

PORT ELIZABETH INTERNATIONAL AIRPORT



GA Environment



DRAFT BASIC ASSESSMENT FOR THE PROPOSED INSTALLATION OF THE AIR TRAFFIC & NAVIGATION SERVICES (ATNS) DISTANCE MEASURING EQUIPMENT (DME) FOR FAPE 3: UITENHAGE, NELSON MANDELA BAY METROPOLITAN MUNICIPALITY, EASTERN CAPE PROVINCE

MAY 2019



Environmental best practice and sustainability

**DRAFT BASIC ASSESSMENT REPORT
FOR THE
PROPOSED INSTALLATION OF THE AIR TRAFFIC & NAVIGATION SERVICES (ATNS) DISTANCE
MEASURING EQUIPMENT (DME) SITE FOR FAPE 3: UITENHAGE NELSON MANDELA BAY METROPOLITAN
MUNICIPALITY, EASTERN CAPE PROVINCE**

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PROJECT INFORMATION

Title:	Draft Basic Assessment Report (BAR) for the Air Traffic & Navigation Services (ATNS) Distance Measuring Equipment (DME) for FAPE 3: Uitenhage, Nelson Mandela Bay Metropolitan Municipality, Eastern Cape Province
Competent Authority:	National Department of Environmental Affairs (DEA)
DEA Reference No.:	Not issued yet
Applicant:	Air Traffic & Navigation Services
Environmental Assessment Practitioner:	GA Environment (Pty) Ltd.
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LEGISLATIVE REQUIREMENTS FOR A BASIC ASSESSMENT REPORT

The table below provides the requirements for a Basic Assessment report in terms of the EIA Regulations (Appendix 1) with reference to the relevant sections of this report where these requirements are addressed.

Section	Content	Reference in report
	A basic assessment report must contain the information that is necessary for the competent authority to consider and come to a decision on the application, and must include-	
3 (1) (a)	details of- (i) the EAP who prepared the report; and (ii) the expertise of the EAP, including a curriculum vitae;	Section 1.7
3 (1) (b)	the location of the activity, including: (i) the 21-digit Surveyor General code of each cadastral land parcel; (ii) where available, the physical address and farm name; (iii) where the required information in items (i) and (ii) is not available, the coordinates of the boundary of the property or properties;	Section 1.1
3 (1) (c)	a plan which locates the proposed activity or activities applied for as well as associated structures and infrastructure at an appropriate scale; or, if it is- (i) a linear activity, a description and coordinates of the corridor in which the proposed activity or activities is to be undertaken; or (ii) on land where the property has not been defined, the coordinates within which the activity is to be undertaken;	Section 1.1 and Appendix C
3 (1) (d)	a description of the scope of the proposed activity, including (i) all listed and specified activities triggered and being applied for; and (ii) a description of the activities to be undertaken including associated structures and infrastructure	Section 3 Section 1.2
3 (1) (e)	a description of the policy and legislative context within which the development is proposed including- (i) an identification of all legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks, and instruments that are applicable to this activity and have been considered in the preparation of the report; and (ii) how the proposed activity complies with and responds to the legislation and policy context, plans, guidelines, tools frameworks, and instruments	Section 2
3 (1) (f)	a motivation for the need and desirability for the proposed development including the need and desirability of the activity in the context of the preferred location	Section 1.4
3 (1) (g)	a motivation for the preferred site, activity and technology alternative	Section 5

3 (1) (h)	<p>a full description of the process followed to reach the proposed preferred alternative within the site, including:</p> <p>(i) details of all the alternatives considered;</p> <p>(ii) details of the public participation process undertaken in terms of regulation 41 of the Regulations, including copies of the supporting documents and inputs;</p> <p>(iii) a summary of the issues raised by interested and affected parties, and an indication of the manner in which the issues were incorporated, or the reasons for not including them;</p> <p>(iv) the environmental attributes associated with the alternatives focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects;</p> <p>(v) the impacts and risks identified for each alternative, including the nature, significance, consequence, extent, duration and probability of the impacts, including the degree to which these impacts-</p> <p style="padding-left: 40px;">(aa) can be reversed;</p> <p style="padding-left: 40px;">(bb) may cause irreplaceable loss of resources; and</p> <p style="padding-left: 40px;">(cc) can be avoided, managed or mitigated.</p> <p>(vi) the methodology used in determining and ranking the nature, significance, consequences, extent, duration and probability of potential environmental impacts and risks associated with the alternatives;</p> <p>(vii) positive and negative impacts that the proposed activity and alternatives will have on the environment and on the community that may be affected focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects;</p> <p>(viii) the possible mitigation measures that could be applied and level of residual risk; (ix) the outcome of the site selection matrix;</p> <p>(x) if no alternatives, including alternative locations for the activity were investigated, the motivation for not considering such; and</p> <p>(xi) a concluding statement indicating the preferred alternatives, including preferred location of the activity</p>	Section 5
3 (1) (i)	<p>(i) a full description of the process undertaken to identify, assess and rank the impacts the activity will impose on the preferred location through the life of the activity, including-</p> <p>(i) a description of all environmental issues and risks that were identified during the environmental impact assessment process; and</p> <p>(ii) an assessment of the significance of each issue and risk and an indication of the extent to which the issue and risk could be avoided or addressed by the adoption of mitigation measures</p>	Section 7
3 (1) (j)	<p>(j) an assessment of each identified potentially significant impact and risk, including-</p>	Section 8

	<p>(i) cumulative impacts;</p> <p>(ii) the nature, significance and consequences of the impact and risk;</p> <p>(iii) the extent and duration of the impact and risk;</p> <p>(iv) the probability of the impact and risk occurring;</p> <p>(v) the degree to which the impact and risk can be reversed;</p> <p>(vi) the degree to which the impact and risk may cause irreplaceable loss of resources; and</p> <p>(vii) the degree to which the impact and risk can be avoided, managed or mitigated</p>	
3 (1) (k)	where applicable, a summary of the findings and impact management measures identified in any specialist report complying with Appendix 6 to these Regulations and an indication as to how these findings and recommendations have been included in the final report	Section 8 and Appendix G
3 (1) (l)	<p>an environmental impact statement which contains-</p> <p>(i) a summary of the key findings of the environmental impact assessment;</p> <p>(ii) a map at an appropriate scale which superimposes the proposed activity and its associated structures and infrastructure on the environmental sensitivities of the preferred site indicating any areas that should be avoided, including buffers; and</p> <p>(iii) a summary of the positive and negative impacts and risks of the proposed activity and identified alternatives.</p>	Section 9
3 (1) (m)	based on the assessment, and where applicable, impact management measures from specialist reports, the recording of the proposed impact management objectives, and the impact management outcomes for the development for inclusion in the EMPr	Appendix G
3 (1) (n)	any aspects which were conditional to the findings of the assessment either by the EAP or specialist which are to be included as conditions of authorisation	Section 9
3 (1) (o)	a description of any assumptions, uncertainties, and gaps in knowledge which relate to the assessment and mitigation measures proposed	Section 1.8
3 (1) (p)	a reasoned opinion as to whether the proposed activity should or should not be authorised, and if the opinion is that it should be authorised, any conditions that should be made in respect of that authorisation	Section 9
3 (1) (q)	where the proposed activity does not include operational aspects, the period for which the environmental authorisation is required, the date on which the activity will be concluded, and the post construction monitoring requirements finalised	Not Applicable
3 (1) (r)	<p>an undertaking under oath or affirmation by the EAP in relation to: the correctness of the information provided in the reports;</p> <p>(ii) the inclusion of comments and inputs from stakeholders and I&APs;</p>	Appendix D

	(iii) the inclusion of inputs and recommendations from the specialist reports where relevant; and (iv) any information provided by the EAP to interested and affected parties and any responses by the EAP to comments or inputs made by interested and affected parties.	
3 (1) (s)	where applicable, details of any financial provisions for the rehabilitation, closure, and ongoing post decommissioning management of negative environmental impacts	Not Applicable
3 (1) (t)	any specific information that may be required by the competent authority	Not Applicable
3 (1) (u)	any other matters required in terms of section 24(4)(a) and (b) of the Act	Not Applicable

EXECUTIVE SUMMARY

INTRODUCTION

GA Environment (Pty) Ltd has been appointed by Air Traffic and Navigation Services SOC Ltd (ATNS) to undertake a Basic Assessment (BA) for all activities associated with the construction of the Distance Measuring Equipment (DME) Site in Uitenhage, Eastern Cape Province. The proposed ATNS site to be known as *FAPE 3: Uitenhage DME*, is situated within a privately owned and unproclaimed Zingari Private Nature Reserve on Portion 4 of the Farm Centlivres 231. The site is also located approximately 12km north east of the Uitenhage CBD under the jurisdiction of the Nelson Mandela Bay Metropolitan Municipality.

The DME site is an aircraft navigation aid mast that forms part of the Port Elizabeth International Airport Terminal Manoeuvring Area (TMA). The DME site is intended to support the Port Elizabeth International Airport TMA where four other DME sites are proposed by ATNS. The DME site is located approximately 42 km north west of the Port Elizabeth International Airport. The proposed installation of the mast on its own does not trigger any listed activity, however as clearance of 300m² of vegetation is required to allow for the construction of the mast and the associated infrastructure such as an access road, an Environmental Authorisation (EA) is required from the Department of Environmental Affairs.

The proposed DME site will occupy a footprint of approximately 56m², which is 8m x 7m in dimension. The DME site will comprise of various infrastructure including the following:

- Cromodec shelter /container, with stainless steel frame;
- A perimeter fence, a gate and a 15m steel swivel lattice mast (i.e. able to be rotated vertically and horizontally to allow for maintenance) that will be installed on a concrete foundation measuring 2m x 2m x 1m with a DME antenna mounted at the top of the mast;
- A vehicle turning point area of approximately 60m² will be located immediately outside the gate of the DME site;
- An access road of approximately 2m wide is proposed to provide access to the DME site from the main road;
- A working area of 2m around the DME site as well as around the vehicle turning area and the access road; and
- Electrical supply in the form of powerlines and/or underground cables.

The proposed DME technology has numerous benefits in the overall operations of airplanes. Thus, in line with the ATNS mandate, the *FAPE 3: Uitenhage DME* site has been proposed as one of the projects that will fulfil part of the ATNS mission which is 'to provide safe, expeditious and efficient air traffic management solutions and associated services' (ATNS, 2018).

The key benefits of the proposed DME technology include an increase in air traffic safety and efficient and cost-effective operations of airplanes within the South African airspace. Below are the additional benefits of the DME Technology:

- DME-DME network is extremely accurate. Airplanes will be able to identify their position better than VHF VOR i.e. Very High Frequency Omni-directional Range which means that

Frequencies are transmitted in various direction. Although this system does allow for the positioning of aircraft, it does however lack the accuracy of the DME system;

- Allows for more efficient use of airspace;
- It provides Area Navigation (RNAV) capability which is the future of navigation;
- Allows the use of multiple routes on the common system of airways to resolve traffic;
- Facilitate reduced separation thus increasing the aircraft handling capacity; and
- Serve as a redundancy to Global Navigation Satellite System.

LEGISLATIVE-FRAMEWORK

This section provides a review of National, Provincial and Local legislation, regulations, policies and guidelines, which are relevant to, or have implications on the proposed project. Based on the scale, impacts and location of the project, the following pieces of legislation were deemed applicable to this project:

- Constitution of the Republic of South Africa, 1996 (Act No. 108 of 1996)
- National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended *Environmental Impact Assessment (EIA) Regulations (GN R 982 of 2014)*
- Public Participation guideline in terms of NEMA EIA Regulations (2017)
- Promotion of Access to Information Act, 2000 (Act No. 2 of 2000)
- Integrated Environmental Management Guideline: Guideline on Need and Desirability (2017)
- National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004) *National Threatened or Protected Species Regulations and Species Lists, 2015*
- National Forests Act, 1998 (Act No. 84 of 1998): *Protected Tree Species, 2018*
- National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008)
- National Heritage Resources Act, 1999 (Act No. 25 of 1999)
- Spatial Planning and Land Use Management Act, 2013 (Act No. 16 of 2013)
- Occupational Health and Safety Act, 1993 (Act No. 2 of 1993)
- Civil Aviation Act 2009 (Act No. 13 of 2009)
- Electronic Communications Act, 2005 (Act No. 36 of 2005)
- Eastern Cape Biodiversity Conservation Plan, 2007
- Cape Nature and Environmental Conservation Ordinance (No. 19 of 1974)
- Policy and Guidelines for the Erection of Telecommunication Infrastructure, 2003
- Nelson Mandela Bay Metropolitan Municipality (Draft) Spatial Planning and Land Use Management (SPLUM) Bylaw, 2017

BASIC ASSESSMENT METHODOLOGY

According to the NEMA Environmental Impact Assessment (EIA) Regulations, 2014 as amended, a Basic Assessment process is required for the proposed development as it triggers **Activity 12 of Listing Notice 3 (GNR 985)** for:

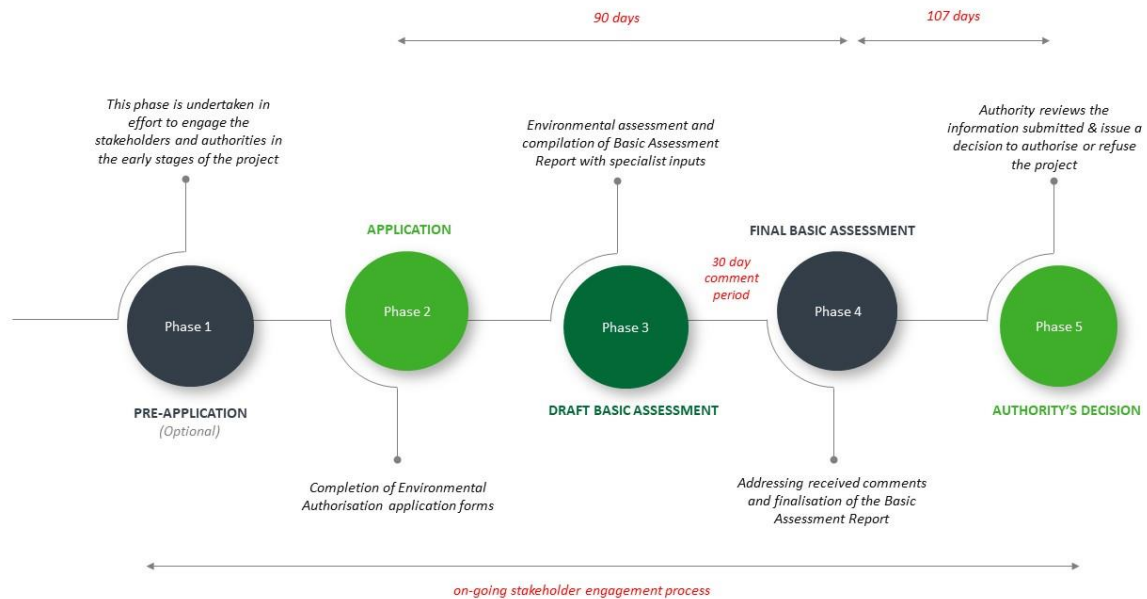
“The clearance of an area of 300 square metres or more of indigenous vegetation except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan.

in

a. Eastern Cape

ii. Within critical biodiversity areas identified in bioregional plans; ...”

In line with the NEMA requirements to undertake a BA process, the following activities were undertaken as part of the process:



DESCRIPTION OF THE AFFECTED ENVIRONMENT

An understanding of the overall character and other sensitivities that were identified in the surrounding environment are pertinent to the project. Both the Biophysical aspects and the Socio-Economic conditions of the site within its setting are describe in this report. The Biophysical aspects discussed are Climate, Vegetation, Avifaunal community, Hydrology and Geology. With regards to the Socio-Economic conditions, population, economic development and basic service delivery are discussed.

The biophysical aspect of the area was also based on the specialist findings, indicated the following information about the site:

- The site is characterised by Sundays Thicket vegetation type;
- The site is within a Critical Biodiversity Area 2;
- The site within the Baviaans-Addo focus area; and
- The site approximately 20km from the nearest Important Bird & Biodiversity Areas.

PROJECT ALTERNATIVES

In terms of the EIA Regulations of 2014, as amended, the impact assessment process must identify and investigate alternatives, with feasible and reasonable alternatives to be comparatively assessed to optimise the positive aspects and minimising the negative aspects of the project.

The summary of project alternatives assessed in this study are indicated below

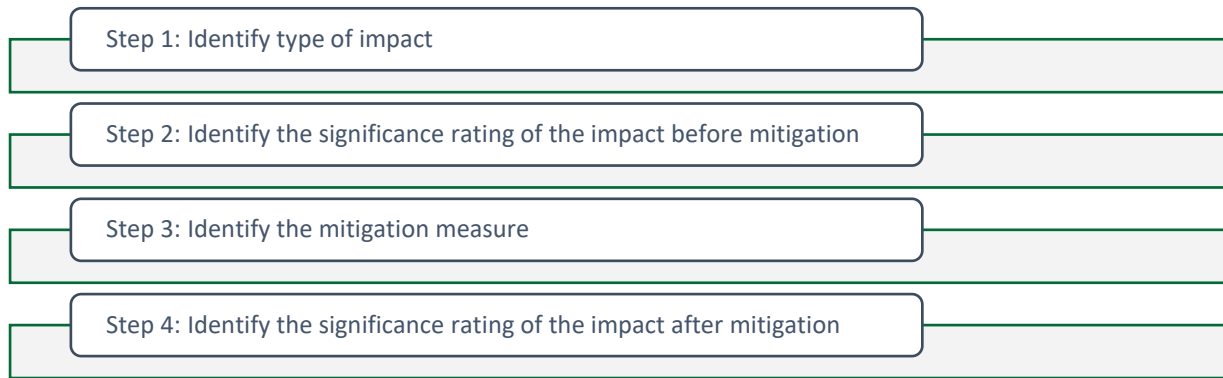
Activity alternatives	No alternatives considered for the activity of constructing the DME infrastructure. However, the activity alternatives for clearing indigenous vegetation in order to construct the DME were assessed.
Scheduling alternatives	The removal of vegetation to construct must be scheduled to avoid adverse environmental impacts.
Routing alternatives	Routing alternatives are applicable to the project with regards to the access road. Two alternatives were assessed and considered.
No-go Option	This alternative must be discussed on all projects as it allows for an assessment of impacts should the activity not be undertaken.

