

Visual Impact Assessment for the Proposed Pieterkoen Residential Development, George, Western Cape Province

SUBMITTED FOR ENVIRONMENTAL AUTHORISATIONS IN TERMS OF THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT, 1998 (ACT NO. 107 OF 1998) (NEMA).

Prepared for	Sharples Environmental Services CC
Telephone No.	+27 44 873 4923
Physical Address	17 Cathedral Square, George, Western Cape, 6530

This report is provided solely for the purposes set out in it and may not, be used for any other purpose without Eco-Thunder Consulting written consent.

Eco Thunder Consulting (Pty) Ltd

11 Ruby Close, Witkoppen, Fourways, Sandton, Johannesburg, South Africa, 2068

PO Box 2055, Fourways, Sandton, Johannesburg, South Africa, 2191

Email: <u>admin@eco-thunder.co.za</u> Website: <u>www.eco-thunder.co.za</u>

Phone: +27 64 655 2752



CONTROL SHEET

ETC Reference:	ETC0598	
Project Name:	Visual Impact Asses Residential Develo Province	ssment for the Proposed Pieterkoen opment, George, Western Cape
Prepared For:	Sharples Environme	ntal Services CC
Prepared By:	Eco-Thunder Consu www.eco-thunder.co	Iting (Pty) Ltd . <u>za</u>
Address:	PO Box 2055 Fourways 2191	
Telephone Number:	+27 64 655 2752/	
Email Address:	admin@eco-thunder.co.za brogan@eco-thunder.co.za	
	Compiler:	Brogan Geldenhuys
Report Compiled By:	Signature:	Blym
	Date:	21 st January 2025
Report Reviewed By:	Reviewer:	Siobhan Motley
Report Reviewed by.	Date:	23 rd January 2025
Applicant:	Pieterkoen Developr	ment Company (Pty) Ltd
Revision Number:	001	
Date Issued:	24 th January 2025	



COPYRIGHT INFORMATION

This document contains intellectual property and proprietary information that are protected by copyright in favour of Eco Thunder Consulting (Pty) Ltd (referred to as ETC) as the specialist consultants. The document may therefore not be reproduced, used or distributed to any third party without the prior written consent of ETC.

The document is prepared exclusively for submission to Pieterkoen Development Company (Pty) Ltd, in South Africa, and is subject to all confidentiality, copyright and trade secrets, rules intellectual property law and practices of South Africa.

This document should be cited as Eco Thunder Consulting, 2024. VIA for the Proposed Pieterkoen Residential Development, George, Western Cape Province.

EXECUTIVE SUMMARY

Pieterkoen Development Company (Pty) Ltd has appointed Sharples Environmental Services (SES) to undertake the Basic Assessment (BA) process for the proposed residential development on the Remainder of Portion 21 of Farm 195, Kraaibosch, George, Western Cape, South Africa. As part of this process, SES commissioned Eco-Thunder Consulting (Pty) Ltd (ETC) to conduct a Visual Impact Assessment (VIA) to evaluate the potential visual impacts of the proposed development. The VIA is a critical component of the BA process and ensures that the visual implications of the development are thoroughly assessed and addressed.

The proposed Pieterkoen Residential Development is located within a peri-urban landscape characterized by a mix of natural vegetation, residential developments, and agricultural land, resulting in a moderate Visual Absorption Capacity (VAC). This suggests that the development can be integrated into the visual environment with appropriate design and mitigation measures.

Key findings of the VIA include:

- Construction Phase Impacts: Temporary visual disturbances such as dust, earthworks, and machinery movement are anticipated but are manageable with standard mitigation measures.
- Operational Phase Impacts: The development will result in permanent changes to the visual landscape, including residential structures and associated infrastructure. However, mitigation measures—such as retaining and enhancing existing vegetation, strategic landscaping, buffer zones near sensitive receptors, and careful architectural design—are expected to minimize these impacts to an acceptable level.



• Cumulative Impacts: Minimal cumulative visual impacts are anticipated, as the proposed development aligns with existing spatial development patterns in the area.

The VIA concludes that the proposed development does not present significant visual impacts, provided that the recommended mitigation measures are effectively implemented. By incorporating these measures into the Environmental Management Programme (EMPr), the development can proceed while maintaining the region's visual integrity. The project is therefore considered suitable for environmental authorization, subject to ongoing monitoring and adaptive management to address any unforeseen visual impacts.



TABLE OF CONTENT

1	Ва	ackground	15
	1.1	Scope and Objective of the Specialist Study	.15
	1.2	Structure of the Report	.15
	1.3	Seasonal Change	.15
	1.4	Information Base	.15
	1.5	Terms and Reference	.16
	1.6	Level of Confidence	.16
	1.7	Limitations and Assumptions	.17
2	Pr	roject Description	19
2	2.1	Project Location	.19
2	2.2	Project Technical Details	.22
2	2.3	Assessment Alternatives	.26
3	R	equirement for a VIA	28
3	3.1	Components of Visual Studies	.29
4	Le	egislation and Policy Review	30
2	4.1	International Good Practice	.30
2	1.2	National Legislation and Guidelines	.31
2	1.3	Policy Fit	.33
5	Α	pproach and Methodology	34
Ę	5.1	Purpose of the Study	.34
Ę	5.2	Approach to Study	.34
Ę	5.3	Site Verification and Specific VIA Approach	.35
Ę	5.4	Significance of Visual Impact	.35
Ę	5.5	Methodology	.39
Ę	5.6	Project Phases and Activities	.39



6		Baseline Environmental Profile	43
	6.1	1 Character and Nature of Environment	.43
	6.2	2 Visual Resource	.58
7 Identification of Visual Impacts		Identification of Visual Impacts	62
	7.1	1 The Viewshed	.62
	7.2	2 Impact Index	.65
8 Impacts and Risks Assessment		Impacts and Risks Assessment	67
	8.1	1 Impacts and Risk Methodology	.67
8.2 In		2 Impacts and Mitigation	.70
8.3		3 Environmental Management Programme	.78
9		Environmental Impact Statement and Conclusion	85
1(10 References		86

LIST OF FIGURES

Figure 1: Locality Map	21
Figure 2: Site Layout Map	24
Figure 3: Site Development Plan	25
Figure 4: VIA Process	36
Figure 5: North to South Elevation Profile (captured from the site's midpoint)	44
Figure 6: West to East Elevation Profile (captured from the site's midpoint)	44
Figure 7: Map of Topographical Profile of the Proposed Site	46
Figure 8: Protected Ecosystems Map for the Proposed Site	48
Figure 9: Protected and Conservation Area Map of the Proposed Site	49
Figure 10: Land Use Map	52
Figure 11: Visual Receptors for the Broader Study Area	60



Figure 12: Viewshed analysis for the Proposed Pieterkoen Residential Development......64

LIST OF TABLES

Table 1: Locality Overview	20
Table 2: Technical Details of the Proposed Pieterkoen Residential Development	22
Table 3: Typical Components of Visual Studies	29
Table 4: Categorisation of Approaches and Methods Used for Visual Assessment	35
Table 5: Potential Impacts during the Construction Phase	70
Table 6: Potential Impacts during the Operational Phase	74
Table 7: Management Programme during the Construction Phase	78
Table 8: Management Programme during the Operational Phase	81

LIST OF APPENDICES

Appendix A: Specialist CV

Appendix B: VIA Best Practice Guideline

LIST OF ABBREVIATIONS

Abbreviation	Description
BAR	Basic Assessment Report
CA	Competent Authority
СВА	Critical Biodiversity Area
DFFE	Department of Forestry, Fisheries and Environment
EA	Environmental Authorisation
EIA	Environmental Impact Assessment



Sharples Environmental Services CC ETC0598		
Abbreviation	Description	
EMPr	Environmental Management Programme Report	

ESA	Ecological Support Area
ETC	Eco Thunder Consulting (Pty) Ltd
GIS	Geographical Information Systems
На	Hectares
IFC	International Finance Corporation
MEA	Millennium Ecosystem Assessment
MW	Megawatts
NEMA	National Environmental Management Act
O&M	Operation and Maintenance
OHL	Overhead Line
SACLAP	South African Council for the Landscape Architectural Profession
SES	Sharples Environmental Services CC
SLA	Service Level Agreement
UNESCO	United Nations Educational, Scientific and Cultural Organisation
VAC	Visual Absorption Capacity
VIA	Visual Impact Assessment
WHC	World Heritage Convention

GLOSSARY LIST

Glossary Item	Description
Aesthetic Value	Aesthetic value is the emotional response derived from the experience of the environment with its natural and cultural attributes. The response can be either to visual or non-visual elements and can embrace sound, smell and any other factor having a strong impact on human thoughts, feelings, and attitudes (Ramsay, 1993). Thus, aesthetic value encompasses more than the seen view, visual quality, or scenery, and includes atmosphere, landscape character and sense of place (Schapper, 1993).

Sharples Environmental Services CC ETC0598



Glossary Item	Description
Aesthetically significant place	A formally designated place visited by recreationists and others for the express purpose of enjoying its beauty. For example, tens of thousands of people visit Table Mountain on an annual basis. They come from around the country and even from around the world. By these measurements, one can make the case that Table Mountain (a designated National Park) is an aesthetic resource of national significance. Similarly, a resource that is visited by large numbers who come from across the region probably has regional significance. A place visited primarily by people whose place of origin is local is generally of local significance. Unvisited places either have no significance or are "no trespass" places. (After New York, Department of Environment 2000).
Aesthetic impact	Aesthetic impact occurs when there is a detrimental effect on the perceived beauty of a place or structure. Mere visibility, even startling visibility of a Project proposal, should not be a threshold for decision making. Instead, a Project, by its visibility, must clearly interfere with or reduce (i.e., visual impact) the public's enjoyment and/or appreciation of the appearance of a valued resource e.g., cooling tower blocks a view from a National Park overlook (after New York, Department of Environment 2000).
Cumulative Effects	The summation of effects that result from changes caused by a development in conjunction with the other past, present, or reasonably foreseeable actions.
Landscape Character	The individual elements that make up the landscape, including prominent or eye- catching features such as hills, valleys, woods, trees, water bodies, buildings, and roads. They are generally quantifiable and can be easily described.
Landscape Impact	Landscape effects derive from changes in the physical landscape, which may give rise to changes in its character and how this is experienced (Institute of Environmental Assessment & The Landscape Institute 1996).
Study area	For the purposes of this report the study area refers to the proposed Project footprint/Project site as well as the 'zone of potential influence' (the area defined as the radius about the centre point of the Project beyond which the visual impact of the most visible features will be insignificant) which is a 5,0km radius surrounding the proposed Project footprint/site.
Project Footprint/ Site	For the purposes of this report the Project site/footprint refers to the actual layout of the Project as described.
Sense of Place (genius loci)	Sense of place is the unique value that is allocated to a specific place or area through the cognitive experience of the user or viewer. A genius locus literally means 'spirit of the place'.
Sensitive Receptors	Sensitivity of visual receptors (viewers) to a proposed development.

Sharples Environmental Services CC ETC0598



Glossary Item	Description
Viewshed analysis	The two-dimensional spatial pattern created by an analysis that defines areas, which contain all possible observation sites from which an object would be visible. The basic assumption for preparing a viewshed analysis is that the observer eye height is 1,8m above ground level.
Visibility	The area from which Project components would potentially be visible. Visibility depends upon general topography, aspect, tree cover or other visual obstruction, elevation, and distance.
Visual Exposure	Visibility and visual intrusion qualified with a distance rating to indicate the degree of intrusion and visual acuity, which is also influenced by weather and light conditions.
Visual Impact	Visual effects relate to the changes that arise in the composition of available views because of changes to the landscape, to people's responses to the changes, and to the overall effects with respect to visual amenity available views because of changes to the landscape, to people's responses to the changes, and to the overall effects with respect to visual amenity.
Visual Intrusion	The nature of intrusion of an object on the visual quality of the environment resulting in its compatibility (absorbed into the landscape elements) or discord (contrasts with the landscape elements) with the landscape and surrounding land uses.
Visual Absorption Capacity (VAC)	VAC is defined as the landscape's ability to absorb physical changes without transformation in its visual character and quality. The landscape's ability to absorb change ranges from low- capacity areas, in which the location of an activity is likely to cause visual change in the character of the area, to high-capacity areas, in which the visual impact of development will be minimal (Amir & Gidalizon 1990).
Worst-case Scenario	Principle applied where the environmental effects may vary, for example, seasonally or collectively to ensure the most severe potential effect is assessed.
Zone of Potential Visual Influence	By determining the zone of potential visual influence, it is possible to identify the extent of potential visibility and views which could be affected by the proposed development. Its maximum extent is the radius around an object beyond which the visual impact of its most visible features will be insignificant primarily due to distance.

SPECIALIST CHECKLIST

Sharples Environmental Services CC





No.	NEMA 2014 (as amended) Regs - Appendix 6(1) Requirement	Report Section	
	A specialist report prepared in terms of these Regulations must contain -		
а	 details of - the specialist who prepared the report; and the expertise of that specialist to compile a specialist report including a curriculum vitae. 	Specialist Details and Appendix A	
b	a declaration that the specialist is independent in a form as may be specified by the competent authority (CA);	Specialist Declaration	
	an indication of the scope of, and the purpose for which, the report was prepared;	Section 5.1	
с	an indication of the quality and age of base data used for the specialist report	Section 1.4	
	a description of existing impacts on the site, cumulative impacts of the proposed development and levels of acceptable change	Section 7 and Section 8	
d	the duration, date and season of the site investigation and the relevance of the season to the outcome of the assessment;	Section 5.4	
е	a description of the methodology adopted in preparing the report or carrying out the specialised process inclusive of equipment and modelling used;	Section 5	
f	details of an assessment of the specific identified sensitivity of the site related to the proposed activity or activities and its associated structures and infrastructure, inclusive of a site plan identifying site alternatives;	Section 7	
g	an identification of any areas to be avoided, including buffers;	Section 8	
h	a map superimposing the activity including the associated structures and infrastructure on the environmental sensitivities of the site including areas to be avoided, including buffers;	Section 6.2	
I	a description of any assumptions made and any uncertainties or gaps in knowledge;	Section 0	
j	a description of the findings and potential implications of such findings on the impact of the proposed activity or activities;	Section 8.2	
k	any mitigation measures for inclusion in the EMPr;	Section 8.3	
Ι	any conditions for inclusion in the EA;	Section 9	
m	any monitoring requirements for inclusion in the EMPr or EA;	Section 8.3	

Visual Impact Assessment for the Proposed Pieterkoen Residential Development, George, Western Cape Province

Sharples Environmental Services CC ETC0598



No.	NEMA 2014 (as amended) Regs - Appendix 6(1) Requirement	Report Section
	a reasoned opinion -	
n	 whether the proposed activity, activities or portions thereof should be authorised; 	Section 9
	 regarding the acceptability of the proposed activity or activities; and 	
	• if the opinion is that the proposed activity, activities or portions thereof should be authorised, any avoidance, management and mitigation measures that should be included in the EMPr, and where applicable, the closure plan.	
o	a description of any consultation process that was undertaken during the course of preparing the specialist report;	N/A
р	a summary and copies of any comments received during any consultation process and where applicable all responses thereto; and	N/A
q	any other information requested by the CA.	N/A

SPECIALIST DETAILS

ETC is a 100% woman-owned, private company that specialises in a range of specialist studies, such as visual impact assessments, air quality impact assessments, noise impact assessments socio-economic impact assessments, socio-economic research, economic development planning, development program design and implementation as well as community trust management. Based across South Africa, Eco-Thunder has established itself as an expert on the conditions, needs and assets of communities that are linked to independent power generation facilities.

SPECIALIST DECLARATION

Full Name	Title/Position	
Brogan Geldenhuys	CEO	
Telephone Number	Email Address	
064 655 2752	brogan@eco-thunder.co.za	
Qualification(s):	BEng	
Registration(s):	ILASA, IAIAsa, GISSA, IAP2	

I, Brogan Geldenhuys, declare that: -



- I act as an independent specialist in this application;
- I will perform the work relating to the application objectively, even if this results in views and findings that are not favourable to the applicant;
- I declare that there are no circumstances that may compromise my objectivity in performing such work;
- I have expertise in conducting the specialist report relevant to this application, including knowledge of the Act, Regulations and any guidelines that have relevance to the proposed activity;
- I will comply with the Act, Regulations and all other applicable legislation;
- I have no, and will not engage in, conflicting interests in the undertaking of the activity;
- I undertake to disclose to the applicant and the CA all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken concerning the application by the CA; and - the objectivity of any report, plan or document to be prepared by myself for submission to the CA;
- All the particulars furnished by me in this form are true and correct; and
- I realise that a false declaration is an offense and is punishable by law.

Blym

Signature of the Specialist

<u>21/01/2025</u>

Date

Eco Thunder Consulting, acting as an independent specialist in the field of visual impact assessment within the renewable energy sector, hereby affirms its professional standing and expertise. Appointed by Sharples Environmental Services CC for the specific purpose of conducting an independent and unbiased assessment, our firm leverages approaches and methodologies that have been meticulously refined and successfully applied across various projects.

Our engagement with this project is characterized by a commitment to maintaining the highest standards of integrity and professionalism. The opinions and viewpoints expressed within this report are solely those of Eco Thunder Consulting and reflect our extensive experience and specialized knowledge in visual impact assessments.

This assessment is conducted in accordance with the best practices and industry standards, ensuring a comprehensive and objective analysis. It is our firm belief that the methodologies employed are robust and have established precedence in maintaining the quality and accuracy required for such evaluations.

In fulfilling our role as an independent specialist, we have adhered to all relevant legal and regulatory requirements, ensuring that our assessment is both transparent and accountable. We affirm that our relationship with all parties involved in this project is free from any conflict of interest or undue influence, thereby safeguarding the impartiality of our findings and recommendations.



The author of this report, however, accepts no liability for any actions, claims, demands, losses, liabilities, costs, damages, and expenses arising from or in connection with services rendered, and by the use of the information contained in this document.

No form of this report may be amended or extended without the prior written consent of the author and/or a relevant reference to the report by the inclusion of an appropriately detailed citation.

Any recommendations, statements, or conclusions drawn from or based on this report must cite or refer to this report. Whenever such recommendations, statements or conclusions form part of the main report relating to the current investigation, this report must be included in its entirety.



1 Background

1.1 Scope and Objective of the Specialist Study

The main aim of the study is to document the baseline and to ensure that the visual/aesthetic consequences of the proposed Pieterkoen Residential Development are understood. The Visual Impact Assessment (VIA) therefore aims to identify scenic resources, and visually sensitive areas or receptors. It also aims to identify key concerns or issues relating to potential visual impacts arising from the Project, and which must be addressed in the assessment phase.

1.2 Structure of the Report

The report is organised into ten sections:

- Section 1: Background;
- Section 2: Project Description;
- Section 3: Requirement for a VIA;
- Section 4: Legislation and Policy Review;
- Section 5: Approach and Methodology;
- Section 6: Baseline Environmental Profile;
- Section 7: Identification of Visual Impacts;
- Section 8: Impacts and Risks Assessment;
- Section 9: Environmental Impact Statement Conclusion; and
- Section 10: References.

1.3 Seasonal Change

In terms of Appendix 6 of the 2014 EIA Regulations, a specialist report must contain information on "the date and season of the site investigation and the relevance of the season to the outcome of the assessment". The site visit was undertaken in <u>Summer (9 January 2025)</u>. The seasonal variation in vegetation and landscape characteristics will be taken into consideration when evaluating the significance of the impacts identified, the mitigation measures, and the conclusions of the assessment.

1.4 Information Base

The following information was used to conduct the VIA:

• Documentation and KML files supplied by the client;



- ToR for the visual specialist;
- Photographs and information captured during the site visit;
- Google Earth software and data;
- Sentinel-2 Satellite Imagery;
- SRTM Digital Elevation Model;
- South African National Landcover dataset;
- Local zoning and planning documents;
- Historical maps and aerial photographs;
- Meteorological data;
- Landscape character assessments;
- Geographic Information System (GIS) data;
- Local biodiversity data; and
- Regulatory and policy documents.

1.5 Terms and Reference

A specialist study is required to establish the visual baseline and to identify any potential visual impacts arising from the proposed development based on the general requirements for a comprehensive VIA.

The following terms of reference were established:

- Data collected allows for a description and characterisation of the receiving environment;
- Describe the landscape character, quality and assess the visual resource of the study area;
- Describe the visual characteristics of the components of the Project;
- Identify issues that must be addressed in the impact assessment phase; and
- Propose mitigation options to reduce the potential impact of the Project.

1.6 Level of Confidence

The level of confidence in the assessment is determined by two key factors: the availability of information and the practitioner's understanding of the study area and experience with similar projects. These factors are rated on a scale of 1 to 3, as follows:



- Availability of Information of the Study Area /Project:
 - <u>3: High level of information available; thorough knowledge base established through accessible site visits, surveys, etc.</u>
 - 2: Moderate level of information available; moderate knowledge base established, with acceptable accessibility to the study area.
 - 1: Limited information available; poor knowledge base established, or no site visits and/or surveys carried out.
- Understanding of the Study Area, and Experience with Similar Projects:
 - <u>3: High level of information and knowledge available; visual impact assessor is highly experienced with this type of project and level of assessment.</u>
 - 2: Moderate level of information and knowledge available; visual impact assessor has moderate experience with this type of project and level of assessment.
 - 1: Limited information and knowledge available; visual impact assessor has low experience with this type of project and level of assessment.

The level of confidence for this assessment is determined to be 9 (3x3) and indicates that the author's confidence in the accuracy of the findings is high.

1.7 Limitations and Assumptions

The following assumptions and limitations are applicable to this Report:

Assumptions:

- The assessment has been based on the requirements of the Western Cape Department of Environmental Affairs & Development Planning Guidelines (WC DEDP)¹
- The assessment assumes that all necessary consultations with stakeholders, including local communities, authorities, and other interested parties, have been/will be conducted in accordance with legal requirements, and that their views and concerns have been duly considered.
- Whilst most homesteads and housing areas were visited during the site visit in order to confirm their nature and likely visibility of the development, it was not possible to visit all homesteads and housing areas.

¹ The WC DEDP Guidelines offer detailed directives on incorporating visual and aesthetic specialists into the BA processes. These guidelines represent the primary legislative framework specifically pertaining to Visual Impact Assessments (VIA) in the region. While provincial insights and information will be integrated into the respective reports where feasible, it is important to note that the WC DEDP Guidelines are regarded as the definitive legislative standard for best practices in VIA.



- The information and analysis provided in this report is based on the details available during the undertaking of the VIA. As the VIA specialists, we have, to the best of our ability, analysed and interpreted the data provided.
- We operate under the assumption that all information supplied by the client is accurate, current, and reflective of the agreements made with relevant landowners. Our assessments and recommendations are based on the information provided to us, and we rely on the client to ensure that this information is complete and up to date.
- The Project report uses the concept of 'worst case scenario' to identify issues and rate visual impacts. This scenario assumes that all facilities would be constructed at the same time.

Limitations:

- It was not possible to visit all homesteads and housing areas.
- The information and analysis are based on the details available during the undertaking of the VIA, and there is an inherent limitation in the data available at any given time.
- There is a reliance on the accuracy, currency, and completeness of the information supplied by the client. Any decisions regarding development on specific portions of land, including agreements on relocations, demolitions, or other alterations, should be confirmed and discussed directly with the relevant landowners.
- Regulation 11(3) of the EIA Regulations, which suggests that if more than one activity is part of the same development, a single application may be required, discourages the practice of splitting components or assessing them in isolation, thereby promoting a unified and integrated approach to cumulative impact assessment.
- The findings, assessments, and recommendations represent the professional judgment of the VIA practitioners at the time of the assessment. While every effort has been made to ensure accuracy and completeness, this report does not constitute legal, financial, or other specialised advice.
- The responsibility for implementing the recommendations, mitigation measures, and any
 other actions outlined in this report lies solely with the client or project proponent. The VIA
 practitioners are not responsible for monitoring, enforcing, or ensuring compliance with
 these measures.



