Visual Impact
Site Investigation Report

Masa-Ngwedi Power Line Site Investigation Report and Findings for Section 2, Limpopo Province

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Newtown Landscape Architects

MASA-NGWEDI POWER LINE SITE INVESTIGATION REPORT AND FINDINGS / DISCUSSIOND / CONCLUSIONS – SECTION 2: TURFPAN TO PAARL

LEPHALALE - THABAZIMBI, LIMPOPO PROVINCE

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EXPERTISE OF SPECIALISTS

Name:	Graham A Young
Qualification:	Pr LArch
Professional Registration:	South African Council for the Landscape Architectural Profession (SACLAP) Institute of Landscape Architects of South Africa (ILASA)
Experience in Years:	30 years
Experience	Graham is a landscape architect with thirty years' experience. He has worked in Southern Africa and Canada and has valuable expertise in the practice of landscape architecture, urban design and environmental planning. He is also a senior lecturer, teaching urban design and landscape architecture at post and under graduate levels at the University of Pretoria. He specializes in Visual Impact Assessments and has won an Institute of Landscape Architects Merit Award for his VIA work.

Name:	Yonanda Martin
Qualification:	MSc. (Env.)
Professional Registration:	Pri. Sci. Nat.
Experience in Years:	4 years
Experience	Yonanda Martin has been doing visual impact assessments for Newtown Landscape Architects since 2006. She has experience in a wide range of visual impact assessments which include visual impacts for game lodges, transmission lines, roads, mines and telecommunication masts. Projects that she worked on include: • **Eskom Ngwedi Substation** (PBAI), North West Province • **NBC Belfast Project** (Exxaro), Mpumalanga • **Tamboti Platinum Mine** (Metago), Limpopo • **De Wittekrans** (GCS), Mpumalanga • **Dorsfontein West Expansion** (GCS (Pty) Ltd), Kriel • **Ferreira Coal Mining** (GCS (Pty) Ltd), Ermelo • **Eskom Honingklip** (Kv3 Engineers), Muldersdrift • **SANRAL PWV3** (Jeffares & Green), Hartbeespoort

Name	Mitha Cilliers
Qualification	Pr LArch
Professional Registration	South African Council for the Landscape Architectural Profession (SACLAP)
Experience in Years	9 years
Experience	Mitha is a landscape architect with nine years experience. She has worked as Landscape Architect in South Africa and Angola and has valuable expertise in the practice of landscape architecture and environmental planning. She has been working on visual impact assessments for Newtown Landscape Architects since 2008. She has experience in a wide range of visual impact assessments which include visual impacts for game lodges, transmission lines, solar parks and mines.

Please refer to Appendix E for the Declaration of Independence and to Appendix F for the CV's of the specialists.

Acronyms & Abbreviations:	
CAD	Computer-Aided Design
CSIR	Council for Scientific and Industrial Research
DTM	Digital Terrain Model
EIA	Environmental Impact Assessment
EMP	Environmental Management Plan
GIS	Geographic Information System
IFC	International Finance Corporation
ILASA	Institute for Landscape Architecture in South Africa
NEMA	National Environmental Management Act
NLA	Newtown Landscape Architects
SACLAP	South African Council for the Landscape Architectural Profession
VIA	Visual Impact Assessment

Glossary:	
Aesthetic Value	Aesthetic value is the emotional response derived from the experience of the environment with its particular 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).
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 virtue of 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 Masa-Ngwedi Power Line Project 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 3km radius surrounding the proposed project footprint / site.
Project Footprint / Site	For the purposes of this report the Masa-Ngwedi Power Line Project *site* / *footprint* refers to the actual layout of the project.
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. *Genius loci* literally means 'spirit of the place'.
Sensitive Receptors	Sensitivity of visual receptors (viewers) to a proposed development.
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 as a result 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.
Worst-case Scenario	Principle applied where the environmental effects may vary, for example, seasonally 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.

LIST OF FIGURES

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1. INTRODUCTION

1.1 Project Overview and Background

A visual impact assessment on the proposed power lines was undertaken as part of the original EIA which had been completed in 2009. Newtown Landscape Architects (NLA) was commissioned by Senkosi Consulting to conduct the site investigation with findings, discussions and recommendations with regards the Visual Impact of the towers and associated infrastructure of the proposed Masa-Ngwedi Power Line Project in the Limpopo Province. Refer to the Locality Map in Figure 1 below. The project entails the construction of a 765kV power line and 400kV power line, within 135m wide servitude which will, for the greater distance of the line, be running more or less parallel to the existing 400kV power lines.

The Project Scope entails a length of 120km of these two power line types. The project was divided into three Sections.

- Section 1 will include a length of power line of approximately 42km between, and including, the farms Rhenosterpan and Klippan. For Section 1, the end tower for the 765kV power line is tower No. 94; the end tower of the 400kV power line is tower 96.
- Section 2 will include a length of power line of approximately 39km between, and including, the farms Turfpan to Paarl. For Section 2, the end tower for the 765kV power line is tower No. 179; the end tower of the 400kV power line is tower 175.
- Section 3 will include a length of power line of approximately 35km between, and including, the farms Mecklenburg to Vlakpoort. For Section 3, the end tower for the 765kV power line is tower No. 258; the end tower of the 400kV power line is tower 252.

The findings and recommendations of this report will focus on Section 2 of the project.

1.2 Objective of the Specialist Study

The main aim of the site investigation is to give input on the mitigation measures that can be included as part of the EMPR.

1.3 Landscape Character – Larger Study Area

The larger study area is characterized by a relatively flat topography to lightly undulating topography. The northern section is characterised by clusters of smaller koppies while the southern section includes rugged mountains. The vegetation type is Acacia-Bushveld species that has been historically overgrazed resulting in a dense stance of almost impenetrable large shrubs / small trees. In the southern section, areas of bush has been cleared to make wake way for intense crop production. The majority of the study area is being used for game farming and hunting purposes.

The residential component includes farmsteads and workers residences as well as lodges associated with the hunting activities. Some small settlements / communities also occur at various locations through the study area.

Outside of the 6km (3km either side of the power lines), at the northern and southern ends of the study area, some mining, mostly coal mining, activities occur.

1.4 Study Area – Section 2

The study area for Section 2 will consist of the farms along the middle section of approximately 39km between, and including, the farms Turfpan and Paarl. As part of the visual impact study, an area of 3km on either side of the proposed lines would be investigated. This 6km strip represents the fore- and middle ground viewing distance of the Zone of Potential Influence used for a power line. The visual impact assessment would thus not only include the properties physically affected by the power line but also parts of the following farms: Witgatpan 57KQ, Kalabaspan 92KQ, Vaalpenspan 90KQ, Honingvley 99KQ, Mooigezigt 85KQ, Doornlaagte 103KQ, Amsterdam 123KQ and Karoobult 126KQ, Bridgewater 306KQ.

The landscape of Section 2 is characterised by flat to moderately undulating plains mostly covered in dense bushveld vegetation. The Waterberge range occurs just to the east of the southern end of this section. The community of Sentrum is located in the northern portion of this section.