PUBLIC PARTICIPATION PROCESS

The potential Interested and Affected Parties (I&APs) have been identified and notified through notification letters and local newspaper advert to register as an I&AP on the project in order to be able to be kept abreast of all developments related to the project. The registration was open to the public until 30 March 2019, however new stakeholders can still register during the BA process. A draft BA report has been compiled along with the Draft EMPr and other supporting technical information about the project. This information will be made available for public and competent authority for a period of 30 days to comment. All the issues and comments received during the comment period will be documented and responded to in the Comments and Response Report. These comments will also be incorporated into the final BA report where necessary and submitted to the Competent Authority for decision-making on the application. Registered I&APs will be notified of the decision once issued.

IMPACTS ASSESSMENT METHODOLOGY

In accordance with GNR 982, promulgated in terms of Section 24 of the NEMA, the EAP is required to assess the impacts of the project. The methodology of assessing these impacts will comprises of the following four key steps:



DESCIRPTION AND ASSESSMENT OF ENVIRONMENTAL IMPACTS

The potential impacts (during construction and operation/ maintenance) of the proposed development on the biophysical and socio-economic environment were identified and assessed by the EAP and specialists. The table below is a summation of these impacts, with their level of significance:

Impact description	Type of impact	Project phase	Significance without mitigation	Significance with mitigation
IMPACT 1: Permanent loss of intact habitat and associated indigenous vegetation	- VE	Construction	Medium	Low
		Operation	Low	Negligible
IMPACT 2: Disturbance of birds and displacement effects	- VE	Construction	Negligible	Negligible
		Operation	Low	Negligible
IMPACT 3: Bird fatalities	- VE	Construction	<i>Not applicable</i>	
		Operation	Low	Negligible
IMPACT 4: Nesting and other use of infrastructure by birds	+ VE	Construction	<i>Not applicable</i>	
		Operation	Negligible	Negligible
IMPACT 5: Soil erosion and compaction	- VE	Construction	Low	Negligible
		Operation	Negligible	Negligible
IMPACT 6: Dust generation	- VE	Construction	Low	Negligible
		Operation	<i>Not applicable</i>	
IMPACT 7: Introduction and proliferation of alien and invasive floral species	- VE	Construction	Low	Negligible
		Operation	Medium	Low
IMPACT 8: Emission of electromagnetic fields	- VE	Construction	<i>Not applicable</i>	

		Operation	High	Moderate
IMPACT 9: Visual and aesthetic impacts	- VE	Construction	Low	Negligible
		Operation	Medium	Medium
IMPACT 10: Unearthing of features of heritage, cultural or archaeological value	- VE	Construction	Medium	Low
		Operation	Low	Low
IMPACT 11: Impacts on road conditions and traffic flow	- VE	Construction	Low	Negligible
		Operation	<i>Not applicable</i>	
IMPACT 12: Health and safety impacts	- VE	Construction	Medium	Low
		Operation / maintenance	Low	Low
IMPACT 13: Temporary employment opportunities	+VE	Construction	Negligible	Low (+)
		Operational	<i>Not Applicable</i>	

CONCLUSIONS AND RECOMMENDATIONS

It is the opinion of the EAP that all major impacts have been identified and have been assigned appropriate management measures. The significance of social impacts will be negligible and temporary in nature, as they will be experienced during the construction activities. No impacts of extremely high significance are not foreseen for this development with or without mitigation measures, assuming all the construction activities are within the proposed scope that was assessed. Based on this, it is the EAP's recommendation that a positive EA for this development be granted.

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Appendix E2: Knock and Drop Register

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Appendix E4: Site Notice and Proof of placement

Appendix E5: Newspaper Advert

Appendix E6: Interested and Affected Parties Database

Appendix E7: Comments and Responses Report

Appendix F: Specialist Studies

Appendix F1: Floral Assessment Report

Appendix F2: Avifaunal Impact Assessment

Appendix G: Environmental Management Programme

LIST OF ACRONYMS

ATNS	Air Traffic and Navigation Services SOC Ltd
BAR	Basic Assessment Report
CA	Competent Authority
CBA	Critical Biodiversity Area
DBAR	Basic Assessment Report
DEA	Department of Environmental Affairs
ECBCP	The Eastern Cape Biodiversity Conservation Plan
EIA	Environmental Impact Assessment
ECO	Environmental Control Officer
EMF	Electromagnetic Fields
EMPr	Environmental Management Programme
FBAR	Final Basic Assessment Report
IBBA	Important Bird and Biodiversity Area
I&APs	Interested and Affected Parties
RI&APs	Registered Interested and Affected Parties
NEMA	National Environmental Management Act (NEMA), 1998 (Act No. 107 of 1998),
PPP	Public Participation Process
SACAA	South African Civil Aviation Authority
SCC	Species of Conservation Concern

GLOSSARY OF TERMS

This section provides a catalogue of project and legislative terminology used in this report.

Term	Definition	Reference
Airport Terminal Manoeuvring Area	A designated area of controlled airspace surrounding a major airport where there is a high volume of traffic either entering or departing from the airport.	European Organisation for the Safety of Air Navigation
Competent Authority	In respect of a listed activity or specified activity, means the organ of state charged by this Act with evaluating the environmental impact of that activity and, where appropriate, with granting or refusing an environmental authorisation in respect of that activity.	National Environmental Management Act (NEMA), 1998 (Act 107 of 1998) as amended
Critical Biodiversity Area	Areas that are deemed important to conserve ecosystems and species. For this reason, these areas require protection.	South African National Biodiversity Institute (SANBI)
Duty of Care	Every person who causes, has caused or may cause significant pollution or degradation of the environment to take reasonable measures to prevent such pollution or degradation from occurring, continuing or recurring, or, in so far as such harm to the environmental is authorised by law or cannot reasonably be avoided or stopped, to minimise and rectify such pollution and degradation of the environment. "	
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.	National Environmental Management Act (NEMA), 1998 (Act 107 of 1998) as amended
Environmental Assessment Practitioners	The individual responsible for the planning, management, coordination or review of environmental impact assessments, strategic environmental assessments, environmental management programmers or any other appropriate environmental instruments introduced through regulations.	
Indigenous vegetation	Refers to vegetation consisting of indigenous plant species occurring naturally in an area, regardless of the level of alien infestation and where the topsoil has not been lawfully disturbed during the preceding ten years.	NEMA, EIA Regulations, 2014, as amended
Interested and Affected Parties (IAPs)	a) any person, group of persons or organisation interested in or affected by such operation or activity; and (b) any organ of state that may have jurisdiction over any aspect of the operation or activity.	National Environmental Management Act (NEMA), 1998 (Act

Term	Definition	Reference
		107 of 1998) as amended
Public Participation Process	In relation to the assessment of the environmental impact of any application for an environmental authorisation, means a process by which potential Interested and Affected Parties are given opportunity to comment on, or raise issues relevant to, the application.	National Environmental Management Act (NEMA), 1998 (Act 107 of 1998) as amended
Species of Conservation Concern	IUCN Red List definition: Threatened species, and other species of significant conservation importance: Extinct, Extinct in the Wild, Near Threatened, Data Deficient. In South Africa, the following additional categories are added: Rare, Critically Rare.	South African National Biodiversity Institute (SANBI)
Vegetation Clearing	Clearing refers to the removal of vegetation through permanent eradication and in turn no likelihood of regrowth. 'Burning of vegetation (e.g. fire- breaks), mowing grass or pruning does not constitute vegetation clearance, unless such burning, mowing or pruning would result in the vegetation being permanently eliminated, removed or eradicated'.	Department of Environmental Affairs, 2017. Clearance of Indigenous Vegetation Explanatory Document

1 INTRODUCTION

1.1 Background and Introduction

GA Environment (Pty) Ltd has been appointed by Air Traffic and Navigation Services SOC Ltd (ATNS) to undertake a Basic Assessment (BA) for all activities associated with the construction of the Distance Measuring Equipment (DME) Site in Uitenhage, Eastern Cape Province. The DME site is an aircraft navigation aid mast that forms part of the Port Elizabeth International Airport Terminal Manoeuvring Area (TMA). The DME site is intended to support the Port Elizabeth International Airport TMA where four other DME sites are proposed by ATNS. The site is located approximately 42 km north west of the Port Elizabeth International Airport.

ATNS provides air traffic navigation, surveillance, training and associated services within South Africa. ATNS is responsible for Air Traffic Control necessary to ensure a safe and effective service throughout South Africa and a large part of the Southern Indian and the Atlantic Ocean, comprising approximately 10% of the world's airspace. ATNS operates from nine (9) ACSA (Airport Company South Africa) airports (O.R Tambo International Airport, Cape Town International Airport, King Shaka (Durban) International airport, Bram Fischer (Bloemfontein) International Airport, Port Elizabeth airport, East London airport, George Airport, Kimberley Airport, Upington airport) and 12 other small airports, Air Traffic and Navigation Services, 2018 (a) & 2018(b).

The proposed ATNS site to be known as *FAPE 3: Uitenhage DME*, is situated within a privately owned and unproclaimed Zingari Private Nature Reserve on Portion 4 of the Farm Centlivres 231. The 21-digit Surveyor General Code for the property is C0760000000023100004. The site is located approximately 12km north east of the Uitenhage CBD under the jurisdiction of the Nelson Mandela Bay Metropolitan Municipality. The site centre coordinates are approximately 33°40'7.73" S; 25°28'22.19" E and can be accessed via the main road, R75. Refer to **Figure 1** for the Locality Map of the site.

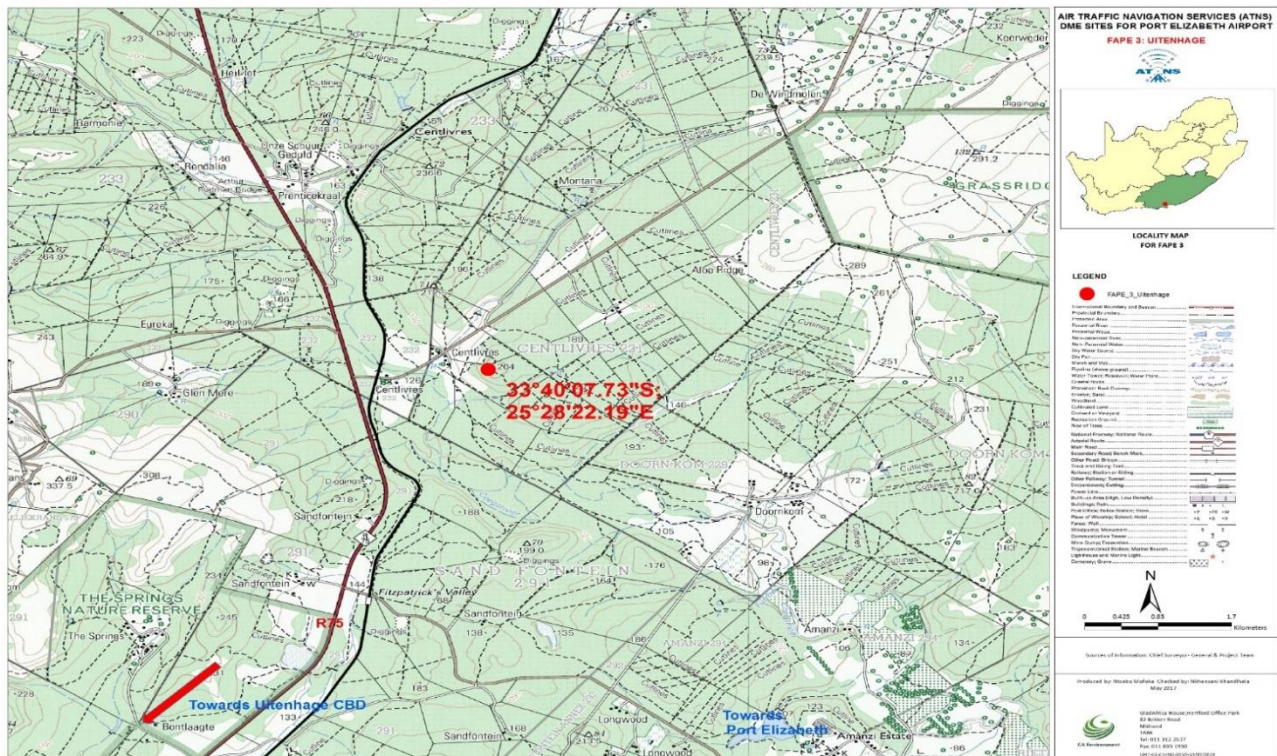


Figure 1: Locality Map of the ATNS DME Site in Uitenhage

1.2 Project Description and Technical Aspects

The DME Site is known as *FAPE 3: Uitenhage*. The site will occupy a footprint of approximately 56m² comprising of the following infrastructure:

- Cromodec shelter /container, with stainless steel frame;
- A perimeter fence, a gate and a 15m steel swivel lattice mast (i.e. able to be rotated vertically and horizontally to allow for maintenance) that will be installed on a concrete foundation measuring 2m x2m x 1m with a DME antenna mounted at the top of the mast;
- A vehicle turning point area of approximately 60m² will be located immediately outside the gate of the DME site;
- An access road of approximately 2m wide is proposed to provide access to the DME site from the main road;
- A working area of 2m around the DME site as well as around the vehicle turning area and the access road; and
- Electrical supply in the form of powerlines and/or underground cables.

Other technical aspects of the site are as follows:

- Typical power transmitted: 1Kw Peak Power;
- Frequency band of operation: 960Mhz- 1215Mhz; and
- Antenna gain: ≥ 9 dB.

The site layout is graphically represented in **Figure 2** and the site construction drawings in **Appendix C**.

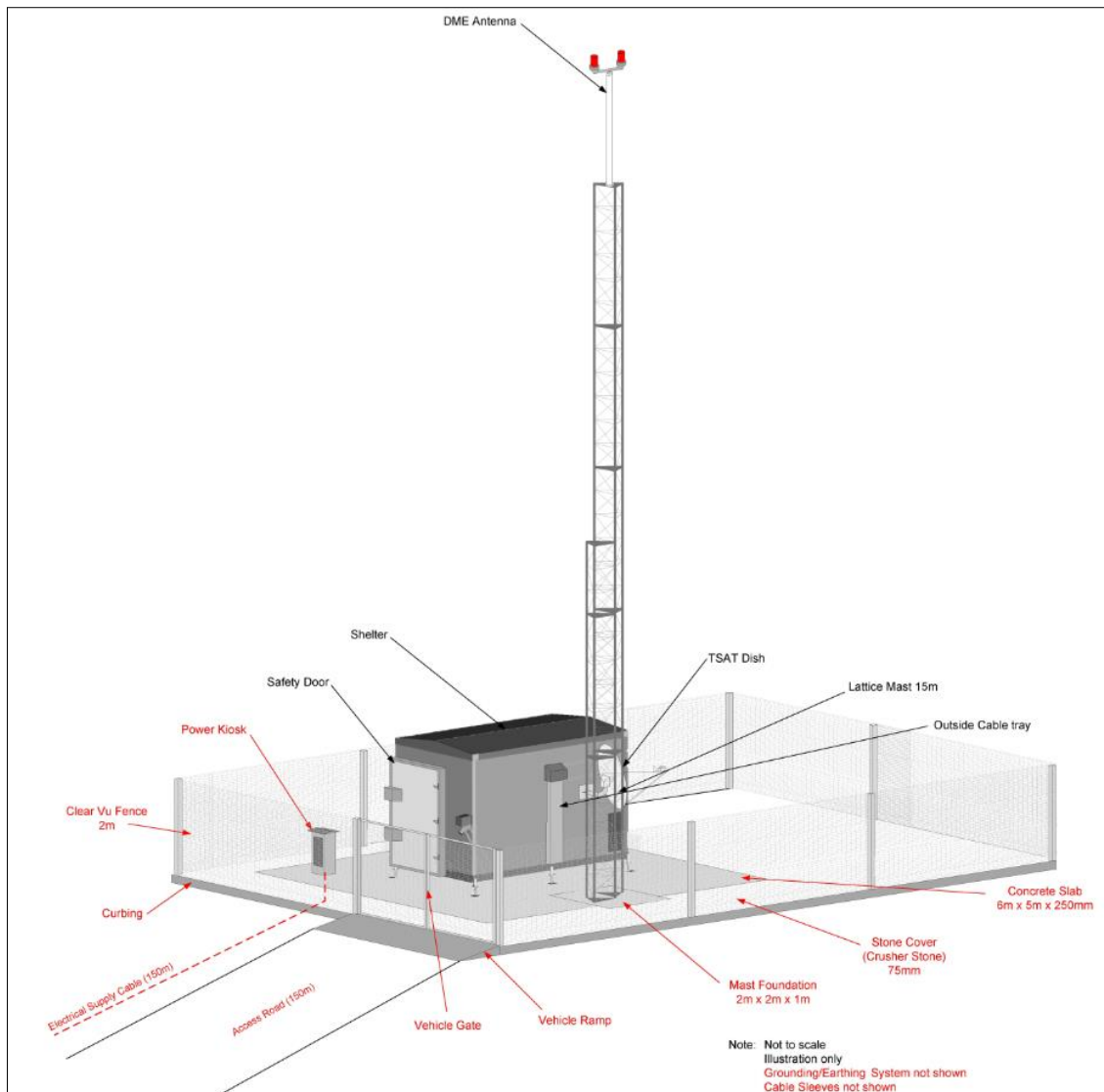


Figure 2: Illustration of the proposed DME site

1.3 Status Quo of the Site and Surrounding Land Uses

The existing infrastructure and past disturbances in the adjacent area include the existing reservoir, powerline, Vodacom mast/ communications tower, and access road approximately 50m to the north of the FAPE 3 site as indicated below.