2 **Project Description**

Pieterkoen Development Company (Pty) Ltd has appointed Sharples Environmental Services (SES) to conduct the necessary Basic Assessment (BA) process for the proposed residential development on the Remainder of Portion 21 of Farm 195, Kraaibosch, George, Western Cape, South Africa. SES has further commissioned Eco-Thunder Consulting (Pty) Ltd (ETC) to undertake a VIA for the proposed development. The VIA is a critical component of the overall BA process, designed to identify and evaluate the potential visual impacts associated with the proposed residential development.

The goal of the VIA is not to predict whether individual receptors will find the project attractive or not. Instead, the goal is to identify visual characteristics of the surrounding landscape, especially the features and characteristics that contribute to scenic quality, as the basis for determining how and to what degree the proposed project will affect those scenic values.

The primary aim of the impact assessment phase is to ensure that visual impacts are adequately assessed and considered so that the relevant environmental authorities can assess whether the visual impacts are significant and require mitigation or whether they fall within acceptable limits. The secondary aim is to identify effective and practical mitigation measures, where possible.

The VIA process involves several key steps, including:

- Identifying and mapping existing sensitive receptors, buffers, key viewpoints, and view corridors;
- Identifying and screening potential visual concerns;
- Ensuring that the visual assessment will be in compliance with relevant standards, policies, laws, and regulations; and
- Providing recommendations and mitigation measures, where applicable, to the impact assessment phase.

The VIA is conducted in accordance with the guidelines provided by relevant authorities, and while there is little legislation relating directly to VIAs, there are guidelines that provide direction for visual assessment as well as a number of laws which aim to protect visual resources.

2.1 **Project Location**

The proposed residential development is located north of the N12 and N2 highways, with the Seven Passes Road passing through the northern portion of the development site. However, a portion of the land to the north will be allocated to the Department of Public Works and Transport, after which the Seven Passes Road will border the development to the north.

The development area is situated within the town of George, in the Western Cape Province. This strategic location near major highways and the urban centre of George provides excellent



accessibility and connectivity, making it a suitable area for residential and mixed-use development in the region.



Figure 2 below provides the details of the project, including the main infrastructure components and services that will be required during the project life cycle.

Visual Impact Assessment for the Proposed Pieterkoen Residential Development, George, Western Cape Province Sharples Environmental Services CC ETC0598



Table 1: Locality Overview

Component	Description
District Municipality	Garden Route District Municipality
Local Municipality	George Local Municipality
Ward Number	Ward 22
Nearest Town(s)	George
Access Road	Direct access via Glenwood Avenue



Figure 1: Locality Map



Proposed Pieter Koen Residential Development Western Cape Province

Locality Map

Pieter Koen Residential Development Area

George Local Municipality (WC044) Garden Route District Municipality (DC4) Ward 22 Western Cape Province

	Proposed Pieter Koen Residential Development
ometers	Revision: 01 Scale: 1:20 000 Date: 22 January 2025
	Sharplos Erifyes Environmental Services
er.co.za	Disclaimer: For illustrative purposes only. Not a legally binding document.
er.co.za	Copyright © 2025 Eco Thunder Consulting (Pty) Ltd. All rights reserved.



2.2 **Project Technical Details**

Table 2, Figure 2 and Figure 3 provides the technical details of the project, including the main infrastructure components and services that will be required during the project life cycle.

Table 2: Technical Details of the Proposed Pieterkoen Residential Development

Component	Description/Dimensions			
Farm name(s) and number(s) of properties affected by the Development, incl. SG 21 Digit Code (s)	 Remainder of Portion 21 of Farm 195, Kraaibosch (C0270000000019500000) 			
Current zoning	Agricultural Zone 1			
Site Coordinates (centre of development area)	Lat: 30°58'17.80"S Long: 22°30'44.57"E			
Total extent of the Affected Properties, also referred to as the project site ²	~21.28ha			
Total extent of the Development area ³	Up to ~17ha.			
Total extent of the Development footprint ⁴	~17ha			
Energy Saving Measures	 Water and sewage pumps to be supplied with energy efficient motors and VSD motor control. Water heating to be done using gas or heat pumps. Lighting to make use of LED lamps only. Use of motion sensor lighting control. Photovoltaic Systems will be encouraged. 			
Existing Electrical Distribution Network	There is an existing 185mm ² x 3-core (AI) 11kV PILC municipal cable along the southern access road, which is supplied from the SS-Glenwood (66/11kV substation). During discussions with the George Municipal Electrical Planning Department, it was confirmed that this cable has sufficient capacity to meet the development's electrical demand. The municipality also confirmed via email that the proposed development will connect to the existing 11kV network, with a special contribution payable toward the medium voltage (MV) network in the area. The capacity will			

² The project site is that identified area within which the development area and development footprint are located. It is the broader geographic area assessed as part of the EIA process, within which indirect and direct effects of the project may occur. The project site is ~21.28ha in extent.

³ The development area is that identified area where the proposed project is planned to be located, within which indirect and direct effects of the project may occur. This area has been selected as a practicable option for the facility, considering technical preference and constraints. The development area is up to ~17ha in extent.

⁴ The development footprint is the defined area (located within the development area) where the project and other associated infrastructure for the mixed-use development is planned to be constructed. This is the actual footprint of the facility, and the area which would be disturbed. The development footprint is ~17ha in extent.

ETC0598



Component	Description/Dimensions	
	be made available at the SS Glenwood SS, that is currently being upgraded to accommodate the development in the area	
Access roads and internal roads	 The site will be accessed via existing roads, including the N12, N2, Seven Passes Road and directly via Glenwood Avenue, all which connect the development area to nearby residential neighbourhoods and major transport routes within the George Local Municipality. 	
	 New internal roads will be developed, with primary routes within the development measuring up to 6m wide to accommodate traffic flow and access to different zones. 	

	 Water and sewage infrastructure connected t municipal services
	 Stormwater management systems
Other Infrastructure	 Electrical infrastructure, including connections to th local grid
	 Perimeter fencing and security features when necessary.

The operational requirements for the proposed Pieterkoen Residential Development include provisions for electrical usage, water sourcing, sewage management, and responsibilities during the construction phase. Electricity for the development will be supplied by the George Local Municipality's electrical grid, with minimal usage anticipated for routine operations.

To supplement water needs, the development will rely on the municipal water network, which will provide water for sanitation, dust control, and general operational purposes. Sufficient capacity has been confirmed to support the development's water demands. Rainwater harvesting systems may also be incorporated in certain residential areas to enhance water efficiency.

For sewage and sanitation, the development is planned to connect to the municipal sewage system, depending on available capacity. Sufficient capacity has been confirmed for municipal sewage disposal; however, in the event of any future limitations, alternative solutions such as storage tanks or contracted removal services will be explored to ensure effective waste management during the construction phase, the appointed contractor will manage water usage, with sufficient capacity already established and confirmed to meet project requirements.



Figure 2: Site Layout Map



Visual Impact Assessment for the Proposed Pieterkoen Residential Development, George, Western Cape Province Sharples Environmental Services CC ETC0598



Figure 3: Site Development Plan





2.3 Assessment Alternatives

2.3.1 Location Alternatives

No alternative locations are being considered for the Pieterkoen Residential Development. The decision to develop on the chosen site was based on the Applicant's ownership of the land and its strategic location. The site is situated within George, with access to major transport routes such as the N12, N2, Seven Passes Road and Glenwood Avenue. The selected location provides a balance between accessibility, proximity to urban centres, and compatibility with the surrounding land uses, making alternative locations unnecessary for this specific project.

2.3.2 Layout Alternatives

For the proposed Pieterkoen Residential Development, three layout alternatives have been considered, focusing on buffer sizes and the integration of open spaces to address environmental and visual concerns.

The preferred layout incorporates a 30m buffer along the northern boundary, adjacent to sensitive riparian areas and biodiversity zones. This buffer is designed to preserve ecological integrity by minimizing disturbance to natural vegetation, mitigate visual impacts on surrounding areas by maintaining a natural boundary, and provide a clear demarcation for stormwater management and walking paths. The layout also integrates mixed-density residential zones, heritage precincts, internal roads, and green spaces. These alternative balances development needs with environmental and aesthetic considerations, making it the most viable option.

Alternative 1 includes a minimal 10m buffer along the northern boundary. While this configuration maximizes the land available for development, it increases the likelihood of visual and ecological impacts. Additionally, these alternative limits the opportunity for natural landscaping and environmental buffers, reducing its alignment with environmental best practices and making it less desirable for this project.

In contrast, Alternative 2 proposes a 50m buffer along the northern boundary. Recommended by environmental specialists, this expanded buffer provides enhanced visual screening for surrounding areas and greater preservation of ecological systems. However, the 50m buffer significantly reduces the usable land for residential and commercial development, limiting its economic and practical viability.



2.3.3 No-Go Alternative

The No-Go Alternative entails not proceeding with the proposed Pieterkoen Residential Development and leaving the site in its current state as agricultural land. This option would maintain the environmental and ecological integrity of the area, preserving sensitive riparian zones and critical biodiversity areas such as Garden Route Shale Fynbos and Garden Route Granite Fynbos. Additionally, it would avoid potential visual and ecological impacts associated with the development.



3 Requirement for a VIA

As outlined in Table 3, the requirement for visual input may arise from the characteristics of both the receiving environment and the project itself. The following indicators are identified as potential signals for the necessity of visual input:

The nature of the receiving environment:

- Areas with protection status, such as national parks or nature reserves;
- Areas with proclaimed heritage sites or scenic routes;
- Areas with intact wilderness qualities, or pristine ecosystems;
- Areas with intact or outstanding rural or townscape qualities;
- Areas with a recognized special character or sense of place;
- Areas lying outside a defined urban edge line;
- Areas with sites of cultural or religious significance;
- Areas of important tourism or recreation value;
- Areas with important vistas or scenic corridors; and
- Areas with visually prominent ridgelines or skylines.

The nature of the project:

- High intensity type projects including large-scale infrastructure;
- A change in land use from the prevailing use;
- A use that is in conflict with an adopted plan or vision for the area;
- A significant change to the fabric and character of the area;
- A significant change to the townscape or streetscape;
- Possible visual intrusion in the landscape; and
- Obstruction of views of others in the area.

These indicators can help determine whether a visual impact assessment is necessary for a particular project. It's important to note that this list is not exhaustive and other factors may also suggest the need for visual input.



3.1 Components of Visual Studies

As per Western Cape Department of Environmental Affairs & Development Planning: Guideline for Involving Visual and Aesthetic Specialists in EIA Processes Edition 1 (CSIR, 2005), the typical components of visual studies according to Box 8 are as follows:

Table 3: Typical Components of Visual Studies

Box 8: Typical Components of Visual Studies

- Identification of issues and values relating to visual, aesthetic and scenic resources through involvement of I&APs and the public.
- Identification of landscape types, landscape character and sense of place, generally based on geology, landforms, vegetation cover and land use patterns;
- Identification of viewsheds, view catchment area and the zone of visual influence, generally based on topography;
- Identification of important viewpoints and view corridors within the affected environment, including sensitive receptors;
- Indication of distance radii from the proposed project to the various viewpoints and receptors;
- Determination of the VAC of the landscape, usually based on topography, vegetation cover or urban fabric in the area;
- Determination of the relative visibility, or visual intrusion, of the proposed project.
- Determination of the relative compatibility or conflict of the project with the surroundings;
- A comparison of the existing situation with the probable effect of the proposed project, through visual simulation, generally using photomontages.

The approach to visual assessment should be based on both quantitative and qualitative aspects. Quantitative aspects often make use of landscape resource classification methods. These may include combinations of landforms (geomorphology), vegetation cover, and land use mapping.

The actual approach and method used would depend on the level of visual input required in the BA process. Effective interaction with other specialists should be facilitated by the EIA practitioner to ensure that an integrated approach is adopted, where the various components of the environment are seen.

This visual guideline document is therefore an attempt to develop a 'best practice' approach for visual specialists, EIA practitioners and authorities involved in the BA process.



4 Legislation and Policy Review

A vital aspect of this process involves assessing the suitability of a proposed development in relation to key planning and policy documents.

Although there is limited legislation specifically addressing VIAs, there exist guidelines that offer guidance for conducting visual assessments. Additionally, several laws are in place to safeguard visual resources, as well as regulations applicable to specialists in various fields.

This report adheres to the following legal requirements and guideline documents:

- International Good Practice.
- National Legislation and Guidelines; and
- Policy Fit.

4.1 International Good Practice

The following documentation provides good practice guidelines, specifically:

- Guidelines for Landscape and VIA⁵;
- Millennium Ecosystem Assessment (MEA);

4.1.1 Guidelines for Landscape and Visual Impact Assessment, Second Edition

These guidelines establish principles that promote consistency, credibility, and effectiveness in landscape and VIA within the BA process. According to the guidelines, landscape encompasses the entirety of our external environment, whether in urban or rural areas, including buildings, streets, open spaces, trees, and their interconnected relationships. The guidelines highlight the importance of landscape for various reasons, including being a natural resource, containing archaeological and historical evidence, providing habitats for plants and animals (including humans), evoking sensual, cultural, and spiritual responses, and contributing to our quality of life in urban and rural settings. Additionally, landscapes offer valuable opportunities for recreation and resources.

4.1.2 Millennium Ecosystem Assessment

According to the Ecosystems and Human Well-being document compiled by the MEA in 2005, ecosystems play a vital role in supporting human well-being through their provisioning, regulating, cultural, and supporting services. The document highlights the increasing evidence of human activities negatively impacting ecological systems globally, raising concerns about the potential consequences of these ecosystem changes on human well-being.

⁵ The Western Cape Guidelines are the only official guidelines for VIA reports in South Africa and can be regarded as best practice throughout the country.



The MEA defined the following non-material benefits that can be obtained from ecosystems.

- **Inspiration:** Ecosystems provide a rich source of inspiration for art, folklore, national symbols, architecture, and advertising.
- **Aesthetic values:** Many people find beauty or aesthetic value in various aspects of ecosystems, as reflected in the support for parks, scenic drives, and the selection of housing locations.
- **Sense of place:** Many people value the "sense of place" that is associated with recognised features of their environment, including aspects of the ecosystem.
- **Cultural heritage values:** Many societies place high value on the maintenance of either historically important landscapes ("cultural landscapes") or culturally significant species; and
- **Recreation and ecotourism:** People often choose where to spend their leisure time based in part on the characteristics of the natural or cultivated landscapes in a particular area. (MEA, 2005)

The MEA Ecosystems and Human Well-being: Synthesis report indicates that there has been a "rapid decline in sacred groves and species" in relation to spiritual and religious values, and aesthetic values have seen a "decline in quantity and quality of natural lands". (MEA, 2005).

4.2 National Legislation and Guidelines

To comply with the Visual Resource Management requirements, it is necessary to clarify which National and Regional planning policies govern the proposed development area to ensure that the scale, density and nature of activities or developments are harmonious and in accordance with the sense of place and character of the area.

4.2.1 National Environmental Management Act (Act 107 of 1998), EIA Regulations

The specialist report is in accordance with the specification on conducting specialist studies as per Government Gazette (GN) R 982 of the National Environmental Management Act (NEMA) (Act 107 of 1998). The mitigation measures as stipulated in the specialist report can be used as part of the EMPr and will be in support of the EIA and Appendix 6 of the EIA Regulations 2014, as amended on 7 April 2017.

4.2.2 NEMA: Protected Areas Act 57 of 2003

- Management of declared World Heritage Sites (WHS) and buffer areas within South Africa;
- The purpose of the National Environmental Management: Protected Areas Act (Act 57 of 2003) (NEMPAA) is to, inter alia, provide for the protection and conservation of ecologically viable areas representative of South Africa's biological diversity and its



natural landscapes and seascapes. To this end, it provides for the declaration and management of various types of protected areas;

- Section 39 of NEMPAA requires the preparation and submission of a management plan for a protected area declared in terms of the Act. The objective of a management plan, as stated in Section 41 of NEPAA, is to ensure the protection, conservation and management of the protected area concerned in a manner that is consistent with the objectives of NEMPAA and for the purpose it was declared;
- Section 50(5) of NEMPAA states that "no development, construction or farming may be permitted in a nature reserve or world heritage site without the prior written approval of the management authority;
- The management authority for a WHS is established through a NEMPAA process. The Management Authority (MA) is located within and funded by the DFFE; and
- The MA is tasked with ensuring that activities within the WHS and its buffer area comply with the approved Conservation Management Plan developed for the WHS.

4.2.3 Western Cape DEA: Guideline for Involving Visual and Aesthetic Specialists in EIA Processes Edition 1 (CSIR, 2005)

Although the guidelines were specifically compiled for the Province of the Western Cape, they provide guidance that is appropriate for any BA process. According to the Western Cape Department of Environmental Affairs & Development Planning's guideline on involving visual and aesthetic specialists in BA processes, the following information is relevant for our visual impact assessment report:

- Current South African environmental legislation governing the EIA process includes the National Environmental Management Act (NEMA) (Act No. 107 of 1998) and the EIA regulations under the Environment Conservation Act (Act No. 73 of 1989).
- The Protected Areas Act (NEMA) (Act 57 of 2003, Section 17) aims to protect natural landscapes.
- The National Heritage Resources Act (Act No. 25 of 1999) and associated provincial regulations provide legislative protection for listed or proclaimed sites, such as urban conservation areas, nature reserves, and scenic routes.
- Visual pollution is controlled, to a limited extent, by the Advertising on Roads and Ribbons Act (Act No. 21 of 1940), which deals mainly with signage on public roads.
- The Municipal Systems Act (Act 32 of 2000) requires municipalities to undergo an Integrated Development Planning (IDP) process, including the preparation of a five-year strategic development plan. The IDP process, particularly the spatial component known as the Spatial Development Framework, follows a bioregional planning approach in the Western Cape Province. Bioregional planning aims to achieve landscape continuity,



protect natural areas, and integrate social, environmental, and economic criteria in local planning initiatives.

Specialists should refer to the relevant provincial or local authority to determine the existence of policies, by-laws, or other restrictions regarding visual impact or the protection of scenic, rural, or cultural resources.

4.3 Policy Fit

Policy fit refers to the extent to which the proposed changes to the landscape align with planning and policy at the International, National, Provincial, and Local levels.

Regarding international best practices, the proposed landscape modifications do not meet the criteria for triggering best practice guidelines, as there are no significant cultural or landscape resources within the site or its immediate surroundings.

ETC followed the United States Bureau of Land Management's Visual Resource Management method (USDI, 2004) to determine the significance of the landscape. This method, based on mapping and Geographical Information System (GIS) techniques, enhances objectivity and consistency by utilizing standardized assessment criteria.



5 Approach and Methodology

5.1 **Purpose of the Study**

The purpose of the study is to document the baseline and to ensure that the visual/aesthetic consequences of the proposed Project are understood. The report therefore aims to identify scenic resources, and visually sensitive areas or receptors. It also aims to identify key concerns or issues relating to potential visual impacts arising from the Project, and which must be addressed in the assessment phase.

5.2 Approach to Study

Assessing the effects of the development on landscape resources and visual amenity involves a combination of quantitative and qualitative evaluations. Visual impact is evaluated based on the worst-case scenario, while landscape and visual assessments are distinct but interconnected processes. The landscape analysis and assessment of impacts contribute to the baseline for VIA studies. The assessment of potential landscape impacts focuses on the physical landscape as an environmental resource. In contrast, visual impacts are evaluated as the effects on viewers when an object is introduced into a view or scene.

To conduct the study, Geographic Information System (GIS) software was utilised as a tool for generating viewshed analysis and applying relevant spatial criteria to the proposed infrastructure. A detailed Digital Terrain Model (DTM) of the study area was created using topographical data provided by the Japan Aerospace Exploration Agency (JAXA), specifically the ALOS Global Digital Surface Model "ALOS World 3D - 30m" (AW3D30) elevation model.

The scope of work for this report includes.

- Identify the scope of work/assessment required;
- Establish the baseline profile of the Environment;
- Identify potentially sensitive visual receptors within the receiving environment;
- Determine visual distance/observer proximity to the development;
- Determine viewer incidence/viewer perception;
- Determine the VAC of the landscape;
- Determine significance of identified impacts;
- Propose mitigation to reduce or alleviate potential adverse visual impacts; and
- Conclude with an impact statement of significance and a project recommendation.

The VIA is determined according to the nature, extent, duration, intensity or magnitude, probability, and significance of the potential visual impacts, and will propose management actions and/or



monitoring programs and may include recommendations related to the proposed Pieterkoen Residential Development.

The visual impact is determined for the highest impact-operating scenario (worst-case scenario) and varying climatic conditions (i.e., different seasons, weather conditions, etc.) are not considered.

The VIA considers potential cumulative visual impacts, or alternatively the potential to concentrate visual exposure/impact within the region.

5.3 Site Verification and Specific VIA Approach

Selecting the appropriate approach for a VIA is a crucial step in the process. The method and input for a VIA should be determined based on the expected level of visual impact, the nature of the project, and the characteristics of the receiving environment– that is the baseline landscape and visual conditions.

This in turn will form the basis from which the magnitude and significance of the landscape and visual effects of the development may be identified and assessed.

Table 4 provides the site verification report for an analysis of the existing landscape features, characteristics, the way the landscape is experienced, and the condition and the value or importance of the landscape and visual resources in the vicinity of the proposed development as well as the level of assessment deemed suitable for the proposed Pieterkoen Residential Development.

Based on the evaluation conducted, the findings from the site verification report indicate that a Level 4 Visual Assessment will be required.

	Type of Issue				
Approach and Method	Little or No Visual Impact Expected	Minimal Visual Impact Expected	Moderate Visual Impact Expected	High Visual Impact Expected	Very High Visual Impact Expected
Level of Visual Assessment Recommended	Level 1 Visual Assessment	Level 2 Visual Assessment	Level 3 Visual Assessment	Level 4 Visual Assessment	

Table 4: Categorisation of Approaches and Methods Used for Visual Assessment

5.4 Significance of Visual Impact

Having established the specific type of VIA required, it is now crucial to delve into the generic aspects and themes associated with a VIA. These elements will be examined at a site-specific


level within this report, enabling us to accurately identify and understand the unique impacts associated with the site under consideration⁶.

A combined quantitative and qualitative methodology, as supplied by the Environmental Practitioner, was used to describe the significance of impacts.

- **Significance** of impact is rated as consequence of impact multiplied by the probability of the impact occurring; and
- **Consequence** is determined using intensity, spatial scale, and duration criteria.

A summary of each of the qualitative descriptions along with the equivalent quantitative rating scale is given in Figure 4 below.



Figure 4: VIA Process

5.4.1 Landform (Topographical) and Micro-Topographical Context

The visibility of a feature within a landscape is significantly influenced by its landform context. Factors such as the feature's placement (e.g., valley bottom or ridge top), the viewer's location, and the slope's morphology can either enhance or obstruct visibility. Micro-topographical elements

⁶ Themes and Elements discussed in 5.4.1 to 5.4.9 will be site specifically addressed in Session 6.



like buildings or vegetation can also screen views, potentially eliminating visual impact. Therefore, a comprehensive understanding of the topographical context is crucial in assessing visual impact.

5.4.2 Landscape Development Context

The presence/existence of other anthropogenic objects associated with the built environment may influence the perception of whether a new development is associated with a visual impact. Where buildings and other infrastructure exists, the visual environment could be already altered from a natural context and thus the introduction of a feature into this setting may be considered to be less of a visual impact than if there was no existing built infrastructure visible.

5.4.3 Receptor Type and Nature of the View

Visual impacts can be perceived by various types of receptors, including individuals driving along roads or residing/working in the vicinity where the structural feature is visible. The type of receptor influences the typical "view" of a potential source of visual impact, with views being constant in the case of residences or permanent human habitats, and transient in the case of vehicles moving along a road. The nature of the view encountered directly influences the intensity of the visual impact experienced.

5.4.4 Presence of Receptors

It is important to note that visual impacts are only experienced when there are receptors present to experience the impact; thus, in a context where there are no human receptors or viewers present there are not likely to be any visual impacts experienced.