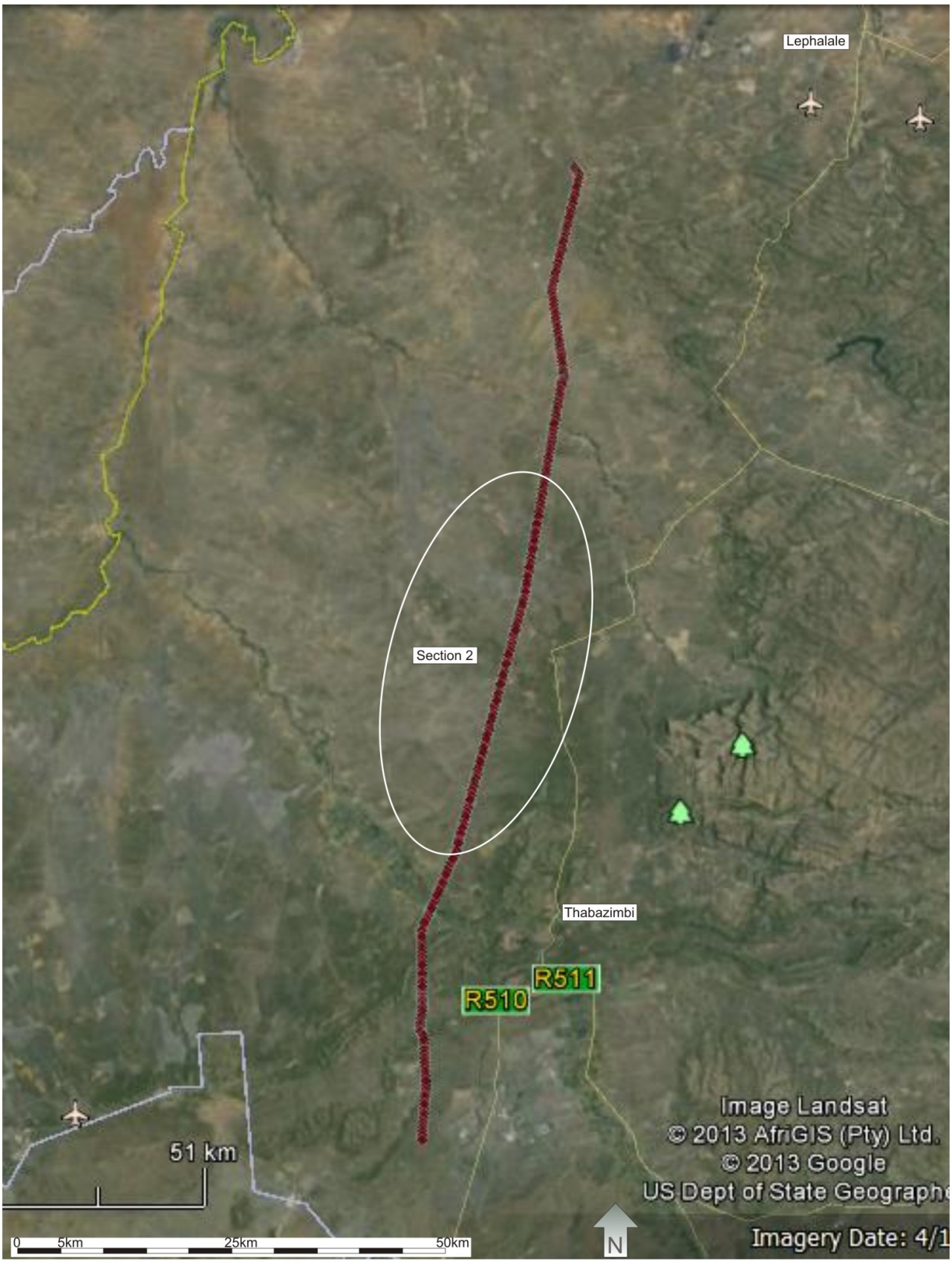


Figure 1: LOCALITY - Masa-Ngwedi Power Lines

January 2014

2. METHODOLOGY

A desktop survey and a site visit were conducted. During the desktop survey the landscape character and value of the visual resource had been established (Refer to Appendices' B and C for the methodology and criteria). This would influence the sensitivity of the visual receptors to the visual impact of the proposed power lines. The desktop survey also identified and mapped sensitive viewers (farmsteads and lodges) within a 3km zone of potential influence either side of the power lines. For the purpose of the visual impact, it was attempted to visit all identified sensitive visual receptors. Identified farmsteads were accessed and visited by driving along the local tarred and dirt roads.

During the site investigation the sensitive viewer locations were confirmed, mapped and photos taken to illustrate the characteristics of the area.

This report was then compiled to conclude the findings of the desktop study and site investigation. This report will also provide the client with the findings of the site investigation as well as recommendations in terms of mitigation measures.

3. ASSUMPTIONS / GAPS / CHALLENGES

3.1 Assumptions

For the purpose of this report it was assumed that if the existing power line was visible from a sensitive viewer location, the proposed two power lines would also be visible. This assumption was based on the close proximity of the proposed line from the existing line as well as the fact that the proposed 765kV line would be higher, and therefore more visible, than the existing 400kV line.

It is assumed that all sensitive viewer locations are equally sensitive i.e. the visual impact would be *high* for all impacted sensitive viewers whether it is a farmstead / residence / lodge.

It is assumed that all proposed mitigation measures would be implemented correctly and effectively.

3.2 Gaps

It should be noted that it is not possible to determine exactly which towers would be visible from a certain sensitive viewer location. The findings of the report would give an estimate of which towers would be visible.

3.3 Challenges

Communications and logistics in terms of arranging to meet and confirming appointments with the farm owners proved to be a challenge. However, most farm owners were contacted and a visit could be arranged. Over the whole 120km, the farms that could not be visited included the following: Rhenosterpan 361IQ, Krugerspan 86KQ, Rooibokvlei 102KQ, Weltevreden 105KQ, Amsterdam 123KQ, Bridgewater 307KQ, Waterval 337KQ. The farm owners were however contacted and the visibility from their sensitive viewer locations were discussed and verbally confirmed.

It should be noted that the visual impact would be experienced from a distance and that the impact would not only occur ‘on site’ / at the tower location. Mitigation measures would have to be implemented at the point of reception i.e. at the sensitive viewer location. Recommended mitigation measures should be discussed with the landowner in conjunction with Eskom in order to resolve the negative impact in a way that is acceptable to both parties.

Mitigation measures would only become effective after approximately 5 to 10 years when the vegetation has reached near mature – mature size.

4. SITE INVESTIGATION FINDINGS

The flat to moderately undulating plains would potentially allow for expansive views over the study area and beyond. As described above, the landscape is mostly covered in dense vegetation. Breaks in the vegetation do however, allow for partial views of the existing power lines and would thus also allow for partial views of the proposed lines. A similar effect occurred where the structures protruded above the vegetation line.

5. RECOMMENDATIONS

5.1 General 'on site' Mitigation Measures

General 'on site' mitigation measures should include but not be limited to the general installation procedures as described in Eskom's Standards documents with specific reference but not limited to the Erosion Guideline TGL41-337 Rev 0 dated November 2009 and Standard for Bush Clearance and Maintenance within the Overhead Powerline Servitudes ESKASABG3 Rev 1 dated May 2003.

General 'on site' mitigation measures could also include the following:

5.1.1 Construction Phase

It is proposed that:

- Construction activities could be planned during the rainy season when plants have leaves and rain would minimize potential dust creation.
- Construction activities be kept to daylight hours as far as possible to eliminate the use of strong lighting at night for construction purposes.
- Where security lighting is required:
  - Install light fixtures that provide precisely directed illumination to reduce light "spillage" beyond the immediate surrounds of the construction camp / security area.
  - Light movement areas (around the construction camp and pathways) with low level 'bollard' type lights and avoid post top lighting.
  - Avoid high pole top security lighting along the periphery of the construction camp / security area and use movement sensors to activate lights at the event of an illegal entry to the construction camp / security area.
  - Use security lighting at the periphery of the site that is activated by movement and are not permanently switched on.
- As little vegetation as possible be removed during the construction phase.
- Wherever possible, existing natural vegetation is retained and incorporated into the project site rehabilitation.
- Only the footprint and a small 'construction buffer zone' around the construction activities be exposed. Retain the natural vegetation, as far as possible, in all other areas.
- Rehabilitate / restore exposed areas as soon as possible after construction activities are complete.
- Only indigenous vegetation should be used for rehabilitation / landscaping purposes.
- Dust suppression techniques should be in place at all times during the construction phase.
- During construction phase, access roads will require an effective dust suppression management program, such as the use of non-polluting chemicals that will retain moisture in the road surface.
- Driving speed should be kept to the minimum in order to minimize dust creation.