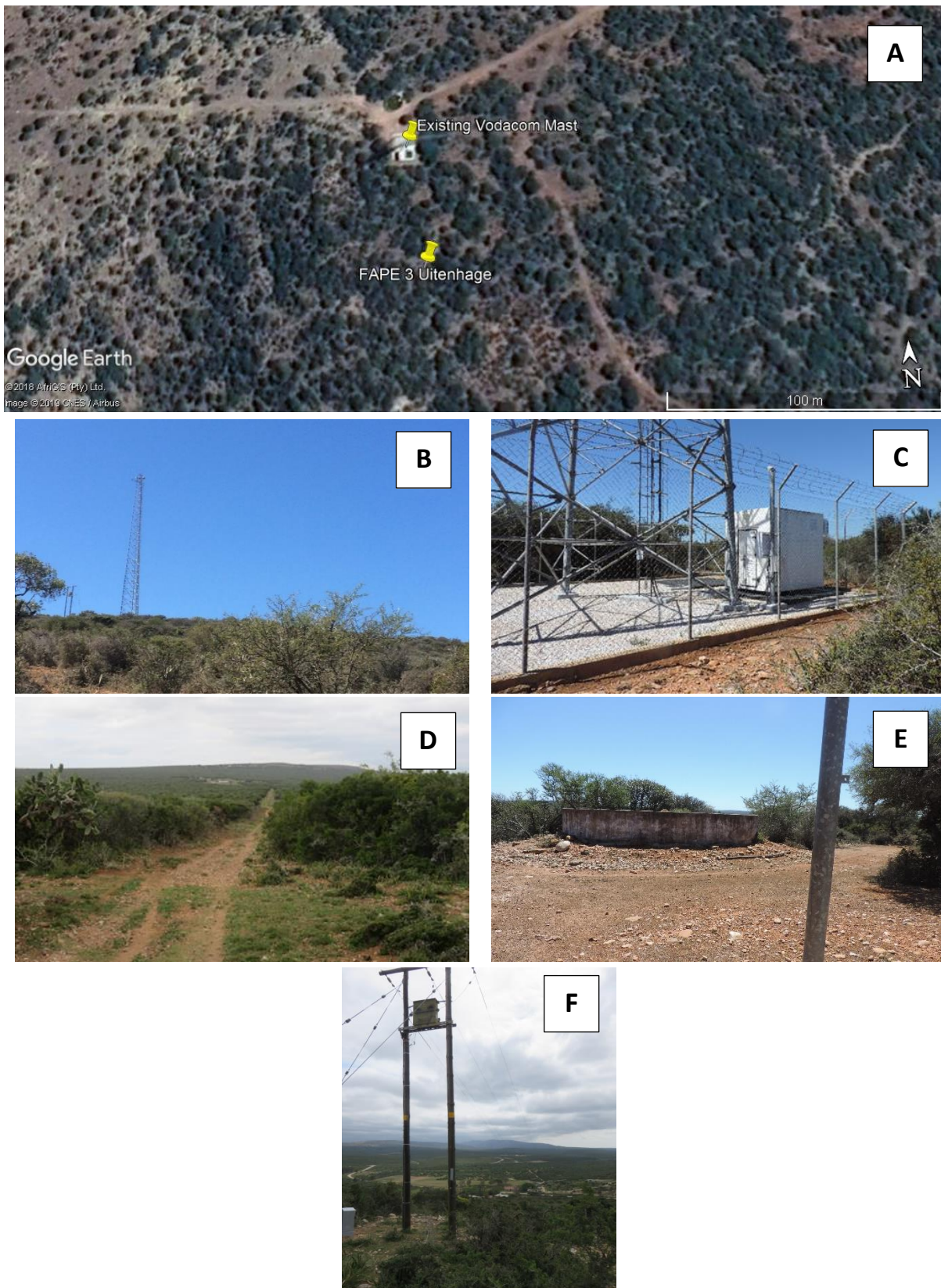


Figure 3: A – Location of FAPE 3 in relation to the existing Vodacom Mast, B – View of the existing Vodacom Mast from FAPE 3 facing in the northern direction, C – Fencing around the Vodacom Mast, D -Access Road, E - Existing reservoir and F – Powerline associated with the Vodacom Mast

1.4 Project Need and Desirability

In terms of 3(1)(f) of Appendix 1 of NEMA 2014 EIA Regulations, as amended, a Basic Assessment must include a discussion of the need and desirability for a proposed project. Needs and desirability support the Environmental rights as set out in Section 24 of the Constitution, as well the relevant municipal plans such as Municipal Integrated Development Plans (IDP), Spatial Development Frameworks (SDF) and Environmental Management Frameworks (EMF).

The Guideline on need and desirability of a project (DEA, 2017) highlights the obligation for all proposed activities that trigger the EIA regulations to be considered, the spatial planning context, broader societal needs, and financial viability. This information allows the authorities to contemplate the strategic context of a decision on the proposed project.

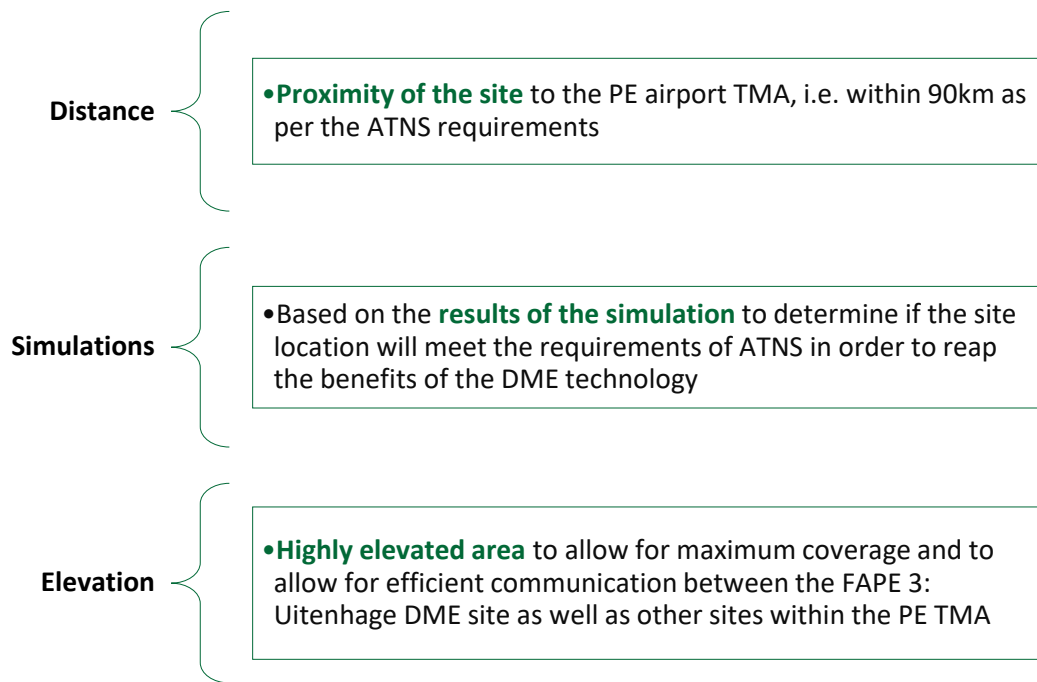
The South African Civil Aviation Authority (SACAA) has the responsibility to promote, regulate and enforce civil aviation safety and security in the country. SACAA also receives its mandate from the International Civil Aviation Organization (ICAO) to improve air traffic navigation in South Africa. In line with the mandate for ATNS and to provide air traffic management solutions and associated services on behalf of the state in accordance with ICAO Standards, ATNS has since embarked on initiatives to install DMEs within the TMAs within the various airports to increase safety, efficiency and cost-effective operations of airplanes within the South African airspace.

The DME technology also has the following benefits:

- DME-DME network is extremely accurate. Airplanes will be able to identify their position better than VHF VOR i.e. Very High Frequency Omni-directional Range which means that Frequencies are transmitted in various direction. Although this system does allow for the positioning of aircraft, it does however lack the accuracy of the DME system.;
- Allows for more efficient use of airspace;
- It provides Area Navigation (RNAV) capability which is the future of navigation;
- Allows the use of multiple routes on the common system of airways to resolve traffic;
- Facilitate reduced separation thus increasing the aircraft handling capacity; and
- Serve as a redundancy to Global Navigation Satellite System.

The proposed *FAPE 3: Uitenhage* DME site is one of the projects that will fulfil part of the ATNS mission which is 'To provide safe, expeditious and efficient Air Traffic Management solutions and associated services' (ATNS, 2018).

Further to this, the location of the *FAPE 3: Uitenhage* DME site was selected based on the following technical requirements:



1.5 Objectives of the Basic Assessment Process

The main objectives of the Basic Assessment, in terms of the regulatory requirements stipulated in *Appendix 1* of the 2014 NEMA EIA Regulations, are to:

- (a) determine the policy and legislative context within which the proposed activity is located and how the activity complies with and responds to the policy and legislative context;
- (b) identify the alternatives considered, including the activity, location, and technology alternatives;
- (c) describe the need and desirability of the proposed alternatives;
- (d) through the undertaking of an impact and risk assessment process, inclusive of cumulative impacts which focused on determining the geographical, physical, biological, social, economic, heritage, and cultural sensitivity of the sites and locations within sites and the risk of impact of the proposed activity and technology alternatives on these aspects to determine—
 - (i) the nature, significance, consequence, extent, duration, and probability of the impacts occurring to; and
 - (ii) the degree to which these impacts—
 - (aa) can be reversed;
 - (bb) may cause irreplaceable loss of resources; and
 - (cc) can be avoided, managed or mitigated; and
- (e) through a ranking of the site sensitivities and possible impacts the activity and technology alternatives will impose on the sites and location identified through the life of the activity to—
 - (i) identify and motivate a preferred site, activity and technology alternative;
 - (ii) identify suitable measures to avoid, manage or mitigate identified impacts; and
 - (iii) identify residual risks that need to be managed and monitored.

1.6 Report Structure

This report has also considered the requirements outlined in *Appendix 1* of the NEMA EIA Regulations 2018 regarding the content of the Basic Assessment Report (BAR). In addressing these requirements, this BAR is divided into **9 Chapters**, the contents of which will be presented as follows in this report:

- **Chapter 1** introduces the background to the development proposal and profiles its proponents. Furthermore, this chapter provides an indication of the BA process that will be followed as well as providing insights into the legislative requirements that have resulted in the need for this process;
- **Chapter 2** provides the legislative framework for the BA process and the context of the proposed development. The legislative framework includes national and provincial legislation as well as planning framework which will have to be considered in the BA process;
- **Chapter 3** outlines the methodological approach followed or adopted in undertaking the Basic Assessment process;
- **Chapter 4** is a description of the receiving environment associated with the proposed activities;
- **Chapter 5** is a description and comparative assessment of the project alternatives that were considered;
- **Chapter 6** details the Public Participation Process (PPP) activities undertaken for the project and the key outcomes thereof;
- **Chapter 7** discusses the methodology used in assessing the project impacts;
- **Chapter 8** is a description and assessment of the identified environmental impacts;
- **Chapter 9** provides the environmental impact statement, conclusion of the study and recommendations for the project; and
- **Chapter 10** List key reference used in the report.

1.7 Project Team

This section of the BAR provides the particulars of the project team members. These details are outlined below.

1.7.1 Applicant

Company Name: Air Traffic and Navigation Services (ATNS) SOC Ltd
Contact person: Mr. Richard Madlala
Designation: Senior Manager: Engineering Pr, COO Operations Technology
Address: Eastgate Office Park, Block C, South Boulevard Road, Bruma, 2198
Telephone Number: (011) 607 1000
E-mail: richardma@atns.co.za

1.7.2 Environmental Assessment Practitioner

Company Name: GA Environment (Pty) Ltd
Contact person: Ms. Wendy Mlotshwa
Designation: Senior Environmental Assessment Practitioner
Address: Hertford Office Park, 90 Bekker Road, Vorna Valley, Midrand, 1686
Telephone Number: (011) 312 2537
E-mail: environment@gaenvironment.com or wendym@gaenvironment.com

This BAR was prepared by **Ms. Wendy Mlotshwa**, a Senior Environmental Assessment Practitioner (EAP) at GA Environment (Pty) Ltd. Wendy holds a MSc degree in Ecological Science and BSc Hons in Environmental Science from the University of KwaZulu Natal. She is a professional registered Environmental Scientist approximately 5 years of experience working in the environmental consulting industry as an Environmental and Sustainability Consultant for multi-sector construction and/or development projects. She has gained valuable project experience in South Africa, Lesotho, Botswana and Rwanda. Her international project experience has equipped her with concrete knowledge of various environmental procedures in-depth knowledge of working with International Finance Corporation (IFC) Performance Standards on Environmental and Social Sustainability, Development Bank of Southern Africa (DBSA) and World Bank Environmental and Social Safeguard Standards or/Operational Policies (OP).

She has successfully applied her knowledge of environmental issues and legislation in completing small-scale to trans-boundary projects and has gained extensive experience in coordinating, managing and conducting a range of environmental impact assessments, licensing and monitoring for numerous projects including Mining, Transport (roads, bridges and railway infrastructure); Building Structures (green buildings and low cost housing developments); Bulk Water Supply Infrastructure (dams and pipelines), Bridges, Waste Water Treatment Facilities and Electrical Infrastructure (transmission lines, substations, power stations and PV facilities).

1.7.3 Specialists

(1) Company Name: Field and Form Landscape Science
Contact person: Mrs. Michelle Pretorius
Designation: Ecologist
Address: 110 Lynnro Avenue, Lynnwood Manor, Pretoria 0081
Telephone Number: 082 442 7637
E-mail: michelle@fieldandform.co.za

(2) Company Name: GA Environment (Pty) Ltd
Contact person: Mr. Jon Smallie
Designation: Avifauna Specialist
Address: 36 Utrecht Avenue, Bonnie Doon, East London, 5241
Telephone Number: 082 444 8919
E-mail: jon@wildskies.co.za

The specialist declarations and reports are attached as **Appendix F**.

1.7.4 Competent Authority

Department:	Department of Environmental Affairs (DEA) (Director: Integrated Environmental Authorisations)
Contact person:	To be confirmed
Designation:	Environmental Officer
Address:	Environment House, 473 Steve Biko Road, Arcadia, Pretoria
Telephone Number:	To be confirmed
E-mail:	To be confirmed

1.8 Assumptions, Knowledge Gaps and Limitations

The following key gaps, assumptions and limitations were made when conducting and compiling this BA:

- The information provided by ATNS is accurate, adequate and unbiased, and that no information that could change the outcome of the BA process has been withheld;
- The information obtained from the specialist studies undertaken for this project is accurate and objective;
- ATNS will adhere to the conditions of the respective Environmental Authorisation (EA) and any applicable legislation (including municipal by-laws) for the duration of the project.
- ATNS will ensure that construction activities are monitored by an Independent Environmental Control Officer (ECO);
- The scope of this study is limited to identifying and assessment environmental impacts associated with the preferred DME location, *FAPE 3: Uitenhage*.

It can be thus concluded that other than the gaps in knowledge, assumptions provided above, the information provided in this report is adequate for the purposes of the current impact assessment and decision making regarding the project.

2 LEGISLATIVE FRAMEWORK

This section of the BAR discusses applicable legal provisions and the legal context for the proposed development. It provides a review of legislation, regulations, policies and guidelines, which are applicable to, or have implications, for the proposed project. The discussion in this chapter is by no means an exhaustive list of the legal obligations of the applicant in respect of environmental management for the project.

Table 1: Applicable legislative framework

Legislation	Description	Applicability
National Legislation, Guidelines and Policies		
Constitution of the Republic of South Africa, 1996 (Act No. 108 of 1996)	Section 24 of the Constitution provides the overarching environmental legislative framework for environmental management. It aims to ensure that everyone has the right to an environment that is not harmful to their health or well-being and the environment is protected for the benefit of present and future generations, through reasonable legislative and other measures.	The Applicant has the overall responsibility to prevent pollution and ecological degradation throughout the lifecycle of the proposed development and protect the environment for the benefit of present and future generations. During the construction phase of the project will be managed in accordance with the requirements of the EMPr to ensure that social and environmental management considerations are taken into account and implemented throughout.
National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended <i>Environmental Impact Assessment (EIA) Regulations (GN R 982 of 2014)</i>	The NEMA provides for effective and co-operative environmental governance by means of developing principles that guide the decision-making with matters concerning the environment. Section 28(1) of the Act require every person who causes or may cause significant pollution or degradation of the environment to take reasonable measures to prevent or minimise such pollution or degradation from occurring or recurring. In terms of section 24(2) of NEMA, the Minister and or any MEC in concurrence with the Minister may identify activities which require authorisation as these activities may negatively affect the environment. The Act requires that in such cases the impacts must be considered, investigated and assessed prior to their implementation and reported to the organ of state charged by law with	The Applicant is complying with the provisions of this Act through the application for Environmental Authorisation of relevant listed activities in terms of the NEMA EIA Regulations, 2014, as amended. The details of the listed activities are discussed in Section 3 of this report. In compliance with Section 28, an EMPr has been compiled to provide a framework within which the environmental impacts / pollution associated with construction activities will be managed or mitigated.

	authorising, permitting, or otherwise allowing the implementation of an activity. The NEMA EIA Regulations guide the processes required for the assessment of impacts of Listed Activities.	
Public Participation guideline in terms of NEMA EIA Regulations (2017)	This guideline provides information on the Public Participation requirements of the Act. It further provides information on the characteristics of a vigorous and inclusive Public Participation Process (PPP).	In line with the requirements of this guideline, the PPP has thus been structured to provide I&APs with an opportunity to gain more knowledge about the proposed project, to provide inputs/ comments through the review of the environmental reports/ documents at various stages of the BA Process. Inputs from all the stakeholders will thus be taken into consideration in a manner that compliments and enhances the benefits of the project.
Promotion of Access to Information Act, 2000 (Act No. 2 of 2000)	This Act gives effect to the constitutional right of access to any information held by the State and any information that is held by another person and that is required for the exercise or protection of any rights.	To comply with the requirements of this Act, all documents relating to the BA Process will be made available to the public and relevant authorities at the different spheres of Government.
Integrated Environmental Management Guideline: Guideline on Need and Desirability (2017)	This Guideline outlines the principles of sustainability that must be considered for a development that triggers the EIA Regulations. This implies taking into consideration the social, economic and ecological needs equitably throughout the project lifecycle. These factors ultimately allow for strategic-decision making concerning the development.	Section 1.4 of this report provides the context within which the need and desirability of the proposed activity will be considered.
National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004) <i>National Threatened or Protected Species Regulations and Species Lists, 2015</i>	NEM:BA provides for the management and conservation of South Africa's biodiversity and natural resources in a sustainable manner within the framework of the NEMA. The Act lists all the protected species and identifies restricted activities involving threatened or protected species. NEM:BA also stipulates the restricted activities involving specimens of listed threatened or protected species, where restricted activities involve those activities that have a direct impact on listed species.	According to the 2011 NEMBA listed ecosystems database, the FAPE 3 study area and access road alternatives are not located within a listed threatened ecosystem. Nonetheless, the applicant has the responsibility to conserve sensitive plant species and apply appropriate environmental management tools to ensure integrated environmental management and the protection of biodiversity.