5.4.5 Viewing Distance

The distance between the viewer or receptor location and an object is the primary factor influencing the perception of visual impacts. Beyond a certain distance, even large structural features become less visible and blend into the surrounding landscape. The visibility of an object tends to decrease exponentially as the distance from the object increases. The maximum impact is typically felt by receptors within a distance of 500m or less.

As one moves away from the source of impact, the visual impact diminishes exponentially. At a distance of 1000m, the impact is approximately one-quarter of that experienced at 500m. At distances of 5000m or more, the impact becomes negligible.

5.4.6 Sense of Place

According to Lynch (1992), a sense of place is the extent to which a person can recognise or recall a place as being distinct from other places - as having a vivid, unique, or at least particular character of its own. The sense of place for the study area derives from a combination of the local landscape types described above, their relative 'intactness', and their impact on the senses.

Sense of place goes hand in hand with place attachment, which is the sense of connectedness a person/community feels towards certain places. Place attachment may be evident at different



geographic levels, e.g., site specific (e.g., a house, burial site, or tree where religious gatherings take place), area specific (e.g., Zululand), and physiography specific (e.g., wetlands). Territorial behaviour is viewed as a set of behaviours and cognition a group exhibits based on perceived ownership. The concept of sense of place attempts to integrate the character of a setting with the personal emotions and memories associated with it.

Much of what is valuable in a culture is embedded in place, which cannot be measured in monetary terms. It is because of a sense of place and belonging that people loath to be moved from their dwelling place, despite the fact that they will be compensated for the inconvenience and impact on their lives. Places/natural resources should be assessed in terms of its cultural value by studying visiting and consumption patterns, behaviour patterns, etc.

5.4.7 Viewer Perception

The perception of visual impact by viewers is subjective and influenced by various factors, including the aesthetic value, identity, and sense of place associated with a landscape. The way development is perceived can vary; it may be viewed positively if it is seen as linked to progress or human upliftment, or negatively if it disrupts a cherished landscape.

The character of the landscape, its scenic value, and the surrounding land use context all play a role in determining whether new developments are seen as unwelcome intrusions. Areas of natural conservation or scenic beauty are often more sensitive to visual impacts since the natural or scenic character of the landscape contributes to its overall appeal. In such areas, structural features like high voltage power lines may be perceived as incongruous within a natural setting, often resulting in a perceived visual impact.

5.4.8 Visual Character

Visual character is shaped by human perception and the observer's response to the relationships and composition of the landscape, including the land uses and identifiable elements within it. The assessment of visual character involves describing the scenic attractiveness of the landscape, considering the landscape attributes that hold aesthetic value and make significant contributions to the visual quality of the views, vistas, and viewpoints within the study area (ALA, 2013).

5.4.9 Weather and Visibility

Meteorological factors, such as weather conditions like haze or heavy mist, can influence the nature and intensity of a potential visual impact associated with a structural feature. These factors directly impact visibility, potentially altering the way the structural feature is perceived and affecting the extent of its visual impact.

Vegetation, particularly trees and shrubs, can serve as an effective visual screen for developments helping to mitigate the visual impact on surrounding receptors. By strategically placing vegetation around the development, it can obscure or soften the view of the infrastructure, blending the development more harmoniously into the existing landscape.



5.5 Methodology

The following methodology was employed for the assessment:

- A comprehensive field survey was conducted to accurately document and describe the receiving environment. **Refer to Section 6.**
- The physical characteristics of the project components were described and depicted based on information provided by SES. See Section 2 and Section 6 for a detailed overview.
- The visual resource general landscape characterisation, representing the receiving environment, was mapped using data from the field survey, Google Earth imagery, and Mucina and Rutherford's (2006) reference book, "The Vegetation of South Africa, Lesotho, and Swaziland". The landscape description focused on the natural features of the land rather than subjective viewer responses.
- The landscape's character was evaluated and rated based on its aesthetic appeal, utilising established research in perceptual psychology as the foundation, and its sensitivity as a landscape receptor. **See Section 6 for a detailed overview.**
- The unique and distinct sense of place in the study area was described, considering the spatial form and character of the natural landscape, as well as the cultural transformations associated with the historical and current land use. **Section 6.1.5 for a detailed overview.**
- Viewshed analysis was conducted from the proposed project site to determine visual exposure and assess the topography's capacity to absorb potential visual impacts. The analysis considered the dimensions of the proposed structures and activities. **See Sections 7.1 and 7.2. for a detailed overview.**
- The potential impacts of the proposed projects on the visual environment were identified and rated using SES's significance rating criteria. **More information can be obtained in Section 8.2.**
- Recommendations were provided for mitigating the negative impacts of the proposed projects. See Section 8.2 for a detailed overview.

5.6 **Project Phases and Activities**

Activities to be undertaken during each of the phases are described in the following sections.

5.6.1 Environmental Authorization and Public Participation

The stakeholder consultation process is an essential component of this VIA. Rather than conducting a separate consultation, we have integrated this process with the public participation for the environmental authorisation documents. This integrated approach provides stakeholders,



government authorities, and other interested parties with a 30-day period to review the VIA document and provide feedback.

All comments received during this consultation period will be carefully considered and incorporated into the final VIA. This ensures that the assessment is comprehensive, accurate, and addresses stakeholder concerns effectively.

5.6.2 Design Phase

This phase would include the clearance of vegetation, installation of perimeter fencing and levelling of the site and preliminary earthworks. Thereafter the Project site will be marked out, a construction camp set up and the access road to the site is constructed. The clearance of vegetation is not anticipated to be site wide and will depend on the detailed layout of the proposed Project⁷.

5.6.3 Construction Phase

During the construction phase of the proposed Pieterkoen Residential Development, a systematic and comprehensive approach to development construction is followed⁸, encompassing a variety of activities:

- Site Preparation: This includes site clearance, excavation, and grading based on the approved layout, while ensuring minimal disturbance to environmentally sensitive areas.
- Vegetation Clearance: Clearance will occur only in areas designated for development, with special attention to preserving natural buffers and green spaces.
- Access Roads: The proposed Pieterkoen Residential Development will leverage existing and planned road infrastructure to ensure seamless connectivity and accessibility. Primary access to the development will be provided via Glenwood Avenue, and additional connections to Seven Passes Road, which passes through the northern portion of the proposed development area. These routes offer direct links to major highways, including the N12 and N2, facilitating efficient transport to and from the development area.
- Foundation and Infrastructure Setup: Excavation for the foundations of residential, commercial, and community buildings, along with the installation of necessary utility infrastructure (e.g., water, sewage, electrical).
- Building Construction: Erection of commercial buildings, residential units, and community facilities, following the specifications in the site development plan.

⁷ During the design phase it is advisable that landowners and occupiers be engaged to ensure structures are adequately avoided ⁸ Please note that the specific sequence and activities may be subject to adjustment based on the project's unique requirements and conditions.



- Stormwater and Drainage Systems: Installation of stormwater management systems to ensure adequate drainage and prevent flooding or erosion.
- Perimeter Fencing: Installation of perimeter fencing, where necessary, for security and safety.
- Rehabilitation: Rehabilitation of any disturbed areas not being developed, such as natural buffers or green spaces, with appropriate landscaping to integrate the development into the surrounding environment.

The construction phase of the proposed project is expected to span a period of 72 months. However, this timeline can be influenced by factors such as weather conditions and unforeseen challenges encountered during construction.

5.6.4 Operational Phase

Once operational, the proposed Pieterkoen Residential Development will function as a mixed-use hub catering to residential, commercial, and community activities. Key activities during the operational phase include:

- Building Maintenance: Regular maintenance of residential and commercial structures, including routine inspections and repairs.
- Utility Management: Continuous operation of water, sewage, and electrical systems to support residents and businesses.
- Security: 24/7 site security monitoring, including surveillance and access control for commercial and residential areas.
- Landscaping and Vegetation Management: Ongoing management of landscaped areas, including trimming, irrigation, and upkeep of open spaces and recreational areas.
- Waste Management: Waste collection and disposal will be managed through municipal services or private contractors, ensuring minimal solid waste impact.
- Community Services: Maintenance of community facilities, such as schools, clinics, and recreational areas, ensuring their continued operation and service to local residents.
- Water Usage: Water will be sourced from the local municipality for sanitation, landscaping, and maintenance. In case of water shortages, temporary storage or alternative sourcing methods may be used.
- The operational phase will require constant monitoring to ensure that all systems are functioning efficiently and that environmental impacts are kept to a minimum.

5.6.5 Decommissioning Phase

The proposed Pieterkoen Residential Development is designed to be a permanent fixture within the local landscape, with ongoing maintenance and possible future expansions in line with urban



development strategies. It is unlikely that the development would be decommissioned within the foreseeable future.

However, in the unlikely event of decommissioning due to changes in land use planning or redevelopment initiatives, the following steps would be undertaken:

- Dismantling of Infrastructure: Any buildings, roads, or utility infrastructure slated for removal would be dismantled, with efforts made to recycle or repurpose materials.
- Site Rehabilitation: If the site is to be restored to its natural state or repurposed, rehabilitation efforts would focus on restoring natural vegetation and addressing any environmental concerns.
- Waste Disposal: Non-recyclable materials would be disposed of according to local regulations and international best practices.

In practice, the development is expected to remain operational indefinitely, with decommissioning only considered in rare future cases of repurposing or redevelopment.



6 Baseline Environmental Profile

6.1 Character and Nature of Environment

The proposed Pieterkoen Residential Development is located north of the N12 and N2 highways, within George, in the Western Cape Province. The site lies ~0.2 km south of the Garden Route Dam, an area of ecological and scenic significance, and is bordered by the Swartrivier to the north, with the Kaaimans River ~3 km east.

The landscape consists of flat terrain with gentle slopes and is characterised by a mix of residential areas, patches of Garden Route Shale Fynbos and Garden Route Granite Fynbos (both critically endangered), and areas of invasive vegetation. The site is currently undeveloped but reflects a transitional character between rural and urban land uses, as residential developments like the Groenkloof Retirement Village are located to the south, with undeveloped natural areas to the north and east.

The site's visual sensitivity is heightened by its proximity to the Garden Route Dam, as well as its visibility from , nearby residential areas. These factors position the site within a visually prominent area, requiring mitigation to minimise the potential for adverse visual impacts on surrounding receptors, particularly from transport corridors and neighbouring developments.

6.1.1 Climate Conditions

The proposed Pieterkoen Residential Development is located within George, a region characterised by a moderate inland climate with distinct seasonal variations. This climate influences the visual characteristics of the environment, including vegetation patterns and the overall aesthetic appeal of the area.

Summer: Summers in George, from December to March, are generally warm and dry. Average daily highs reach around 24°C, with minimal rainfall. The landscape during this period is often characterized by dry conditions, which can affect the visibility and colour of the natural surroundings. Long, clear days enhance visibility, making the built environment and any new structures more prominent in the landscape.

Winter: Winters, from June to September, are cooler and windier, with daily highs averaging around 19°C and lows dropping to about 11°C. Rainfall during this season is modest, with the wettest months typically being between May and July. The cooler temperatures and frequent winds can create a sharper, clearer landscape, though the greening effect of winter rains may soften the visual impact of the development.

The region's climate is generally conducive to year-round development, with mild conditions that avoid extremes. However, the variation between the dry, clear summers and the cooler, wetter winters must be considered in the visual assessment, as these conditions affect how the landscape is perceived and how the development will blend into its surroundings.



6.1.2 Topography and Landscape

The proposed Pieterkoen Residential Development is situated within an area characterised by gradual, sloping terrain. The development area is I flanked by residential areas to the west and south. The site's proximity to these residential areas makes it visually prominent, adding to its potential visual impact on the surrounding environment.

The North-to-South elevation profile of the proposed Pieterkoen Residential Development ranges from approximately 155.86m to 219.47m over a total distance of 823.2m. The profile includes an elevation gain of 79.29m and a loss of approximately 19.01m, indicating that the southern areas of the site are slightly elevated, potentially increasing their visibility from lower-lying viewpoints to the north.



Figure 5: North to South Elevation Profile (captured from the site's midpoint)

The West-to-East elevation profile spans a total distance of 230.2m, with elevations ranging from 214.47m to 219.87m. The profile reflects an elevation gain of 5.40m and a loss of 9.35m, with an average elevation of 216.76m. These variations suggest that portions of the site to the west may be slightly more elevated, influencing visibility and potential exposure to surrounding viewpoints



Figure 6: West to East Elevation Profile (captured from the site's midpoint)



The site's topography, characterised by gradual slopes, is conducive to the integration of the development into the surrounding landscape. The natural terrain, combined with the strategic use of native vegetation, can significantly mitigate the visual impacts of the built environment, ensuring the development complements rather than disrupts the area's aesthetic qualities.

The existing landscape comprises a mix of residential land uses, interspersed with undeveloped parcels and patches of natural vegetation. The visual impact of the development will depend on the careful design of open spaces, road infrastructure, and residential zones to ensure alignment with the established character of the area. The site requires careful landscape integration that incorporates both functional infrastructure and aesthetic elements. This approach will help preserve the scenic quality of the region while ensuring reduced disruption to the surrounding environment.



Figure 7: Map of Topographical Profile of the Proposed Site



Proposed Pieter Koen Residential Development Western Cape Province

Topography-Hydrology Map

Pieter Koen Residential Development Area

Non-perennial rivers

George Local Municipality (WC044) Garden Route District Municipality (DC4) Ward 22 Western Cape Province

E	Proposed Pieter Koen Residential Development	
	Revision: 01 Scale: 1:50 000	
meters	Date: 22 January 2025	
nder ngh Sustainability	Sharplos Environmental Services	
nder.co.za	Sharples Environmental Services Disclaimer: For illustrative purposes only. Not a legally binding document.	



6.1.3 Natural Landscapes

The landscape surrounding the proposed Pieterkoen Residential Development is notable for its natural features, including non-perennial rivers, riparian zones, and patches of critically endangered vegetation. The site is bordered by the Swartrivier to the north and is located near the Garden Route Dam, which lies ~300m to the north. This dam is a prominent feature in the area, serving as a key water resource and adding to the visual and ecological significance of the region. No major rivers or perennial streams exist within the development area.

The surrounding environment consists of a mix of residential land uses, with undeveloped parcels and natural vegetation providing ecological connectivity. Patches of Garden Route Shale Fynbos and Garden Route Granite Fynbos, both critically endangered vegetation types, are present within and around the site. These vegetation systems contribute the visual aesthetic and essential ecosystem services, including soil stabilization, biodiversity support, and water filtration, which are critical for managing runoff from non-perennial rivers. Additionally, the Garden Route Dam and nearby riparian zones enhance the ecological and visual appeal of the area.

To protect these natural features, the development must implement buffer zones as recommended by aquatic and terrestrial biodiversity specialists. These buffers will safeguard watercourses, riparian areas, and vegetation while creating visual transitions between the built environment and the surrounding landscape. Such measures will ensure that the development harmonises with the existing environment while preserving its visual and ecological value.

In conclusion, the natural landscape surrounding the proposed Pieterkoen Residential Development is integral to the region's ecological and visual quality. The presence of the Garden Route Dam, riparian zones, vulnerable vegetation types, and hydrological elements highlights the importance of adopting a development approach that prioritises environmental and aesthetic sensitivity, ensuring minimal disruption to the region's natural and visual harmony.



Figure 8: Protected Ecosystems Map for the Proposed Site



Proposed Pieter Koen Residential Development Western Cape Province

Ecosystem Map

Pieter Koen Residential Development Area

Non-perennial rivers

Threatened Ecosystems (Vegmap 2018)

Garden Route Granite Fynbos - CR

Garden Route Shale Fynbos - VU

Groot Brak Dune Strandveld - VU

Southern Afrotemperate Forest - LC

George Local Municipality (WC044) Garden Route District Municipality (DC4) Ward 22 Western Cape Province

E	Proposed Pieter Koen Residential Development
5 Kilometers	Revision: 01 Scale: 1:20 000 Date: 22 January 2025
nder Igh Sustainability	Sherples Environmental Services
nder.co.za	Disclaimer: For illustrative purposes only. Not a legally binding document.
inder.co.za	Copyright © 2025 Eco Thunder Consulting (Pty) Ltd. All



Figure 9: Protected and Conservation Area Map of the Proposed Site



Proposed Pieter Koen Residential Development Western Cape Province

Protected and Conservation Areas Map

Pieter Koen Residential Development Area

Restore from plantation or high density IAP

George Local Municipality (WC044) Garden Route District Municipality (DC4) Ward 22 Western Cape Province

	Contraction of an exception of the second seco
E	Proposed Pieter Koen Residential Development
	Revision: 01
	Scale: 1:40 000
Kilometers	Date: 22 January 2025
nder agh Sustainability	Sharples Environmental Services
inder.co.za	Disclaimer: For illustrative purposes only. Not a legally binding document.
Inder.co.za	Copyright © 2025 Eco Thunder Consulting (Pty) Ltd. All rights reserved.



Photograph 1: Natural Landscape within the Proposed Development Area: View 1



Photograph 3: Natural Landscape in close proximity to the Proposed Development Area: View 3



Photograph 2: Natural Landscape within the Proposed Development Area: View 2



Photograph 4: Natural Landscape within the Proposed Development Area: View 4





6.1.4 Cultural and Tourism Resource

The proposed Pieterkoen Residential Development is located in the Garden Route District of the Western Cape, a region renowned for its scenic beauty, ecological significance, and cultural heritage. The site contains a historical werf area comprising a homestead, barn, and front garden, which is graded IIIA for its architectural and historical value. The werf is an integral part of the site's cultural identity, reflecting the area's historical roots.

While the broader property outside the werf precinct does not contain significant heritage resources, the werf area requires preservation to maintain its historical integrity. The Heritage Specialist recommends retaining the werf layout, open view corridors, and mature tree screens to enhance the site's sense of place. Low-key, visually recessive development is advised around this area to minimize visual intrusion.

From a tourism perspective, the proposed development is located within a region recognized for its scenic beauty and recreational offerings. Nearby attractions, such as the Garden Route Botanical Garden (~5.2km west), George Wilderness and Uniondale Tourism Hub (~5km west), George Museum (~5km west), Outeniqua Transport Museum (~3.5km west), and the Victoria Heights Reptile and Bird Park (2.6km south), contribute to the area's appeal to local and international visitors. Additionally, George serves as a gateway to the broader Garden Route tourism network, offering activities such as hiking, fishing, and eco-tourism.

To preserve the visual and cultural integrity of the area, the design of the proposed development must harmonize with its surroundings. Architectural styles that reflect the regional character and landscaping incorporating indigenous vegetation will help the development integrate seamlessly into its environment. Furthermore, maintaining key viewscapes to nearby attractions and ensuring minimal visual disruption will support the area's ongoing cultural and tourism appeal, preserving its sense of place for both residents and visitors.

6.1.5 Land Management

The land surrounding the proposed Pieterkoen Residential Development in the Garden Route District, Western Cape, consists of a mix of natural landscapes and residential areas. This reflects the region's ecological diversity and expanding residential infrastructure driven by its strategic location near George and its scenic appeal.



Figure 10: Land Use Map

53



Proposed Pieter Koen Residential Development Western Cape Province

Land Use Map

	anti-and much surfaces
	natural rock surfaces
lopment Area	dry pans
	bare riverbed material
	other bare
	cultivated commercial permanent orchards
	commercial annual crops non-pivot irrigated
	commercial annual crops rain-fed / dryland
	fallow land & old fields (trees)
	fallow land & old fields (bush)
	fallow land & old fields (grass)
	fallow land & old fields (bare)
	fallow land & old fields (low shrub)
	residential formal (tree)
	residential formal (bush)
	residential formal (low veg / grass)
	residential formal (bare)
	residential informal (tree)
	residential informal (bush)
	residential informal (low veg / grass)
	village scattered (bare & low veg/ grass combo)
	village dense (bare & low veg / grass combo)
	smallholdings (tree)
st	smallholdings (bush)
(et	smallholdings (low veg / grass)
	smallholdings (bare)
	urban recreational fields (tree)
on forest	urban recreational fields (bush)
est	urban recreational fields (grass)
elled) plantation forest	commercial
	industrial
	roads & rails (major linear)
als)	mines: extraction pits, quarries
itly mapped)	fallow land & old fields (wetlands)
usly mapped)	
usly mapped)	afallow land & old fields (wetlands)

George Local Municipality (WC044) Garden Route District Municipality (DC4) Ward 22 Western Cape Province

:	Proposed Pieter Koen Residential Development
Gilometers	Revision: 01 Scale: 1:20 000 Date: 22 January 2025
nder h Sustainability	Sharplos Estiss Environmental Services
nder.co.za	Disclaimer: For illustrative purposes only. Not a legally binding document.
nder.co.za	Copyright © 2025 Eco Thunder Consulting (Pty) Ltd. All rights reserved.



6.1.5.1 <u>Land Use</u>

The area surrounding the proposed Pieterkoen Residential Development reflects a blend of natural conservation areas and growing residential expansion. Situated within the Garden Route District, this region is recognised for its scenic and environmental value, supporting a variety of land uses with urban growth becoming increasingly prominent.

The development site is located near major infrastructure routes, including the N12 and N2 highways (~1.2km south), and Seven Passes Road, which provide critical access to George and surrounding neighbourhoods. These routes facilitate connectivity for residential andtourism activities in the area.

Conservation areas such as the Garden Route Dam (~300m north), Swartrivier (bordering the northern section of the proposed development site), and Witfontein State Forest (~1.5km northeast) contribute to the regional ecological network and play an essential role in biodiversity and hydrological systems. To the south and west, established residential areas, including Glenwood AH (~1.3km west) and Levallia (~2.7km south-west), highlight the growing urban footprint of George.

The strategic location of the development between residential zones highlights the need for careful integration into the existing land use framework. Landscaping buffers and sustainable design will be essential to preserve the area's character while minimising visual disruption. The proposed development will need to align with the surrounding land uses, ensuring it harmonises with the broader visual character of the region.

6.1.5.2 <u>Housing/farming Land Use</u>

The region surrounding the proposed Pieterkoen Residential Development consists primarily of established residential areas, with agricultural land rezoned for housing developments. While the area was historically characterised by a peri-urban mix of residential and agricultural activities, urban expansion has reshaped the landscape, replacing much of its rural character with residential development. The site is positioned along the urban edge of George, within the broader Garden Route District.

Nearby residential neighbourhoods include Glenwood AH, located ~1.3 km west; Levallia, situated ~ 2.7 km south-west; and Loerie Park, ~ 2 km north-west of the development area. These areas form part of George's expanding urban footprint.

The proposed development is located north of the N12 and N2, with the Seven Passes Road intersecting the northern portion of the site. This road plays a role in linking surrounding neighbourhoods but will ultimately border the development to the north following the allocation of a portion of land to the Department of Public Works and Transport.



Photograph 5: Eskom Infrastructure within the Surrounding Area



Photograph 6: View of Garden Route Dam ~300m north of the Proposed Development Area



Photograph 7: Existing Housing within the Proposed Development Area



Photograph 8: Swartrivier bordering the Northern Section of the Proposed Development Area4





6.1.5.3 Natural and Conservation Areas

The proposed Pieterkoen Residential Development is located near several visually and ecologically significant areas, which include the Garden Route National Park, ~2 km north-east of the site, The area is known for its scenic landscapes, biodiversity, and ecological importance, contributing to the visual value of the broader region.

The site itself is surrounded by Critical Biodiversity Areas (CBAs), riparian zones, and nonperennial wetlands, which enhance the visual and ecological diversity of the region. Notable features include the Garden Route Dam, located ~300m north of the site, and the Swartrivier, which borders the northern section of the development area. These features form part of the visual character of the area.

While the development site does not directly overlap with protected areas, its proximity necessitates adopting sensitive design and landscaping practices. Buffer zones, as recommended by the terrestrial biodiversity specialist, will be essential to safeguarding these natural features. These measures will protect riparian zones, conserve native vegetation, and create transitions between the built environment and the surrounding natural landscape.