5.1.2 Operational Phase

It is proposed that:

- When travelling on maintenance roads, keep the driving speed as low as possible to minimize dust creation.
- Keep maintenance activities to daylight hours to avoid the need for lighting at night.

5.2 Sensitive Viewer Location Mitigation Measures

In cases where there the views of the power lines are open and from elevated positions, no mitigation is possible. Views from partial views from lower lying areas on the flats / plains could possibly be mitigated by the introduction of infill planting or vegetation screens. Infill planting would be the introduction of a single tree / shrub or small cluster of trees / shrubs in a gap in the existing vegetation where the towers are visible. Vegetation screens would be the introduction of a linear cluster of trees / shrubs. Introduced planting should be indigenous species.

It should be noted that planting does take some time to mature and create the desired screening effect. Planting should also be monitored to confirm their establishment and survival.

Mitigation measures, in terms of infill planting and vegetation screens, should be discussed between the farm owner and Eskom.

Please refer to Appendix A for the recommended mitigation measures to be associated with each sensitive viewer location.

APPENDIX A: RECOMMENDATIONS

Table 1: Findings and Recommendations

Notes:

- Tower numbers relate to the relevant farm.
- Towers further up and down the line could also form part of the visual impact from a specific sensitive viewer location.
- Proposed mitigation measures will have to be discussed with the landowner in conjunction with Eskom.
- Sensitive Viewer Location Reference refers to the location of the photo of the sensitive viewer location. Refer to Table 2 in Appendix B.

Farm / Landowner	765kV Tower No.'s	400kV Tower No.'s	Visibility	Image Reference	Image	Mitigation Potential	Recommended Mitigation Measures
Turfpan 54KQ	MASNGW 95	97	would be visible from the entrance to the farm where hunting guests would be entering	2.12		not possible	• n/a.
Springbokvlei 55KQ	MASNGW 96 - 105	98 - 106	existing power line structures partially visible, likely that new structures would also be visible	n/a	n/a	possible	• In cases where the power line structures are visible, mitigation measures as discussed in Section 5 could be implemented.
Kalabaspan 92KQ	n/a	n/a	according to the landowner, the existing power line structures are not visible from sensitive viewer locations	n/a	n/a	n/a	• Should it happen that the power line structures are visible, mitigation measures as discussed in Section 5 could be implemented.

Farm / Landowner	765kV Tower No.'s	400kV Tower No.'s	Visibility	Image Reference	Image	Mitigation Potential	Recommended Mitigation Measures
Ysterpan 89KQ	MASNGW 106 - 118	107 - 118	existing power line structures partially visible, likely that new structures would also be visible	3.4		possible	• Carefully placed infill planting at sensitive viewer location where power lines would be visible through breaks in existing vegetation could resolve some of the visibility incidences.
Groenvley 87KQ	n/a	n/a	existing power line structures not visible, likely that new structures would also not be visible	n/a	n/a	n/a	• n/a
Vaalpenspan 90KQ	n/a	n/a	existing power line structures not visible, likely that new structures would also not be visible	n/a	n/a	n/a	• n/a
Blinkwater 88KQ	MASNGW 119 - 127	119 - 128	existing power lines partially visible, likely that new structures would also be visible	3.9		possible	• Carefully placed infill planting at sensitive viewer location where power lines would be visible through breaks in existing vegetation could resolve some of the visibility incidences.

Farm	765kV Tower No.'s	400kV Tower No.'s	Visibility	Image Reference	Image	Mitigation Potential	Recommended Mitigation Measures
Krugerspan 86KQ	MASNGW 128 - 133	129 - 133	could not be confirmed - anticipated that existing power line structures would be partially visible, likely that new lines would also be visible	n/a	n/a	anticipated to be possible	• Carefully placed infill planting at sensitive viewer location where power lines would be visible through breaks in existing vegetation could resolve some of the visibility incidences.
Mooigezigt 85KQ	n/a	n/a	could not be confirmed - anticipated that existing power line structures would not be visible, likely that new lines would also not be visible	n/a	n/a	n/a	• In the event of the power lines being visible, mitigation measures as discussed in Section 5 could be implemented.
Honingvley 99KQ	n/a	n/a	existing power line structures not visible, likely that new structures would also not be visible	n/a	n/a	n/a	• n/a
Franksvley 100KQ (Clase Familie Trust)	MASNGW 134 - 138	134 - 137	existing power lines partially visible, it is anticipated that the new structures would also be visible	3.12		possible	• Carefully placed infill planting at sensitive viewer location where power lines would be visible through breaks in existing vegetation could resolve some of the visibility incidences.

Farm / Landowner	765kV Tower No.'s	400kV Tower No.'s	Visibility	Image Reference	Image	Mitigation Potential	Recommended Mitigation Measures
Franksvley 100KQ (MD Delport)	MASNGW 134 - 138	134 - 137	existing power lines partially visible, it is anticipated that the new structures would also be visible due to the openness of the vegetation	3.13		possible, but for most occurrences, not	• Carefully placed infill planting at sensitive viewer location where power lines would be visible through breaks in existing vegetation could resolve some of the visibility incidences. • Vegetation screens could be introduced, however expansive vista would be blocked.
Rooibokvlei102KQ	MASNGW 139 - 144	138 - 143	could not be confirmed - anticipated that existing power line structures would not be visible, likely that new lines would also not be visible	n/a	n/a	n/a	• In the event of the power lines being visible, mitigation measures as discussed in Section 5 could be implemented.
Doornlaagte 103KQ	n/a	n/a	could not be confirmed - anticipated that existing power line structures would not be visible, likely that new lines would also not be visible	n/a	n/a	n/a	• In the event of the power lines being visible, mitigation measures as discussed in Section 5 could be implemented.

Farm / Landowner	765kV Tower No.'s	400kV Tower No.'s	Visibility	Image Reference	Image	Mitigation Potential	Recommended Mitigation Measures
Rietkuil 101KQ	MASNGW 145 - 155	144 - 153	existing power lines partially visible, it is anticipated that the new structures would also be visible due to the sensitive viewer location being located on elevated levels	3.18		possible, but for most occurrences, not	• Carefully placed infill planting at sensitive viewer location where power lines would be visible through breaks in existing vegetation could resolve some of the visibility incidences. • Vegetation screens could be introduced, however expansive vista would be blocked. • Locating this section on the western side of the existing power line if possible. • Locating this section below ground level if possible.
Weltevreden 105KQ	n/a	n/a	could not be confirmed - anticipated that existing power line structures would not be visible, likely that new lines would also not be visible	n/a	n/a	n/a	• In the event of the power lines being visible, mitigation measures as discussed in Section 5 could be implemented.
Buffelsvley 127KQ	MASNGW 156 - 166	154 - 162	according to the landowner, the existing power line structures are not visible from sensitive viewer locations	n/a	n/a	n/a	• In the event of the power lines being visible, mitigation measures as discussed in Section 5 could be implemented.
Amsterdam 123KQ	n/a	n/a	could not be confirmed - anticipated that existing power line structures would not be visible, likely that	n/a	n/a	n/a	• In the event of the power lines being visible, mitigation measures as discussed in Section 5 could be implemented.