<p>National Forests Act, 1998 (Act No. 84 of 1998)</p> <p><i>Protected Tree Species, 2018</i></p>	<p>In terms of the National Forests Act (Act No. 84 of 1998) certain tree species can be identified and declared as protected. According to this Act, protected tree species may not be cut, disturbed, damaged or destroyed and their products may not be possessed, collected, removed, transported, exported, donated, purchased or sold - except under a licence granted by the Department of Agriculture, Forestry and Fisheries (DAFF) or a delegated authority.</p>	<p><i>Sideroxylon inerme subsp. Inerme</i> is located within the site surroundings, and should this plant species be affected by construction, the tree permit must be obtained from the DAFF as this is a protected tree species in terms of the National Forests Act, No 84 of 1998.</p>
<p>National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008)</p>	<p>This Act aims to regulate waste management to protect human health and the environment by putting measures in place to prevent pollution and ecological degradation; promote conservation; and secure ecologically sustainable development and use of natural resources.</p>	<p>The Applicant shall ensure compliance with this Act by implementing practical measures to avoid or reduce unnecessary generation of waste and where the waste is generated measures such as re-using, recycling and recovery of waste shall be encouraged. These general principles of responsible waste management are also incorporated in the EMPr to management waste related activities during construction.</p>
<p>National Heritage Resources Act, 1999 (Act No. 25 of 1999)</p>	<p>The NHRA provides for nurturing and conservation of cultural heritage resources. The Act further states that no cultural heritage resources may be disturbed without authorisation from the relevant heritage authority.</p>	<p>No Heritage Assessment was done for this project due to the nature and scale of the proposed development. However, the Contractor must be trained to recognise any heritage features. Should there be a sign of such objects, construction must halt in that area immediately and a suitably qualified heritage specialist must be called to investigate through the ECO.</p>
<p>Spatial Planning and Land Use Management Act, 2013 (Act No. 16 of 2013)</p>	<p>This Act facilitates land development and land use management at the different spheres of Government.</p>	<p>The Applicant shall ensure compliance with this Act by engaging the relevant authorities to undertake the rezoning application for the proposed site.</p>
<p>Occupational Health and Safety Act, 1993 (Act No. 2 of 1993)</p>	<p>This Act provides for protection of workers/staff who might be exposed to health and safety hazards in their work environment. Section 8 states that every employer shall provide and maintain, as far as is reasonably</p>	<p>The Applicant shall ensure compliance of this Act by appointing a qualified health and safety representative to monitor site activities concerning health and</p>

	practicable, a working environment that is safe and without risk to the health of the employees. Section 17 further obliges every employer who has more than 20 employees in the workplace to appoint a health and safety representative for such workplace.	safety of the workers during construction.
Civil Aviation Act 2009 (Act No. 13 of 2009)	Provides for the control and regulation of aviation within the Republic; to provide for the establishment of a South African Civil Aviation Authority (SACAA) with safety and security oversight functions.	Relevant approvals must be obtained from SACAA prior to the erection of DME mast.
Electronic Communications Act, 2005 (Act No. 36 of 2005)	The primary object of this Act is to provide for the regulation of electronic communications in the Republic in the public interest and for that purpose to promote and facilitate the convergence of telecommunications, broadcasting and information technologies.	Necessary consultations and documentation must be provided in compliance with Act and relevant Competent authority.
Provincial Legislation, Guidelines and Policies		
Eastern Cape Biodiversity Conservation Plan, 2007	The Eastern Cape Biodiversity Conservation Plan, 2007 (ECBCP, 2007) is compiled in terms of the NEM:BA, which is required for the management of biodiversity within the province.	The current ECBCP, 2007 database indicates the FAPE 3 (Uitenhage) study area to be located within a Critical Biodiversity Area (CBA) 2 area. CBA2 areas are natural. The overall land management objective is to maintain these areas in a natural or near-natural state that secures the retention of biodiversity patterns and ecological processes.
Cape Nature and Environmental Conservation Ordinance (No. 19 of 1974)	Subject to the provisions of the Cape Nature and Environmental Conservation Ordinance (No. 19 of 1974), no person shall without a permit, be in possession of, sell, buy, donate, receive as a donation, pick, or import into, export from or transport in or through the Province, any endangered flora. Schedule 3 of the Ordinance lists Endangered Flora and Schedule 4 lists Protected Flora. <i>It is important to note that the above Provincial Nature Conservation Ordinance was previously applicable to the entire Cape Province. This Ordinance has been repealed in other provinces that previously formed part of</i>	Three floral species recorded in the FAPE 3 study area, access road alternatives and surrounds have been identified: <ul style="list-style-type: none"> • <i>Aloe cf. arborescens</i> (Schedule 4 – Protected flora) • <i>Encephalartos horridus</i> (Schedule 3 – Endangered flora) • <i>Mesembryanthemum aitonis</i> (Schedule 4 – Protected flora)

	<i>the Cape Province, but not yet in the Eastern Cape Province.</i>	Should any of these plant species be affected by the construction activities, the relevant competent authority must be consulted in order to follow the appropriate authorisation channels.
Municipal By-Laws		
Policy and Guidelines for the Erection of Telecommunication Infrastructure, 2003	The objectives are to provide guidelines and to provide means with which to assess applications to erect telecommunication infrastructure within the metropolitan area.	The Applicant will need to follow all the necessary steps in obtaining authorisation from the Municipality for the reception of the DME mast.
Nelson Mandela Bay Metropolitan Municipality (Draft) Spatial Planning and Land Use Management (SPLUM) Bylaw, 2017	An applicant, who wishes to rezone land, must apply to the Municipality for the rezoning of the land in the manner provided for in this By-law.	The Applicant shall ensure compliance with this By-Law by engaging the relevant authorities to undertake the rezoning application for the proposed site.

3 BASIC ASSESSMENT METHODOLOGY

The NEMA EIA Regulations of 2014, as amended identify two separate administrative processes for EIAs which must be undertaken prior to the commencement of the proposed activity/ development, depending on the nature of the activity; namely:

- The **Basic Assessment process** (triggered by Listing Notice 1 and 3): is required for those activities that have less of a possible detrimental impact to the environment; and
- The **Scoping and EIA process** (triggered by Listing Notice 2): is necessary for activities which are identified as having more of a possible detrimental impact on the environment.

According to the NEMA Environmental Impact Assessment (EIA) Regulations, 2014 as amended, a Basic Assessment process is required for the proposed development as it triggers **Activity 12 of Listing Notice 3 (GNR 985)** for:

[The sections applicable to the project are underlined]

“The clearance of an area of 300 square metres or more of indigenous vegetation except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan.

a. Eastern Cape

- i. Within any critically endangered or endangered ecosystem listed in terms of section 52 of the NEMBA or prior to the publication of such a list, within an area that has been identified as critically endangered in the National Spatial Biodiversity Assessment 2004;*
- ii. Within critical biodiversity areas identified in bioregional plans;*
- iii. Within the littoral active zone or 100 metres inland from the high water mark of the sea, whichever distance is the greater, excluding where such removal will occur behind the development setback line on erven in urban areas;*
- iv. Outside urban areas, within 100 metres inland from an estuarine functional zone; or*
- v. On land, where, at the time of the coming into effect of this Notice or thereafter such land was zoned open space, conservation or had an equivalent zoning.*

Clearance can simply be defined as the removal of vegetation through permanent eradication and in turn no likelihood of regrowth. The clearance can be either mechanical or chemical. According to the NEMA EIA Regulations, 2014 as amended, indigenous vegetation refers to ‘vegetation consisting of indigenous plant species occurring naturally in an area, regardless of the level of alien infestation and where the topsoil has not been lawfully disturbed during the preceding ten years. It must be highlighted that the clearance of indigenous vegetation will not only be limited to the footprint of the DME site, the vehicle turning area close to the DME site gate, the access road, powerline and/ cable route but also include the working areas around these.

In terms of Section 24(1) of NEMA, the potential impacts on the environment that are associated with listed activities must be considered, investigated, assessed and reported to DEA as the Competent

Authority (CA). The BA process for the ATNS DME site, was conducted in accordance with Section 19-20 and *Appendix 1* of the NEMA EIA regulations, 2014, as amended. Therefore, in line with the NEMA requirements to undertake a BA process, the following activities were undertaken as part of the process:

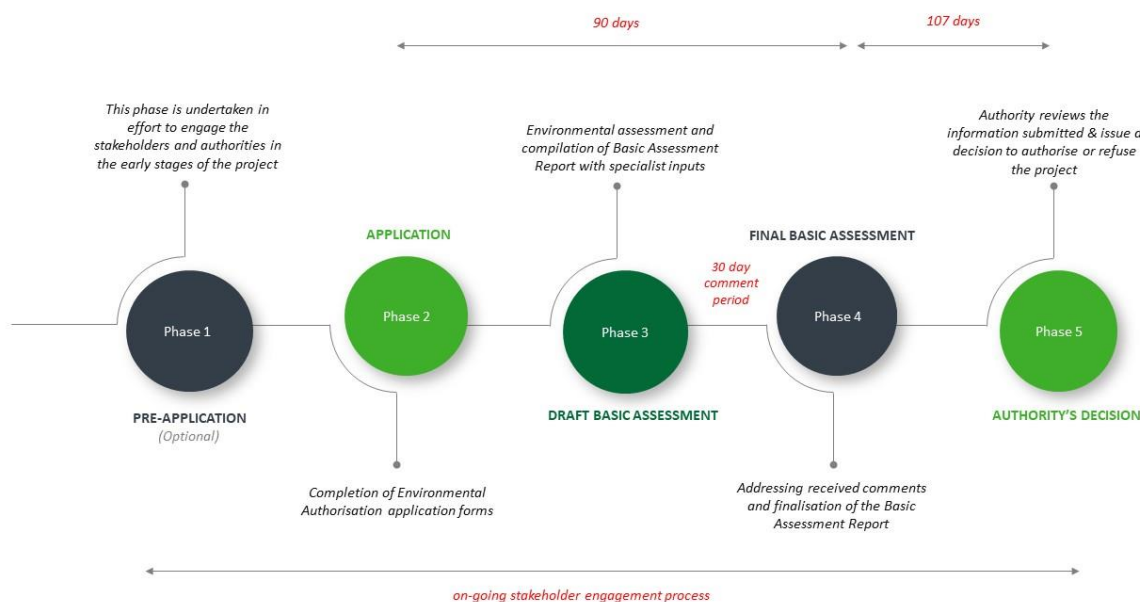


Figure 4: Basic Assessment Process

3.1 Phase 1: Pre-Application

This is an optional step in the BA process, however GA Environment (Pty) Ltd consulted the DEA to request for a pre-application meeting. This was intended to introduce the project and to ensure that the BA process is in line with legislative requirements and DEA's expectations. It must be noted that not all requests for pre-application meetings are accepted or approved by the DEA. This is dependent on the complexity of the project. However, consultants are encouraged to consult the Department via email or other means as and when required. Where necessary, GA Environment (Pty) Ltd did consult DEA regarding the project. The correspondence with DEA is attached as **Appendix E3**.

3.2 Phase 2: Application

According to the NEMA EIA Regulations of 2014, as amended, the environmental assessment process commences with the completion of an application form and supporting information. The application form will accompany the draft BAR as outlined in **Section 3.3**).

3.3 Phase 3: Draft Basic Assessment

The activities outlined below were undertaken as part of the Draft Basic Assessment Process. Details of the PPP activities undertaken for this phase of the project are provided in **Section 8** and **Appendix E**.

- **Identification and engagement** of the relevant authorities and Interested and Affected Parties (I&APs) with the release of notification letters, newspaper adverts and erection of site notices for a period of 30-days to elicit their interest in the project.
- **Undertaking of the specialist studies** for inputs into the impact assessment. Based on the environmental screening undertaken for the site. The following specialist studies were undertaken in accordance with the requirements of *Appendix 6* of the NEMA EIA Regulations, 2014 as amended:

(1) Floral Assessment

- The site is located within a Critical Biodiversity Area; and*
- Clearance of indigenous and potentially sensitive floral species is anticipated.*

(2) Avifauna Assessment

- Potential sensitive avifaunal features.*

- Identification and **assessment of key potential environmental and social issues** and potential mitigation measures.
- **Compilation of the Draft BAR and EMPr**, incorporating the specialist findings and recommendations.
- **Submission of the Draft BAR** to the CA and placement of the report in the public domain for public review.

3.4 Phase 4: Final Basic Assessment

The Final BA phase will involve the following tasks:

- **Collation all the comments** received and compile a comments and response report (CCR) and incorporate them into the final report; and
- **Submit final BAR to the Department.**

3.5 Phase 5: Authority Decision

Once the authorities have reviewed the reports and they are satisfied with the information provided, a decision will be issued to the applicant. Within 20 days of being notified of the decision made by the CA, the Appellant must submit the appeal in writing to the appeal administrator.

4 DESCRIPTION OF THE AFFECTED ENVIRONMENT

This section presents the overview of the biophysical and socio-economic baseline of the receiving environment. This section will also provide a description of the overall character and other sensitivities that were identified in the surrounding environment. It must be highlighted that only aspects that are relevant to the project in terms of the environmental and/or socio-economic setting as well as the nature of the proposed activities are discussed in this section of the report.

4.1 Biophysical Environment

4.1.1 Climate

Uitenhage normally receives about 331mm of rain per annum, with rainfall occurring throughout the year with the lowest rainfall (17mm) in June and the highest (40mm) in March. In terms of the temperatures, Uitenhage range from 19.8°C in July (the coldest month in the year) to 26.9°C in February (SA Explorer, 2017).

4.1.2 Vegetation

According to the current 2007 Eastern Cape Biodiversity Conservation Plan database *FAPE 3: Uitenhage* DME site is located within a Critical Biodiversity Area (CBA) 2 area (**Figure 5**). The extent of the FAPE 3 study area, including the access road alternatives is characterised by Sundays Thicket vegetation type (**Figure 6**) which is confined to the Eastern Cape Province. Sundays Thicket is also part of the Albany Thicket Biome which is noted as a centre of plant endemism As indicated on **Figure 6**, a small portion of both access roads are located within the Sundays Valley Thicket vegetation type, which is indicated as Vulnerable, while the northern-most sections of the two access road alternatives fall within the Endangered Sundays Doringveld Thicket vegetation type (Field and Form Landscape, 2018).

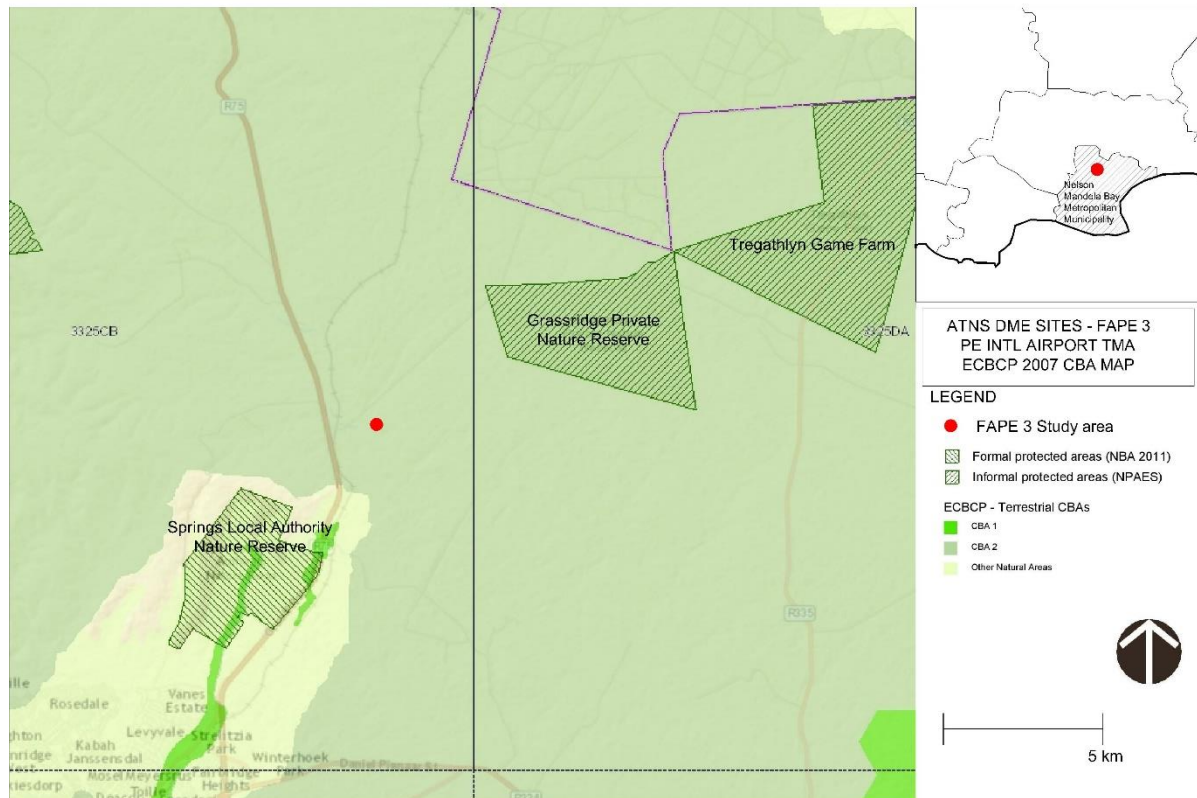


Figure 5: Location of FAPE 3 in relation to CBA areas identified in terms of the Eastern Cape Biodiversity Conservation Plan (2007) [SOURCE: Field and Form Landscape, 2018]

The overall Sundays Valley Thicket vegetation type is currently classified as Least Threatened although this status might change in future as environmental pressures increase, for example through overgrazing and ploughing for fruit orchards. This vegetation type provides habitat for at least 25 endemic plant species, however no endemic or threatened Sundays Thicket species are present within the FAPE 3 footprint area, although immediately adjacent to the footprint are at least 15 plants of *Encephalartos horridus* (EN) (Field and Form Landscape, 2018).