In particular, views toward the Garden Route Dam, Swartrivier, and adjacent natural areas should be carefully considered during the development's planning and design phases. Maintaining the visual character of these key natural features is crucial to preserving the aesthetic quality of the region while ensuring the proposed development integrates seamlessly into its surroundings.

6.1.5.4 <u>Roads</u>

The road network surrounding the proposed Pieterkoen Residential Development provides diverse visual perspectives on the surrounding landscape. Key regional and local routes, including the N2, N12, Glenwood Avenue, and Seven Passes Road, play an important role in connecting the development area to nearby towns, neighbourhoods, and transportation corridors. These roads serve as significant visual corridors, offering multiple viewpoints from which the development may be observed.

- **N12:** Located ~1.2 km south of the proposed site, provides direct access to George and is heavily used by both residents and tourists. The proposed development area is not visible from the N12 due to the presence of existing urban development.
- **N2:** This major transport route facilitates regional connectivity between George and other parts of the Garden Route. The proposed development area is not visible from the N12 due to the presence of existing urban development.
- Seven Passes Road: Bordering the northern portion of the proposed development area. It functions as a potential visual access route for travellers moving between inland areas and the surrounding conservation areas.
- **Glenwood Avenue:** Providing direct access to the proposed development site, Glenwood Avenue connects the area to nearby residential neighbourhoods and George's



urban core. The proposed development area would be visible from this road and would require visual screening.

The proximity of this road network to the development site emphasises the need for careful planning and design. Mitigation measures, such as landscaping with indigenous vegetation, incorporating architectural features that blend with the existing visual character of the surrounding area.



Photograph 9: Internal Access Road within the Proposed Development Area



Photograph 10: N12/Knysna Road View within the Surrounding Area



Photograph 11: Residential Development within the Surrounding Area



Photograph 12: View of Glenwood Avenue within close proximity of the Proposed Development Areas





6.2 Visual Resource

6.2.1 Visual Receptors

Visual receptors, also known as viewer groups, are individuals or groups of individuals who have the potential to view or perceive the proposed development. The identification of visual receptors is a crucial step in the visual impact assessment process as it helps to understand who will be affected by the visual changes brought about by the project. Visual receptors that have been identified can be assessed in terms of "beneficiaries and losers⁹", resulting from the proposed development.

Beneficiaries may include the following:

- Residents or users of a project, such as a resort in a scenic area;
- Individuals or communities who will benefit from infrastructure development, such as power lines or communication masts provided for an area;
- Poor or unemployed individuals who will benefit from economic-type development and related job opportunities.

Losers may include the following:

- National parks, nature reserves, and other protected or pristine areas that rely on a wilderness experience for their visitors;
- Individuals and organisations who depend on scenic and recreation resources for their livelihood;
- Property owners who may rely on uninterrupted views and the absence of visual intrusions.

This comprehensive identification of visual receptors ensures that the assessment considers both the positive and negative visual impacts of the proposed development, taking into account the specific needs and concerns of various stakeholders. For the proposed Pieterkoen Residential Development, a general recommendation is made to utilise colours and material selection that blends with the existing visual landscape, vegetation screening, landscaping techniques, vegetation covers, or barriers, where applicable, to mitigate the visual impact on highly sensitive receptors, specifically those living in close proximity but not on the affected area.

It is postulated that all structures, homes, or buildings within the buildable area are owned by the developer. These structures are deemed to have a lower significance in the context of the VIA. Conversely, where land or structures are owned or occupied by a different holder or group, it is

⁹ Landowners (those who financial benefit) who have agreed to leasing their land for this development are seen as Beneficiaries and therefore assessed at a lower impact class. Residents, neighbours, tourists, and settlers are identified as losers.



assumed that these individuals have been informed of the development, and their properties have been adequately avoided or thoroughly screened.

- Local Residents: Residents within suburbs such as Glenwood AH and George NU are expected to view the development, particularly from residential estates or communal areas such as Groenkloof Retirement Village and Glenwood Ridge.
- **Road Users:** Individuals travelling along Glenwood Avenue and Seven Passes Road will have intermittent views of the development, with varying sensitivity depending on the frequency of travel and the visual exposure.
- **Tourists:** Visitors who frequent the nearby coastal areas and the broader Garden Route, known for its scenic appeal, may view the development as part of their travel experience. Tourists may have a higher sensitivity to changes in the landscape, especially those seeking coastal and natural views.

Each of these visual receptors will have a different level of sensitivity to changes in the visual environment, depending on factors such as their location, the frequency and duration of their views, and their personal or cultural values.



Figure 11: Visual Receptors for the Broader Study Area

61



osed Pieter Koen ntial Development rn Cape Province		
ive Receptor Map		
nt		
l Development A	rea	
ocal Mur te Distric Waro stern Ca	nicipality (WC044) et Municipality (DC4) d 22 pe Province	
	Proposed Pieter Koen Residential Development	
ometers	Revision: Scale: 1:45 000 Date: 15 January 2025	
nder h Burtainability	Sharplos Extron Environmental Services	
der.co.za nder.co.za	Discleimer: For illustrative purposes only. Not a legally binding document. Copyright © 2024 Eco Thunder Consulting (Pty) Ltd. All rights reserved.	



6.2.2 Visual Absorption Capacity

The Visual Absorption Capacity (VAC) of the landscape for the proposed Pieterkoen Residential Development is a key consideration in the VIA. VAC refers to the ability of the landscape to accommodate the proposed development without significantly compromising its visual integrity. This capacity is influenced by factors such as topography, vegetation, current land use, and the presence of anthropogenic modifications.

The area surrounding the development features a mix of natural vegetation, including critically endangered Garden Route Shale Fynbos and Garden Route Granite Fynbos, as well as urban and suburban environments such as Glenwood AH, and George NU. The natural vegetation, with varying heights and densities, plays a critical role in softening the appearance of new developments and mitigating visual impacts. The gently undulating topography of the site enhances the VAC by providing natural screening from key receptor points, such as Glenwood Avenue, Seven Passes Road and nearby residential areas.

However, the development site is situated near a Critical Biodiversity Area (CBA), highlighting the ecological sensitivity and scenic value of the region. CBAs are designated for their ecological importance and their contribution to biodiversity conservation, making the area highly sensitive to visual changes. While the landscape's ability to absorb visual changes is moderate, the proximity to the CBA necessitates careful planning to reduce visual disruption and preserve the natural aesthetic of the region.

Mitigation measures will be essential to maintain the area's visual character. These measures include landscaping to enhance the integration of the development into the surrounding landscape. Context-sensitive architectural designs that use materials and colours in harmony with the existing landscape will help reduce visual contrast. Additionally, strategic building placement, avoiding elevated areas or ridgelines, will prevent skyline intrusion and preserve key views.



7 Identification of Visual Impacts

The VIA forms a crucial part of the BA for the proposed Pieterkoen Residential Development. This assessment entails an evaluation of various criteria including visual intrusion, visibility, visual exposure, and viewer sensitivity. These factors collectively determine the intensity of potential visual impacts. Once the intensity is ascertained, it is further refined by considering spatial, temporal, and probability criteria to establish the overall significance of the visual impact.

This visual environment is a significant resource that contributes to the quality of life, sense of place, and cultural identity of local communities. Consequently, any alterations to the visual environment as a result of the proposed development necessitate careful assessment and management¹⁰

7.1 The Viewshed

The viewshed analysis for the proposed Pieterkoen Residential Development identifies the zones of visual influence, which are critical to evaluating the potential visual impact on the surrounding landscape. The development is situated within a landscape characterised by moderate VAC, consisting of natural vegetation andresidential areas. While these elements offer a degree of natural visual screening, the undulating topography and proximity to visually sensitive areas make the viewshed analysis an essential part of this assessment.

The visibility of the proposed development has been categorised into 'Very High,' 'High,' 'Medium,' and 'Low' visibility zones. The 'Very High' visibility zone is concentrated immediately around the development site, where it will be clearly visible to nearby residents in Glenwood AH, Geroge NU and road users, particularly along Glenwood Avenue and Seven Passes Road. Visibility decreases with distance, with 'Medium' to 'Low' visibility zones extending into more distant areas, including parts of Levallia andLoerie Park. These zones are less affected due to the screening effect of vegetation and the natural topography.

Receptor-Specific Impacts:

• **Residential Areas:** The closest residential areas, including Glenwood AH and George NU, fall within the 'High' to 'Very High' visibility zones. Given the proximity of these neighbourhoods, residents are likely to experience the most significant visual changes. However, existing residential infrastructure and natural elements, such as vegetation and topographical variations, can provide some level of screening and careful architectural design will reduce the overall visual impact on local residents.



- Tourists: Tourists travelling through the Garden Route or visiting nearby attractions, such as the Garden Route Dam ~300 north of the site) may have intermittent views of the proposed development. The visual impact on tourists is expected to be moderate, as the development is likely to blend with existing residential and built-up areas, especially when viewed from a distance or screened by vegetation and the undulating topography.
- Road Users: Travellers on the Seven Passes Road, Glenwood Avenue, and nearby local roads, particularly those within the 1 km visibility zone, will have clear views of the proposed development. The visual impact on road users is classified as 'High', especially for those approaching the development where direct lines of sight to the site are prominent.

Given the range of visibility and the sensitivity of certain receptor groups, mitigation strategies such as vegetative screening and appropriate architectural designs should be considered. These measures will help reduce the visual impact on sensitive areas, ensuring that the development blends with its surroundings while maintaining the scenic value of the region.



Figure 12: Viewshed analysis for the Proposed Pieterkoen Residential Development



Proposed Pieter Koen Residential Development Western Cape Province

Viewshed Analysis Map

	Subsistence Farm
	▲ wwtw
	Visibility Zones
	C 1
	Proposed Development
	Pieter Koen Residential Development Area
	Substations
	Transmission Lines
	Transportation
	Aviation
	Railways
	National
	Hydrology
	Major rivers
	 – Non-perennial rivers
	Open water bodies
	Viewshed Analysis
	Very Low
	Low
	Medium
	Very high
al Mur Distric Ware	nicipality (WC044) et Municipality (DC4) d 22
in ca	periovince
	Proposed Pieter Koen Residential Development
	Revision:
toro	Scale: 1:45 000
liers	Date. 15 Saluary 2025
les	Charpios Extremental Services
o.za	Disclaimer; For illustrative purposes only. Not a legally
o.za	binding document.
	rights reserved.



7.2 Impact Index

The Visual Impact Index (VII) for the proposed Pieterkoen Residential Development offers a multifaceted evaluation of the development's potential visual influence on the surrounding landscape. The index assesses the visual impact by analysing Viewer Sensitivity (VS), Project Visibility (PV), and Magnitude of Change (MC), providing an overall measure of the likely visual effects.

- Viewer Sensitivity (VS): Viewer sensitivity measures how various stakeholders perceive changes to their visual environment. For the Pieterkoen Residential Development, the key viewer groups include residents in nearby settlements like Glenwood AH, and George NU, road users along Glenwood Avenue and Seven Passes Road, and tourists visiting nearby attractions such as the Garden Route Dam. Residential viewer sensitivity is considered high, given the proximity of these communities to the development and their daily interaction with the landscape. Tourists are also likely to exhibit high sensitivity, as they often expect uninterrupted views of the Garden Route's scenic landscapes. Road users, who experience the area transitorily, are expected to have moderate sensitivity to visual changes.
- **Project Visibility (PV)**: The visibility of the Pieterkoen Residential Development varies depending on location and viewpoint. The development will have a high degree of visibility from residential areas such as Glenwood AH, and George NU, as well as from roads like Glenwood Avenue and Seven Passes Road. The gently undulating terrain and existing natural vegetation will provide a degree of visual screening, particularly for distant viewpoints. However, areas closer to the site, especially those within the immediate 1 km visibility zone, will experience more pronounced visual changes.
- **Magnitude of Change (MC)**: The magnitude of change assesses the extent to which the proposed Pieterkoen Residential Development will alter the existing visual environment. The introduction of residential buildings, supporting infrastructure, and landscaped areas will transform what is currently a peri-urban setting characterised by natural vegetation, and residential developments. While the development will introduce new visual elements into the landscape, the presence of existing residential developments in nearby areas such as Glenwood AH, and George NU provides context for this change, helping the development integrate into the broader urban expansion of George. However, careful design and mitigation will be necessary to ensure the development aligns with the existing surrounding environment and minimises visual disruption.

The VII for the proposed Pieterkoen Residential Development suggests a moderate visual impact overall. This is attributed to the proximity of sensitive viewer groups, such as local residents and tourists, the relatively clear visibility of the development in key areas, and the magnitude of change in certain parts of the landscape. The visual impact will be most pronounced where sensitive receptors, such as residents and tourists, have unobstructed views of the development.



Mitigation strategies, such as the use of indigenous vegetation for screening, careful architectural design, and careful placement of buildings and infrastructure, should be implemented to minimise the visual impact. By ensuring that the proposed development complements the existing landscape and adopting appropriate mitigation measures, the project can reduce its visual footprint while still achieving its objectives.



8 Impacts and Risks Assessment

This section aims to rate the significance of the identified potential impacts pre-mitigation and post-mitigation. The potential impacts identified in this section are a result of both the environment in which the Project activity takes place, as well as the activity itself. The identification of potential impacts is performed by determining the potential source, possible pathways and receptors. In essence, the potential for any change to a resource or receptor (i.e., environmental aspect) brought about by the presence of a Project component or by a Project-related activity has been identified as a potential impact.

The potential impacts are discussed per environmental feature/aspect and according to each phase of the Project i.e., the Construction, Operational and Decommissioning/Post Closure Phases. The significance, probability and duration of these potential impacts have been assessed based on the detailed specialist studies undertaken on the sensitivity of the receiving environment.

8.1 Impacts and Risk Methodology

The EIA Methodology assists in evaluating the overall effect of a proposed activity on the environment. Determining of the significance of an environmental impact on an environmental parameter is determined through a systematic analysis.

8.1.1 Determination of Significance of Impacts

Significance is determined through a synthesis of impact characteristics which include context and intensity of an impact. Context refers to the geographical scale (i.e. site, local, national or global), whereas intensity is defined by the severity of the impact e.g. the magnitude of deviation from background conditions, the size of the area affected, the duration of the impact and the overall probability of occurrence.

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 total number of points scored for each impact indicates the level of significance of the impact.

8.1.2 Impact Rating System

The impact assessment must take account of the nature, scale and duration of effects on the environment and whether such effects are positive (beneficial) or negative (detrimental). Each issue/impact is also assessed according to the various project stages, as follows:

- Planning;
- Construction;
- Operation; and
- Decommissioning.



The rating system is applied to the potential impact on the receiving environment and includes an objective evaluation of the possible mitigation of the impact. Impacts have been consolidated into one (1) rating. The impact assessment undertaken for the proposed Pieterkoen Residential Development was done as per the methodology provided by SES.

- The **nature**, which shall include a description of what causes the effect, what will be affected and how it will be affected.
- The **extent**, wherein it will be indicated whether:
 - Site specific On site or within 100 m of the site boundary, but not beyond the property boundaries (1).
 - Local The impacted area includes the whole or a measurable portion of the site and property, but could affect the area surrounding the development, including the neighbouring properties and wider municipal area (2).
 - Regional The impact would affect the broader region (e.g., neighbouring towns) beyond the boundaries of the adjacent properties (3).
 - **National** The impact would affect the whole country (if applicable) (4).
- The **duration**, wherein it will be indicated whether:
 - **Temporary** The impact will be limited to the construction phase (1).
 - **Short term** The impact will either disappear with mitigation or will be mitigated through a natural process in a period shorter than 8 months after the completion of the construction phase (2).
 - Medium term The impact will last up to the end of the construction phase, where after it will be entirely negated in a period shorter than 3 years after the completion of construction activities (3).
 - Long term The impact will continue for the entire operational lifetime of the development but will be mitigated by direct human action or by natural processes thereafter (4).
 - Permanent This is the only class of impact that will be non-transitory. Such impacts are regarded to be irreversible, irrespective of what mitigation is applied (5).
- The consequence of significance (magnitude), wherein it will be indicated whether:
 - **Negligible** The impact would result in negligible to no consequences (2).
 - Low The impact would result in insignificant consequences (4).
 - **Medium** The impact would result in minor consequences (6).



- **High** The impact would result in significant consequences (8).
- The **probability** of occurrence, which shall describe the likelihood of the impact actually occurring:
 - Improbable The possibility of the impact occurring is very low, due either to the circumstances, design or experience (2).
 - **Probable** There is a possibility that the impact will occur to the extent that provisions must therefore be made (3).
 - Highly probable It is most likely that the impacts will occur at some stage of the development. Plans must be drawn up to mitigate the activity before the activity commences (4).
 - **Definite** The impact will take place regardless of any prevention plans (5).
- the **significance**, which shall be determined through a synthesis of the characteristics described above and can be assessed as no significance, low, medium or high; and
- the **status**, which will be described as either positive, negative or neutral.
- the degree to which the impact can be reversed.
- the degree to which the impact may cause irreplaceable loss of resources.
- the degree to which the impact can be mitigated.

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

S=(E+D+M)P

- S = Significance weighting
- E = Extent
- D = Duration
- M = Magnitude
- P = Probability

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

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



 > 60 points: High (i.e. where the impact must have an influence on the decision process to develop in the area).

8.2 Impacts and Mitigation

8.2.1 Construction Phase

Table 5 to Table 6 summarise the consequence and significance of the visual impact of the Project. These results are based on worst-case scenario when the impacts of all aspects of the Project are taken together. Consequence of impact is a function of intensity, duration, and spatial extent. Intensity of impact is taken from the worst-case situation. These facilities are rated together, from a visual impact perspective, as the one would not exist without the other and they must be understood as the collective/cumulative.

Table 5: Potential Impacts during the Construction Phase

Impact: Altered Landscape and Sense of Place during Construction			
Nature: The introduction of construction activities and infrastructure of the proposed project will temporarily alter the visual character of the landscape. The current landscape will be interspersed with construction materials and equipment. This could evoke feelings among local residents and visitors of a landscape in transition.			
	Before Mitigation	After Mitigation	
Extent	Local (2)	Local (2)	
Duration	Short-Term (2)	Short-Term (2)	
Magnitude	Medium (6)	Low (4)	
Probability	Definite (5)	Probable (3)	
Significance	Medium (50)	Low (24)	

Status:

Negative - The construction phase will introduce temporary visual disturbances that could be perceived as out of harmony with the existing landscape.

Reversibility:

High - Post-construction, with proper landscaping and mitigation measures, the site can regain a semblance of its original character, although some permanent changes, will remain.

Irreplaceable loss of resources?

No - While the landscape's visual character might be altered, with proper mitigation, there won't be an irreplaceable loss. However, care should be taken to ensure that no unique or endangered flora is affected during construction.

Can impacts be mitigated? - Yes



Mitigation Measures:

- Use of Natural Colours and Materials: Use materials and colours that blend with the natural landscape for any temporary structures or construction materials. Mimic the texture and colours of the natural environment, where possible.
- Vegetative Screens: At key points of sensitivity, indigenous vegetation around the construction site's perimeter may be planted to act as a natural screen, reducing the visual impact.
- Localised Construction: Focus construction activities in smaller, localised areas rather than spreading out across the entire site simultaneously. This phased approach can reduce the overall visual disturbance at any given time.
- Revegetation for Restoration: Post-construction, prioritise revegetation efforts, especially in areas where native grasslands were disturbed. This can help in restoring the site's original visual character.
- Minimise Night-time Activities: Limit construction activities during the night to reduce light pollution, especially given the proximity to residential areas.

•

Cumulative Impact

Medium - When combined with other existing infrastructure the cumulative visual impact during construction could be more pronounced. However, with mitigation measures in place, this can be managed.

Residual Risk

Low - With the proposed mitigation measures, the residual visual impact during the construction phase is expected to be reduced. However, some temporary visual disturbances will be unavoidable.

Impact: Visibility of the Development for Residents during Construction

Nature: Given the undulating terrain, construction activities can stand out prominently against the backdrop of the landscape. For residents, up to 1 km away, they would be watching a new residential development rise. The horizon might now be dotted with cranes, construction equipment, and the beginnings of the Pieterkoen Residential Development.

	Before Mitigation	After Mitigation
Extent	Local (2)	Local (2)
Duration	Short-Term (2)	Short-Term (2)
Magnitude	Medium (6)	Low (4)
Probability	Definite (5)	Highly Probable (4)
Significance	Medium (50)	Medium (32)

Status:

Negative - The visibility of construction activities could be perceived as a visual intrusion into the daily lives of nearby residents.
Visual Impact Assessment for the Proposed Pieterkoen Residential Development, George, Western Cape Province Sharples Environmental Services CC ETC0598



Reversibility:

Medium - While the construction activities are temporary, the mixed-use infrastructure, once erected, will be a permanent addition to the landscape. However, over time, residents might acclimatise to the new visual elements.

Irreplaceable loss of resources?

No - The visual change does not result in the loss of any irreplaceable resources. However, the familiar visual character for residents might be altered.

Can impacts be mitigated? - Yes

Mitigation Measures

- Site Screening: Use natural topography, existing vegetation, or temporary screens to shield construction activities from viewers. Situate construction activities in lower-lying areas or behind hills. Use screens made of materials that blend with the natural environment.
- Minimise Structure Heights: Keep temporary structure heights to a minimum to reduce their visibility, where possible. Use materials and colours that blend with the surrounding landscape.
- Lighting Control: Minimise light pollution by directing lights downwards, using shields to prevent light spill, and turning off lights when not in use.
- Strategic Placement: Where possible, prioritise the placement of taller construction equipment and initial construction materials in areas less visible to the majority of residents.
- Vegetative Barriers: Enhance and fast-track the planting of native vegetation barriers, especially in areas facing major residential zones, to provide a natural screen.
- Informational Signage: Erect informational signboards around the construction site, explaining the project's benefits and duration, to keep residents informed and manage perceptions.

•

Cumulative Impact

Medium - The combined visual impact of the construction activities, along with existing structures could be more noticeable for residents. However, with mitigation measures, this cumulative impact can be managed.

Residual Risk

Medium - Even with mitigation measures, the visibility of certain construction activities to residents will be evident. However, as the construction phase progresses and residents become more accustomed to the changes, the perceived impact would reduce.

Impact: Dust and Noise Impact during Construction

Nature: The construction activities for the Pieterkoen Residential Development will inevitably disturb the soil, leading to potential dust generation. This dust can be carried by winds, affecting the immediate surroundings. Residents nearby might experience a temporary increase in dust levels. This could affect



their daily activities, health, and overall quality of life. Additionally, the movement of construction vehicles, machinery operations, and groundwork can cause noise and vibrations, further adding to the disturbances experienced by nearby residents.

	Before Mitigation	After Mitigation
Extent	Local (2)	Site (1)
Duration	Short-Term (2)	Short-Term (2)
Magnitude	Medium (6)	Low (4)
Probability	Definite (5)	Highly Probable (4)
Significance	Medium (50)	Low (28)

Status:

Negative - The dust and other disturbances from construction activities can be perceived as nuisances by nearby residents and can have potential health implications.

Reversibility:

High - The dust and construction-related disturbances are temporary and will cease once construction is completed. The environment is expected to return to its pre-construction state in terms of dust levels.

Irreplaceable loss of resources?

No - The dust and construction disturbances do not result in the loss of any irreplaceable resources. However, there might be a temporary decline in air quality and ambient noise levels.

Can impacts be mitigated? - Yes

Mitigation Measures

- Dust Suppression: Regularly water down the construction site, especially during dry and windy conditions, to minimise dust generation.
- Windbreaks: Install temporary windbreaks or barriers around the construction site to reduce the spread of dust, if required.
- Vehicle Speed Limits: Implement strict speed limits for construction vehicles within the site to reduce dust kick-up.
- Construction Scheduling: Schedule dust-generating activities for times when wind speeds are low or when wind direction is away from sensitive receptors, where possible.
- Use of Dust Screens: Install dust screens or barriers around the construction site, particularly in areas close to sensitive receptors, to contain dust within the site, when required
- Rehabilitation of Disturbed Areas: Promptly rehabilitate areas where construction activities have ceased. Re-vegetate with native species or suitable ground cover to stabilise the soil and reduce dust generation.
- Regular Monitoring: Implement a monitoring program to assess the effectiveness of dust control measures.
- Machinery Maintenance: Ensure construction machinery is well-maintained to minimise excessive noise and vibrations.