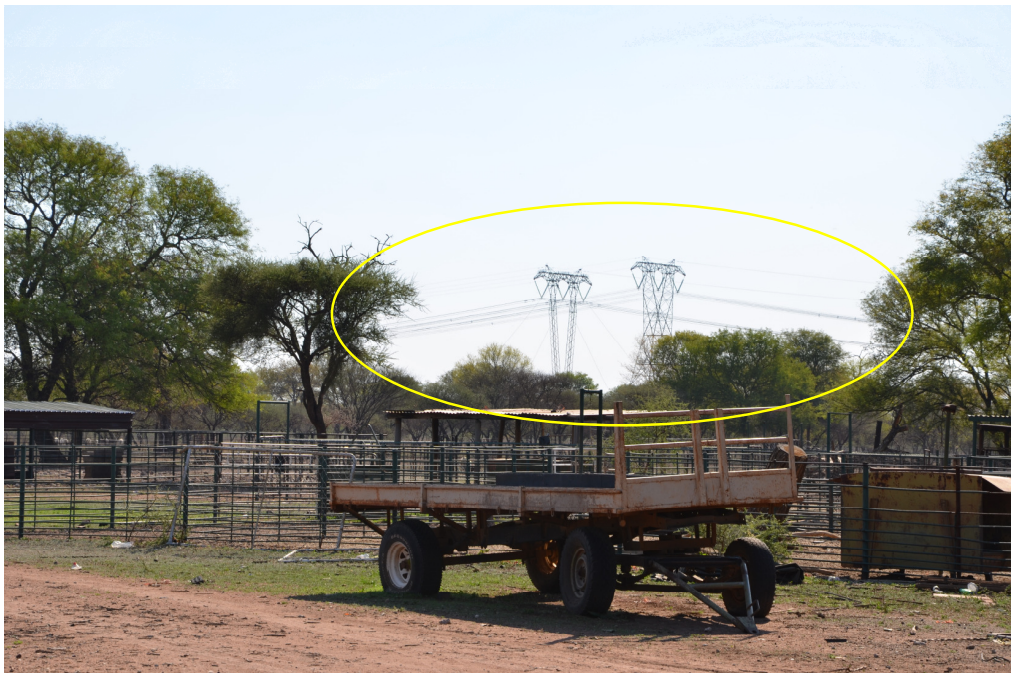
			new lines would also not be visible					

Farm / Landowner	765kV Tower No.'s	400kV Tower No.'s	Visibility	Image Reference		Image	Mitigation Potential	Recommended Mitigation Measures
Karoobult 126KQ	n/a	n/a	could not be confirmed - anticipated that existing power line structures would not be visible, likely that new lines would also not be visible	n/a		n/a	n/a	• In the event of the power lines being visible, mitigation measures as discussed in Section 5 could be implemented.
Bridgewater 306KQ	n/a	n/a	could not be confirmed - anticipated that existing power line structures would not be visible, likely that new lines would also not be visible	n/a	n/a		n/a	• In the event of the power lines being visible, mitigation measures as discussed in Section 5 could be implemented.
Paarl 124KQ Trade Windows	MASNGW 167 - 179	163 - 175	could not be confirmed - anticipated that existing power line structures would not be visible, likely that new lines would also not be visible	n/a		n/a	n/a	• In the event of the power lines being visible, mitigation measures as discussed in Section 5 could be implemented.
Paarl 124KQ Pienaar	MASNGW 167 - 179	163 - 175	according to the landowner, the existing power line structures are not visible from farmstead, would however be visible from future development site	n/a		n/a	n/a	• n/a

Farm / Landowner	765kV Tower No.'s	400kV Tower No.'s	Visibility	Image Reference	Image	Mitigation Potential	Recommended Mitigation Measures
Paarl 124KQ Roux	MASNGW 167 - 179	163 - 175	existing power lines partially visible, it is anticipated that the new structures would also be visible	n/a	n/a	n/a	• Carefully placed infill planting at sensitive viewer location where power lines would be visible through breaks in existing vegetation could resolve some of the visibility incidences. • Vegetation screens could be introduced, however expansive vista would be blocked.
Paarl 124KQ Breytenbach	MASNGW 167 - 179	163 - 175	visible running over residences – social impact specialist to address	n/a	n/a	not possible	• Social impact specialist to address the issue

Table 2: Sensitive Viewer Location Image Position & Details

Reference No.	Topo Map	Photo No.	Farm	Co-ordinates South	Co-ordinates East
					
2.12	2427AB	DSC_3847	Turfpan 54KQ P van der Walt	24º 10’ 38.9”S	27º 22’ 05.8”E
					
3.4	2427AD	DSC_3859	Ysterpan 89KQ BC Lottering, D Human	24º 16’ 00.7”S	27º 20’ 42.0”E

Reference No.	Topo Map	Photo No.	Farm	Co-ordinates South	Co-ordinates East
					
3.9	2427AD	DSC_3874	Blinkwater 88KQ PGW Roets JJ Snyman	24º 17' 00.9"S	27º 21' 02.9"E
					
3.12	2427AD	DSC_3874	Blinkwater 88KQ PGW Roets JJ Snyman	24º 17' 00.9"S	27º 21' 02.9"E

Reference No.	Topo Map	Photo No.	Farm	Co-ordinates South	Co-ordinates East
3.13	2427AD	DSC_3979	Franksvley 100KQ (MD Delport)	24º 20’ 38.2”S	27º 20’ 22.3”E
3.18	2427AD	DSC_3999	Rietkuil 101KQ (P Mostert)	24º 23’ 27.4”S	27º 19’ 43.2”E

In order to reach an understanding of the effect of development on a landscape resource, it is necessary to consider the different aspects of the landscape as follows:

Landscape Elements and Character

The individual elements that make up the landscape, including prominent or eye-catching features such as hills, valleys, savannah, trees, water bodies, buildings and roads are generally quantifiable and can be easily described.

Landscape character is therefore the description of pattern, resulting from particular combinations of natural (physical and biological) and cultural (land use) factors and how people perceive these. The visual dimension of the landscape is a reflection of the way in which these factors create repetitive groupings and interact to create areas that have a specific visual identity. The process of landscape character assessment can increase appreciation of what makes the landscape distinctive and what is important about an area. The description of landscape character thus focuses on the nature of the land, rather than the response of a viewer.

Landscape Value – all encompassing (Aesthetic Value)

Aesthetic value is the emotional response derived from the experience of the environment with its particular 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).

Aesthetic appeal (value) is considered high when the following are present (Ramsay 1993):

- *Abstract qualities*: such as the presence of vivid, distinguished, uncommon or rare features or abstract attributes;
- *Evocative responses*: the ability of the landscape to evoke particularly strong responses in community members or visitors;
- *Meanings*: the existence of a long-standing special meaning to a particular group of people or the ability of the landscape to convey special meanings to viewers in general;
- *Landmark quality*: a particular feature that stands out and is recognised by the broader community.

Sense of Place

Central to the concept of a sense of place is that the place requires uniqueness and distinctiveness. The primary informant of these qualities is the spatial form and character of the natural landscape together with the cultural transformations and traditions associated with historic use and habitation. According to Lynch (1992) sense of place "is the extent to which a person can recognize or recall a place as being distinct from other places - as having a vivid, or unique, or at least particular, character of its own". 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. In some cases these values allocated to the place are similar for a wide spectrum of users or viewers, giving the place a universally recognized and therefore, strong sense of place.

Scenic Quality

Assigning values to visual resources is a subjective process. The phrase, “beauty is in the eye of the beholder,” is often quoted to emphasize the subjectivity in determining scenic values. Yet, researchers have found consistent levels of agreement among individuals asked to evaluate visual quality.

Studies for perceptual psychology have shown human preference for landscapes with a higher visual complexity particularly in scenes with water, over homogeneous areas. On the basis of contemporary research landscape quality increases when:
Topographic ruggedness and relative relief increase;
Where water forms are present;
Where diverse patterns of grasslands and trees occur;
Where natural landscape increases and man-made landscape decreases;
And where land use compatibility increases and land use edge diversity decreases (Crawford 1994).