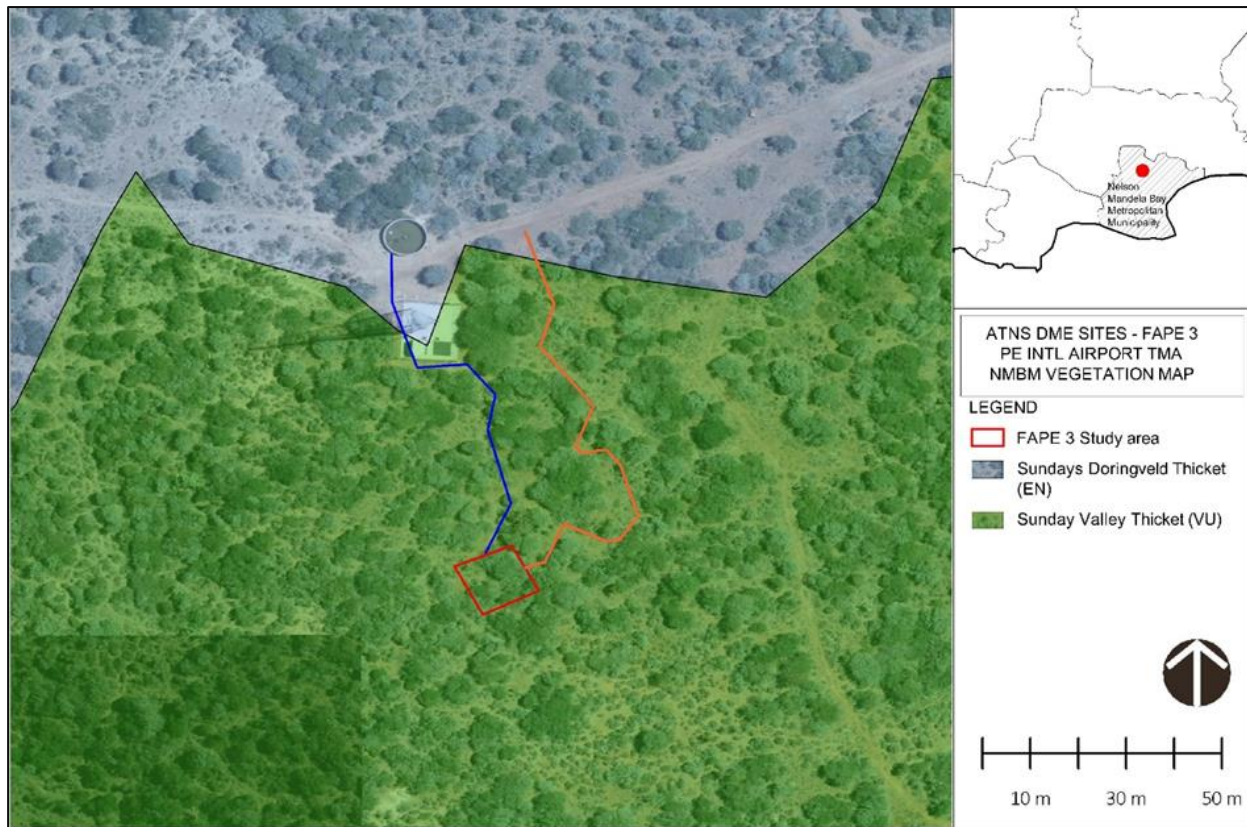


Figure 6: Vegetation types associated with the FAPE 3 study area and surroundings [SOURCE: Field and Form Landscape, 2018]

Vegetation at the site has been mildly disturbed by past and current stock grazing, primarily cattle, although plant species diversity has not yet been adversely affected and a rich biogenic crust of mosses and lichens is still present and the overall vegetation composition and structure within the study area is largely intact. Past disturbances in the adjacent area also include a Vodacom communications tower and access road approximately 50m to the north of the FAPE 3 site. Dominant plant species within the FAPE 3 footprint area include *Grewia robusta*, *Pappaea capensis* (LC), *Plumbago auriculata* (LC), *Sansevieria hyacinthoides* (LC) and *Schotia afra* (LC) (Figure 7) (Field and Form Landscape, 2018).



Figure 7: Photographic representation of typical vegetation structure at the FAPE 3: Uitenhage site [SOURCE: Field and Form Landscape, 2018]

One IUCN and SANBI Red List cycad species namely *Encephalartos horridus* and the protected tree species *Sideroxylon inerme* subsp. *inerme* were recorded within the vicinity of the FAPE 3: Uitenhage site, together with two provincially protected species – *Aloe cf arborescens* and *Mesembryanthemum aitonis*. Of these, *A. arborescens* was recorded from within the proposed DME footprint area, while the remainder of the species occur in the immediate vicinity of both the study area and the access road alternatives. Although no *E. horridus* plants occur within the proposed DME footprint area, this species was encountered within 12m of the DME site and along access road alternative 1 with at least 15 plants of these present in the immediate area. *E. horridus* is listed as an Endangered NEMBA TOPS (2015) species and due to its CITES listing is regarded as a Protected plant. *Sideroxylon inerme* subsp. *inerme* was encountered along both access road alternatives and it is a protected species in terms of the National Forests Act (Act No. 84 of 1998) (Field and Form Landscape, 2018).

Moreover, two other species protected in terms of the Cape Nature and Environmental Conservation Ordinance (No 19 of 1974), were encountered within the study area and surrounds, namely *Aloe cf arborescens* and *Mesembryanthemum aitonis*. In terms of the provincial nature conservation ordinance, all *Aloe* species with the exception of *A. ferox*, as well as all species of the *Mesembryanthemum* family are protected. *A. arborescens* occurs within the FAPE 3 study area, while *M. aitonis* occurs in several scattered locations throughout the larger area (Field and Form Landscape, 2018).

According to the National Protected Areas Expansion Strategy (NPAES) focus areas database (2010), the FAPE 3 study area is located within the Baviaans-Addo focus area. Although the project area does not fall within a protected area, it is located around 12km east of the Groendal Nature Reserve/ Groendal Wilderness Area and northeast of the Springs Local Authority Nature Reserve, both formal land-based protected areas (National Biodiversity Assessment (NBA), 2011). The SAPAD (20180 database indicates the Uitenhage Nature Reserve approximately 3km to the southwest of the study area and the Kaapse Grysbok Private Nature Reserve approximately 4km to the northeast (Field and Form Landscape, 2018).

4.1.3 Avifaunal community

The proposed FAPE 3: Uitenhage site is located approximately 20km from the nearest Important Bird and Biodiversity Areas (IBBA) (**Figure 8**), which is too far to be relevant and was therefore not discussed or assessed further. A total of 16 bird species on or adjacent to the site (within 2km) were recorded by the avifaunal specialist as listed below (none of these species are regionally Red Listed) (WildSkies Ecological Services, 2018):

- Western Cattle Egret
- Laughing Dove
- Southern Boubou
- Chinspot Batis
- Pied Crow
- Helmeted Guineafowl
- African Sacred Ibis
- Sombre Greenbul
- Cape Crow
- African Hoopoe
- House Sparrow
- Southern Fiscal
- Yellow-billed Kite
- Brown Scrub Robin

- Hadedda Ibis
- Bar-throated Apalis
- Egyptian Goose

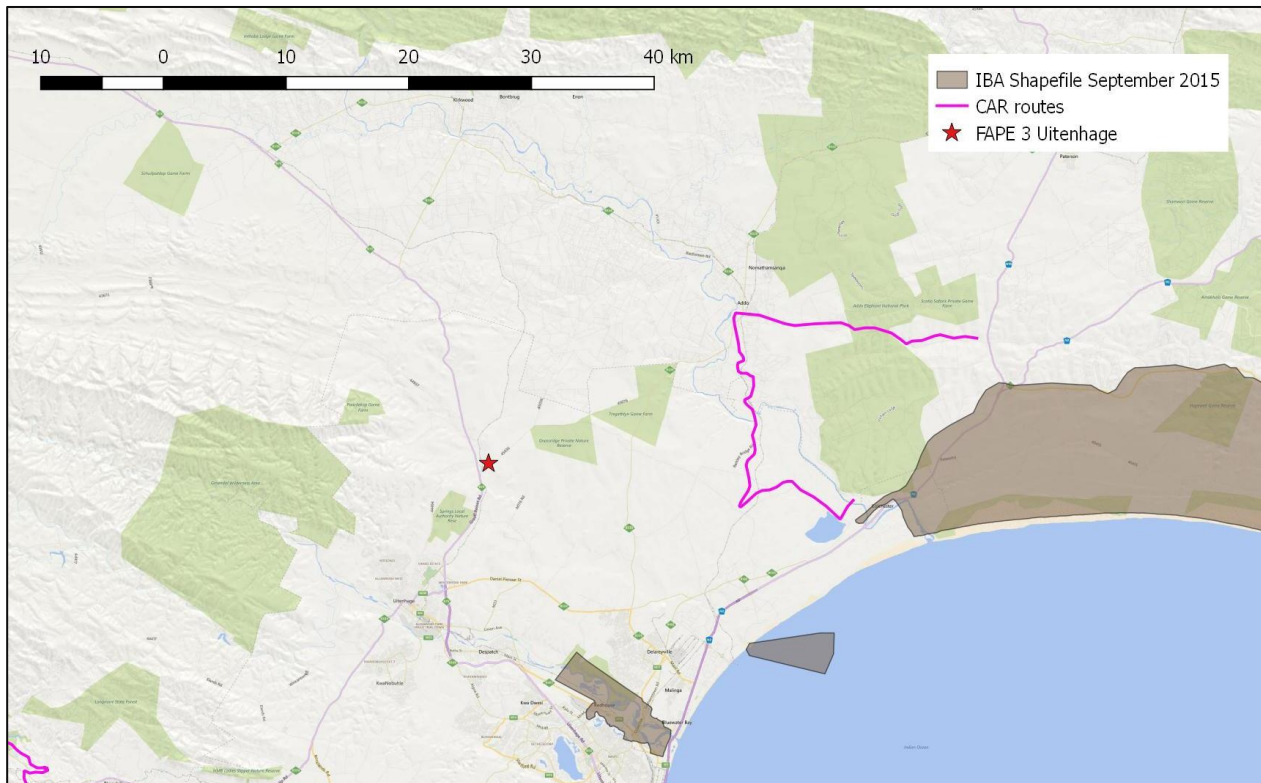


Figure 8. Location of Important Bird & Biodiversity Areas (brown shading) relative to the proposed FAPE 3 Uitenhage site

Although no Red Listed/ protected bird species were recorded on site, however, there are species which are Red Listed regionally or globally, or on the NEMA Threatened or Protected Species list or regionally endemic or near-endemic which could be the area. These are the ‘priority’ species for this site. **Table 2** provides the list of ‘priority’ species and likelihood of occurring on site. Those that have been confirmed or likely to occur on site are indicated in bold. Species such as raptors such as Lanner Falcon, Martial Eagle, and Jackal Buzzard could visit the site occasionally, although are unlikely to be affected by the facility. Several small passerine endemics such could occur on site but are unlikely to be seriously affected by the facility (WildSkies Ecological Services, 2018).

Table 2: Summary data for the regionally Red Listed bird species recorded in the broader area by the Southern African Bird Atlas Project (SABAP) 1 & 2 [SOURCE: WildSkies Ecological Services, 2018]

Common name	Taxonomic name	SAB AP1	SAB AP2	Regional, Global	TOPS	E	Likelihood of occurring on site
Harrier, Black	<i>Circus maurus</i>	1	1	EN, EN		(*)	Unlikely
Marsh-harrier, African	<i>Circus ranivorus</i>	1	1	EN, LC	PR		Unlikely
Stork, Yellow-billed	<i>Mycteria ibis</i>	1	1	EN, LC			Unlikely
Eagle, Martial	<i>Polemaetus bellicosus</i>	1		EN, VU	VU		Possible
Buzzard, Forest	<i>Buteo trizonatus</i>		1	LC, NT		SLS	Possible
Sandpiper, Curlew	<i>Calidris ferruginea</i>	1	1	LC, NT			Unlikely

Flamingo, Greater	<i>Phoenicopterus ruber</i>	1	1	NT, LC			Unlikely
Kingfisher, Half-collared	<i>Alcedo semitorquata</i>	1		NT, LC			Unlikely
Roller, European	<i>Coracias garrulus</i>	1		NT, LC			Possible
Bustard, Kori	<i>Ardeotis kori</i>		1	NT, NT	VU		Unlikely
Seedeater, Protea	<i>Crithagra leucopterus</i>	1		NT, NT		*	Unlikely
Woodpecker, Knysna	<i>Campethera notata</i>	1	1	NT, NT		*	Possible
Flamingo, Lesser	<i>Phoenicopterus minor</i>		1	NT, NT			Unlikely
Harrier, Pallid	<i>Circus macrourus</i>		1	NT, NT			Unlikely
Crane, Blue	<i>Anthropoides paradiseus</i>	1	1	NT, VU	EN		Unlikely
Duck, Maccoa	<i>Oxyura maccoa</i>	1		NT, VU			Unlikely
Stork, Black	<i>Ciconia nigra</i>	1		VU, LC	VU		Unlikely
Eagle, Verreaux's	<i>Aquila verreauxii</i>	1	1	VU, LC			Possible
Falcon, Lanner	<i>Falco biarmicus</i>	1	1	VU, LC			Possible
Tern, Caspian	<i>Sterna caspia</i>	1	1	VU, LC			Unlikely
Bustard, Denham's	<i>Neotis denhami</i>	1	1	VU, NT	PR		Unlikely
Eagle, African Crowned	<i>Stephanoaetus coronatus</i>	1	1	VU, NT			Unlikely
Korhaan, Southern Black	<i>Afrotis afra</i>	1	1	VU, VU		*	Unlikely
Secretarybird	<i>Sagittarius serpentarius</i>	1	1	VU, VU			Unlikely
Falcon, Peregrine	<i>Falco peregrinus</i>		1		VU		Possible
White-eye, Cape	<i>Zosterops virens</i>	1	1			(*)	Possible
Buzzard, Jackal	<i>Buteo rufofuscus</i>	1	1			(*)	Possible
Flycatcher, Fairy	<i>Stenostira scita</i>	1				(*)	Unlikely
Flycatcher, Fiscal	<i>Sigelus silens</i>	1	1			(*)	Possible
Grassbird, Cape	<i>Sphenoecus afer</i>	1	1			(*)	Unlikely
Lark, Cape Clapper	<i>Mirafra apiata</i>	1	1			(*)	Unlikely
Prinia, Karoo	<i>Prinia maculosa</i>	1	1			(*)	Unlikely
Scrub-robin, Brown	<i>Cercotrichas signata</i>	1	1			(*)	Confirmed
Sunbird, Southern Double-collared	<i>Cinnyris chalybeus</i>	1	1			(*)	Possible
Tchagra, Southern	<i>Tchagra tchagra</i>	1	1			(*)	Possible
Thrush, Karoo	<i>Turdus smithi</i>	1	1			(*)	Unlikely
Tit, Grey	<i>Parus afer</i>	1	1			(*)	Possible
Waxbill, Swee	<i>Coccygia melanotis</i>	1	1			(*)	Possible
Weaver, Cape	<i>Ploceus capensis</i>	1	1			(*)	Possible
Bulbul, Cape	<i>Pycnonotus capensis</i>	1	1			*	Possible
Lark, Cape Long-billed	<i>Certhilauda curvirostris</i>	1				*	Unlikely
Siskin, Cape	<i>Crithagra totta</i>	1	1			*	Unlikely
Sugarbird, Cape	<i>Promerops cafer</i>	1	1			*	Unlikely
Sunbird, Orange-breasted	<i>Anthobaphes violacea</i>	1				*	Unlikely
Warbler, Victorin's	<i>Cryptillas victorini</i>	1	1			*	Unlikely
Canary, Forest	<i>Crithagra scotops</i>	1	1			SLS	Unlikely
Francolin, Grey-winged	<i>Scleroptila africanus</i>	1	1			SLS	Unlikely
Lark, Eastern Long-billed	<i>Certhilauda semitorquata</i>	1				SLS	Unlikely
Prinia, Drakensberg	<i>Prinia hypoxantha</i>	1				SLS	Unlikely

Rock-thrush, Cape	<i>Monticola rupestris</i>	1	1			SLS	Unlikely
Starling, Pied	<i>Spreo bicolor</i>	1	1			SLS	Possible
Sunbird, Greater Double-collared	<i>Cinnyris afer</i>	1	1			SLS	Possible
Turaco, Knysna	<i>Tauraco corythaix</i>	1	1			SLS	Unlikely

SABAP1=Southern African Bird Atlas Project 1; SABAP2=Southern African Bird Atlas Project 2; EN=Endangered; VU=Vulnerable; NT=Near-threatened; LC=Least concern; PR=Protected; *=Endemic; (*) = Near-endemic; SLS = Endemic to South Africa, Lesotho & Swaziland. TOPS=National Environmental Management Act: Threatened or Protected Species.

4.1.4 Hydrology

FAPE: 3 study area is located within the Mzimvubu-Tsitsikamma Water Management Area (WMA) and M3-Coega Secondary Catchment. Although no water resources occur within the footprint of the site and immediate surroundings, a NFEPA wetland is located within 500m of the site. The Coega River is also located west to the site, approximately 550 m in distance.