Visual Impact Assessment for the Proposed Pieterkoen Residential Development, George, Western Cape Province Sharples Environmental Services CC ETC0598



• Work Hours: Restrict the noisiest construction activities to daytime hours and avoid work during early mornings, late evenings, or weekends when residents are more likely to be at home.

•

Cumulative Impact

Medium - The combined impact of dust, noise, and other construction-related disturbances, along with existing activities in the area, could be more noticeable for residents. However, with mitigation measures, this cumulative impact can be managed.

Residual Risk

Low - With the proposed mitigation measures, the residual impact of dust and construction disturbances should be significantly reduced. However, occasional spikes in dust or noise might still be experienced during certain construction activities.

8.2.2 Operational Phase

Table 6: Potential Impacts during the Operational Phase

Impact: Altered Landscape and Sense of Place during Operation

Nature: The operational phase of the Pieterkoen Residential Development will introduce a new visual element to the landscape. The presence of this mixed-use infrastructure can alter the visual harmony and the intrinsic sense of place that residents and visitors associate with the area. The facility will become a permanent feature in the landscape, potentially influencing how the area is perceived and experienced.

	Before Mitigation	After Mitigation
Extent	Local (2)	Local (2)
Duration	Long-Term (4)	Long-Term (4)
Magnitude	Medium (5)	Low (3)
Probability	Highly Probable (4)	Probable (3)
Significance	Medium (44)	Low (27)

Status:

Negative - The transformation of the landscape due to the presence of residential infrastructure can be perceived as a visual intrusion by some, especially those who value the natural aesthetics of the region.

Reversibility:

Low - While the landscape alteration is long-term during the facility's operational phase, if it is decommissioned, there's potential for the land to be restored to a more natural state, albeit with some lasting changes.

Irreplaceable loss of resources?

No - The sense of place is subjective and can evolve over time. While the landscape's visual character changes, no tangible resources are irrevocably lost.



Can impacts be mitigated? - Yes

Mitigation Measures

ETC0598

- Vegetative Screening: Plant indigenous trees and shrubs intermittently along site boundaries, where required.Landscape Integration: Use materials, textures, and colours that reflect the local architectural styles to harmonise with the surrounding environment and maintain a sense of place.
- Lighting Control: Employ downward-facing, low-glare lighting systems with motion sensors to minimise light pollution and preserve the area's nighttime character.
- Seasonal Landscaping Maintenance: Implement an ongoing maintenance program to ensure that the landscaped areas remain in good condition, reflecting seasonal changes and preventing visual degradation.

Cumulative Impact

Medium - The facility, in combination with other developments and infrastructure in the area, contributes to a changing landscape character. However, with mitigation measures, the cumulative visual impact can be managed.

Residual Risk

Low - With the proposed mitigation measures, the residual impact on the landscape and sense of place would be reduced. However, the presence of the developments will still be a noticeable change in the landscape during its operational phase.

Impact: Visibility of the Facility to Residents during Operation

Nature: During the operational phase, the Pieterkoen Residential Development will become a prominent feature in the landscape. Residents of nearby areas will have varying degrees of visibility of the development. This increased visibility can influence residents' daily visual experience, potentially altering their sense of place and connection to the landscape.

	Before Mitigation	After Mitigation
Extent	Local (2)	Local (2)
Duration	Long-Term (4)	Long-Term (4)
Magnitude	Medium (6)	Low (4)
Probability	Definite (5)	Probable (3)
Significance	High (60)	Medium (30)

Status:

Negative - For residents who value the landscape, the visibility of the development can be perceived as a visual intrusion.

Reversibility:



Low - The visual impact is persistent during the development's operational phase. However, if decommissioned, and if the land is restored, the visibility factor can be reversed to a large extent.

Irreplaceable loss of resources?

No - While the visual character of the area changes, there's no permanent loss of tangible resources. The sense of place, though altered, can evolve and adapt over time.

Can impacts be mitigated? - Yes

Mitigation Measures

- Vegetative Buffers: Plant indigenous vegetation along site boundaries adjacent to residential areas to reduce direct visibility of infrastructure and enhance visual screening.
- Architectural Integration: Utilise materials and colours that complement the local landscape, minimising visual contrast and promoting architectural harmony.
- Lighting Control: Employ downward-facing, low-glare lighting systems with motion sensors to minimise light pollution and preserve the area's nighttime character.

Cumulative Impact

Medium - The facility's visibility, combined with other infrastructural elements in the area, contributes to a changing visual landscape. However, with mitigation measures in place, the cumulative visual impact can be moderated.

Residual Risk

Medium - Implementing the proposed mitigation measures should reduce the facility's visibility impact on residents.

Impact: Potential Visual Impact of Operational, Lighting during Operation

Nature: Operational lighting is essential for the Pieterkoen Residential Development to ensure safe and efficient operations, especially during nighttime hours. However, this lighting can introduce a new source of light in the area, potentially causing light pollution.

	Before Mitigation	After Mitigation
Extent	Local (2)	Local (2)
Duration	Long-Term (4)	Long-Term (4)
Magnitude	Moderate (6)	Low (4)
Probability	Highly Probable (4)	Probable (3)
Significance	Medium (48)	Medium (30)

Status:

Negative - The introduction of artificial lighting can be perceived as a visual disturbance, especially if it contrasts starkly with the existing ambient light levels.

Reversibility:



Medium - The impact is directly tied to the operational phase. If the facility is decommissioned or lighting practices are modified, the impact can be reversed.

Irreplaceable loss of resources?

No - While the night-time visual character might change, there's no permanent loss of resources. However, the natural night sky, if significantly affected, can be considered a non-renewable resource in the context of the project's lifespan.

Can impacts be mitigated? – Yes

Mitigation Measures

ETC0598

- Downward-facing Lights: Use fixtures that direct light downwards to minimise upward light spill, preserving the night sky.
- Motion Sensors: Install motion sensors so that lights are only activated when necessary, reducing the duration of light emissions.
- Low-intensity Lighting: Opt for low-intensity lighting that provides sufficient illumination for safety without being overly bright.
- Shielding: Use shields on lights to direct illumination to the intended areas and prevent light spill into unintended areas.
- Educate Staff: Ensure that staff are aware of the importance of minimising light pollution and are trained to use lighting efficiently.
- Periodic Reviews: Conduct periodic reviews of lighting practices to identify and rectify any unnecessary light emissions.

Cumulative Impact

Medium - The facility's lighting, when combined with other light sources in the area could contribute to an overall increase in light pollution. However, with effective mitigation, this cumulative impact can be managed.

Residual Risk

Low - With the proposed mitigation measures in place, the residual risk of significant light pollution from the facility should be reduced. Some localised light spill might still occur, but its impact should be limited.

8.2.3 Decommission Phase

While decommissioning of the proposed Pieterkoen Residential Development is not anticipated, should it occur in the future due to land-use changes or redevelopment initiatives, the following impacts are likely to arise. The removal of infrastructure, such as buildings, roads, and utilities, may lead to temporary visual disruption, particularly for nearby residents. Site clearance activities, including the dismantling of structures and removal of fencing, could create visual disturbances due to the presence of heavy machinery and exposed surfaces. Additionally, the absence of previously established vegetation or landscaped areas may result in a temporary loss of visual buffers, potentially increasing the visual exposure of the site. Without proper management,



decommissioning could alter the character and sense of place that had developed around the site. Mitigation measures would need to focus on the phased removal of infrastructure, careful rehabilitation of the site with indigenous vegetation, and continuous communication with affected communities to manage expectations and ensure visual impacts are minimised throughout the process

8.3 Environmental Management Programme

Table 7 to Table 8 management plan tables aim to summarise the key findings of the visual impact report and suggest possible management actions in order to mitigate the potential visual impacts.

Project Component/s	Construction site and activities		
Potential Impact	Altered Landscape an	d Sense of Place durin	g Construction
Activity/Risk Source	The introduction of construction activities and infrastructure of the proposed Pieterkoen Residential Development will temporarily alter the visual character of the landscape. The current landscape will be interspersed with construction materials and equipment. This could evoke feelings among local residents and visitors of a landscape in transition.		
Mitigation: Target/Objective	Optimal construction of infrastructure to minimise the visual impact.		
Mitigation: Action/co	ntrol	Responsibility	Timeframe
<u>Use of Natural Colours and Materials:</u> Use materials and colours that blend with the natural grassland landscape for any temporary structures or construction materials. Mimic the texture and colours of the natural environment, where possible.		Project proponent/contractor	Early in the construction phase.
<u>Vegetative</u> <u>Screens:</u> sensitivity, indigenous construction site's per to act as a natural scre impact.	At key points of vegetation around the imeter may be planted een, reducing the visual	Project proponent/contractor	Early in the construction phase.
Localised Construction activities in smaller, than spreading out a simultaneously. This reduce the overall visi given time.	n: Focus construction localised areas rather across the entire site phased approach can ual disturbance at any	Project proponent/design consultant	Early in the construction phase.

Table 7: Management Programme during the Construction Phase

ETC0598



Revegetation: Post-o revegetation efforts, es native grasslands we help in restoring the character.	construction, prioritise specially in areas where re disturbed. This can site's original visual	Project proponent/consultant	Early in the construction phase.
MinimiseNight-timeconstructionactivitiesreducelightpollutionproximity to residential	<u>e Activities</u> : Limit during the night to , especially given the areas.	Project proponent/consultant	Early in the construction phase.
Performance Indicator	Well maintained and neat facility with intact vegetation on and in the vicinity of the facility.		
Monitoring	Monitoring of the entire site on an ongoing basis (by operator).		

Project Component/s	Construction site and activities		
Potential Impact	Visibility of the Facilit	y to Residents during (Construction
Activity/Risk Source	Given the undulating terrain, construction activities can stand out prominently against the backdrop of the landscape. For residents, up to 1 km away, they would be watching a new urban development rise. The horizon might now be dotted with cranes, construction equipment, and the beginnings of the Pieterkoen Residential Development infrastructure.		
Mitigation: Target/Objective	Optimal construction of infrastructure to minimise the visual impact.		
Mitigation: Action/co	ntrol	Responsibility	Timeframe
<u>Site Screening:</u> Use natural topography, existing vegetation, or temporary screens to shield construction activities from viewers. Situate construction activities in lower-lying areas or behind hills. Use screens made of materials that blend with the natural environment.		Project proponent/design contractor	Early in the construction phase.
<u>Minimise Structure Heights:</u> Keep temporary structure heights to a minimum to reduce their visibility, where possible. Use materials and colours that blend with the surrounding landscape.		Project proponent/design consultant	Early in the construction phase.

ETC0598



Lighting Control: Mini directing lights downw prevent light spill, and not in use.	mize light pollution by /ards, using shields to turning off lights when	Project proponent/design contractor	Early in phase.	the	construction
Strategic Placement prioritise the placement equipment and initial c areas less visible to the	t: Where possible, nt of taller construction onstruction materials in e majority of residents.	Project proponent/design contractor	Early in phase.	the	construction
<u>Vegetative Barriers:</u> Enhance and fast-track the planting of native vegetation barriers, especially in areas facing major residential zones, to provide a natural screen.		Project proponent/design consultant	Early in phase.	the	construction
Performance Indicator	Well maintained and neat facility with intact vegetation on and in the vicinity of the facility.		the vicinity of		
Monitoring	Monitoring of the entire site on an ongoing basis (by operator).				

Project Component/s	Construction site and	activities		
Potential Impact	Dust and Noise Impac	t during Construction		
Activity/Risk Source	The construction activities for the Pieterkoen Residential Development will inevitably disturb the soil, leading to potential dust generation. This dust can be carried by winds, affecting the immediate surroundings. Residents nearby might experience a temporary increase in dust levels. This could affect their daily activities, health, and overall quality of life. Additionally, the movement of construction vehicles, machinery operations, and groundwork can cause noise and vibrations, further adding to the disturbances experienced by nearby residents.			
Mitigation: Target/Objective	Optimal construction of	Optimal construction of infrastructure to minimise the visual impact.		
Mitigation: Action/co	ntrol	Responsibility	Timeframe	
Dust Suppression: Re construction site, esp windy conditions, to mi	gularly water down the Project During the construction proponent/contractor phase.		During the construction phase.	
<u>Windbreaks:</u> Install ter barriers around the cor the spread of dust, if re	mporary windbreaks or nstruction site to reduce equired.	Project proponent/design consultant	Early in the construction phase.	

Sharples Environmental Services CC ETC0598



Vehicle Speed Limits: limits for construction to reduce dust kick-up.	Implement strict speed vehicles within the site	Project proponent/consultant	Early in the phase.	construction
Construction Schedu generating activities speeds are low or when from sensitive receptor	ling: Schedule dust- for times when wind n wind direction is away rs, where possible.	Project proponent/contractor	During the phase.	construction
Use of Dust Screens: barriers around the particularly in areas receptors, to contain du required	Install dust screens or e construction site, close to sensitive ust within the site, when	Project proponent/contractor	During the phase.	construction
Rehabilitation of Distr rehabilitate areas activities have cease native species or sui stabilize the soil and re	urbed Areas: Promptly where construction ed. Re-vegetate with table ground cover to educe dust generation.	Project proponent/consultant	Early in the phase.	construction
Regular Monitoring: Ir program to assess the control measures.	nplement a monitoring e effectiveness of dust	Project proponent/consultant	Early in the phase.	construction
<u>Machinery Maintenance:</u> Ensure construction machinery is well-maintained to minimise excessive noise and vibrations.		Project proponent/consultant	During the phase.	construction
<u>Work Hours:</u> Restrict the noisiest construction activities to daytime hours and avoid work during early mornings, late evenings, or weekends when residents are more likely to be at home.		Project proponent/consultant	During the phase.	construction
Performance Indicator	Well maintained and ne the facility.	at facility with intact vege	etation on and in	the vicinity of
Monitoring	Monitoring of the entire	site on an ongoing basis	s (by operator).	

Table 8: Management Programme during the Operational Phase

Project Component/s	Operational activities
Potential Impact	Altered Landscape and Sense of Place during Operation
Activity/Risk Source	The operational phase of the Pieterkoen Residential Development will introduce a new visual element to the landscape. The presence of this mixed-

Sharples Environmental Services CC ETC0598



	use infrastructure can alter the visual harmony and the intrinsic sense of place that residents and visitors associate with the area. The facility will become a permanent feature in the landscape, potentially influencing how the area is perceived and experienced.		
Mitigation: Target/Objective	Optimal construction of infrastructure to minimise the visual impact.		
Mitigation: Action/co	ntrol	Responsibility	Timeframe
<u>Vegetative Screening:</u> Plant indigenous trees and shrubs intermittently along site boundaries, where required		Project proponent/design contractor	Early in the construction phase.
<u>Landscape Integration:</u> Use materials, textures, and colours that reflect the local architectural styles to harmonise with the surrounding environment and maintain a sense of place.		Project proponent/consultant	Early in the construction phase.
Lighting Control: Employ downward-facing, low-glare lighting systems with motion sensors to minimise light pollution and preserve the area's nighttime character.		Project proponent/consultant	During the construction and operational phase.
<u>Seasonal Landscaping Maintenance:</u> Implement an ongoing maintenance program to ensure that the landscaped areas remain in good condition, reflecting seasonal changes and preventing visual degradation.		Project proponent/design consultant	During the operational phase.
Performance Indicator	Well-maintained and neat facility with intact vegetation on and in the vicinity of the facility.		
Monitoring	Monitoring of the entire site on an ongoing basis (by operator).		

Project Component/s	Operational activities
Potential Impact	Visibility of the Facility to Residents during Operation
Activity/Risk Source	During the operational phase, the Pieterkoen Residential Development will become a prominent feature in the landscape. Residents of nearby areas will have varying degrees of visibility of the development. This increased visibility can influence residents' daily visual experience, potentially altering their sense of place and connection to the landscape.

Sharples Environmental Services CC ETC0598



Mitigation: Target/Objective	Optimal construction of infrastructure to minimise the visual impact.		
Mitigation: Action/co	ntrol	Responsibility	Timeframe
<u>Vegetative Buffers:</u> Plant indigenous vegetation along site boundaries adjacent to residential areas to reduce direct visibility of infrastructure and enhance visual screening.		Project proponent/design contractor	Early in the construction phase.
<u>Architectural Integration:</u> Utilise materials and colours that complement the local landscape, minimising visual contrast and promoting architectural harmony.		Project proponent/consultant	Early in the construction phase.
Lighting Control: Employ downward-facing, low-glare lighting systems with motion sensors to minimise light pollution and preserve the area's nighttime character.		Project proponent/design consultant	During the operational phase.
Performance Indicator	Well maintained and neat facility with intact vegetation on and in the vicinity of the facility.		
Monitoring	Monitoring of the entire site on an ongoing basis (by operator).		

Project Component/s	Operational activities		
Potential Impact	Potential Visual Impact of Operational, Safety, and Security Lighting during Operation		
Activity/Risk Source	Operational lighting is essential for the Pieterkoen Residential Development to ensure safe and efficient operations, especially during nighttime hours. However, this lighting can introduce a new source of light in the area, potentially causing light pollution.		
Mitigation: Target/Objective	Optimal lighting installation and operation to minimise the visual impact.		
Mitigation: Action/control		Responsibility	Timeframe
<u>Downward-facing Lights:</u> Use fixtures that direct light downwards to minimise upward light spill, preserving the night sky.		Project proponent/design consultant	Early in the construction phase.
<u>Motion Sensors:</u> Install motion sensors so that lights are only activated when necessary, reducing the duration of light emissions.		Project proponent/design consultant	Early and during in the construction phase.

ETC0598



<u>Low-intensity Lighting:</u> Opt for low-intensity lighting that provides sufficient illumination for safety without being overly bright.		Project proponent/design consultant	During phase.	the	construction
Shielding: Use shield illumination to the inter light spill into unintend	ds on lights to direct nded areas and prevent ed areas	Project proponent/design consultant	During phase.	the	construction
Educate Staff: Ensure that staff are aware of the importance of minimizing light pollution and are trained to use lighting efficiently.		Project proponent/consultant	During phase.	the	construction
Periodic Reviews: Conduct periodic reviews of lighting practices to identify and rectify any unnecessary light emissions.		Project proponent/consultant	During phase.	the	construction
Performance Indicator	Light spill from the development is kept low				
Monitoring	Monitoring of the entire site on an ongoing basis (by operator).				



9 Environmental Impact Statement and Conclusion

The proposed Pieterkoen Residential Development in George, Western Cape Province, has been assessed for its potential visual impacts. The study area is characterized by a peri-urban landscape where natural vegetation and existing infrastructure contribute to a moderate VAC. This suggests that the proposed development can be integrated into the surrounding visual environment with the application of appropriate design and mitigation measures.

The VIA identified several key considerations. The site is situated in an area of moderate visual sensitivity, influenced by its location within a mixed-use landscape that includes residential areasas well as its proximity to scenic corridors such as the Seven Passes Road. During construction, temporary visual impacts such as dust, machinery movement, and earthworks are anticipated. These impacts are considered manageable through the implementation of standard mitigation measures. In the operational phase, the development will introduce permanent changes to the visual landscape, including residential structures and associated infrastructure.

The implementation of mitigation strategies such as retaining and enhancing existing vegetation, strategic landscaping, maintaining buffer zones near sensitive receptors, and incorporating careful architectural design are expected to reduce visual impacts to an acceptable level. Cumulative visual impacts from the development are anticipated to be minimal and align with broader spatial development patterns in the area.

The findings of the VIA indicate that the development does not present significant visual impacts, provided the recommended mitigation measures are effectively implemented. By integrating these measures into the EMPr, the development can proceed while maintaining the visual integrity of the region. The project is therefore considered suitable for environmental authorization, subject to ongoing monitoring and adaptive management to address potential unforeseen visual impacts.



10 References

- Australian Government Department of Infrastructure, Transport, Regional Development and Communications. (n.d.). Environmental Assessments.
- Civil Aviation Authority, UK. (n.d.). Visual Impact.
- Department of Agriculture, Land Reform and Rural Development (n.d.). Department of Agriculture, Land Reform and Rural Development.
- Department of Environmental Affairs (DEA), South Africa. (2010). Environmental Impact Assessment Regulations.
- Department of Environmental Affairs (2017). Environmental Impact Assessment Regulations, 2017.
- Department of Environmental Affairs (2017). Environmental Impact Assessment Regulations Listing Notice 1, 2017.
- Department of Environmental Affairs (2017). Environmental Impact Assessment Regulations Listing Notice 2, 2017.
- Department of Environmental Affairs (2017). Environmental Impact Assessment Regulations Listing Notice 3, 2017.
- Department of Environmental Affairs (DEA), South Africa. (2017). Environmental Impact Assessment Guideline for Renewable Energy Projects.
- Department of Environmental Affairs and Development Planning. (2005). Guidelines for Involving Visual & Aesthetic Specialists in EIA Processes: Edition 1. Western Cape Government.
- Federal Highway Administration. (n.d.). Visual Impact Assessment for Highway Projects.
- International Finance Corporation (IFC). (2012). Guidance Notes to Performance Standards on Environmental and Social Sustainability.
- Landscape Institute and Institute of Environmental Management and Assessment. (2013). Guidelines for Landscape and Visual Impact Assessment. 3rd Edition.
- *Ministry for the Environment, New Zealand. (n.d.). Quality Planning Landscape.*
- Scottish Government. (n.d.). Landscape and Visual Impact Assessment.
- South African Civil Aviation Authority (n.d.). South African Civil Aviation Authority.
- South African Council for the Landscape Architectural Profession (SACLAP). (n.d.). Guidelines and Policies.
- South African Heritage Resources Agency (n.d.). South African Heritage Resources Agency.



South African National Biodiversity Institute (n.d.). Vegetation Map of South Africa.

South African National Parks (n.d.). GIS Data.

South African National Parks (n.d.). South African National Parks.

South African National Parks (SANParks). (n.d.). GIS Data.

U.S. Environmental Protection Agency. (n.d.). National Environmental Policy Act (NEPA) Review Process.

UK Government. (n.d.). Environmental Impact Assessment.



Appendix A: Specialist CV



BROGAN GELDENHUYS

Email:

brogan@eco-thunder.co.za

Contact No.:

064 655 2752

SHORT BIOGRAPHY

The Director of a Specialist Environmental Consulting Firm that mainly operates within the energy generation space providing technical input for projects in the environmental management field, specialising in Visual and Social Impact Assessment, Strategic Evaluation, Environmental Management Plans, Programs, and Guidelines.

My background is in Operations Optimisation, Spatial Planning, Impact Assessments, and Project Management with key focus on Integration of Environmental Studies and Environmental Processes into larger Engineering-Based Projects, Strategic Assessment, and the Identification of Environmental Management Solutions and Mitigation/Risk-Minimising Measures in conjunction with Specialists and Environmental Consultants.

I strive to deliver high-quality Visual and Social Environmental Solutions that meet regulatory requirements and exceed client expectation.

EDUCATION

Degree	Institution	Year
Bachelor of Industrial Engineering	University of Pretoria	2016

EMPLOYMENT

Company Name	Eco Thunder Consulting (Pty) Ltd
Position Held	Director
Period (From – To)	2020 - Current

Eco Thunder Consulting (Pty) Ltd 11 Ruby Cl, Witkoppen, Sandton, 2068 Phone: +27 64 655 2752 Website: <u>www.eco-thunder.co.za</u>



Responsibilities

- Leadership and Management: Providing strategic direction and overseeing business operations.
- **Visual Impact Assessments:** Assessing potential visual effects of developments on the environment and communities.
- **Project Management:** Ensuring adherence to timelines, budgets, and quality standards.
- **Technical Expertise in GIS and Remote Sensing:** Utilising advanced spatial analysis for accurate visual impact assessments.
- **Stakeholder Engagement:** Cultivating strong client relationships and ensuring transparency in VIA and SIA processes.
- **Collaboration and Interdisciplinary Approach:** Working with teams to develop comprehensive environmental solutions.