Scenic Quality - Explanation of Rating Criteria:

(After The Visual Resource Management System, Department of the Interior of the USA Government, Bureau of Land Management)

Landform: Topography becomes more interesting as it gets steeper or more massive, or more severely or universally sculptured. Outstanding landforms may be monumental, as the Fish River or Blyde River Canyon, the Drakensberg or other mountain ranges, or they may be exceedingly artistic and subtle as certain badlands, pinnacles, arches, and other extraordinary formations.

Vegetation: (Plant communities) Give primary consideration to the variety of patterns, forms, and textures created by plant life. Consider short-lived displays when they are known to be recurring or spectacular (wildflower displays in the Karoo regions). Consider also smaller scale vegetational features, which add striking and intriguing detail elements to the landscape (e.g., gnarled or wind beaten trees, and baobab trees).

Water: That ingredient which adds movement or serenity to a scene. The degree to which water dominates the scene is the primary consideration in selecting the rating score.

Colour: Consider the overall colour(s) of the basic components of the landscape (e.g., soil, rock, vegetation, etc.) as they appear during seasons or periods of high use. Key factors to use when rating "colour" are variety, contrast, and harmony.

Adjacent Scenery: Degree to which scenery outside the scenery unit being rated enhances the overall impression of the scenery within the rating unit. The distance which adjacent scenery will influence scenery within the rating unit will normally range from 0-8 kilometres, depending upon the characteristics of the topography, the vegetative cover, and other such factors. This factor is generally applied to units which

would normally rate very low in score, but the influence of the adjacent unit would enhance the visual quality and raise the score.

Scarcity: This factor provides an opportunity to give added importance to one or all of the scenic features that appear to be relatively unique or rare within one physiographic region. There may also be cases where a separate evaluation of each of the key factors does not give a true picture of the overall scenic quality of an area. Often it is a number of not so spectacular elements in the proper combination that produces the most pleasing and memorable scenery - the scarcity factor can be used to recognize this type of area and give it the added emphasis it needs.

Cultural Modifications: Cultural modifications in the landform / water, vegetation, and addition of structures should be considered and may detract from the scenery in the form of a negative intrusion or complement or improve the scenic quality of a unit.

Scenic Quality Inventory and Evaluation Chart

(After The Visual Resource Management System, Department of the Interior of the USA Government, Bureau of Land Management)

Key factors	Rating Criteria and Score		
Landform	High vertical relief as expressed in prominent cliffs, spires, or massive rock outcrops, or severe surface variation or highly eroded formations including major badlands or dune systems; or detail features dominant and exceptionally striking and intriguing such as glaciers. **5**	Steep canyons, mesas, buttes, cinder cones, and drumlins; or interesting erosional patterns or variety in size and shape of landforms; or detail features which are interesting though not dominant or exceptional. **3**	Low rolling hills, foothills, or flat valley bottoms; or few or no interesting landscape features. **1**
Vegetation and landcover	A variety of vegetative types as expressed in interesting forms, textures, and patterns. **5**	Some variety of vegetation, but only one or two major types. **3**	Little or no variety or contrast in vegetation. **1**
Water	Clear and clean appearing, still, or cascading white water, any of which are a dominant factor in the landscape. **5**	Flowing, or still, but not dominant in the landscape. **3**	Absent, or present, but not noticeable. **0**
Colour	Rich colour	Some intensity or variety	Subtle colour variations,

	combinations, variety or vivid colour; or pleasing contrasts in the soil, rock, vegetation, water or snow fields. **5**	in colours and contrast of the soil, rock and vegetation, but not a dominant scenic element. **3**	contrast, or interest; generally mute tones. **1**
Influence of adjacent scenery	Adjacent scenery greatly enhances visual quality. **5**	Adjacent scenery moderately enhances overall visual quality. **3**	Adjacent scenery has little or no influence on overall visual quality. **0**
Scarcity	One of a kind; or unusually memorable, or very rare within region. Consistent chance for exceptional wildlife or wildflower viewing, etc. National and provincial parks and conservation areas *** 5+**	Distinctive, though somewhat similar to others within the region. **3**	Interesting within its setting, but fairly common within the region. **1**
Cultural modifications	Modifications add favourably to visual variety while promoting visual harmony. **2**	Modifications add little or no visual variety to the area, and introduce no discordant elements. **0**	Modifications add variety but are very discordant and promote strong disharmony. **4**

Scenic Quality (i.e. value of the visual resource)

In determining the quality of the visual resource both the objective and the subjective or aesthetic factors associated with the landscape are considered. Many landscapes can be said to have a strong sense of place, regardless of whether they are considered to be scenically beautiful but where landscape quality, aesthetic value and a strong sense of place coincide - the visual resource or perceived value of the landscape is considered to be very high.

When considering both objective and subjective factors associated with the landscape there is a balance between landscape character and individual landscape features and elements, which would result in the values as follows:

Value of Visual Resource – expressed as Scenic Quality

(After The Landscape Institute with the Institute of Environmental Management and Assessment (2002))

High	Moderate	Low
Areas that exhibit a very positive character with valued features that combine to give the experience of unity, richness and harmony. These are landscapes that may be considered to be of particular importance to conserve and which may be sensitive change in general and which may be detrimental if change is inappropriately dealt with.	Areas that exhibit positive character but which may have evidence of alteration to /degradation/erosion of features resulting in areas of more mixed character. Potentially sensitive to change in general; again change may be detrimental if inappropriately dealt with but it may not require special or particular attention to detail.	Areas generally negative in character with few, if any, valued features. Scope for positive enhancement frequently occurs.

A visual impact study analysis addresses the importance of the inherent aesthetics of the landscape, the public value of viewing the natural landscape, and the contrast or change in the landscape from the project.

For some topics, such as water or air quality, it is possible to use measurable, technical international or national guidelines or legislative standards, against which potential effects can be assessed. The assessment of likely effects on a landscape resource and on visual amenity is more complex, since it is determined through a combination of quantitative and qualitative evaluations. (The Landscape Institute with the Institute of Environmental Management and Assessment, 2002).

Landscape impact assessment includes a combination of objective and subjective judgments, and it is therefore important that a structured and consistent approach is used. It is necessary to differentiate between judgments that involve a degree of subjective opinion (as in the assessment of landscape value) from those that are normally more objective and quantifiable (as in the determination of magnitude of change). Judgment should always be based on training and experience and be supported by clear evidence and reasoned argument. Accordingly, suitably qualified and experienced landscape professionals carry out landscape and visual impact assessments (The Landscape Institute with the Institute of Environmental Management and Assessment (2002).

Landscape and visual assessments are separate, although linked, procedures. The landscape baseline, its analysis and the assessment of landscape effects all contribute to the baseline for visual assessment studies. The assessment of the potential effect on the landscape is carried out as an effect on an environmental resource, i.e. the landscape. Visual effects are assessed as one of the interrelated effects on populations.

Landscape Impact

Landscape impacts derive from changes in the physical landscape, which may give rise to changes in its character and from effects to the scenic values of the landscape. This may in turn affect the perceived value ascribed to the landscape. The description and analysis of effects on a landscape resource relies on the adoption of certain basic principles about the positive (or beneficial) and negative (or adverse) effects of change in the landscape. Due to the inherently dynamic nature of the landscape, change arising from a development may not necessarily be significant (Institute of Environmental Assessment & The Landscape Institute, 2002).

Visual Impact

Visual impacts relate to the changes that arise in the composition of available views as a result of changes to the landscape, to people's responses to the changes, and to the overall effects with respect to visual amenity. Visual impact is therefore measured as the change to the existing visual environment (caused by the physical presence of a new development) and the extent to which that change compromises (negative

impact) or enhances (positive impact) or maintains the visual quality of the area.

To assess the magnitude of visual impact four main factors are considered.

Visual Intrusion:
The nature of intrusion or contrast (physical characteristics) of a project component on the visual quality of the surrounding environment and its compatibility / discord with the landscape and surrounding land use.
Visibility:
The area / points from which project components will be visible.
Visual exposure:
Visibility and visual intrusion qualified with a distance rating to indicate the degree of intrusion.
Sensitivity:
Sensitivity of visual receptors to the proposed development.