4.1.5 Geology

The site is situated within the Cape Supergroup. Various sedimentary rock types are known to occur in the area, these include, pebbly quartz-arenite, diamictite, minor conglomerate, mudrock, siltstone, shale and sandstone. The sandstone is generally feldspathic and ferruginous and may be bedded in parts (Council of Geoscience, 2019).

4.2 Socio-Economic Conditions

The study area falls within Ward 39, under the jurisdiction of the Nelson Mandela Bay Metropolitan Municipality (NMBMM). The NMBMM covers an area of 1 959, 02 km² and is an administrative area that covers Port Elizabeth, Uitenhage and Despatch, as well as the surrounding agricultural areas. The Coega Industrial Development Zone (IDZ) is situated within this Metropolitan and is a multi-billion dollar industrial development complex customised for heavy, medium and light industries.

4.2.1 Population and human development

The current population of the NMBMM is 1 271 776, with a growth rate of 1.36%, which is lower than that of other Metropolitan areas. The total number of households is 365 973, of which 21 668 are estimated to be informal households. With regards to education status, in 2011, 19,7% of NMBMM's population had attained matric, whilst 6,8% had a higher education. The significant portion of population are non-school going residents, which consist of no schooling (3%), Grade 7 or less (13%), Grade 12 or less 75%) (NMBMM, 2017).

4.2.2 Economic development

The NMBMM is considered the driver of the Eastern Cape economy, contributing approximately 41,81% of the provincial Gross Geographic Product (GGP). The largest economic sectors within

NMBMM are manufacturing, finance, community services and transport. The unemployment rate dropped from 46,4% in 2001 to 36,6% in 2011 (NMBMM, 2017).

4.2.3 *Basic service delivery*

A high level of households is living in formal housing (85%) and approximately 12% of households live in informal housing conditions (in informal settlements and back-yards shacks). The overall housing situation is a-typical of most Metros in South Africa, which are generally characterised by lower income home ownership, higher levels of informal housing conditions, and higher new family formation (NMBMM, 2017).

All formal households have access to water through an erf connection. Altogether 100% of households located in informal settlements within the urban edge receive water through communal standpipes within a 200 m radius of every erf and through water tanks. Communities occupying private land illegally are not guaranteed water access. Seventy percent (70%) of households occupied free-standing houses, 4% townhouses/complexes, 8% shacks and 18% occupy (NMBMM, 2017).

In terms of access to sanitation system, all formal households are connected to waterborne sanitation and informal areas are serviced by the bucket sanitation system. Altogether 16 317 buckets are still in circulation to informal settlements as a means of sanitation. All households in formally demarcated residential areas have access to electricity. Some informal settlements are connected solar panels, however a portion still remain unconnected to an electricity supply (NMBMM, 2017).

5 PROJECT ALTERNATIVES

In terms of the EIA Regulations of 2014, as amended, the impact assessment process must identify and investigate alternatives, with feasible and reasonable alternatives to be comparatively assessed. The assessment of alternatives should also where possible, be done in a way that feeds back into the planning or design of the activity, thereby optimising the positive aspects and minimising the negative aspects that are highlighted during the assessment process.

The regulations define the “Alternatives” - *in relation to a proposed activity, means different means of meeting the general purpose and requirements of the activity, which may include alternatives to the—*

- (a) *property on which or **location** where the activity is proposed to undertake;*
- (b) *type of **activity** to be undertaken;*
- (c) ***design or layout** of the activity;*
- (d) ***technology** to be used in the activity;*
- (e) ***operational** aspects of the activity; and*
- (f) *includes the option of not implementing the activity (“**No-Go**” alternative).*

In addition to the list above, the following alternative are also considered:

- a) **Demand alternatives:** Arises when a demand for a certain product or service can be met by some alternative means (e.g. the demand for electricity could be met by supplying more energy or using energy more efficiently by managing demand).
- b) **Input alternatives:** Input alternatives are applicable to applications that may use different raw materials or energy sources in their process (e.g. industry may consider using either high sulphur coal or natural gas as a fuel source).
- c) **Routing alternatives:** Consideration of alternative routes generally applies to linear developments such as power line servitudes, transportation and pipeline routes.
- d) **Scheduling and timing alternatives:** Where a number of measures might play a part in an overall programme, but the order in which they are scheduled will contribute to the overall effectiveness of the result.
- e) **Scale and magnitude alternatives:** Activities that can be broken down into smaller units and can be undertaken on different scales (e.g. for a housing development there could be options of 10, 15 or 20 housing units. Each of these alternatives may have different impacts.

The applicability of each alternative type to the proposed project is outlined in **Table 3**. It must be highlighted that the alternatives presented in the table are derived from both the the EIA Regulations (2014) as amended as well as the Department of Environmental Affairs and Tourism’s (now Department of Environmental Affairs) 2004 Integrated Environmental Information Series on the Criteria for determining alternatives in EIA. Where the alternative is applicable to the project, it will be further discussed in this report.

Table 3: Alternatives types and their applicability to the project

Alternative Type	Applicability to the Project
Activity alternatives	No alternatives considered for the activity of constructing the DME infrastructure. However, the activity alternative for clearing indigenous vegetation in order to construct the DME, will be discussed in Section 5.1 .
Location/ property alternatives	The location of the proposed DME is based on the results of the simulation undertaken by the technical team. The aim of the simulation was to ensure that the location of the DME will not only aid in traffic navigation but will also ensure that the Uitenhage site is also aligned with other four DMEs within the PE International Airport TMA. The site location/ property alternatives will therefore not be assessed in this report.
Process alternatives	These are also known as technological and equipment alternative. The DME technology has been selected based on its accuracy, efficiency and cost-effective operations of airplanes.
Demand alternatives	Not applicable to the project as it is more applicable to the demand for a product or service.
Scheduling alternatives	The removal of vegetation to construct must be scheduled to avoid adverse environmental impacts. These alternatives are discussed under Section 5.2 .
Input alternatives	Not applicable to the project but mainly to industries where inputs and in turn outputs are crucial to operations.
Routing alternatives	Routing alternatives are applicable to the project with regards to the access road. Two alternatives were assessed and considered. These will be further discussed in Section 5.3 .
Site layout alternatives	Alternatives for the DME site footprint site layout have not been provided as the only layout is with regards to the SACAA requirements. With regards to the layout of the access road, these already overlap or covered under routing alternatives which is discussed under Section 5.3 .
Scale alternatives	Scale alternatives for the project will not be applicable to the DME site footprint as the area required for the equipment is 56m ² (standard). Additional area to be cleared will include vehicle turning point, working area and the proposed access road (single lane).
Design alternatives.	These alternatives are not applicable to the project. The design of the development is as per the technical requirements of the DME.
Operational Alternatives	These alternatives are not applicable to this project. No activities will be undertaken on site during the operational phase, except for maintenance on a regular basis or as and when required.
No-go Option	This alternative must be discussed on all projects as it allows for an assessment of impacts should the activity not be undertaken. This alternative is discussed in Section 5.4 .

5.1 Alternative 1: Activity Alternatives (for clearing vegetation)

The activity alternatives considered are in terms of the method of clearing vegetation for construction purposes. The clearing can be done can be either *mechanical (physical)*, *chemical* or *biological* and must be suitable to the specific type of plants intended for clearing.

5.1.1 Mechanical/ physical methods

The mechanical clearing of vegetation can either be undertaken by hand or by machinery. The key advantages and disadvantages of each of these are discussed in **Table 4**.

Table 4: Advantages and disadvantages of mechanical methods for clearing vegetation

Mechanical (Hand Pulling)	Mechanical (Machinery)
<p>Advantages</p> <ul style="list-style-type: none"> Labour intensive and therefore desirable for job creation. <p>Disadvantages</p> <ul style="list-style-type: none"> Not suitable for large plants or plants with strong root systems and Time consuming and can lead to project delays 	<p>Advantages</p> <ul style="list-style-type: none"> Allows for quick removal of vegetation in comparison to hand pulling. <p>Disadvantages</p> <ul style="list-style-type: none"> High costs associated with the hiring or purchasing of equipment; Reduces the likelihood of the creation of jobs as the method is not labour intensive; and Causes adverse environmental impacts as the machinery is highly likely to drive over Species of Conservation concern not intended for removal. The machinery can only be used once the relevant permits for the destruction or removal of SCC have been obtained and these plants have been removed accordingly.

5.1.2 Chemical methods

Chemical methods for the clearance of vegetation includes the application of chemicals such as herbicides by spraying, painting, injecting etc. However, a plant that has been subjected to chemical method may still need to be removed manually due to factors such as size of strength of the root system. The advantages and disadvantages of chemical methods are discussed below.

5.4.2.1 Advantages of the use of Chemical Methods

- Likelihood of plant regrowth is lower with the use of chemicals than mechanical methods as chemicals can be applied to a part of a plant that will result in more effective eradication;
- Does not require specialist equipment (e.g. scrapper) or high levels of manpower in comparison to mechanical methods; and
- Can be applied prior to the commencement of the construction period to allow for their effectiveness to set in and allow for quick removal immediately prior to the commencement of construction activities.

5.4.2.2 Disadvantages of chemical methods include but are not limited to the following:

- Specialist expertise is required for the application of chemicals in terms of application area on a plant, suitability of chemical for the eradication of a specific plant, quantities of chemicals to apply to apply, frequency of application, timing of application, etc.;
- The effectiveness of the chemical can be affected by the application method on a plant;
- Unintentional spread to land in turn affecting the surrounding environment such as soils, non-target flora, fauna, humans, any surrounding watercourses where applicable, etc. All of these can lead to adverse cumulative impacts.
- May require re-application due to the resistance of the plant to the chemical and in turn cumulative adverse impacts on the environment;
- Time will need to set aside to allow the effects of the chemical to set in prior to the complete eradication;
- Chemicals can be extremely costly; and
- Reduces the likelihood of labour-intensive methods;

5.1.3 Biological methods

Biological control entails the introduction of natural enemies to a plant to eradicate it. Biological methods include mites, insects, and micro-organisms such as fungi or bacteria. They usually attack specific parts of the plant. E.g. either reproductive organs such as (flower buds, flowers or fruit) or the seeds after they have dropped from the plant.

Although biological control methods are mainly targeted towards alien plant species, they will however be discussed in this report and are presented in **Table 5**.

Table 5: Advantages and disadvantages of biological method of clearing vegetation

Advantages	Disadvantages
<ul style="list-style-type: none"> • Environmentally friendly; • Cost effective; and • Generally, does not require long term maintenance. 	<ul style="list-style-type: none"> • Not available for all species; • Slow method, especially at the beginning of the process; • Can attack non-target species; and • Poor commercial availability.

Preferred Alternative:

Based on the information above, it is clear that various methods be used based on their suitability for vegetation type and the environmental sensitivity of the area. The disadvantages of chemical methods greatly outweigh the advantages and the biological methods were generally not preferred above mechanical or chemical methods due to their unpredictable nature and likelihood of spreading to non-target species. For these reasons. The mechanical methods were identified the preferred technique to remove vegetation on site.

5.2 Alternative 2: Scheduling Alternatives

These are also known as sequencing or phasing alternatives and are applicable to the clearing of

vegetation. These alternatives can be further divided into two alternatives, which are:

- a) timing of the removal of plant species in terms of the season. The removal can either be undertaken in the wet season or the dry season; and
- b) options for clearing the site which can be a once-off activity vs a phased approach.

The key advantages and disadvantages of each of these are discussed in and respectively.

Table 6: Comparison of the removal of vegetation in wet or dry season

Wet Season	Dry Season
<p>Advantages</p> <ul style="list-style-type: none"> • During the wet season, the need for dust suppression on site will be limited <p>Disadvantages</p> <ul style="list-style-type: none"> • Wet soils will result in difficulties of accessibility for of equipment and site personnel; • Difficult to identify or distinguish plant species. 	<p>Advantages</p> <ul style="list-style-type: none"> • Ease in movement of plant and equipment as well as site personnel; • Ease of identification of the plant species; • Allows for quicker re-establishment of vegetation after rehabilitation. <p>Disadvantages</p> <ul style="list-style-type: none"> • Lower rates of rehabilitation of areas that may have been damaged by construction activities

Preferred Alternative:

The clearing of vegetation during the dry season is preferred above wet season clearing especially as the identification of sensitive plant species will be easier and quicker re-establishment of vegetation after rehabilitation.

5.3 Alternative 3: Routing alternative

In order to provide vehicle access to the DME site, three alternatives have been proposed. Each of these are illustrated in **Figure 9**.

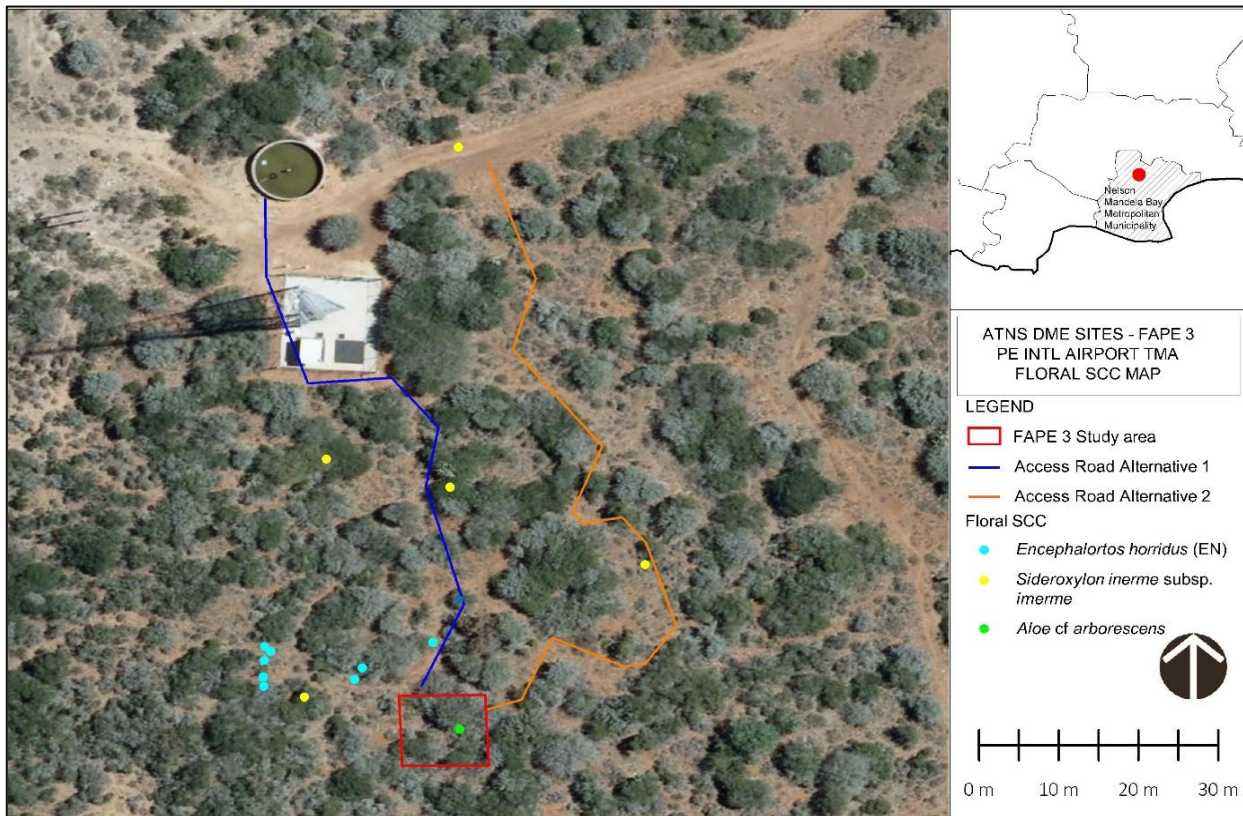


Figure 9: Access road alternatives for FAPE 3: Uitenhage DME site

Both accessed roads as indicated above will require minimum clearing, as most trees/ shrubs have avoided. Both alternatives also have similar type of plants as the fall within the same vegetation type.

Preferred Alternative:

Access road alternative 2 should be the preferred access road alignment, due to the possible impact on *E. horridus* along Alternative 1 (as indicated in **Figure 9**). *E. horridus* is protected at international level. .

5.4 Alternative 4: The No-Go Option

The “No-Go” alternative serves as a basis for comparison and can serve to validate the need and desirability for the project. Therefore, as standard practice and to satisfy regulatory requirements, the option of not proceeding with the project is included in the evaluation of the alternatives. The “No-Go” alternative would entail a situation where the construction of the DME of will not occur and indigenous vegetation will therefore not be cleared, and the status quo of the environment remain, and all identified impacts highlighted in this report will not occur.

If the “No-Go” alternative is considered, such could lead to the failure of ATNS to meet the requirements SCAA, which are to increase safety, efficiency and cost-effectiveness in air travel within the South African airspace.

6 PUBLIC PARTICIPATION PROCESS

The NEMA (1998) EIA Regulations, 2014, as amended, prescribe that the BA process must include the undertaking of public participation in accordance with the Chapter 6 of the Regulations. The purpose of the Public Participation Process (PPP) is to provide all potential and / or registered Interested and Affected Parties (I&APs), including the competent authority and any other stakeholder or organ of state, an opportunity to become involved in the BA process and provide comments during the various phases of the project. Involvement of the I&APs forms an integral component of this process, as it enables I&APs to raise their issues and concerns regarding the proposed development. This also provides an opportunity for the inputs of local insight that can enhance the process.

The following guideline documents were also used to inform the public participation approach followed by GA Environment:

- Integrated Environmental Management Guideline Series 7 – Public Participation in the EIA Process (DEA, 2010);
- Public Participation Guidelines, Guideline Document 4 (DEA, 2006); and
- Public Participation Guidelines in terms of the National Environmental Management Act, 1998 Environmental Impact Assessment Regulations (DEA, 2017).

The minimum requirements for a Public Participation Process (PPP) activities undertaken to date as part of this BA process are discussed in detail thereafter:

6.1 Initial Phase

6.1.1 Stakeholder pre-consultation

In order to address the requirements of key stakeholders before the commencement of the BA process, during the initial assessment phase of the project in 2017, GA Environment liaised with the owners of the various masts in close proximity to the proposed ATNS DME site to obtain their comments. Liaison was also undertaken with the affected landowner, adjacent landowners as well as the Municipality to understand their requirements for such a development.