Company Name	Freelancing Environmental Consultant
Position Held	Visual Consultant
Period (From – To)	2018 - 2020
Responsibilities	

- Field Surveys: Gathering visual data and assessing existing conditions at project sites.
- VIA and SIA Report Preparation: Analysing data and preparing reports evaluating visual and social effects of proposed projects.
- **Stakeholder Engagement:** Engaging with stakeholders to address concerns and ensure transparency in VIA and SIA processes.
- Visual Simulation and Modelling: Using advanced software for accurate visual impact depiction.
- **Mitigation Strategies:** Developing measures to minimize negative visual impacts and enhance project visual quality.
- **Compliance with Environmental Regulations:** Ensuring adherence to environmental regulations and best practices.

Company Name	Industrial Logistic Systems
Position Held	Supply Chain Consultant
Period (From – To)	2017 - 2020

Responsibilities

- **Facilities Design:** Executed design activities for fast-moving consumer goods and operational designs.
- **Project Management:** Managed installations and procurements at various warehouses.
- Vendor Proposals Analysis: Analysed vendor proposals and selected operational equipment for facilities.



SKILLSET

- **IT Proficiency:** Microsoft Office, Revit, AutoCAD, AI Software, ArcGIS, QGIS, Google Earth Pro.
- **Professional Skills:** VIA and SIA, Project Management, Stakeholder Engagement, Technical Expertise, Report Writing, Data Analytics.

AFFILIATIONS / REGISTRATIONS

- Institute for Landscape Architecture in South Africa ILASA
- International Association of Impact Assessment South Africa IAIAsa
- The Geo-Information Society of South Africa GISSA
- International Association for Public Participation IAP2

LANGUAGES

Language	Level
English	Fluent
Afrikaans	Proficient

INDUSTRY EXPERIENCE

As an accomplished Visual and Social Impact Assessment Specialist with extensive experience in the environmental sector, I possess a profound comprehension of the interplay between visual aesthetics, social dynamics, and environmental consequences. Demonstrating a consistent ability to navigate the complexities of diverse projects, I offer a distinctive skill set that integrates technical proficiency with a nuanced understanding of the broader environmental landscape.

My expertise encompasses a spectrum of projects (Table 1), refining my capacity to evaluate and articulate the visual and social implications of proposed environmental changes. In collaboration with multidisciplinary teams, stakeholders, and communities, I ensure that developments not only adhere to regulatory standards but also align with sustainable practices and social considerations.

My industry experience is complemented by a proficiency in translating intricate environmental data into visually compelling presentations. Leveraging advanced graphic design tools and mapping software, coupled with comprehensive knowledge of environmental regulations, I produce visually striking and informative materials that foster environmental awareness and facilitate informed decision-making.



Beyond project boundaries, my commitment to social impact drives me to integrate sustainable practices, promote community engagement, and address social equity concerns within environmental assessments. This holistic approach effectively garners support from diverse stakeholders, fostering positive relationships between development initiatives and impacted communities.

In addition to practical experience, I stay abreast of emerging trends in environmental science, impact assessment methodologies, and sustainable development practices. This commitment to continuous learning ensures that my expertise remains aligned with industry standards, enabling the provision of innovative solutions that balance environmental, visual, and social considerations.

Dedicated to shaping a future where development harmonizes with the environment, I strive to enrich both the visual landscape and the social fabric of our communities as a Visual and Social Impact Assessment Specialist.

PROJECT EXPERIENCE

Table 1 below outlines significant recent project achievements.

Project Name	Client Name	Project Lead
Harmony VIA &SIA	Savannah Environmental (Pty) Ltd	Brogan Geldenhuys
Harmony Kalgold VIA & SIA	Savannah Environmental (Pty) Ltd	Brogan Geldenhuys
Highveld SIA & VIA	Savannah Environmental (Pty) Ltd	Brogan Geldenhuys
Harmony Chemwes VIA & SIA	Savannah Environmental (Pty) Ltd	Brogan Geldenhuys
Kleinzee SIA Update	Savannah Environmental (Pty) Ltd	Brogan Geldenhuys
Tugela Truck Inn WULA	Chris le Roux	Brogan Geldenhuys
Alexandra Fire Station VIA	Zitholele Consulting (Pty) Ltd	Brogan Geldenhuys
Rivierplaats Energy Park SIA & VIA	Savannah Environmental (Pty) Ltd	Brogan Geldenhuys
ABO Wind Serval VIA x 7	Afzelia Environmental Consultants (Pty) Ltd	Brogan Geldenhuys
Umfolozi-Mbewu (Theta) VIA Update	Afzelia Environmental Consultants (Pty) Ltd	Brogan Geldenhuys
WKN Phadima SIA & VIA (Incl. Gridline)	Savannah Environmental (Pty) Ltd	Brogan Geldenhuys
Umzinto North Telecommunications VIA	EnviroAfrica CC	Brogan Geldenhuys
KTE PV3 VIA	Savannah Environmental (Pty) Ltd	Brogan Geldenhuys

Table 1: Project Experience



Project Name	Client Name	Project Lead
Upington SEIA	EnviroAfrica CC	Brogan Geldenhuys
Data Sourcing & Validation	Topolytics Ltd	Brogan Geldenhuys
Kwena & Bateleur Scoping & EIA x 4	ABO Wind renewable energies (Pty) Ltd	Brogan Geldenhuys
Elandspoort Township Development SIA	Tshikova Environment (Pty) Ltd	Brogan Geldenhuys
Burotho-Silimela SIA	NTC Group (Pty) Ltd	Brogan Geldenhuys
Afzelia Viking Solar PV SEIA	Afzelia Environmental Consultants (Pty) Ltd	Brogan Geldenhuys
Sagittarius Solar PV Facility SIA & VIA	Savannah Environmental (Pty) Ltd	Brogan Geldenhuys
Witpoortjie & Watt Solar PVs SIA & VIA	Savannah Environmental (Pty) Ltd	Brogan Geldenhuys
ZCC N9N10 Beskuitfontein VIA & SEIA	EnviroAfrica CC	Brogan Geldenhuys
ZCC N1 Prins Albert SEIA & VIA	EnviroAfrica CC	Brogan Geldenhuys
ZCC C-N002-07 PE Matie Gouws SEIA & VIA	EnviroAfrica CC	Brogan Geldenhuys
ZCC C-R027-01 BRANDVLEI VIA & SEIA	EnviroAfrica CC	Brogan Geldenhuys
ZCC N14 Akkerboom VCS & SEIA	EnviroAfrica CC	Brogan Geldenhuys
T-N007-03 Piketberg VIA & SEIA	EnviroAfrica CC	Brogan Geldenhuys
Biesiesvlei WEF Clusters Project SEIA & VIA	Royal HaskoningDHV (Pty) Ltd	Brogan Geldenhuys
Alkantstrand VIA	Ilifa Africa Engineers (Pty) Ltd	Brogan Geldenhuys
Country Place Residential Development VIA	Afzelia Environmental Consultants (Pty) Ltd	Brogan Geldenhuys
Kalkheuwel VIA Compliance Statement	Nali Sustainability Solutions (Pty) Ltd	Brogan Geldenhuys
Rondebosch 1 & 2 SP SEIA	Exigent Engineering Consultants cc	Brogan Geldenhuys
DRC Minigrid Solar Project SEIA Peer Review	Afzelia Environmental Consultants (Pty) Ltd	Brogan Geldenhuys
Social Impact Assessment Peer Review	Dzimuzwo Consulting Pty Ltd	Brogan Geldenhuys
Malmesbury Klipkoppie Solar VIA	EnviroAfrica CC	Brogan Geldenhuys
Tutuka Ash Higher VIA	NTC Group (Pty) Ltd	Brogan Geldenhuys
Umngeni-Uthukela Water South Coast Pipeline SEIA	Afzelia Environmental Consultants (Pty) Ltd	Brogan Geldenhuys



Project Name	Client Name	Project Lead
New University Satellite Campus KZN Desktop SEIA & VIA	Afzelia Environmental Consultants (Pty) Ltd	Brogan Geldenhuys
KTE Orange River Pipeline Project SEIA & VCS x 3	EnviroAfrica CC	Brogan Geldenhuys
Pongola Mall Desktop SEIA	Afzelia Environmental Consultants (Pty) Ltd	Brogan Geldenhuys
Burotho-Silimela VCS	NTC Group	Brogan Geldenhuys
Ikamva AQIA Phase 1 & 2 (incl. Additional Scope)	Ikamva Green Holdings (Pty) Ltd	Brogan Geldenhuys
Lusthof Farms SEIA & VIA x 3	Exigent Engineering Consultants cc	Brogan Geldenhuys
Eskom Borutho - Silimela VIA	NTC Group (Pty) Ltd	Brogan Geldenhuys
Watt & Witpoortjie SEIA & VIA Gridline Connection	Savannah Environmental	Brogan Geldenhuys
Ghanja Stock Pile & Quarry Mining Rights SEIA	B&E International (Pty) Ltd c/o Greenmined Environmental	Brogan Geldenhuys
Hennenman Solar Project SEIA & VIA	Exigent Engineering Consultants cc	Brogan Geldenhuys
Soufflet Maltery SEIA	Royal HaskoningDHV (Pty) Ltd	Brogan Geldenhuys
Carnarvon SKA VCS & SECS	EnviroAfrica	Brogan Geldenhuys
Laksman Grid Connection Corridor VIA	Exigent	Brogan Geldenhuys
Ludeke SEIA Update	Afzelia	Brogan Geldenhuys
Rampawer Solar Project SEIA	Afzelia	Brogan Geldenhuys
Doornrug Solar PV SEIA & VIA	Exigent	Brogan Geldenhuys
Rastaban Solar PV SEIA & VIA	Exigent	Brogan Geldenhuys
Telecommunications Mast – Hartland Development VIA	Sharples Environmental Services	Brogan Geldenhuys

CLIENT REFERRALS

Enclosed herewith are three Client Referral Forms, pertaining to projects completed in the past year for the following clients:

- AfriTouch Dynamics Energy;
- EnviroAfrica CC; and
- Afzelia Environmental Consultants (Pty) Ltd.



These forms underscore my established proficiency in leadership, project management, and the successful delivery of high-quality environmental solutions.



Appendix B: VIA Best Practice Guideline





PROVINCIAL GOVERNMENT OF THE WESTERN CAPE: DEPARTMENT OF ENVIRONMENTAL AFFAIRS AND DEVELOPMENT PLANNING

GUIDELINE FOR INVOLVING VISUAL AND AESTHETIC SPECIALISTS IN EIA PROCESSES

DRAFT FOR COMMENT, 15 APRIL 2005

EDITION 1

Prepared by: Bernard Oberholzer PO Box 26643 Hout Bay 7872 South Africa Co-ordinated by:

CSIR Environmentek PO Box 320 Stellenbosch 7599 South Africa

CSIR REPORT NO. ENV-S-C 2005-053 F





GUIDELINE FOR INVOLVING VISUAL AND AESTHETIC IN EIA PROCESSES

Edition 1

Issued by:

Provincial Government of the Western Cape Department of Environmental Affairs and Development Planning Utilitas Building, 1 Dorp Street Private Bag X9086 Cape Town 8000 South Africa

Prepared by:

Bernard Oberholzer Landscape Architect PO Box 26643 Hout Bay 7872 South Africa email: bola@wol.co.za

Co-ordinated by:

CSIR Environmentek P O Box 320 Stellenbosch 7599 South Africa

Contact person:

Frauke Münster Tel: +27 21 888-2538 (fmunster@csir.co.za)

COPYRIGHT © Republic of South Africa, Provincial Government of the Western Cape, Department of Environmental Affairs and Development Planning 2005. ALL RIGHTS RESERVED.

This document is copyright under the Berne Convention. Apart from the purpose of private study, research or teaching, in terms of the Copyright Act (Act No. 98 of 1978) no part of this document may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying, recording or by any information storage and retrieval system, without permission in writing from the Department of Environmental Affairs and Development Planning. Likewise, it may not be lent, resold, hired out or otherwise disposed of by way of trade in any form of binding or cover other than that in which it is published.

This guideline should be cited as:

Oberholzer, B. 2005. Guideline for involving visual & aesthetic specialists in EIA processes: Edition 1. CSIR Report No ENV-S-C 2005 053 F. Republic of South Africa, Provincial Government of the Western Cape, Department of Environmental Affairs & Development Planning, Cape Town.

ACKNOWLEDGEMENTS

Steering committee:

Paul Hardcastle	-	DEA&DP
Ayub Mohammed	-	DEA&DP
Susie Brownlie	-	de Villiers Brownlie Associates
Keith Wiseman	-	City of Cape Town
Mike Burns	-	CSIR Environmentek
Paul Lochner	-	CSIR Environmentek
Pete Ashton	-	CSIR Environmentek

Focus group participants:

-	DEA&DP
-	DEA&DP
-	DEAT
-	City of Cape Town
-	Landscape Consultant
-	Landscape Consultant
-	Landscape Consultant
-	Heritage Consultant
-	Heritage Consultant
-	Landscape Consultant
-	CSIR Environmentek

Internal review:

Mike Burns	-	CSIR Environmentek
Eileen Weinronk	-	City of Cape Town
Paul Hardcastle	-	DEA&DP
Washiela Anthony	-	DEA&DP

Stakeholders engaged in the guideline development process:

These guidelines were developed through a consultative process and have benefited from the inputs and comments provided by a wide range of individuals and organizations actively working to improve EIA practice. Thanks are due to all who took the time to engage in the guideline development process.

In particular, thanks are due to Jan Glazewski of UCT, Keith Wiseman of The City of Cape Town and Paul Britton of SANPARKS, for providing useful information.

Finalisation of report figures and formatting:

Magdel van der Merwe and Elna Logie, DTP Solutions

PREFACE

For Environmental Impact Assessment (EIA) processes to retain their role and usefulness in supporting decision-making, the involvement of specialists in EIA needs to be improved in order to:

- Add value to project planning and design;
- Accurately predict and assess potential project benefits and negative impacts;
- Provide practical recommendations for avoiding or adequately managing negative impacts and enhancing benefits;
- Supply adequate and appropriate information that addresses key issues and concerns to effectively inform decision-making in support of sustainable development.

The purpose of this series of guidelines is to improve the efficiency, effectiveness and quality of specialist involvement in EIA processes. They aim to improve the capacity of roleplayers to anticipate, request, plan, review and discuss specialist involvement in EIA processes. Specifically, they aim to improve the capacity of EIA practitioners to draft appropriate terms of reference for specialist input and assist all roleplayers in evaluating whether or not specialist input to the EIA process was appropriate for the type of development and environmental context.

The guidelines draw on best practice in EIA in general, and within specialist fields of expertise in particular, to address the following issues related to the timing, scope and quality of specialist input. Although the guidelines have been developed with specific reference to the Western Cape province of South Africa, their core elements are more widely applicable.

	ISSUES
TIMING	 When should specialists be involved in the EIA process; i.e. at what stage in the EIA process should specialists be involved (if at all) and what triggers the need for their input?
SCOPE	 Which aspects must be addressed through specialist involvement; i.e. what is the purpose and scope of specialist involvement? What are appropriate approaches that specialists can employ? What qualifications, skills and experience are required?
QUALITY	 What triggers the review of specialist studies by different roleplayers? What are the review criteria against which specialist inputs can be evaluated to ensure that they meet minimum requirements, are reasonable, objective and professionally sound?

The following guidelines form part of this series:

- Guideline for determining the scope of specialist involvement in EIA processes
- Guideline for the review of specialist input into the EIA process

- Guideline for involving biodiversity specialists in EIA processes
- Guideline for involving hydrogeologists in EIA processes
- Guideline for involving visual and aesthetic specialists in EIA processes
- Guideline for involving heritage specialists in EIA processes
- Guideline for involving economists in EIA processes

The *Guideline for determining the scope of specialist involvement* and the *Guideline for the review of specialist input* provide generic guidance applicable to any specialist input to the EIA process and clarify the roles and responsibilities of the different roleplayers involved in the scoping and review of specialist input. It is recommended that these two guidelines are read first to introduce the generic concepts underpinning the guidelines which are focussed on specific specialist disciplines.

It is widely recognized that no amount of theoretical information on how best to plan and coordinate specialist inputs as an EIA practitioner, or to provide or review specialist input, can replace the value of practical experience of co-ordinating, being responsible for and/or reviewing specialist studies. Only with such experience can the EIA practitioner and specialist develop sound judgment on such issues as the level of detail needed or expected in specialist input to inform decision-makers adequately. For this reason, the guidelines should not be viewed as prescriptive and inflexible documents; their intention is to provide best practice guidance only.

Who is the target audience for these guidelines?

The guidelines are directed at authorities, EIA practitioners, specialists, proponents, financing institutions and other interested and affected parties involved in EIA processes.

What type of environmental assessment processes and developments are these guidelines applicable to?

The guidelines have been developed to support project-level EIA processes regardless of whether this is undertaken during the early project planning phase to inform planning and design decisions (i.e. during pre-application planning/screening) or as part of a legally defined EIA process to obtain statutory approval for a proposed project (i.e. during screening, scoping and/or impact assessment). The guidelines promote early, focussed and appropriate involvement of specialists in EIA processes in order to encourage proactive consideration of potentially significant impacts, so that they may be avoided through due consideration of alternatives and changes to the project.

The guidelines aim to be applicable to a range of types and scales of development, as well as different biophysical, social, economic and governance contexts.

What will these guidelines not do?

In order to retain their relevance in the context of changing legislation, the guidelines promote the principles of EIA best practice without being tied to specific legislated national or provincial EIA requirements. They therefore do not clarify the specific administrative, procedural or reporting requirements and timeframes for applications to obtain statutory approval. They should, therefore, be read in conjunction with the applicable legislation, regulations and procedural guidelines to ensure that mandatory requirements are met.

The guidelines do not intend to create experts out of non-specialists. Although the guidelines outline broad approaches that are available to the specialist discipline (e.g. field survey, desktop review, consultation, modelling), specific methods (e.g. the type of model or sampling technique to be used) cannot be prescribed. The guidelines should therefore not be used indiscriminately without due consideration of the particular context and circumstances within which an EIA is undertaken as this influences both the approach and the methods available and used by specialists.

The specialist guidelines have been structured to make them user-friendly. They are divided into six parts, as follows:

- **Part A**: Background;
- **Part B**: Triggers and key issues;
- Part C: Planning and co-ordination of specialist inputs (drawing up Terms of Reference);
- Part D: Providing specialist input;
- **Part E**: Review of specialist input; and
- Part F: References.

Part A provides grounding in the specialist subject matter for all users. It is expected that authorities and peer reviewers will make most use of Parts B and E; EIA practitioners and project proponents Parts B, C and E; specialists Part C and D; and other stakeholders Parts B, D and E. Part F gives useful sources of information for those who wish to explore the specialist topic.

SUMMARY

This guideline document, which deals with specialist visual input into the EIA process, has been organised into a sequence of interleading sections. These follow a logical order covering the following:

- the background and context for specialist visual input;
- the triggers and issues that determine the need for visual input;
- the type of skills and scope of visual inputs required in the EIA process;
- the methodology, information and steps required for visual input;
- finally, the review or evaluation of the visual assessment process.

In **Part A** principles and concepts, the context, and the role and timing of specialist inputs are outlined to set the stage for the importance of visual assessments.

In **Part B** typical issues that trigger a visual assessment are identified. These may arise from the public participation process, the nature of the receiving environment, or the nature of the project.

In **Part C** the scope and extent of a visual assessment are determined, by establishing the time and spatial parameters of the assessment, appropriate alternatives and scenarios, and the approach or methodology required.

In **Part D** the information required, as well as the assessment and reporting of visual impacts and management actions is discussed. This includes the establishment of visual impact criteria, as well as thresholds of significance. The following are also identified:

- affected parties, who stand to benefit or lose,
- risks and uncertainties related to the project,
- assumptions that have been made, and their justification,
- levels of confidence in making the visual input or assessment,
- management actions that can be employed to mitigate adverse effects, and
- the best practicable environental option arising from the assessment.

In **Part E** the evaluation of a visual assessment by a specialist, where this becomes necessary, is examined, including the evaluation criteria that can be used.

SYNOPSIS

May be included in final guideline.

CONTENTS

ACKNOWLEDGEMENTS	I
PREFACE	
SUMMARY	V
SYNOPSIS	VI
CONTENTS	VII

P/	ART A : BACKGROUND	1
<u>1.</u>	INTRODUCTION	1
<u>2.</u>	PRINCIPLES AND CONCEPTS UNDERPINNING VISUAL INPUT	1
<u>3.</u>	CONTEXTUALISING THE SPECIALIST INPUT	2
3.1 3.2	LEGAL, POLICY AND PLANNING CONTEXT ENVIRONMENTAL CONTEXT	2 2
<u>4.</u>	THE ROLE AND TIMING OF SPECIALIST INPUT	3
P#	ART B: TRIGGERS AND KEY ISSUES	5
<u>5.</u>	TRIGGERS FOR SPECIALIST INPUT	5
<u>6.</u>	KEY ISSUES REQUIRING SPECIALIST INPUT	6
_		

PA IN	PART C: PLANNING AND COORDINATION OF SPECIALIST	
<u>7.</u>	QUALIFICATIONS, SKILLS AND EXPERIENCE REQUIRED	9
<u>8.</u>	DETERMINING THE SCOPE OF SPECIALIST INPUTS	10
8.1	RESPONDING TO ISSUES RAISED IN THE SCOPING PROCESS	10
8.2	ESTABLISHING APPROPRIATE TIME AND SPACE BOUNDARIES	10
8.3	SELECTING APPROPRIATE DEVELOPMENT ALTERNATIVES	11
8.4	ESTABLISHING ENVIRONMENTAL AND OPERATING SCENARIOS	11

8.5 8.6 8.7 8.8	DEALING WITH DIRECT, INDIRECT AND CUMULATIVE EFFECTS SELECTING THE APPROPRIATE APPROACH THE TIMING, SEQUENCE AND INTEGRATION OF SPECIALIST INPUT CONFIDENTIALITY AND CONSULTATION ASPECTS	12 12 14 15
PAR	T D: PROVIDING SPECIALIST INPUT	_15
<u>9. IN</u>	IFORMATION REQUIRED TO PROVIDE SPECIALIST INPUT	15
9.1 9.2 9.3 9.4	RELEVANT PROJECT INFORMATION INFORMATION DESCRIBING THE AFFECTED ENVIRONMENT LEGAL, POLICY AND PLANNING CONTEXT INFORMATION GENERATED BY OTHER SPECIALISTS IN THE EIA PROCESS	15 16 17 17
<u>10. IN</u>	IPUT ON IMPACTS AND MANAGEMENT ACTIONS	18
10.1 10.2 10.3 10.4 10.5 10.6 10.7 10.8 10.9 10.10	PREDICTING POTENTIAL IMPACTS DEFINING IMPACT ASSESSMENT CRITERIA ESTABLISHING THRESHOLDS OF SIGNIFICANCE DESCRIBING THE DISTRIBUTION OF IMPACTS IDENTIFYING KEY RISKS AND UNCERTAINTIES JUSTIFYING UNDERLYING ASSUMPTIONS DEFINING CONFIDENCE LEVELS RECOMMENDING MANAGEMENT ACTIONS IDENTIFYING THE BEST PRACTICABLE ENVIRONMENTAL OPTION COMMUNICATING THE FINDINGS OF THE IMPACT ASSESSMENT	18 18 20 21 22 22 22 22 23 24
<u>11. M</u>	ONITORING PROGRAMMES	24
PAR	T E: REVIEW OF THE SPECIALIST INPUT	_25
<u>12. E'</u>	VALUATION CRITERIA	26
PAR	T F: REFERENCES	26

Appendices

Appendix A: Definitions and Acronyms	
--------------------------------------	--

List of boxes

Box 1: Environmental context for the Western Cape	3
Box 2: Key to Categories of Development	7
Box 3: Key to Categories of Issues	7
Box 4: Qualifications and Skills for Visual Assessments	
Box 5: Definitions and components of direct, indirect and cumulative effects	12
Box 6: Key to Approaches and Methods	13
Box 7: Typical Components of Visual Studies	14
Box 8: What to do in data poor circumstances	17
Box 9: Definition of a potential fatal flaw	18
Box 10: Specific criteria for visual impact assessments	18
Box 11: Criteria used for the assessment of impacts	19
VISUAL AND AESTHETIC GUIDELINE

PART A : BACKGROUND

1. INTRODUCTION

Some of the current problems associated with visual and aesthetic assessments undertaken as part of the EIA process include the following:

- A wide range in the standard of visual impact assessments (VIA) that are carried out;
- A lack of understanding of the landscape processes that are responsible for the particular visual qualities or scenic resources of the area;
- A lack of clarity in the methodology and determination of impact ratings, as well as inconsistency between different assessments;
- A lack of objectivity, or conflict of interests, especially where the assessment is carried out by the same firm that is representing the proponent.
- The risk that the ratings of impacts are tempered by the fact that the proponent is paying for the VIA.