Visual Intrusion / contrast
Visual intrusion deals with the notion of contextualism i.e. how well does a project component fit into the ecological and cultural aesthetic of the landscape as a whole. Or conversely what is its contrast with the receiving environment. Combining landform / vegetation contrast with structure contrast derives overall visual intrusion / contrast levels of high, moderate, and low.

Landform / vegetation contrast is the change in vegetation cover and patterns that would result from construction activities. Landform contrast is the change in landforms, exposure of soils, potential for erosion scars, slumping, and other physical disturbances that would be noticed as uncharacteristic in the natural landscape. Structure contrast examines the compatibility of the proposed development with other structures in the landscape and the existing natural landscape. Structure contrast is typically strongest where there are no other structures (e.g., buildings, existing utilities) in the landscape setting.

Photographic panoramas from key viewpoints before and after development are presented to illustrate the nature and change (contrast) to the landscape created by the proposed development. A computer simulation technique is employed to superimpose a graphic of the development onto the panorama. The extent to which the component fits or contrasts with the landscape setting can then be assessed using the following criteria.

- Does the physical development concept have a negative, positive or neutral effect on the quality of the landscape?
- Does the development enhance or contrast with the patterns or elements that define the structure of the landscape?
- Does the design of the project enhance and promote cultural continuity or does it disrupt it?

The consequence of the intrusion / contrast can then be measured in terms of the sensitivity of the affected landscape and visual resource given the criteria listed below. For instance, within an industrial area, a new sewage treatment works may have an insignificant landscape and visual impact; whereas in a *valued* landscape it might be considered to be an intrusive element. (Institute of Environmental Assessment & The

landscape Institute, 1996).

Visual Intrusion

High	Moderate	Low	Positive
If the project: - Has a substantial negative effect on the visual quality of the landscape; - Contrasts dramatically with the patterns or elements that define the structure of the landscape; - Contrasts dramatically with land use, settlement or enclosure patterns; - Is unable to be 'absorbed' into the landscape. *Result* Notable change in landscape characteristics over an extensive area and / or intensive change over a localized area resulting in major changes in key views.	If the project: - Has a moderate negative effect on the visual quality of the landscape; - Contrasts moderately with the patterns or elements that define the structure of the landscape; - Is partially compatible with land use, settlement or enclosure patterns. - Is partially 'absorbed' into the landscape. *Result* Moderate change in landscape characteristics over localized area resulting in a moderate change to key views.	If the project: - Has a minimal effect on the visual quality of the landscape; - Contrasts minimally with the patterns or elements that define the structure of the landscape; - Is mostly compatible with land use, settlement or enclosure patterns. - Is 'absorbed' into the landscape. *Result* Imperceptible change resulting in a minor change to key views.	If the project: - Has a beneficial effect on the visual quality of the landscape; - Enhances the patterns or elements that define the structure of the landscape; - Is compatible with land use, settlement or enclosure patterns. *Result* Positive change in key views.

Visual intrusion also diminishes with scenes of higher complexity, as distance increases, the object becomes less of a focal point (more visual distraction), and the observer's attention is diverted by the complexity of the scene (Hull and Bishop, 1988).

Visibility

A viewshed analysis was carried out to define areas, which contain all possible observation sites from which the development would be visible. The basic assumption for preparing a viewshed analysis is that the observer eye height is 1.8m above ground level. Topographic data was captured for the site and its environs at 10m contour intervals to create the Digital Terrain Model (DTM). The DTM includes features such as vegetation, rivers, roads and nearby urban areas. These features were 'draped' over the topographic data to complete the model used to generate the viewshed analysis. It should be noted that viewshed analyses are not absolute indicators of the level of significance (magnitude) of the impact in the view, but merely a statement of the fact of potential visibility. The visibility of a development and its contribution to visual impact is predicted using the criteria listed below:

Visibility

High	Moderate	Low
Visual Receptors If the development is visible from over half the zone of potential influence, and / or views are mostly unobstructed and/or the majority of viewers are affected.	*Visual Receptors* If the development is visible from less than half the zone of potential influence, and / or views are partially obstructed and or many viewers are affected	*Visual Receptors* If the development is visible from less than a quarter of the zone of potential influence, and / or views are mostly obstructed and / or few viewers are affected.

Visual Exposure

Visual exposure relates directly to the distance of the view. It is a criterion used to account for the limiting effect of increased distance on visual impact. The impact of an object in the foreground (0 – 800m) is greater than the impact of that same object in the middle ground (800m – 5.0km) which, in turn is greater than the impact of the object in the background (greater than 5.0km) of a particular scene.

Distance from a viewer to a viewed object or area of the landscape influences how visual changes are perceived in the landscape. Generally, changes in form, line, colour, and texture in the landscape become less perceptible with increasing distance.

Areas seen from 0 to 800m are considered foreground; foliage and fine textural details of vegetation are normally perceptible within this zone.

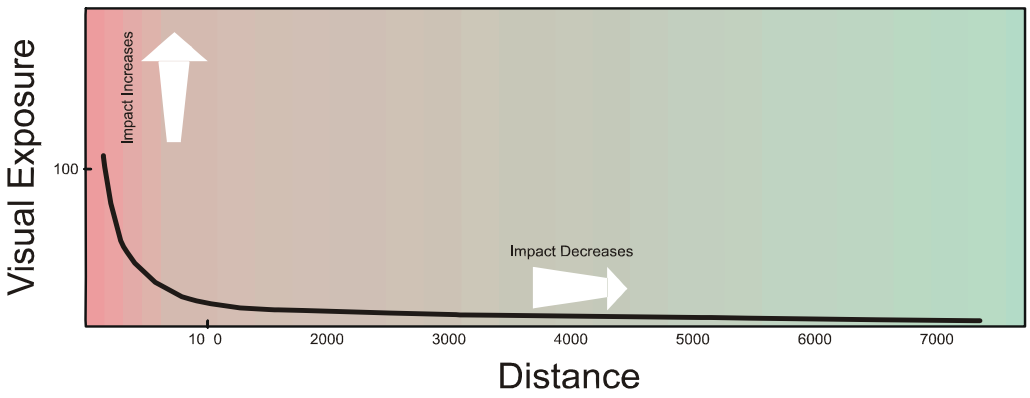
Areas seen from 800m to 5.0km are considered middle ground; vegetation appears as outlines or patterns. Depending on topography and vegetation, middle ground is sometimes considered to be up to 8.0km.

Areas seen from 5.0km to 8.0km and sometimes up to 16km and beyond are considered background. Landforms become the most dominant element at these distances.

Seldom seen areas are those portions of the landscape that, due to topographic relief or vegetation, are screened from the viewpoint or are beyond 16km from the viewpoint. Landforms become the most dominant element at these distances.

The impact of an object diminishes at an exponential rate as the distance between the observer and the object increases. Thus, the visual impact at 1000m would be 25% of the impact as viewed from 500m. At 2000 m it would be 10% of the impact at 500m. The inverse relationship of distance and visual impact is well recognised in visual analysis literature (e.g. Hull and Bishop (1988)) and is used as important criteria for the study. This principle is illustrated in the figure below.

Effect of Distance on Visual Exposure



Sensitivity of Visual Receptors

When visual intrusion, visibility and visual exposure are incorporated, and qualified by sensitivity criteria (visual receptors) the magnitude of the impact of the development can be determined.

The sensitivity of visual receptors and views will be depended on:
The location and context of the viewpoint;
The expectations and occupation or activity of the receptor;
The importance of the view (which may be determined with respect to its popularity or numbers of people affected, its appearance in guidebooks, on tourist maps, and in the facilities provided for its enjoyment and references to it in literature or art).