6.1.2 Identification of I&APs

Interested and Affected Parties (I&APs) were identified through various means from the Initial Assessment/ Screening phase of the project. All the identified I&APs were included in the database. The database has been updated, it will be maintained or updated as and when required throughout the process. The database is attached as **Appendix E6**.

6.1.3 Notification letters

Regulation 41(2)(b) of the NEMA (1998) EIA Regulations, 2014, as amended requires that written notification be given to various parties who include the following:

(i) the occupiers of the site and, if the proponent or applicant is not the owner or person in control of the site on which the activity is to be undertaken, the owner or person in control of

- the site where the activity is or is to be undertaken and to any alternative site where the activity is to be undertaken;*
- (ii) owners, persons in control of, and occupiers of land adjacent to the site where the activity is or is to be undertaken and to any alternative site where the activity is to be undertaken;*
- (iii) the municipal councillor of the ward in which the site and alternative site is situated and any organisation of ratepayers that represent the community in the area;*
- (iv) the municipality which has jurisdiction in the area;*
- (v) any organ of state having jurisdiction in respect of any aspect of the activity; and*
- (vi) any other party as required by the competent authority.*

Notification letters were prepared and distributed to all adjacent landowners and neighbouring communities. The letters provide a background on the proposed mast well as information on how one can register as an I&AP on the project in order to be able to be kept abreast of all developments related to the project. The letters were also distributed other stakeholders via email where possible. A copy of the notification letter is attached as **Appendix E1** and the knock and Drop Register as proof of the delivery of hardcopies is attached as **Appendix E2**.

6.1.4 Newspaper advertisement

Regulation 41(2)(c) and (d) of the NEMA (1998) EIA Regulations, 2014, as amended requires that PPP includes the placement of a newspaper advertisement to notify all potential I&AP's about the proposed project and to invite them to register as I&APs and provide comments on the project. The advert was therefore placed on page 11 of the UD Express Newspaper circulated on the 21 February 2019. The proof of the placement of the newspaper advertisement is attached as **Appendix E5**.

6.1.5 Notice boards/site notices

In accordance with Regulation 41(4)(a) of the NEMA (1998) EIA Regulations, 2014, as amended, notice boards of 60cm X 42cm (i.e. A2 Sizes) were prepared and placed on various locations on and around the site in conspicuous places. A total of three notices were placed on the 21 February 2019. Refer to **Appendix 4** for a copy of the site notice and proof of placement.

6.1.6 Focus group meeting

ATNS has taken concerted effort to negotiate and discuss the land acquisition with the landowner since the Initial Assessment Phase. The landowner has also been engaged in this BA process as one of the key stakeholders. It must be highlighted that to date, the project has not drawn sufficient attention to warrant public meetings or additional focus groups with exception of the meeting that ATNS held with the landowner.

6.2 Draft BAR Phase

6.2.1 Availability of DBAR for review

Regulation 43 of the NEMA EIA Regulations, 2014, as amended, stipulates that the registered I&APs are entitled to comment on all the reports. The DBAR will be provided to the registered I&APs and the general public for review and comments in local public venues. The reports will be available in public domains for the legislated period of at least 30 days. This will allow all I&APs adequate time to review the details of the project and provide, comments and concerns relating to the proposed project.

All registered I&APs will be informed of the availability of the report through various means such as e-mails, sms and phone calls. As required by the legislation, the Competent Authority will also be provided with a copy of the DBAR. Additional hardcopies as well as electronic versions of the DBAR will be provided to other key stakeholders.

6.3 Final BAR Phase

6.3.1 Comment and response report

Comments received during the public review period will be incorporated into the FBAR. The comments will be documented in a Comments and Response Report (CRR) and submitted with the FBAR to the DEA for review and decision making. GA Environment will also directly respond to stakeholders who submit their comments. The CRR is attached as **Appendix E7**.

7 IMPACT ASSESSMENT METHODOLOGY

The main objective of this section is to provide independent and scientifically sound methodology of assessing the impacts identified during the BA process. Based on the requirements of the impact assessment, impacts identified, and issues and concerns raised are assessed with regard to their significance which is described in terms of their nature, extent, duration, intensity and probability. The impact assessment is aimed at determining the impacts associated with the proposed development and the prescription of mitigation measures.

In this report, impacts with a **low significance** are considered to have no influence on the decision to proceed with the proposed development. Impacts with a **moderate significance** are likely to influence the decision, unless they can be effectively mitigated to a low significance, whereas impacts with a **high significance**, despite mitigation are likely to influence the decision to proceed with the proposed development.

7.1 Impact Mitigation Hierarchy

The impact mitigation hierarchy provides steps that must be used in mitigating adverse impacts of a project and in turn ensuring environmental protection. There are various levels of preference for mitigation options with the most preferred method and the first step as avoidance and final method as offset. Refer to **Figure 10** for an illustration of the mitigation hierarchy.

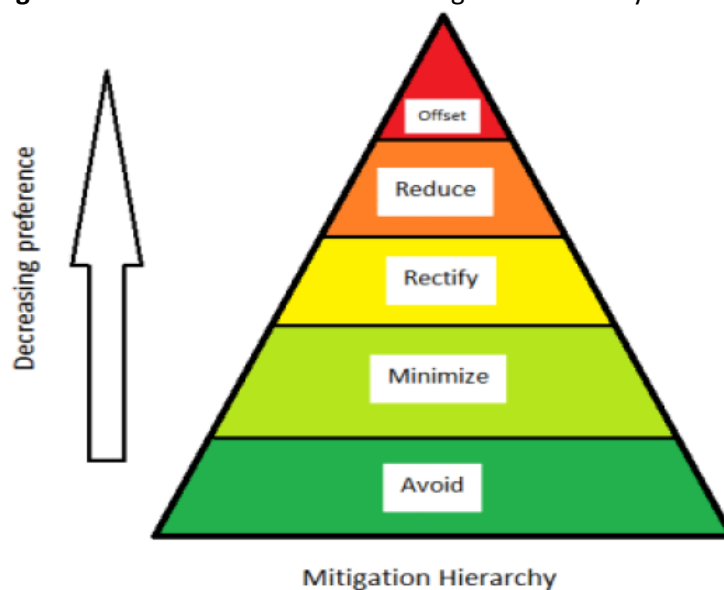


Figure 10: Mitigation hierarchy showing levels of preference (Eco Intelligent, 2016)

Each of the mitigation types will be discussed below and contextualised to the planned project activities associated with the ATNS DME site. These mitigation types are particularly discussed in terms of clearing indigenous vegetation within the CBA, as this is the listed activity that triggers the BA for this development.

Step 1: Avoidance - Although this is the most preferred form of mitigation as it will not result in the

removal of vegetation with the CBA where the site is located, the DME and associated infrastructure cannot be constructed without clearing the vegetation that is on the way.

Step 2: Minimisation - This entails the reduction of adverse environmental impacts through various means as it based on the recognition that environmental impacts cannot be fully avoided in the proposed activity. The minimisation of adverse impacts for this project will include ensuring the clearance of vegetation is limited to area needed for construction purposes. The mitigation measures proposed are discussed in **Section 8** further detailed in the Draft EMPr attached as **Appendix G**.

Step 3: Rectification - Where an impact has already taken place, rectification entails the implementation of corrective measures to avoid further adverse environmental impacts. Rectification will apply in cases where Contractors may have accidentally damaged or removed protected or threatened plant species during the clearing or other construction activities.

Step 4: Reduction - This is applicable where the above-mentioned rectification is not possible. Therefore, reduction requires new management practices and/or changes in methodology to ensure environmental protection.

Step 5: Environmental Offset – This is meant to cater for the effects of the development through compensation of biodiversity losses by measures such as the establishment of new plants on another area outside the DME site where it is not possible to avoid the clearance of sensitive or protected plant species.

7.2 Impact Assessment Methodology

In accordance with GNR 982, promulgated in terms of Section 24 of the NEMA, the EAP is required to assess the impacts of the project. The methodology of assessing these impacts will comprises of the following four key steps:

7.2.1 Step 1: Identify type of impact

There are two categories of impacts – either positive or negative. Positive impacts generally do not require mitigation, however certain measures can be put in place to enhance them. Negative or adverse impacts are not desirable and require appropriate mitigation measure minimise or eliminate them.

7.2.2 Step 2: Identify the significance rating of the impact before mitigation

Suitable numerical rating for the impacts before mitigation based on the criteria below and each of these are explained in **Section 7.3**. The impacts will be identified by rated based on the EAP's or specialists' assessments.



Figure 11: Criteria for assessing the impacts

7.2.3 Step 3: Identify the mitigation measure

The suitable mitigation measures will be identified and recommended based on the significance of the impacts. The implementation of the mitigation measures will be ensured through the EMP. The EMP will be used to enforce the mitigation measures and ensure that the impacts of all phases of the proposed project are properly managed and addressed.

7.2.4 Step 4: Identify the significance rating of the impact after mitigation

Suitable rating of the impacts after they have been properly mitigated.

7.3 Impact Assessment Criteria

The assessment of the significance of impacts for a proposed development is by its nature, a matter of judgement. To deal with the uncertainty associated with judgement and ensure repeatable results, a standardised assessment criterion was used as outlined below:

Table 7: Assessment Criteria

Nature of Impact
This is an appraisal of the type of effect the proposed activity would have on the affected environmental component. The description should include what is being affected, and how.
Extent
The physical and spatial size of the impact. This is classified as: i) Site The impact could affect the whole, or a measurable portion of the site. ii) Local The impacted area extends only as far as the activity, e.g. a footprint of the specific activity. iii) Regional The impact could affect areas such as neighbouring farms, transport corridors and the adjoining towns.
Duration
The lifetime of the impact; this is measured in the context of the lifetime of the proposed project. i) Short term The impact will either disappear with mitigation or will be mitigated through natural process in a span shorter than any of the phases.

Duration

ii) Medium term

The impact will last up to the end of the phases, thereafter it will be entirely negated.

iii) Long term

The impact will continue or last for the entire operational life of the development but will be mitigated by direct human action or by natural processes thereafter.

iv) Permanent

The only class of impact which will be non-transitory. Mitigation either by man or natural processes 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, alter its functioning, or slightly alter it? These are rated as:

i) Low

The impact alters the affected environment in such a way that the natural processes or functions are not affected.

ii) Medium (Moderate)

The affected environment is altered, but function and process continue, albeit in a modified way.

iii) High

Function or process of the affected environment is disturbed to the extent where it temporarily or permanently ceases. This will be a relative evaluation within the context of all the activities and the other impacts within the framework of the project.

Probability

This describes 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. The classes are rated as follows:

i) Improbable

The possibility of the impact occurring is very low, due either to the circumstances, design or experience.

ii) Probable

There is a possibility that the impact will occur to the extent that provisions must be made.

iii) Highly probable

It is most likely that the impacts will occur at some or other stage of the development. Plans must be drawn up before the undertaking of the activity.

iv) Definite

The impact will take place regardless of any prevention plans, and mitigation actions or contingency plans are relied on to contain the effect.

Reversibility of impact

Natural or human aided intervention:

(i) Irreversible

The impact will be permanent.

(ii) Reversible (Short term)

The impact is reversible within two years after construction.

(iii) Reversible (Long term)

The impact is reversible within 2 to 10 years after construction.

The degree to which the impact can cause irreplaceable loss of resources

(i) Low

The impact results in the loss of resources but the natural, cultural and social processes/functions are not affected.

(ii) Medium

The loss of resources occurs but natural cultural and social processes continue, albeit in a modified manner.

(iii) High

The impact results in irreplaceable loss of resource.

Significance of impact with or without mitigation

Significance is determined through a synthesis of impact characteristics. Significance is an indication of the importance of the impact in terms of both physical extent and time scale, and therefore indicates the level of mitigation required. The classes are rated as follows:

(i) Negligible

The impact is not substantial and does not require any mitigation.

(ii) Low

The impact is of little importance but may require limited mitigation.

(iii) Medium (Moderate)

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

(iv) High

The impact is of great 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.

All potential impacts that have been identified during the BA process will be listed in impact assessment tables. The assessment criteria explained above will be applied to all the impacts and a brief descriptive review of the impacts and their significance.

8 DESCRIPTION AND ASSESSMENT OF ENVIRONMENTAL IMPACTS

The key objective of this section is to provide independent and scientifically sound information on the impacts identified during the BA process. It further provides a detailed assessment of the impacts (including cumulative impacts) associated with the proposed development and ways in which they can be managed by prescription appropriate mitigation measures.

For the purposes of this assessment, this impact assessment will only focus on the impacts that are likely to occur during the construction and operational phases of the ATNS DME based on the location of site and the site sensitivities.

8.1 IMPACT 1: Permanent loss of intact habitat and associated indigenous vegetation

(a) Description of the impacts

The permanent loss of intact habitat and associated indigenous vegetation will take place within the project footprint area. The adjacent areas may also be potentially affected by temporary project activities and disturbance.

(b) Impact Ratings

Table 8 presents an assessment of the **impacts associated with the Permanent loss of intact habitat and associated indigenous vegetation.**

Table 8: Assessment and ratings related to impact 1

Project phase	Nature of impact	Extent	Duration	Intensity	Probability	Reversibility	Irreplaceable loss of resources	Significance without mitigation	Significance with Mitigation
Construction	Negative	Site	Permanent	High	Definite	Irreversible	Medium	Medium	Low
Operation	Negative	Site	Permanent	Medium	Probable	Reversible (Short term)	Low	Low	Negligible

(c) Mitigation measures

- All areas planned for clearing of vegetation must be demarcated prior to the commencement of the construction
- Clearing of vegetation should only be limited to the DME site footprint, vehicle turning area, access roads as well as a 2m buffer area around each of these areas
- Strict measures should be put in place to avoid impacts on surrounding undisturbed vegetation and these areas should be designated as No-Go areas
- Construction workers must not remove flora or collect seed from any plants outside the areas on which vegetation clearing has not been planned.
- Under no circumstances should chemicals be used in the removal of plant species
- Only indigenous plants must be used in the rehabilitation of disturbed areas

- At least one serviced fire extinguisher should be available on site at all times and all site personnel in senior positions and who will be on site on a full-time basis must be trained on the usage of fire extinguishers
- All construction vehicles and equipment as well as construction material should be free of plant material
- Floral SCC within the vicinity of the footprint area that may be at risk, should be clearly marked or fenced/ cordoned off on site for the duration of the construction phase to prevent impacts on these species
- Any relocation or removal protected/ endangered species must be approved by the relevant authority

(d) Cumulative impacts

The potential for cumulative impacts exists, as the proposed site is located near an area that has already been cleared of vegetation for an existing Vodacom mast, powerline, reservoir and access road.

(e) Assessment of no-go alternative

The no-go alternative will not have impacts on the vegetation unit and species diversity.

8.2 IMPACT 2: Disturbance of birds and displacement effects

(a) Description of the impacts

Disturbance of avifauna during the construction (and thereafter during maintenance and operational and decommissioning) of the facility and associated infrastructure is likely to occur. Disturbance of breeding birds is typically of greatest concern. In this regard any breeding sites of sensitive bird species would be the most important. For this aspect a much larger area than the site itself is considered since disturbance effects could be relevant for several kilometres.

(b) Impact Ratings

Table 9 presents an assessment of the impacts associated with **disturbance of birds and displacement effects**.

Table 9: Assessment and ratings related to impact 2

Project phase	Nature of impact	Extent	Duration	Intensity	Probability	Reversibility	Irreplaceable loss of resources	Significance without mitigation	Significance with Mitigation
Construction	Negative	Local	Short term	Medium	Improbable	Irreversible	Low	Negligible	Negligible
Operation	Negative	Local	Permanent	Medium	Probable	Irreversible	Medium	Low	Negligible

(c) Mitigation measures

None required. As a purely precautionary measure it is recommended that existing access roads must be used as much as possible to reduce the construction of new roads.

(d) Cumulative impacts

The proposed development may have cumulative impacts on disturbances of birds and their breeding patterns, due to addition of mast and powerlines in the area.

(e) Assessment of no-go alternative

The no-go alternative will not result in disturbance of birds and their breeding patterns.

8.3 IMPACT 3: Bird fatalities**(a) Description of the impacts**

Fatalities could occur at the facility for due to collision with the overhead grid connection power line and electrocution on power line.

(b) Impact Ratings

Table 10 presents an assessment associated with **bird fatalities**.

Table 10: Assessment and ratings related to impact 3

Project phase	Nature of impact	Extent	Duration	Intensity	Probability	Reversibility	Irreplaceable loss of resources	Significance without mitigation	Significance with Mitigation
Construction	<i>The impacts of bird fatalities are not anticipated during the construction phase of the project</i>								
Operation	Negative	Site	Long term	Medium	Probable	Irreversible	Low	Low	Negligible

(c) Mitigation measures

- The powerline should be fitted with the best available (at the time of construction) anti bird collision line marking devices in order to make the overhead cables more visible to birds.

More specifically:

- Devices should be fitted on the entire length of the power line since it is so short.
- Devices should be fitted on the conductors.
- On each span, the full span should be fitted with marking devices (i.e. not only the middle 60% as done previously by Eskom). Research has shown that collisions occur even close to pylons.
- Light and dark colour devices should be alternated so as to provide contrast against both dark and light backgrounds.

- These devices should be fitted as soon as the cables/conductors are strung as collision risk begins immediately, not only once the line is commissioned and live.
- The power line owner will be responsible for ensuring that the marking devices remain in place and effective on the power line for its' full lifespan. Any device failures must be rectified immediately by replacement with new devices.
- It is essential that the pylon design is an Eskom approved bird friendly (and specifically eagle friendly) design
- As a precaution, any lighting on the top of the tower should be used only when absolutely necessary and should ideally be red rather than white

(d) Cumulative impacts

The proposed development may have cumulative on bird fatalities, due to addition of mast and powerlines in the area.

(e) Assessment of no-go alternative

The no-go alternative will not have impacts on bird fatalities.