This visual guideline document is therefore an attempt to develop a 'best practice' approach for visual specialists, EIA practitioners and authorities involved in the EIA process.

The term **'visual and aesthetic'** is intended to cover the broad range of visual, scenic, cultural, and spiritual aspects of the landscape. However, for the purpose of brevity, the term **'visual'** is used in the text.

2. PRINCIPLES AND CONCEPTS UNDERPINNING VISUAL INPUT

The following key principles and concepts should be considered during visual input into the EIA process:

- An awareness that 'visual' implies the full range of visual, aesthetic, cultural and spiritual aspects of the environment that contribute to the area's sense of place.
- The consideration of both the natural and the cultural landscape, and their inter-relatedness.
- The identification of all scenic resources, protected areas and sites of special interest, together with their relative importance in the region.
- An understanding of the landscape processes, including geological, vegetation and settlement patterns, which give the landscape its particular character or scenic attributes.

- The need to include both <u>quantitative</u> criteria, such as 'visibility', and <u>qualitative</u> criteria, such as landscape or townscape 'character'.
- The need to include visual input as an integral part of the project planning and design process, so that the findings and recommended mitigation measures can inform the final design, and hopefully the quality of the project.

3. CONTEXTUALISING THE SPECIALIST INPUT

3.1 LEGAL, POLICY AND PLANNING CONTEXT

Current environmental legislation, which would include visual impacts as one component, would be the National Environmental Management Act (NEMA) and the Environmental Conservation Act, which refer to EIAs. Specialists need to be aware that this legislation is reviewed from time to time.

The National Heritage Resources Act provides legislative protection for listed or proclaimed sites, such as urban conservation areas, nature reserves and proclaimed scenic routes.

Visual pollution is controlled, to a limited extent, by the Advertising on Roads and Ribbons Act, which deals mainly with signage on public roads.

Western Cape provincial legislation requires the preparation of a Spatial Development Framework (SDF) and an Integrated Development Plan (IDP) for each sub-region or municipality. These could include reference to visual and scenic resources and the identification of areas of special significance, together with visual guidelines for the area covered by these plans.

Visual and aesthetic resources are also protected by local authorities, such as the City of Cape Town, where policies and by-laws relating to urban edge lines, scenic drives, special areas, signage, communication masts, etc. have been formulated.

Specialists need to refer to the relevant provincial or local authority, to determine whether there are any policies, by-laws or other restrictions relating to visual impact, or the protection of scenic, rural or cultural resources.

Authorities may also require visual impact assessments as a condition of rezoning of a particular site to another use, or for subdivisions and departures.

3.2 ENVIRONMENTAL CONTEXT

Specialist input needs to take into account the specific nature of the biophysical, social and economic environment within which a project is undertaken. Box 1 provides a brief description of the environmental context for the Western Cape.

Box 1: Environmental context for the Western Cape

The Western Cape is richly endowed with scenic resources by virtue of the mountainous landscape, the coastline along two oceans, and the unique flora and fauna.

In addition to this natural heritage, there are centuries of human settlement that have created a tapestry of vineyards, orchards, wheat fields, farmsteads, tree shelter belts and country towns.

The scenic resources of the Western Cape have enormous implications for the economy of the region mainly in the form of tourism, which provides income for the province, and creates jobs for the local population.

Table Mountain, Robben Island and designated areas within the Cape Floral Kingdom have been declared World Heritage Sites, and therefore have international status. There are a number of National Parks in the province, which have national status, along with numerous other protected areas, which have provincial or local authority status.

However, the scenic resources on which the economy of the region depends, is at great risk from rapid urban and infrastructure expansion.

There has therefore been a growing emphasis on visual and scenic assessments for most major projects in the region, in order to maintain the integrity and value of these natural and cultural landscapes as far as possible.

4. THE ROLE AND TIMING OF SPECIALIST INPUT

The role and timing of specialist visual input within the broader EIA process involves a number of aspects that need to be considered, i.e.:

- Whether visual input is required see Sections 5 and 6;
- When visual input is appropriate see Section 8;
- What aspects visual input should cover see Section 8;
- What level of visual input is required see Section 8, Table 2.

Visual assessments should not be seen as an obstacle in the approval process. Visual input, especially at the early concept stage of the project, can play an important role in helping to formulate design alternatives, as well as minimising impacts, and possibly even costs, of the project.

It is important to note that specialist visual input can be given for various purposes and for different levels of involvement. This visual guideline document therefore aims to be applicable to a range of different types and scales of development, and for various stages of the EIA process.

Specialist involvement my take the form of any or all of the following:

- Providing specialist opinion or comment;
- Baseline survey of visual / scenic resources;
- Mapping of landscape or scenic units, and viewsheds;
- Digital terrain modeling and visual simulations;
- Assessments of visual impacts and their relative significance.

Furthermore, specialist involvement may take place at any or all of the following stages of the EIA process:

- Pre-application planning stage, to identify scenic resources, and visually sensitive areas or receptors, which may determine site selection, and layout of the project, and to determine potential fatal flaws, significant negative impacts and possible alternatives.
- Screening stage, to determine if a more detailed visual assessment is required, and the appropriate level of assessment.
- **Scoping stage**, to identify key concerns or issues relating to potential visual impacts arising from the project, and to determine boundaries and parameters for visual input.
- Impact assessment stage, to determine the character and visual absorption capacity of the landscape, the visibility of the proposed project, the potential visual impact on visual / scenic resources, and the nature, extent, duration, magnitude, probability and significance of impacts, as well as measures to mitigate negative impacts.

Adequate time and resources should be allocated for visual input by the specialist, including time for site visits, photographic surveys, coordination with other specialists and acquiring all necessary information.

PART B: TRIGGERS AND KEY ISSUES

5. TRIGGERS FOR SPECIALIST INPUT

The need for visual input is often determined by issues relating to visual impact that may be raised by local residents or organisations, by the local authority, or on the recommendation of the EIA Practitioner of a project, or the visual specialist.

The following are indicators that could suggest the need for visual input based on the nature of the receiving environment and the nature of the project.

The nature of the receiving environment:

- Areas with protection status, such as national parks or nature reserves;
- Areas with proclaimed heritage sites or scenic routes;
- Areas with intact wilderness qualities, or pristine ecosystems;
- Areas with intact or outstanding rural or townscape qualities;
- Areas with a recognized special character or sense of place;
- Areas lying outside a defined urban edge line;
- Areas with sites of cultural or religious significance;
- Areas of important tourism or recreation value;
- Areas with important vistas or scenic corridors;
- Areas with visually prominent ridgelines or skylines.

The nature of the project:

- High intensity type projects including large-scale infrastructure;
- A change in land use from the prevailing use;
- A use that is in conflict with an adopted plan or vision for the area;
- A significant change to the fabric and character of the area;
- A significant change to the townscape or streetscape;
- Possible visual intrusion in the landscape;
- Obstruction of views of others in the area.

6. KEY ISSUES REQUIRING SPECIALIST INPUT

In order to focus the EIA process, issues are identified in the scoping phase of the EIA. Issues are concerns related to the proposed development, such as the impact of an activity on the visual or scenic environment.

As indicated in Section 5 key issues that tend to determine the need for a VIA relate to the type of environment, as well as type and scale of development.

Table 1 shows a possible range of environments, from the most visually sensitive to the least sensitive on the one axis, and a range of development types from the least intensive to the most intensive on the other axis, (see Box 2).

The correlation of environment types with development types leads to varying levels of expected visual impact, on a scale from none to very high, (see Box 3).

Note: Table 1 and the explanatory boxes should not be regarded as a comprehensive list of landscape/land use types and development categories, and do not replace the need for a comprehensive, systematic scoping process to identify the range of issues arising from a particular development.

	Type of development (see Box 2) Low to high intensity				ensity
Type of environment	Category 1	Category 2	Category 3	Category 4	Category 5
	development	development	development	development	development
Protected/wild areas of international, national, or regional significance	Moderate visual impact expected	High visual impact expected	High visual impact expected	Very high visual impact expected	Very high visual impact expected
Areas or routes of high scenic, cultural, historical significance	Minimal visual impact expected	Moderate visual impact expected	High visual impact expected	High visual impact expected	Very high visual impact expected
Areas or routes of medium scenic, cultural or historical significance	Little or no visual impact expected	Minimal visual impact expected	Moderate visual impact expected	High visual impact expected	High visual impact expected
Areas or routes of low scenic, cultural, historical significance / disturbed	Little or no visual impact expected. Possible benefits	Little or no visual impact expected	Minimal visual impact expected	Moderate visual impact expected	High visual impact expected
Disturbed or degraded sites / run-down urban areas / wasteland	Little or no visual impact expected. Possible benefits	Little or no visual impact expected. Possible benefits	Little or no visual impact expected	Minimal visual impact expected	Moderate visual impact expected

Table1: Categorisation	of issues to b	be addressed	bv the	visual	assessment
1 abreit: Caregorisation	<i>j i</i> ss <i>ii</i> cs <i>i</i> o <i>o</i>		oy nic	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	

Box 2: Key to Categories of Development

Category 1 development:

e.g. nature reserves, nature-related recreation, camping, picnicking, trails and minimal visitor facilities. **Category 2 development:**

e.g. low-key recreation / resort / residential type development, small-scale agriculture / nurseries, narrow roads and small-scale infrastructure.

Category 3 development:

e.g. low density resort / residential type development, golf or polo estates, low to medium-scale infrastructure.

Category 4 development:

e.g. medium density residential development, sports facilities, small-scale commercial facilities / office parks, one-stop petrol stations, light industry, medium-scale infrastructure.

Category 5 development:

e.g. high density township / residential development, retail and office complexes, industrial facilities, refineries, treatment plants, power stations, wind energy farms, power lines, freeways, toll roads, large-scale infrastructure generally. Large-scale development of agricultural land and commercial tree plantations. Quarrying and mining activities with related processing plants.

Explanation of terms used:

Low-key development – generally small-scale, single-storey domestic structures, usually with more than 75% of the area retained as natural (undisturbed) open space.

Low density development - generally single or double-storey domestic structures, usually with more than 50% of the area retained as natural (undisturbed) open space.

Medium density development - generally 1 to 3-storey structures, including cluster development, usually with more than 25% of the area retained as green open space.

High density development - generally multi-storey structures, usually with less than 25% of the area retained as green open space.

Box 3: Key to Categories of Issues
Very high visual impact expected: Potentially significant effect on wilderness quality or scenic resources; Fundamental change in the visual character of the area;
Establishes a major precedent for development in the area.
High visual impact expected: Potential intrusion on protected landscapes or scenic resources;
Noticeable change in visual character of the area; Establishes a new precedent for development in the area.
Moderate visual impact expected: Potentially some affect on protected landscapes or scenic resources;
Some change in the visual character of the area; Introduces new development or adds to existing development in the area.
Minimal visual impact expected: Potentially low level of intrusion on landscapes or scenic resources; Limited change in the visual character of the area;
Low-key development, similar in nature to existing development.

Little or no visual impact expected: Potentially little influence on scenic resources or visual character of the area; Generally compatible with existing development in the area; Possible scope for enhancement of the area.

Explanation of terms used:

Fundamental change - dominates the view frame and experience of the receptor;

Noticeable change - clearly visible within the view frame and experience of the receptor;

Some change – recognisable feature within the view frame and experience of the receptor;

Limited change – not particularly noticeable within the view frame and experience of the receptor;

Generally compatible – Practically not visible, or blends in with the surroundings.

PART C: PLANNING AND COORDINATION OF SPECIALIST INPUTS

7. QUALIFICATIONS, SKILLS AND EXPERIENCE REQUIRED

The qualifications, skills and experience required to provide specialist visual input relate to the nature and extent of both the receiving environment and the proposed project. They could also relate to the various levels of assessment outlined in Box 4.

Three broad types of visual assessment studies are suggested in Box 6 in order to determine relevant qualifications and skills required. These should apply particularly where Levels 3 and 4 visual input are involved.

Box 4: Qualifications and Skills for Visual Assessments
Type A Assessments:
Visual assessments, which are relatively large in extent, and involve natural landscapes.
Qualifications
Either landscape architecture or environmental planning
 Preferably affiliated to the South African Council for the Landscape Architecture Profession.
(SACLAP).
 Alternatively, recognised expertise and experience in the field.
Skills:
• Training in the natural sciences and landscape processes, the ability to map landscape features and
viewsheds, and an understanding of the implications of these for development.
Experience in visual assessment techniques.
Type B Assessments:
Visual assessments which are more local in extent and involve the built environment.
Qualifications:
 Entremandscape architecture, urban design of nentage studies.
 Preferably affiliated to SACLAP, or the Association of Heritage Assessment Practitioners (AHAP).
 Alternatively, recognised expertise and experience in the field.
Skills:
• Training in natural and urban processes, and the design of the built environment, in relation to
cityscapes, townscapes and streetscapes.
Experience in visual assessment techniques.
Type C Assessments:
Visual assessments which are more site specific and architectural in nature, involving buildings and
groups of buildings. (Refer to Guideline involving Heritage Specialists for cultural and archaeological
sites).

Qualifications:

- Either landscape architecture, urban design, architecture or heritage studies.
- Preferably affiliated to SACLAP, AHAP.
- Alternatively, recognised expertise and experience in the field.
- Skills:
- Training in urban and building design, particularly in relation to historical architecture.
- Experience in visual assessment techniques.

The visual specialist should ideally have good knowledge relating to visual assessment techniques and to relevant legislation, policies and guidelines. Knowledge of the area, or experience with similar environments would be an additional benefit.

A visual assessment should be carried out by an independent specialist, who is not involved in the project, or with any firm that is employed on the project, i.e. the person should not benefit from the outcome of the project decision-making.

8. DETERMINING THE SCOPE OF SPECIALIST INPUTS

Once the need for specialist visual input has been determined through the identification of key issues, the extent and scope of the input needs to be clarified through discussion with the EIA practitioner, the specialist, the proponent and the decision-making authority. (Refer to *Guideline for Determining the Scope of Specialist Involvement in the EIA Process*).

The terms of reference, and scope of the assessment should be clearly stated in writing, and agreed to by both the specialist and the EIA practitioner. The terms of reference must not be framed in order to limit an effective and true assessment.

Participants in the EIA process should have an understanding of visual assessment terminology. Common terms have therefore been defined in Appendix A.

8.1 RESPONDING TO ISSUES RAISED IN THE SCOPING PROCESS

The Scoping Report should be used as a source of information by visual specialists to ensure that their assessment addresses the issues raised during the scoping process.

It should be borne in mind that other issues may emerge in the course of a visual study, especially where a visual specialist has not been involved in the scoping stage. Consultation with stakeholders, and other specialists involved with the EIA process, could reveal additional issues.

8.2 ESTABLISHING APPROPRIATE TIME AND SPACE BOUNDARIES

The time scale for the visual study would relate to the project concept stage, scoping stage, and if required, the visual impact assessment stage, as well as to any monitoring programmes that

follow. The timing of the visual assessment is therefore dependent on the overall EIA process, on essential information being made available, and on the implementation of the project.

The space boundary for specialist visual input depends on the extent of the view catchment area, or what is known as the 'zone of visual influence' of the project. This will in most cases determine the boundary of the study area. Assessments of linear type projects, such as roads or powerlines, would obviously have boundaries that include the entire visual corridor.

8.3 SELECTING APPROPRIATE DEVELOPMENT ALTERNATIVES

Development proposals considered in the EIA process may include a range of possible alternatives in any or all of the following categories:

- *location* and/or *routing* alternatives,
- *layout* alternatives,
- *built form* alternatives,
- process and/or design alternatives,
- scheduling alternatives,
- *input* alternatives.

The selection of alternatives should be aimed at addressing significant issues that have have been identified, and not merely provide a range of options that could have similar problems.

Prior to, or during, the scoping phase, the visual specialist should ideally be involved in assisting the project proponent and EIA practitioner identify the range of viable alternatives that should be considered by the specialist.

Principles that influence the range of alternatives within a receiving environment include the following:

- the need to maintain the overall integrity (or intactness) of the particular landscape or townscape;
- the need to preserve the special character or 'sense of place' of a particular area;
- the need to minimise visual intrusion or obstruction of views within a particular area;
- the need to recognise the regional or local idiom, including building styles and materials, particularly where these form a strong or coherent theme.

8.4 ESTABLISHING ENVIRONMENTAL AND OPERATING SCENARIOS

There are a number of factors or variables that could result in different scenarios for the visual impact of a project. Scenarios, where predictable, should be identified as part of the assessment. Typical factors include the following:

- Expansion of the project owing to unexpected demand;
- Changes in technology or operating processes over time;

- Changes in the type of materials or finishes used on structures, for economic or other reasons;
- Removal of screening vegetation, including plantations and alien vegetation;
- Changes in the landscape and surrounding uses over time.

8.5 DEALING WITH DIRECT, INDIRECT AND CUMULATIVE EFFECTS

All visual studies should include the assessment of cumulative effects resulting from the proposed project. These could include, but are not necessarily confined to the types of cumulative effects listed in Box 5.



Source: Cooper, 2004.

8.6 SELECTING THE APPROPRIATE APPROACH

From Table 1 it can be seen that visual assessments become more critical where wilderness or protected landscapes are involved, as well as when high density urban development or large-scale infrastructure are being considered.

Approaches and methods for specialist visual input would relate to the issues raised during the scoping process, and the different types of landscape or townscape contexts. Table 2 indicates the 'level' of visual assessment required, together with the recommended approach and method given in Box 6.

Note: Table 2 and the explanatory box provide a summary of approaches and methods commonly used to address different issues and contexts. This should not be regarded as a comprehensive summary, and does not

replace the need for a discussion between the EIA project manager, the visual specialist, the proponent and the authorities to determine the best approach for the specific circumstances.

Table 2: Categorisation of approaches and methods used for visual assessment

	Type of issue (see Box 3)				
Approach and Method	Little or no visual impact expected	Minimal visual impact expected	Moderate visual impact expected	High visual impact expected	Very high visual impact expected
Level of visual assessment recommended	Level 1 visual assessment	Level 2 visual assessment	Level 3 visual assessment	Level 4 visual assessment	

Box 6: Key to Approaches and Methods

Level 1 assessment:

Approach:

Visual screening report by EIA Practitioner / visual specialist.

Method:

Identification of issues raised in scoping phase, and site visit;

Brief comment on visual influence of the project, and assessment of expected impacts / benefits.

Level 2 assessment:

Approach:

Visual scoping report by visual specialist or competent professional.

Method:

Identification of issues raised in scoping phase, and site visit;

Description of the receiving environment and the proposed project;

Establishment of view catchment area and receptors;

Brief indication of potential visual impacts, and possible mitigation measures.

Level 3 assessment:

Approach:

Visual impact assessment report by visual specialist or competent professional/s.

Review by independent, experienced visual specialist (if required).

Method:

Identification of issues raised in scoping phase, and site visit;

Description of the receiving environment and the proposed project;

Establishment of view catchment area, view corridors, viewpoints and receptors;

Indication of potential visual impacts using established criteria;

Inclusion of potential lighting impacts at night;

Description of alternatives, mitigation measures and monitoring programmes.

Level 4 assessment:

Approach:

Visual impact assessment report by independent visual specialist.

Review by independent, experienced visual specialist (if required).

Method:

As per Level 3 assessment, plus complete 3D modeling and simulations, with and without mitigation.

The approach to visual assessment should be based on both quantitative and qualitative aspects. Quantitative aspects often make use of landscape resource classification methods. These may include combinations of landforms (geomorphology), vegetation cover and land use mapping.

The basic components comprising an accepted methodology for visual studies are given in Box 7.

Box 7: Typical Components of Visual Studies

- Identification of landscape types, landscape character and sense of place, generally based on geology, landforms, vegetation cover and land use patterns;
- Identification of viewsheds, and view catchment areas, generally based on topography;
- Identification of important view points and view corridors within the affected environment, including sensitive receptors;
- Indication of distance radii from the proposed project to the various view points and receptors;
- Determination of the visual absorption capacity (VAC) of the landscape, usually based on vegetation cover or urban fabric in the area;
- Determination of the relative visibility, or visual intrusion, of the proposed project.
- Determination of the relative compatibility or conflict of the project with the surroundings;
- A comparison of the existing situation with the probable effect of the proposed project, through visual simulation, generally using photo-montages.

It is common for these studies to make use of computer-based techniques and digital cameras for greater accuracy and ease of constructing realistic visual simulations. GIS and CAD software are often used to create digital terrain models (DTM), which are in turn used to determine view catchments and view shadows.

NB: The actual approach and method used would depend on the level of visual input required in the EIA process, as put forward in Box 6.

8.7 THE TIMING, SEQUENCE AND INTEGRATION OF SPECIALIST INPUT

Effective interaction with other specialists should be facilitated by the EIA practitioner to ensure that an integrated approach is adopted, where the various components of the environment are seen as a whole.

Factors that determine or influence the timing of the specialist visual assessment in relation to the other specialist assessments may include the following:

- the need for adequate information on the receiving environment, such as geology, types of vegetation cover, and features of cultural or historical importance;
- the need for adequate information on the proposed project and related processes or activities, such as sources of dust or other emission plumes.

See Section 9.4 for a more detailed list of information required from other specialists.

8.8 CONFIDENTIALITY AND CONSULTATION ASPECTS

In developing TORs, aspects of confidentiality need to be discussed and agreed upon. These may relate to how commercially confidential information is treated and communicated, as well as information about sensitive resources.

In addition, the potential for specialists to engage with stakeholders needs to be discussed and agreed upon. This includes the types of stakeholders that should typically be consulted, and for what purpose.

However, any consultation with stakeholders must be done in line with the overall stakeholder engagement process, ideally working through the EIA practitioner or stakeholder engagement practitioner.

PART D: PROVIDING SPECIALIST INPUT

9. INFORMATION REQUIRED TO PROVIDE SPECIALIST INPUT

9.1 RELEVANT PROJECT INFORMATION

The following information about the proposed project is generally required for specialist visual input into the EIA process:

Essential information:

- The precise location and elevation of the project, and the boundaries of the project site, or the proposed route in the case of roads, pipelines, powerlines, etc.;
- The siting and orientation of the structures within the project site;
- The footprint, massing and height of the various structures;
- Elevations of the structures, including finishes and colours;
- Length, area and finishes of access roads to the site, internal roads and parking areas;
- Type and height of area lighting, including flood-lighting;
- Type and height of all outdoor signage, including illuminated signage, associated with the project;
- Type and height of all ancillary structures, such as masts, antennas, security fencing, gatehouses, substations, electrical kiosks, reservoirs, overhead power-lines and other

cables (both on and off the site);

- Cut and fill slopes and other major earthworks or excavations associated with the project;
- Traffic within the site, or to and from the site, which may constitute a visual impact;
- Construction phase facilities, such as construction camps, labourers' housing, haul roads, material storage, stockpiles, batch mixing areas, etc. where applicable;
- Nature and extent of future expansion of the project, if applicable;
- Alternative scenarios, layouts or designs for the project that have been proposed.

