necessary to determine what the extent of potential cumulative impacts will be. This will be done by adopting the following approach:

- Identify potentially significant cumulative impacts associated with the proposed activity;
- Establish the geographic scope of the assessment;
- Identify other activities affecting the environmental resources of the area; and
- Define the goals of the assessment.

F-4.1.8 Describing the Affected Environment

The following approach is suggested for the compilation of a description of the environment:

- Characterise the identified external environmental resources in terms of their response to change and capacity to withstand stress;
- Characterise the stresses affecting these environmental resources and their relation to regulatory thresholds; and
- Define a baseline condition that provides a measuring point for the environmental resources that will be impacted on.

F-4.1.9 Assessment of Cumulative Impacts

The general methodology which is used for the assessment of cumulative impacts should be coherent and should comprise of the following:

- An identification of the important cause-and-impact relationships between proposed activity and the environmental resources;
- A determination of the magnitude and significance of cumulative impacts; and
- The modification, or addition, of alternatives to avoid, minimize or mitigate significant cumulative impacts.

F-4 PUBLIC PARTICIPATION PROCESS DURING THE EIR PHASE

F-4.1 Stakeholder Engagement

All I&APs registered on the project's database will be kept informed of the EIA process. Notification letters will be submitted informing all registered I&APs of the availability of draft and final Environmental Impact Reports and EMPs for review and comment.

All comments and/or concerns received via telephone, fax, email or post will be incorporated into a Comment and Response Report (C&RR) and included within the Final Environmental Impact Report. All correspondence received will be acknowledged.

SECTION G CONCLUSION AND RECOMMENDATIONS

In accordance with GN No. 543, the Draft Scoping Report is aimed at describing the proposed activity and those reasonable alternatives that have been identified, as well as the receiving environment that may be affected by the proposed project. In accordance with the EIA Regulations, an identification of relevant legislation and guidelines was also given, as well as a description of the public participation process that was and will be followed.

In conclusion, the Draft Scoping Report established the scope of the proposed project throughout its phases, as well as its key impacts on the receiving and surrounding environments. The project motivation has also been described. The Draft Scoping Report also sets out the proposed scope of the EIR phase that will be undertaken for the proposed project.

Comments and/or concerns identified by Interested and Affected Parties (I&APs) during the review period of the Draft Scoping Report will be incorporated into the Final Scoping Report for further investigation during the EIR Phase to follow. The Final Scoping Report and Plan of Study for the EIR phase will be submitted to the MDEDET for consideration.

The EAP proposes that, on the basis of the information contained in this Scoping Report, that the MDEDET accept the Scoping Report and Plan of Study for the EIR phase and allow the EAP to proceed with the EIR phase of the project, such that the more pertinent issues can be thoroughly investigated and assessed, in terms of their significance and impact.

The ability to mitigate any of the potential impacts identified in this Scoping Report will also be investigated during the EIR phase and summarised into a working/ dynamic Environmental Management Programme (EMP) for consideration by I&APs and ultimately by the MDEDET.

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APPENDICES

Appendix 1: Locality Map

Appendix 2: Photograph Plate

Appendix 3: Layout Plan

Appendix 4: Authority Correspondence

Appendix 5: Public Participation