8.4 IMPACT 4: Nesting and other use of infrastructure by birds

(a) Description of the impacts

Certain species, in particular crows, are likely to use some of the facility infrastructure for nesting, perching and roosting. At face value this is a positive impact for birds. However, nesting typically brings birds into conflict with facility management as they may make maintenance difficult for staff, and also poses a fire risk since nests present abundant fuel for fires.

(b) Impact Ratings

Table 11 presents an assessment associated with nesting and other use of infrastructure by birds.

Table 11: Assessment and ratings related to impact 4

Project phase	Nature of impact	Extent	Duration	Intensity	Probability	Reversibility	Irreplaceable loss of resources	Significance without mitigation	Significance with Mitigation
Construction	<i>The impacts of bird nesting are not anticipated during the construction phase of the project</i>								
Operation	Positive	Site	Long term	Low	Improbable	Irreversible	Low	Negligible	Negligible

(c) Mitigation measures

- The specialist recommended that any necessary nest management measures taken during the operational phase be in accordance with provincial and national legislation.

(d) Cumulative impacts

The proposed development will have cumulative impacts, as it will serve as an additional structure for nesting.

(e) Assessment of no-go alternative

The no-go alternative will not have impacts on bird nesting.

8.5 IMPACT 5: Soil erosion and compaction**(a) Description of the impacts**

Vegetation clearance and site preparation may lead to possible soil erosion and compaction.

(b) Impact Ratings

Table 12 presents an assessment associated with **soil erosion and compaction impacts**.

Table 12: Assessment and ratings related to impact 5

Project phase	Nature of impact	Extent	Duration	Intensity	Probability	Reversibility	Irreplaceable loss of resources	Significance without mitigation	Significance with Mitigation
Construction	Negative	Site	Short term	Medium	Probable	Reversible (short term)	Medium	Low	Negligible
Operation	Negative	Site	Short term	Low	Improbable	Reversible (short term)	Low	Negligible	Negligible

(c) Mitigation measures

- Prevention of erosion, and where necessary rehabilitation of eroded areas
- Rehabilitation of disturbed vegetation as soon as undertaken as soon as construction has ended in the area that has been disturbed
- Floral SCC within the vicinity of the footprint area that may be at risk, should be clearly marked or fenced/ cordoned off on site for the duration of the construction phase to prevent impacts on these species
- Any relocation or removal protected/ endangered species must be approved by the relevant authority

(d) Cumulative impacts

The proposed development will not have cumulative in terms of erosion in the area, as there are no existing erosion features or rills on site and surrounding area.

(e) Assessment of no-go alternative

The no-go alternative will not have impacts on soil erosion and compaction.

8.6 IMPACT 6: Dust generation**(a) Description of the impacts**

Vehicular movement and disturbance associated with construction activities may also lead to an increase in dust which may negatively affect surrounding vegetation and air quality.

(b) Impact Ratings

Table 13 presents an assessment of the impacts associated with **dust generation**.

Table 13: Assessment and ratings related to impact 6

Project phase	Nature of impact	Extent	Duration	Intensity	Probability	Reversibility	Irreplaceable loss of resources	Significance without mitigation	Significance with Mitigation
Construction	Negative	Local	Short term	Medium	Probable	Reversible (short term)	Medium	Low	Negligible
Operational	<i>No dust will be generated during the operation phase of the project</i>								

(c) Mitigation measures

- The Contractor must provide and maintain a method statement for “dust control”. The method statement must provide information on the proposed source of water to be utilised and the details of any licenses or permits required.
- The construction site must be watered during dry and windy conditions to control dust fallout.
- Dust production must be controlled by regular watering of access roads and roads and working areas, should the need arise.
- Construction vehicles must adhere to low speeds to avoid the generation of dust on the construction site
- All vehicles transporting material that can be blown off (e.g. soil, rubble, etc.) must be covered with a tarpaulin, and adhere to speed limits on public roads
- Excessive dust conditions must be reported to the ECO.
- A continuous dust monitoring process needs to be undertaken during construction.
- Speed restriction of no more than 10km/h must be implemented for all construction vehicles within the construction site
- All construction vehicles must be maintained to avoid adverse impacts on air quality as a result of a lack of maintenance

(d) Cumulative impacts

There will be no cumulative impacts associated with dust from site vehicles, as these impacts are temporary in nature, few vehicles will be on site during construction and there are no activities near the site that contributing to air pollution or dust generation.

(e) Assessment of no-go alternative

The no-go alternative will not have an impact on ambient air quality.

8.7 IMPACT 7: Introduction and proliferation of alien and invasive floral species**(a) Description of the impacts**

The introduction of alien and invasive floral species and the proliferation of such species throughout the operational phase the project should the rehabilitation of affected areas and the ongoing management of alien species be ineffective or not completed to high standards. An Alien Invasive Management has been compiled and attached as **Appendix G** of this report.

(b) Impact Ratings

Table 14 presents an assessment of the impacts associated with the **introduction and proliferation of alien and invasive floral species**.

Table 14: Assessment and ratings related to impact 7

Project phase	Nature of impact	Extent	Duration	Intensity	Probability	Reversibility	Irreplaceable loss of resources	Significance without mitigation	Significance with Mitigation
Construction	Negative	Site	Short term	Low	Probable	Reversible (short term)	Low	Low	Negligible
Operational	Negative	Site	Long term	High	Highly probable	Reversible (long term)	Medium	Medium	Low

(c) Mitigation measures

- Prevention of erosion, and where necessary rehabilitation of eroded areas
- Rehabilitation of disturbed vegetation as soon as undertaken as soon as construction has ended in the area that has been disturbed
- Floral SCC within the vicinity of the footprint area that may be at risk, should be clearly marked or fenced/ cordoned off on site for the duration of the construction phase to prevent impacts on these species

(d) Cumulative impacts

The potential for cumulative impacts exist. Two alien species (*Opuntia aurantiaca* and *Opuntia ficus-indica*) were recorded around the proposed site

(e) Assessment of no-go alternative

The no-go alternative will not have impacts on the introduction and proliferation of alien and invasive floral species.

8.8 IMPACT 8: Emission of electromagnetic fields

(a) Description of the impacts

Telecommunication towers such as that proposed as part of the ATNS DME mast emit Electromagnetic Fields (EMF's) and are often associated with negative perceptions related to the change in behaviour and illnesses in humans and animals. Environmental exposures to EMFs can interact with fundamental biological processes in the human body (EMF SA, 2018).

(b) Impact Ratings

Table 15 presents an assessment of the impacts associated with the **emission of EMFs**.

Table 15: Assessment and ratings related to impact 8

Project phase	Nature of impact	Extent	Duration	Intensity	Probability	Reversibility	Irreplaceable loss of resources	Significance without mitigation	Significance with Mitigation
Construction	<i>No emission of EMFs during construction as the DME equipment will not be operational during this phase</i>								
Operational	Negative	Local	Permanent	Moderate	Definite	Irreversible	Low	High	Moderate

* The impacts of EMF assessed in this study is adequate for the purposes of this BA study, however it is acknowledged that the level of exposure to the EMFs emitted by the mast cannot be fully quantified by the EAP. It must also be noted that the voluntary sources (i.e cellular phones) are also constantly exposing humans to EMFs.

(c) Mitigation measures

Telecommunication towers are not the only source of EMFs, as these also originate from devices such as cellular phones, cordless computers, Wi-Fi Systems etc.

The EMFs emitted by towers are considered involuntary and unavoidable. Although this impact cannot be fully mitigated, according to information provided by ATNS, the DME antenna will not constantly emit EMFs but will only do so when it interrogated (i.e. when it receives a signal from an aeroplane fitted with a DME). During the interrogation, there will be a temporary illumination of the red DME antenna located on top of the mast.

(d) Cumulative impacts

The cumulative EMFs burden within any community is largely unknown (EMF SA, 2018), however, the potential for cumulative impacts of the ATNS mast exist, as there is an existing Vodacom communication mast within the proximity of the proposed site.

(e) Assessment of no-go alternative

The no-go alternative will not result in emission of EMFs.

8.9 IMPACT 9: Visual and aesthetic impacts**(a) Description of the impacts**

Construction sites are generally unsightly and can affect an area's sense of place. The clearance of indigenous vegetation will further result in adverse visual impacts. In addition to these, the presence of the mast will also adverse visual impacts as the area has a rural feel, with little visual discontinuity and interruption of the natural landscape.

(b) Impact Ratings

Table 16 presents an assessment of the impacts associated with the **visual and aesthetic impacts**.

Table 16: Assessment and ratings related to impact 9

Project phase	Nature of impact	Extent	Duration	Intensity	Probability	Reversibility	Irreplaceable loss of resources	Significance without mitigation	Significance with Mitigation
Construction	Negative	Site	Short term	Medium	Highly probable	Reversible (Short term)	Medium	Low	Negligible
Operational	Negative	Site	Permanent	High	Definite	Irreversible	Low	Medium	Medium

(c) Mitigation measures

During construction the following mitigation measures should be considered:

- Clearly demarcate the construction site to limit the area of disturbance
- Locate construction site and stockpiles in the least visible area
- Remove all waste, including cleared vegetation from site as soon as possible unless the material will be reused on site. A dedicated area for the placement of waste must be identified and demarcated
- Domestic waste generated from the site camp must be kept in bins with lids and removed every week or more often as the need arises and be disposed of at a registered landfill. Proof of this disposal must be kept by the Contractor.

(d) Cumulative impacts

The proposed development may have cumulative impacts of visual aspects due to addition of mast, powerlines in the area and clearing of vegetation cover.

(e) Assessment of no-go alternative

The no-go alternative will not have visual and easthetic impacts.

8.10 IMPACT 10: Unearthing of features of heritage, cultural or archaeological value

(a) Description of the impacts

The construction activities may result in unearthing, damage or loss of valuable heritage resources.

(b) Impact Ratings

Table 17 presents an assessment of the impacts associated with the **unearthing of features of heritage, cultural or archaeological value**.

Table 17: Assessment and ratings related to impact 10

Project phase	Nature of impact	Extent	Duration	Intensity	Probability	Reversibility	Irreplaceable loss of resources	Significance without mitigation	Significance with Mitigation
Construction	Negative	Site	Permanent	High	Definite	Irreversible	Medium	Medium	Low
Operational	Negative	Site	Short Term	High	Probable	Short Term	Low	Low	Low

(c) Mitigation measures

- Should any historically significant finds (e.g. artefacts, human remains or sites of cultural or archaeological importance) be uncovered, work must cease and the Provincial Heritage Resources Agency as well as the local South African Police Service (SAPS) must be notified of the find. Work in the area can only be resumed once the site has been completely investigated by Heritage Agency as well as SAPS has given permission to the Developer/ Contractor to resume activities.
- The Contractor must be trained to recognise any heritage features
- Artefacts may not be removed under any circumstances

(d) Cumulative impacts

The proposed activity will have relatively low cumulative impacts.

(e) Assessment of no-go alternative

The no-go alternative will not have impacts on heritage and cultural resources.

8.11 IMPACT 11: Impacts on road conditions and traffic flow

(a) Description of the impacts

The increased number of vehicles in the area/ local farm road may disrupt access routes and daily movement patterns. Depending on the number and type of construction vehicles that will be coming to site, the road conditions may also be impacted.

(b) Impact Ratings

Table 18 presents an assessment of the impacts associated with the **road conditions and traffic flow**.

Table 18: Assessment and ratings related to impact 11

Project phase	Nature of impact	Extent	Duration	Intensity	Probability	Reversibility	Irreplaceable loss of resources	Significance without mitigation	Significance with Mitigation
Construction	Negative	Local	Short term	Low	Probable	Reversible (Short term)	Low	Low	Negligible
Operational	<i>The visits during operation will be mainly for maintenance purposes and no traffic flow or roads condition impacts are envisioned during this phase of the project.</i>								

(c) Mitigation measures

- There must be an erection of signage warning motorists about the presence of construction vehicles
- Construction activities must be limited to daytime hours
- Construction vehicles travelling on public roads must adhere to speed limits
- Construction vehicles must not dispose of soil or other material on roads. Where this occurs, the material must immediately be removed before the end of the working day

(d) Cumulative impacts

The farm road that will be used to access the site not a busy road and is gravel, thus the proposed activity will minor or no cumulative impacts on the traffic flow and road conditions.

(e) Assessment of no-go alternative

The no-go alternative will not have impacts on traffic flow and road conditions.

8.12 IMPACT 12: Health and safety impacts

(a) Description of the impacts

The construction and maintenance work that will be required may have health and safety implications for the personnel that will be working on the project.

(b) Impact Ratings

Table 19 presents an assessment of the impacts associated with **health and safety**.

Table 19: Assessment and ratings related to impact 12

Project phase	Nature of impact	Extent	Duration	Intensity	Probability	Reversibility	Irreplaceable loss of resources	Significance without mitigation	Significance with Mitigation
Construction	Negative	Site	Short term	Medium	Highly probable	Irreversible (short term)	Medium	Medium	Low
Operational/maintenance	Negative	Site	Short term	Medium	Highly probable	Irreversible (short term)	Low	Low	Low

(c) Mitigation measures

- Contractor must appoint a Health and Safety Officer for the construction phase of the project
- Suitable Personal Protective Equipment (PPE) must be worn at all times by all employees on site during the construction and maintenance phases of the project
- With the exception of the project team members, no persons should be allowed to enter the construction site area
- The site and crew are to be managed in strict accordance with the OHS Act
- The contractor must ensure that all emergency procedures are in place prior to commencing work. Emergency procedures must include (but not be limited to) fire, spills, contamination of soil, accidents to employees and limiting casual access to the construction site for workers, use of hazardous substances and materials, etc.
- The Contractor must ensure that lists of all emergency telephone numbers / contact persons are kept up to date and that all numbers and names are posted at relevant locations throughout the construction site
- The nearest emergency service provider must be identified during all phases of the project as well as its capacity and the magnitude of accidents it will be able to handle. The contact details of this emergency centre, including police and ambulance services must be available at prominent locations around the construction site
- A Health and Safety Officer as well as an independent firm must be appointed to audit the site's compliance with the OHS Act during construction

(d) Cumulative impacts

There will be no cumulative effects associated with health and safety matters emanating for the proposed project.

(e) Assessment of no-go alternative

The no-go alternative will not have impacts on health and safety of personnel.

8.13 IMPACT 13: Temporary employment opportunities

(a) Description of the impacts

During the construction phase of the project, very minimal activities will require labourers. Employment opportunities that will be created will be of a temporary nature and limited to 2 and/or 3 local people.

(b) Impact Ratings

Table 20 presents an assessment of the impacts associated with temporary employment opportunities.

Table 20: Assessment and ratings related to impact 13

Project phase	Nature of impact	Extent	Duration	Intensity	Probability	Reversibility	Irreplaceable loss of resources	Significance without mitigation	Significance with Mitigation
Construction	Positive	Site	Short term	Low	Definite	Reversible (short term)	Low	Negligible	Low (+)
Operational	<i>Temporary job opportunities for the local residents will only be created during the construction phase of the project.</i>								

(c) Mitigation measures

- Ensuring the recruitment process is conducted through one or more central office, and preferably through the ward councillor; no on-site hiring should be allowed.

(d) Cumulative impacts

There will be no cumulative effects associated with temporary employment opportunities that will be created during the construction phase of the project.

(e) Assessment of no-go alternative

The no-go alternative will result in no job opportunities for some local residents that likely to be employed during the construction phase of the project.

9 CONCLUSION, ENVIRONMENTAL IMPACT STATEMENT AND RECOMMENDATIONS

ATNS is applying for the EA to clear approximately 540m² of indigenous vegetation in a Critical Biodiversity Area in order to install a DME with associated infrastructure. The issuing of the EA will enable the construction and subsequent operation and maintenance of the DME within the larger TMA of the PE Airport, ultimately fulfil the mandate from the SACAA.

9.1 Environmental Impact Statement

It is the opinion of the EAP that all major impacts have been identified and have been assigned appropriate management measures. The clearance of indigenous vegetation, particularly in a Critical Biodiversity Area is disruptive in nature, and the proposed mitigation measures must therefore be strictly adhered to. The measures stipulated in the EMPr must also be supplemented with additional conditions from the EA that will be issued by DEA as the Competent Authority.

Overall impacts of the proposed DME will have moderate impacts on the bio-physical environment and can be reduced to a low significance provided all recommended mitigation are adhered to. The significance of social impacts will be negligible and temporary in nature, as they will be experienced during the construction activities. No impacts of extremely high significance are foreseen for this development with or without mitigation measures, assuming all the construction activities are within the proposed scope that was assessed. The different applicable project alternatives (including the No-Go alternative) were identified and discussed under **Section 5** of this report. The proposed construction of the DME in the identified site as discussed in the report emerged as the most feasible. Based on this, it is the EAP's recommendation that the EA for this development be granted.

9.2 EAP's Recommendations

Based on the comprehensive assessment undertaken for this BA process, it is recommended that the Competent Authority subject the proposed application to the following conditions:

- a. An independent Environmental Control Officer (ECO) must be appointed to monitor all construction activities;
- b. All Contractor's equipment and/or infrastructure must be located within the within the boundaries of the footprint assessed during the Basic Assessment;
- c. All adjacent landowners and mast owners must be informed of construction activities at least 30 days before their commencement;
- d. All areas on which vegetation clearing is planned must be demarcated and movement or personnel or vehicles must not be allowed outside these areas;
- e. The route of the any proposed power supply must be aligned to the access road and/or areas assessed and presented in the Floral Assessment Report;
- f. Ready mix concrete must be used on site to avoid adverse impacts related to on-site mixing of concrete. All concrete spillages must be removed no later than 24hours after their occurrence.
- g. The Contractor must be trained to recognise any heritage features. Should there be a sign of such objects, construction must halt in that area immediately and a suitably qualified heritage specialist must be called to investigate through the ECO;
- h. All Municipal requirements must be adhered to;
- i. Compliance to all conditions of the authorisation issued by DEA; and
- j. Adhere to all recommendations outlined in the Floral Assessment Report (**Appendix F**), and the EMPr in (**Appendix G**).

10 REFERENCES

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