Other useful information:

- CAD and 3D digital information of the project;
- Coordinates of the various structures for visual simulation.

9.2 INFORMATION DESCRIBING THE AFFECTED ENVIRONMENT

The following information describing the current state of the affected environment, as well as trends in the area, are required for visual input into the EIA process:

Essential information:

- Contextual map indicating the location of the site and the nature of the surroundings (1:50 000 survey maps are usually suitable).
- Topographic information indicating contours, landforms, etc.
- Geology map indicating formations, rock outcrops, etc.
- Aerial photographs indicating landscape patterns, vegetation cover, etc.
- Cadastral maps indicating properties and buildings.
- Land use maps indicating existing activities in the area.
- Information about receptors / viewers in the area.

Other useful information:

- Historical maps and old aerial photographs help to give an indication of changes in the landscape, or trends in the area over time.
- Topographical and cadastral information in digital format is useful for creating a digital terrain model (DTM) and visual simulations, using GIS or CAD software.

General Description:

A holistic description of the affected environment is required, meaning that all aspects of the natural, cultural, historical, sacred and scenic landscape need to be included. Both tangible and intangible components of the environment should be included.

An indication should be given of the particular character, uniqueness, intactness, rarity, and vulnerability of the area. The overall context and representivity of the area within the region should also be discussed.

Certain landscapes may change with the season, such as in the case of deciduous vegetation, and where this has an effect on the visibility of the proposed project, it should be taken into account.

9.3 LEGAL, POLICY AND PLANNING CONTEXT

The following information of a legal, policy or planning nature is needed to measure and predict visual impacts resulting from the project:

Essential information:

- Guide plans, Spatial Development Frameworks (SDF), Integrated Development Plans (IDP) and zoning schemes of provincial or local authorities, which give an indication of planning policy for the area, and whether the proposed project will be compatible with these policies.
- Other aspects, such as major roads, national parks, biosphere reserves, nature reserves, scenic routes and cultural heritage sites, which may exist or be planned for the area.
- Title deed restrictions relating to the property of the proposed project, if applicable.

9.4 INFORMATION GENERATED BY OTHER SPECIALISTS IN THE EIA PROCESS

Information typically required from other specialist assessments, before the visual assessment can be completed, is included below. Where inadequate information is available, this should be indicated (see Box 7).

- A description of the vegetation cover, and the possibility of vegetation cover being removed through alien vegetation clearing or fire (from the biodiversity or vegetation specialist);
- The nature and location of any cultural heritage sites, and areas of special or historical interest (from the heritage specialist);
- The identification and extent of any sources of dust and emission plumes that may be visible in the surrounding area (from the atmospheric specialist);
- The identification of receptors / viewers who will be affected by the project, and their perception / sensitivity to visual impacts (from the social specialist).

The visual assessment may in turn have implications for other specialist studies, such as the effect of loss of scenic resources on tourism and property values (for the economic specialist). Liaison, and possibly even workshops, with the various specialists is therefore required.

Box 8: What to do in data poor circumstances

- Indicate where information gaps occur, together with the bearing this may have on the accuracy of the visual assessment.
- Indicate the associated risks in terms of visual impacts resulting from inadequate information on the project.
- Indicate any uncertainties in the rating of visual impacts, resulting from unknowns.

10. INPUT ON IMPACTS AND MANAGEMENT ACTIONS

10.1 PREDICTING POTENTIAL IMPACTS

Possible impacts should be assessed for the different alternatives, as well as for the range of risk situations and scenarios (including the worst case scenario), both with and without management actions, (i.e. mitigation).

The visual simulations should enable 'before' and 'after' comparisons to be made, as well as comparison of alternatives, taking into account mitigation measures.

It is in the nature of visual and scenic resources to include abstract qualities and connotations. It is necessary therefore to include both quantitative criteria (such as viewing distances), and qualitative criteria (such as sense of place), in visual assessments. An implication of this is that the impact ratings cannot simply be added together. Instead the assessment relies on the evaluation of a wide range of considerations, both objective and subjective, including the context of the proposed project within the surrounding area.

Where specialists are involved in the pre-application planning or screening stage, it may be appropriate in certain cases to identify 'fatal flaws'. Criteria that determine whether or not a visual impact constitutes a potential fatal flaw are included in Box 10.

Box 9: Definition of a potential fatal flaw				
A pote projec	ential fatal flaw is defined as an impact that could have a "no-go" implication for the t. A "no-go" situation could arise if the proposed project were to lead to:			
1.	Non-compliance with Acts, Ordinances, By-laws and adopted policies relating to visual pollution, scenic routes, special areas or proclaimed heritage sites.			
2.	Non-compliance with conditions of existing Records of Decision.			
3.	Impacts that may be evaluated to be of <i>high significance</i> and that are considered by stakeholders and decision-makers to be unacceptable.			

10.2 DEFINING IMPACT ASSESSMENT CRITERIA

A number of criteria that relate specifically to visual impact assessments are given in Box 8. The proposed project should be assessed against these criteria before attempting the summary criteria defined in EIA Regulations (Box 9).

Box 10: Specific criteria for visual impact assessments

(See also definitions in Appendix A).

Visual exposure of the area – the geographic area from which the project will be visible, or view catchment area. (The actual zone of visual influence of the project may be smaller

because of screening by existing trees and buildings). High visual exposure – covers a large area (e.g. several square kilometres). Moderate visual exposure - covers an intermediate area (e.g. several hectares). Low visual exposure - covers a small area around the project site Visual absorption capacity (VAC) - the potential of the landscape to conceal the proposed project, i.e. High VAC – e.g. effective screening by topography and vegetation; *Moderate VAC* - e.g. partial screening by topography and vegetation; Low VAC - e.g. little screening by topography or vegetation. Landscape integrity - the compatibility or congruence of the project with the qualities of the existing landscape or townscape, or the 'sense of place'. Low compatibility - visually intrudes, or is discordant with the surroundings; *Medium compatibility* – partially fits into the surroundings, but clearly noticeable; *High compatibility* – blends in well with the surroundings. Visibility of the project – based on distance from the project to selected viewpoints i.e.: *Highly visible* – dominant or clearly noticeable (e.g. 0 to 1km) Moderately visible - recognisable to the viewer (e.g. 1 to 2km); Marginally visible - not particularly noticeable to the viewer (e.g. 2km+); Note 1: These, as well as any additional criteria, need to be customised for different project assessments.

.

Note 2: Various components of the project, such as the structures, lighting or powerlines, may have to be rated separately, as one component may have fewer visual impacts than another. This could have implications when formulating alternatives and mitigations.

To aid decision-making, the assessment and reporting of possible impacts requires consistency in the interpretation of impact assessment criteria. Various criteria are defined in the EIA Regulations, such as 'nature', 'extent', 'duration', etc. The interpretation of these criteria for visual assessments is given in Box 9.



Duration - the predicted life-span of the visual impact:

- short term, (e.g. duration of the construction phase);
- *medium term,* (e.g. duration for screening vegetation to mature);
- long term, (e.g. lifespan of the project);
- *permanent,* where time will not mitigate the visual impact.

Intensity – the magnitude of the impact on views, scenic or cultural resources.

- *low,* where visual and scenic resources are not affected;
- medium, where visual and scenic resources are affected to a limited extent;
- *high,* where scenic and cultural resources are significantly affected.

Probability – the degree of possibility of the visual impact occurring:

- *improbable*, where the possibility of the impact occurring is very low;
- *probable,* where there is a distinct possibility that the impact will occur;
- highly probable, where it is most likely that the impact will occur; or
- *definite,* where the impact will occur regardless of any prevention measures.

Significance – The significance of impacts can be determined through a synthesis of the aspects produced in terms of their nature, duration, intensity, extent and probability, and be described as:

- *Iow,* where it will not have an influence on the decision;
- medium, where it should have an influence on the decision unless it is mitigated; or
- high, where it would influence the decision regardless of any possible mitigation.

Note: These significance ratings may have limited usefulness unless they are described in terms of the broader context. The criteria given in Box 8 could assist in this regard.

10.3 ESTABLISHING THRESHOLDS OF SIGNIFICANCE

Problems relating to thresholds:

- Unlike water quality or air quality, thresholds for visual or scenic quality cannot be easily quantified, as they tend to be abstract, and often relate to cultural values or perceptions.
- A second difficulty is that natural, rural and urban landscapes are constantly changing, and the assessment will therefore need to consider this in determining the significance of impacts.
- A third difficulty may be the divergence of opinion on what constitutes 'acceptable' change, by the individual, the community or society in general.

Some indicators of significance:

The visual specialist will need to take into account principles of long term sustainable development, and not only the existing status of the area, when making an assessment. (Scenic resources are generally non-renewable and once destroyed or degraded, are lost to society).

International conventions and protocols, such as those for World Heritage Sites, or the RAMSAR convention on wetlands, will need to be taken into account when considering significance.

Wilderness type landscapes, pristine areas, and environments of high scenic value have national importance, tend to be the most sensitive to even small changes, and would therefore have higher significance ratings.

Areas that lie outside a defined 'urban edge' line for a particular municipality, may be more sensitive to development, or to changes to the natural or rural landscape.

Where regions or communities are dependent on visual, scenic or heritage resources for tourism or recreation, this will add to the significance rating of a visual impact.

Poorer or less educated communities may tend to support development initially, irrespective of visual impacts. However, as they progress economically, visual issues will become more important, and the VIA may need to accommodate this.

The visual assessment should recognise that some change to the landscape over time is inevitable with the expansion of urban areas, and introduction of new technologies, such as communication masts. This will have a bearing on significance ratings, particularly in identified growth areas.

10.4 DESCRIBING THE DISTRIBUTION OF IMPACTS

Visual specialists should identify the possible distribution of impacts, i.e. beneficiaries and losers, resulting from the proposed development, in particular vulnerable or risk-prone systems or communities.

Beneficiaries may include the following:

- Residents or users of a project, such as a resort in a scenic area;
- Individuals or communities who will benefit from infrastructure development, such as powerlines or communication masts provided for an area;
- Poor or unemployed individuals who will benefit from economic type development and related job opportunities.

Losers may include the following:

- National parks, nature reserves and other protected or pristine areas that rely on a wilderness experience for their visitors;
- Individuals and organisations who depend on scenic and recreation resources for their livelihood;
- Property owners who may rely on uninterrupted views and absence of visual intrusions.

10.5 IDENTIFYING KEY RISKS AND UNCERTAINTIES

Visual specialists should take into account key risks and uncertainties in the impact assessment process, which may influence the accuracy of, and confidence in, the visual impact assessment process. These may include the following:

- inadequate information on the form and aesthetics of the proposed project, making it difficult to depict the proposal in visual montages and to predict visual impacts;
- exclusion of related facilities, such as roads and powerlines, from the visual assessment;
- lack of information on future expansion of the project, or a change in activities related to the site.
- unpredictability of cumulative impacts resulting from the proposed project, which may, for example, act as a catalyst for other development in the area;
- uncertainty regarding future planning or development for the general area.

10.6 JUSTIFYING UNDERLYING ASSUMPTIONS

Where assumptions have been made during the visual input, or visual assessment, these should be clearly stated. The reason or justification for the assumption should also be given.

Any assumptions that are made should be confirmed with the EIA practitioner and proponent, before completing the visual input or assessment.

Assumptions typically have to be made where information is inadequate, or is not known, and may include the following:

- the final design and finishes of the proposed project;
- the final footprint and future expansion of the project;
- separate visual assessments for related structures or activities that do not form part of the TOR.

10.7 DEFINING CONFIDENCE LEVELS

The confidence of the visual specialist, relating to the identification and significance of potential impacts and benefits, should be clearly stated. The level of confidence should be indicated on a scale from high to low, together with reasons for the rating. (See also Para.10.5 and 10.6 above).

10.8 RECOMMENDING MANAGEMENT ACTIONS

The visual assessment should provide recommendations to mitigate or enhance impacts/benefits so that these can inform the design of the project, including the siting and scale of structures and roads, the choice of materials and colours, and measures for screening where necessary.

Appropriate types of management actions for different types of developments in different contexts are outlined below, including those for 'worst case' scenarios.

The project proponent should include a comment in the specialist assessment on their ability to implement the management actions recommended in the visual assessment.

Note: Management actions should be seen as an integral and necessary part of the planning and design phase of the project, rather than as *ad hoc* measures applied at the end.

AVOIDANCE

Consideration should be given to avoiding potential visual impacts altogether. This may be achieved by re-examining the need for the proposed project, relocating the project, or re-designing the project. These would obviously have to be considered feasible by the proponent.

MITIGATION

Measures to mitigate or reduce the effect of negative visual impacts should be considered. These may include adjustments to the siting and design of the project, the careful selection of finishes and colours, and the use of earthworks (such as berms), and planting to provide visual screening where required.

Those mitigations, which are mandatory or essential to the project, should be indicated, along with those that are optional.

COMPENSATION

Where avoidance or mitigation cannot achieve the desired effect, various forms of compensation could be considered. These may include land swaps, appropriation or financial compensation.

REHABILITATION

Both on-site and off-site landscape rehabilitation of areas affected by the project should be considered as part of the visual impact management. This may include re-instating landforms and natural vegetation, provision of landscaped open space, or other agreed upon facilities.

ENHANCEMENT

Where the proposed project is located in run-down areas, or degraded landscapes, the improvement of these areas could form part of the visual management actions for the project.

10.9 IDENTIFYING THE BEST PRACTICABLE ENVIRONMENTAL OPTION

Factors that need to be considered by the visual specialist in selecting the Best Practicable Environmental Option (BPEO) from a range of agreed alternatives include the following:

- Long term protection of important scenic resources and heritage sites;
- Minimisation of visual intrusion in scenic areas;
- Retention of wilderness or special areas intact as far as possible;
- Responsiveness to the area's uniqueness, or sense of place.

Each specialist assessment will identify the BPEO from a range of given options, or even add to the set of options. It is the responsibility of the EAP to evaluate the BPEO recommendations within the various specialist assessments and provide an overall recommendation for the BPEO, which takes into account the outcomes of the various specialist assessments. In the event that there have been differences in opinion between specialist assessments regarding the BPEO, the Environmental Impact Report should highlight these reasons and explain why these have arisen (e.g. the pursuance of different management or environmental objectives).

10.10 COMMUNICATING THE FINDINGS OF THE IMPACT ASSESSMENT

Specialist assessment reports should be concise and, as far as possible, avoid the use of technical terminology. Where this is unavoidable, brief explanations should be provided in order to ensure that the reader is able to understand the approach to, and findings of, the specialist assessment.

In order to answer the "so what" question, specialist assessments must include the following:

- Summary impact assessment table using the defined impact assessment and significance rating criteria;
- Clear indication of whether impacts are irreversible or result in an irreplaceable loss to the environment and/or society.
- Statement of impact significance for each issue specifying whether level of acceptable change has been exceeded and whether the impact presents a potential fatal flaw;
- Identification of beneficiaries and losers from the proposed development.
- Specification of key risks and uncertainties that may influence the impact assessment findings.
- Degree of confidence in the impact assessment prediction.
- Summary of key management actions that fundamentally affect impact significance.
- Identification of the best practicable environmental option, providing reasons.
- Identification of viable development alternatives not previously considered.

11. MONITORING PROGRAMMES

The visual assessment should provide recommendations for monitoring programmes during the construction and operational phases of the project, including ideally input into sketch plans, final tender documentation, site works and maintenance.

Principles that specialists should incorporate into their proposed monitoring programme for different stages of the project cycle are outlined below:

- Monitoring programmes should be agreed to by the proponent, and approved by the relevant environmental authority.
- Monitoring programmes should reflect environmental and aesthetic policies and guidelines applicable to the area, and incorporate the approval conditions of the project.
- Monitoring programmes should be drawn up and administered by a responsible, suitably qualified person, and enforced by an appropriate agency in order to be effective.
- Monitoring programmes should have clear objectives, and be practical and measurable.

Appropriate indicators that can be used to evaluate the effectiveness of management actions need to be identified. Where possible indicators should be aligned with key national and provincial indicators in order to track how the project contributes to, or undermines, the realization of local or regional sustainable development targets.

PRE-CONSTRUCTION BASELINE MONITORING

Monitoring programmes should include procedures for the timely review of plans for the proposed project. This could include the review of building plans, landscape plans and rehabilitation plans by the appropriate agencies responsible for aesthetics and environmental control, to ensure that visual mitigation measures have been incorporated into the design.

CONSTRUCTION PHASE MONITORING

Monitoring programmes should include procedures for the specified visual mitigation measures to be carried out on site, usually as part of an environmental management plan (EMP). These procedures would typically be the responsibility of an environmental control officer (ECO), or other suitably qualified person. Measures may include visual screening, dust control, etc. Penalties for non-compliance should be considered.

OPERATIONAL PHASE MONITORING

Monitoring programmes for the operational stage could include procedures for the on-going control of aesthetic aspects of the project, including signage, lighting, fencing, etc. to ensure that the mitigation measures or guidelines are being applied. All maintenance, upgrading and future expansion of the project should comply with the original approved mitigation measures.

DE-COMMISSIONING PHASE MONITORING

Monitoring programmes should include procedures for removal, re-use, or recycling at the end of the lifespan of the project, as well as the rehabilitation or redevelopment of the site to a visually acceptable form.

PART E: REVIEW OF THE SPECIALIST INPUT

See also *Guideline for the Review of Specialist Input into the EIA Process*, which forms part of this series of guideline documents.

12. EVALUATION CRITERIA

Specific aspects that constitute a high quality visual assessment, and against which assessments can be reviewed, include the following:

- meets minimum requirements for a visual assessment;
- is appropriate to the nature and scale of the proposed development;
- provides a full description of the environment and the project;
- Considers the project within its wider context;
- provides a clear methodology using accepted conventions for visual assessment;
- all sources of information and references are given;
- graphics, including maps and visual simulations, are clear;
- includes both quantitative and qualitative criteria;
- cumulative visual impacts have been considered;
- an evaluation of alternatives has been made;
- an explanation of significance ratings, related to bench-marks, is given;
- long term sustainable development objectives are included;
- recommendations for visual mitigation are sensible and practical;
- recommendations for monitoring programmes have been outlined;
- the best practicable environmental option has been considered;
- all the visual issues raised in the scoping have been addressed;
- A clear summary of mitigation measures, including essential and optional measures, is given.

PART F: REFERENCES

Cooper, L.M. 2004. Guidelines for Cumulative Environmental Assessment in SEA of Plans. EMPG Occasional Paper, May 2004.

Department of Environment Affairs. 1992. Integrated Environmental Management Guideline Series. Pretoria.

Department of Environmental Affairs and Tourism. 1998. Guideline Document: EIA Regulations – Implementation of Sections 21, 22 and 26 of the Environmental Conservation Act. Department of Environmental Affairs & Tourism, Pretoria.

Drummond, John, 1985. Visual Resource Management: An Introduction to a Growing Need. *Landscape SA*, Summer 1985.

Hanna, Karen C. 1999. GIS for Landscape Architects. ESRI Press.

Lange, E. 1994. Integration of Computerised Visual Simulation and Visual Assessment in Environmental Planning. Landscape and Environmental Planning, 30: 99-112.

Martin, Julie. 1993. Assessing the Landscape. Landscape Design journal, June 1993.

Nicholls D.C. and Sclater, A. 1993. Cutting Quality Down to Scale (The quantitative approach to landscape assessment). *Landscape Design* journal, March 1993.

Oberholzer, Bernard, 1994. Visual and Aesthetic Assessment Techniques in Integrated Environmental Management. Unpublished paper for CSIR workshop.

Oberholzer, Bernard, 1998. Visual Guidelines for Communication Masts. Unpublished report for Cape Metropolitan Council.

Roy Mann Associates Inc. 1975. Shoreline Appearance and Design: A Planning Handbook. For National Parks Service, New England River Basins Commission.

Scott Wilson Environmental Division. 2000. Minimising the Negative Environmental Impact of Telecommunication Towers and Related Infrastructure on Rural Areas in Kwazulu-Natal. For Town and Regional Planning Commission. Policy document, Vol. 84.

The Landscape Institute with The Institute of Environmental Management and Assessment. 2002. Guidelines for Landscape and Visual Impact Assessment. Second ed. Spon Press, London and New York.

Warnock, S. and Brown, N. 1998. Putting landscape first. *Landscape Design*, March 1998, No. 268: 44-46.

Young, Graham and Townshend, Derek. 1999. Photographic Simulation: An Integral Part of Visual Impact Assessments. *The Urban Green File*, March/April 1999.

Zube, Ervin H. 1970. Evaluating the Visual and Cultural Landscape. *Journal of Water and Soil Conservation*, July-August 1970.

Zube, Ervin *et al.* 1975. Landscape Assessment: Values, Perceptions and Resources. Dowden, Hutchinson & Ross Inc. Pennsylvania.

APPENDIX A: DEFINITIONS AND ACRONYMS

DEFINITIONS

-	A possible course of action, in place of another, that would meet the same
	purpose and need defined by the development proposal. Alternatives
Alternatives	considered in the EIA process can include location and/or routing
	alternatives, layout alternatives, process and/or design alternatives,
	scheduling alternatives or input alternatives.
Dest mugation hlo	This is the option that provides the most benefit or causes the least
Desi practicable	damage to the environment as a whole, at a cost acceptable to society, in
environmental option	the long term as well as in the short term.
	A public process that is used to identify, predict and assess the potential
Environmental	positive and negative social, economic and biophysical impacts of a
impact assessment	proposed development. EIA includes an evaluation of alternatives,
1	appropriate management actions and monitoring programmes.
	A description of the effect of an aspect of the development on a specified
Impact (visual)	component of the visual, aesthetic or scenic environment within a defined
	time and space
	Issues are concerns related to the proposed development, generally
Issue (visual)	phrased as questions, taking the form "what will the impact of some activity
	be on some element of the visual, aesthetic or scenic environment?"
	An issue raised during the scoping process that has not received an
Key issue	adequate response and which requires further investigation before it can be
·	resolved.
	The relative intactness of the existing landscape or townscape, whether
Landscape integrity	natural, rural or urban, and with an absence of intrusions or discordant
	structures
Management actions	Actions that enhance benefits of a proposed development, or avoid,
Management actions	mitigate, restore or compensate for negative impacts.
Mitigation measures	See 'mangement actions'
	The process of identifying environmental opportunities and constraints,
Pre-application	potential fatal flaws and negative impacts, as well as alternatives and
planning	management actions in the early stage of the project design, prior to
1 0	application for environmental authorization.
Deserves	Individuals, groups or communities who are subject to the visual influence
Receptors	of a particular project.
	A description of plausible future environmental states that could influence
Scenarios	the nature, extent, duration, magnitude/intensity, probability and
	significance of the impact occurring
Sense of place	The unique quality or character of a place, whether natural, rural or urban.
Scenic corridor	A linear geographic area that contains scenic resources, usually, but not
	necessarilly, defined by a route. See also view corridor.
	A linear movement route, usually in the form of a scenic drive, but which
Scenic route	could also be a railway, hiking trail, horse-riding trail or 4x4 trail.
C	The process of determining the key issues, and the space and time
Scoping	boundaries to be addressed in an environmental assessment.

ACRONYMS

BPEO	Best Practicable Environmental Option
DEA&DP	Department of Environmental Affairs and Development Planning
DEAT	Department of Environmental Affairs and Tourism
DWAF	Department of Water Affairs and Forestry
DTM	Digital terrain model
ECO	Environmental Control Officer
EIA	Environmental impact assessment
EMP	Environmental Management Plan
GIS	Geographic information system
VAC	Visual absorption capacity
VIA	Visual impact assessment
VRM	Visual resource management
ZVI	Zone of visual influence