The most sensitive receptors may include:

- Users of all outdoor recreational facilities including public rights of way, whose intention or interest may be focused on the landscape;
- Communities where the development results in changes in the landscape setting or valued views enjoyed by the community;
- Occupiers of residential properties with views affected by the development.
- These would all be high (5)

Other receptors include:

- People engaged in outdoor sport or recreation (other than appreciation of the landscape, as in landscapes of acknowledged importance or value); (3)
- People travelling through or past the affected landscape in cars, on trains or using other transport modes; (0)
- People at their place of work. (0)

The least sensitive receptors are likely to be people at their place of work, or engaged in similar activities, whose attention may be focused on their work or activity and who therefore may be potentially less susceptible to changes in the view.

In this process more weight is usually given to changes in the view or visual amenity which are greater in scale and visible over a wide area. In assessing the effect on views, consideration should be given to the effectiveness of mitigation measures, particularly where planting is proposed for screening purposes (Institute of Environmental Assessment & The Landscape Institute (1996).

Sensitivity of Visual Receptors

High (5)	Moderate (3)	Low (0)
Users of all outdoor recreational facilities including public rights of way, whose intention or interest may be focused on the landscape; Communities where the development results in changes in the landscape setting or valued views enjoyed by the community; Occupiers of residential properties with views affected by the development.	People engaged in outdoor sport or recreation (other than appreciation of the landscape, as in landscapes of acknowledged importance or value); People travelling through or past the affected landscape in cars, on trains or other transport routes.	The least sensitive receptors are likely to be people at their place of work, or engaged in similar activities, whose attention may be focused on their work or activity and who therefore may be potentially less susceptible to changes in the view (i.e. office and industrial areas). Roads going through urban and industrial areas

Magnitude (Severity / Intensity) of the Visual Impact

Potential visual impacts are determined by analysing how the physical change in the landscape, resulting from the introduction of a project, are viewed and perceived from sensitive viewpoints. Impacts to views are the highest when viewers are identified as being sensitive to change in the landscape, and their views are focused on and dominated by the change. Visual impacts occur when changes in the landscape are noticeable to viewers looking at the landscape from their homes or from parks, and conservation areas, highways and travel routes, and important cultural features and historic sites, especially in foreground views.

The magnitude of impact is assessed through a synthesis of visual intrusion, visibility, visual exposure and viewer sensitivity criteria. Once the magnitude of impact has been established this value is further qualified with spatial, duration and probability criteria to determine the *significance* of the visual impact.

For instance, the fact that visual intrusion and exposure diminishes significantly with distance does not necessarily imply that the relatively small impact that exists at greater distances is unimportant. The level of impact that people consider acceptable may be dependent upon the purpose they have in viewing the landscape. A particular development may be unacceptable to a hiker seeking a natural experience, or a household whose view is impaired, but may be barely noticed by a golfer concentrating on his game or a commuter trying to get to work on time (Ittleson *et al.,* 1974).

In synthesising these criteria a numerical or weighting system is avoided. Attempting to attach a precise numerical value to qualitative resources is rarely successful, and should not be used as a substitute for reasoned professional judgment. (Institute of Environmental Assessment and The Landscape Institute, 1996).

Magnitude (Severity / Intensity) of Visual Impact

High	Moderate	Low	Negligible
Total loss of or major alteration to key elements / features / characteristics of the baseline.	Partial loss of or alteration to key elements / features / characteristics of the baseline.	Minor loss of or alteration to key elements / features / characteristics of the baseline.	Very minor loss or alteration to key elements / features / characteristics of the baseline.
I.e. Pre-development landscape or view and / or introduction of elements considered to be totally uncharacteristic when set within the attributes of the receiving landscape.	I.e. Pre-development landscape or view and / or introduction of elements that may be prominent but may not necessarily be considered to be substantially uncharacteristic when set within the attributes of the receiving landscape.	I.e. Pre-development landscape or view and / or introduction of elements that may not be uncharacteristic when set within the attributes of the receiving landscape.	I.e. Pre-development landscape or view and / or introduction of elements that are not uncharacteristic with the surrounding landscape – approximating the 'no change' situation.
High scenic quality impacts would result.	Moderate scenic quality impacts would result	Low scenic quality impacts would result.	Negligible scenic quality impacts would result.

Cumulative effects

Cumulative landscape and visual effects (impacts) result from additional changes to the landscape or visual amenity caused by the proposed development in conjunction with other developments (associated with or separate to it), or actions that occurred in the past, present or are likely to occur in the foreseeable future. They may also affect the way in which the landscape is experienced. Cumulative effects may be positive or negative. Where they comprise a range of benefits, they may be considered to form part of the mitigation measures.

Cumulative effects can also arise from the intervisibility (visibility) of a range of developments and / or the combined effects of individual components of the proposed development occurring in different locations or over a period of time. The separate effects of such individual components or developments may not be significant, but together they may create an unacceptable degree of adverse effect on visual receptors within their combined visual envelopes. Intervisibility depends upon general topography, aspect, tree cover or other visual obstruction, elevation and distance, as this affects visual acuity, which is also influenced by weather and light conditions. (Institute of Environmental Assessment and The Landscape Institute, 1996).

Declaration of Independence

I, Mitha Cilliers hereby declare that Newtown Landscape Architects cc, an independent consulting firm, has no interest or personal gains in this project whatsoever, except receiving fair payment for rendering an independent professional service.

Consultant name: Mitha Cilliers

Signature: 

Date: 7 January 2014

Since 1994

Graham Young PrLArch

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Graham is a landscape architect with thirty years' experience. He has worked in Southern Africa and Canada and has valuable expertise in the practice of landscape architecture, urban design and environmental planning. He is also a senior lecturer, teaching urban design and landscape architecture at post and under graduate levels at the University of Pretoria. He also specializes in Visual Impact Assessments.

EXPERIENCE: NEWTOWN LANDSCAPE ARCHITECTS cc. *Member*

Current — Responsible for project management, landscape design, urban design, and visual impact assessment.

Senior Lecturer: Department of Architecture, University of Pretoria.

1991 - 1994 — **GRAHAM A YOUNG LANDSCAPE ARCHITECT - *Sole proprietor***

1988 - 1989 — Designed major transit and CBD based urban design schemes; designed commercial and recreational landscapes and a regional urban park; participated in inter-disciplinary consulting teams that produced master plans for various beachfront areas in KwaZulu Natal and a mountain resort in the Drakensberg.

1989 - 1991 — **CANADA - *Free Lance***

Designed golf courses and carried out golf course feasibility studies (Robert Heaslip and Associates); developed landscape site plans and an end-use plan for an abandoned

mine (du Toit, Allsopp and Hillier); conducted a visual analysis of a proposed landfill site.
.

1980 - 1988 **KDM (FORMERLY DAMES AND MOORE)** - *Started as a Senior Landscape Architect and was appointed Partner in charge of Landscape Architecture and Environmental Planning in 1984*. Designed commercial, corporate and urban landscapes; completed landscape site plans; developed end-use master plans for urban parks, college and technikon sites; carried out ecological planning studies for factories, motorways and a railway line.

1978 - 1980 **DAYSON & DE VILLIERS - *Staff Landscape Architect***

Designed various caravan parks; designed a recreation complex for a public resort; conducted a visual analysis for the recreation planning of Pilgrims Rest; and designed and supervised the installation of various private gardens.

EDUCATION:

Bachelor of Landscape Architecture, 1978, (BLArch), University of Toronto, Canada;
Completing a master's degree in Landscape Architecture, University of Pretoria; Thesis: Visual Impact Assessment;
Senior Lecturer - Department of Architecture, University of Pretoria.

PROFESSIONAL:

Registered Landscape Architect – South African Council for Landscape Architectural Profession (2001);
Board of Control for Landscape Architects of South Africa (1987) – Vice Chairman 1988 to 1989;
Professional Member - Institute of Landscape Architects Southern Africa (1982) – President 1986 - 1988;
Member Planning Professions Board 1987 to 1989;
Member International Association of Impact Assessment;

AWARDS:

Torsanlorenzo International Prize, Landscape design and protection 2nd Prize Section B: Urban Green Spaces, for Intermediate Phase Freedom Park (2009)
Phase 1 and Intermediate Phase Freedom Park: Special Mention World Architecture Festival, Nature Category (2008)
Moroka Park Precinct, Soweto: ILASA Merit Award for Design (2005) and Gold Medal United Nations Liveable Communities (LivCom) Award (2007)
Isivivane, Freedom Park: ILASA Presidential Award of Excellence Design (2005)
Information Kiosk, Freedom Park: ILASA Merit Award for Design (2005)
Moroka – Mofola Open Space Framework, Soweto: ILASA Merit Award for Planning (2005)

Mpumalanga Provincial Government Complex: ILASA Presidential Award of Excellence (with KWP Landscape Architects for Design (2003)

Specialist Impact Report: Visual Environment, Sibaya Resort and Entertainment World: ILASA Merit Award for Environmental Planning (1999);

Gillooly's Farm, Bedfordview (with Dayson and DeVilliers): ILASA Merit Award for Design;

COMPETITIONS:

Pan African Parliament International Design competition – with MMA architects (2007) Finalist

Leeuwpan Regional Wetland Park for the Ekurhuleni Metro Municipality (2004) Landscape Architectural Consultant on Department of Trade and Industries Building (2002) – Finalist

Landscape Architecture Consultant on Project Phoenix Architectural Competition, Pretoria (1999): Winner;

Mpumalanga Legislature Buildings (1998): Commissioned;

Toyota Fountain (1985): First Prize - commissioned;

Bedfordview Bike/Walkway System - Van Buuren Road (1982): First Prize - commissioned;

Portland Cement Institute Display Park (1982): Second Prize

CONTRIBUTOR:

Joubert, O, 10 Years + *100 Buildings – Architecture in a Democratic South Africa Bell-Roberts Gallery and Publishing*, South Africa (2009)

- Freedom Park Phase 1 and Intermediate Phase (NBGM), Pretoria, Gauteng

Galindo, M, *Collection Landscape Architecture*, Braun, Switzerland (2009)

- Freedom Park Phase Intermediate Phase (NBGM), Pretoria, Gauteng

In *1000 X Landscapes*, Verlagshaus Braun, Germany (2008)

- Freedom Park Phase 1 and Intermediate Phase (NBGM), Pretoria, Gauteng
- Riverside Government Complex (NLAKWP), Nelspruit, Mpumalanga;
- Moroka Dam Parks Precinct, Soweto, Gauteng.

In *Johannesburg: Emerging/Diverging Metropolis*, Mendrision Academy Press, Italy (2007)

- Moroka Dam Parks Precinct, Soweto, Gauteng.

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B.Sc Degree in Environmental Science from the University of North West, Potchefstroom Campus (2003). M.Sc Degree in Ecological Remediation and Sustainable Utilization from the University of North West, Potchefstroom Campus (2007). She is currently employed by Newtown Landscape Architects working on the following projects.

EXPERIENCE: **Environmentalist: Newtown Landscape Architects**

Responsible for the environmental work, which includes Basic Assessments, Environmental Impact Assessments (Scoping & EIA), Environmental Management Plans (EMP), Environmental Auditing as well as Visual Impact Assessments.

Current Projects:

Orchards Extension 49-53, Pretoria - Environmental Impact Assessment and Environmental Management Plan

Tanganani Ext 8, Johannesburg - Environmental Impact Assessment and Environmental Management Plan

Diepsloot East Development, Diepsloot **-** Environmental Impact Assessment and Environmental Management Plan

Klerksoord Ext 25 & 26, Pretoria – Environmental Impact Assessment

Ennerdale Ext 16, Johannesburg - Environmental Impact Assessment and Environmental Management Plan

Glen Marais Ext 102 & 103, Kempton Park - Basic Assessment and Environmental Management Plan

Princess Plot 229, Princess - Environmental Assessment (S24G Application)

Uthlanong Drive Upgrade – Mogale City Local Municipalty project in Kagiso, Basic Assessment for the upgrade of the stormwater and the roads

Luipaardsvlei Landfill Site – Mogale City Local Municipalty project in Krugersdorp, the expansion of the existing landfill site.

MCLM Waste Water Treatment Works – Mogale City Local Municipalty project in Magaliesburg, the expansion of the existing facility.

Rand Uranium (Golder Associates Africa (Pty) Ltd), Randfontein – VIA

Dorsfontein West Expansion (GCS (Pty) Ltd), Kriel – VIA

Mine Waste Solutions (GCS (Pty) Ltd), Stilfontein – VIA

Ferreira Coal Mining (GCS (Pty) Ltd), Ermelo – VIA

De Wittekrans Mining (GCS (Pty) Ltd), Hendrina – VIA

EDUCATION:

May 2009	Public Participation Course, International Association for Public Participation, Golder Midrand
May 2008	Wetland Training Course on Delineation, Legislation and Rehabilitation, University of Pretoria.
April 2008	Environmental Impact Assessment: NEMA Regulations – A practical approach, Centre for Environmental Management: University of North West.
Feb 2008	Effective Business Writing Skills, ISIMBI
Oct 2007	Short course in Geographic Information Systems (GIS), Planet GIS
Jan 2004 – April 2007	M.Sc Degree in Ecological Remediation and Sustainable Utilization, University of North West, Potchefstroom Campus. Thesis: Tree vitality along the urbanization gradient in Potchefstroom, South Africa.
Jan 2001 – Dec 2003	B.Sc Degree in Environmental Science, University of Potchefstroom

PROFESSIONAL REGISTRATION:

Sep 2009	Professional National Scientist – 400204/09

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Mitha is a landscape architect with nine years experience. She has worked as Landscape Architect in South Africa and Angola and has valuable expertise in the practice of landscape architecture and environmental planning. She is currently employed by Newtown Landscape Architects.

EXPERIENCE:

Current — *Landscape Architect:*
NEWTOWN Landscape Architects cc.
Visual Impact Assessments
Landscape Maintenance Auditing
Landscape Design

2008 to 2013 — *Consultant*:
NEWTOWN Landscape Architects cc.
Visual Impact Assessments
KWP Landscape Architects & Environmental Consultants
Landscape Maintenance Auditing
Landscape Design and draughting
REAL Landscapes
Landscape Design

2005 – 2007 — *Landscape Architect:*
KWP Landscape Architects & Environmental Consultants
Landscape design for various types of projects ranging from residential garden design to industrial landscaping, including the landscape upgrade of the SASOL plant in Secunda.

General project administration and documentation including Bill of Quantities, Tender Evaluation and site inspections.

Landscape Maintenance Auditing at the Nelspruit Riverside Government Offices

Preparation of Environmental Impact Assessment Reports for proposed housing developments.

Environmental Control Officer on various residential housing developments.

2003 – 2004 *Candidate Landscape Architect:*

Sigma Gibb – part of the GIBB Africa Group

Co-Landscape Architect on a residential housing estate in Luanda, Angola.

Design and draughting for various projects in Angola.

2003 *Candidate Landscape Architect:*

NEWTOWN Landscape Architects cc.

Design and draughting various projects ranging from private residential gardens to public parks.

Project administration including Bills of Quantities and Tender Evaluation and site inspections

PROFESSIONAL:

Registered Landscape Architect – South African Council for Landscape Architectural Profession (2007)

Committee Member – South African Council for Landscape Architectural Profession (2009 & 2011- - 2012)

EDUCATION:

Bachelor of Landscape Architecture, 2001, (BLArch), University of Pretoria.