# Eskom Ceres – Witzenberg 132kV Powerline:

## Visual Impact Assessment

**Report Prepared for**

## Eskom Holdings SOC Limited

**Report Prepared by**

srk consulting

**Report Number 532062/42A**

**February 2021**

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**SRK Project Number 532062/42A**
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# Profile and Expertise of Specialists

SRK Consulting (South Africa) (Pty) Ltd (SRK) has been appointed by Eskom Holdings SOC Limited, Western Operating Unit: Distribution Division (Eskom) to undertake the Basic Assessment (BA) process required in terms of the National Environmental Management Act 107 of 1998 (NEMA) for this project. SRK has appointed a team of professionals to conduct the Visual Impact Assessment (VIA) specialist study as part of the BA process.

In accordance with the EIA Regulations, 2014, the qualifications and experience of the key individual specialists involved in the study are detailed below.

**Project Review**: Sue Reuther, BSc (Hons); MPhil (EnvMgmt)
*Registered Environmental Assessment Practitioner (EAP) No. 2020/425*
Sue Reuther is a Principal Environmental Consultant and Associate Partner with more than 15 years of experience, primarily in South Africa, Southern and West Africa and South America (Suriname). She has managed complex EIAs for a wide range of projects in the infrastructure, mining, coastal and industrial sectors. Sue undertakes and reviews visual impact assessments since 2006 for a range of developments, including infrastructure, mining and alternative energy projects in South Africa and Africa, and has extensive experience with strategic environmental planning. Sue holds a BSc (Hons) (Economics) and MPhil (Env Mgmt).

**Specialist Consultant:** Christopher Dalgliesh, BBusSc (Hons); MPhil (EnvSci)
*Registered Environmental Assessment Practitioner No. 2019/413*
Chris Dalgliesh is an SRK Director and Principal Environmental Consultant with over 33 years' experience, primarily in Southern Africa, West Africa, South America, the middle East and Asia. Chris has worked on a wide range of projects, notably in the natural resources, Oil & Gas, waste, infrastructure and industrial sectors. He has directed and managed numerous Environmental and Social Impact Assessments (ESIAs), in accordance with international standards (e.g. IFC). He regularly provides high level review of ESIAs, frequently directs Environmental and Social Due Diligence studies and monitors project on behalf of financial institutions, and also has a depth of experience in Strategic Environmental Assessment (SEA) and Resource Economics. He has also managed and reviewed Visual Impact Assessments in South Africa and Africa. He holds a BBusSci (Hons) and M Phil (Env).

# Statement of SRK Independence

Neither SRK nor any of the authors of this Report have any material present or contingent interest in the outcome of this Report, nor do they have any pecuniary or other interest that could be reasonably regarded as being capable of affecting their independence or that of SRK. SRK has no beneficial interest in the outcome of the assessment which is capable of affecting its independence.

# Disclaimer

The opinions expressed in this report have been based on the information supplied to SRK by Eskom. SRK has exercised all due care in reviewing the supplied information, but conclusions from the review are reliant on the accuracy and completeness of the supplied data. SRK does not accept responsibility for any errors or omissions in the supplied information and does not accept any consequential liability arising from commercial decisions or actions resulting from them. Opinions presented in this report apply to the site conditions and features as they existed at the time of SRK's investigations, and those reasonably foreseeable. These opinions do not necessarily apply to conditions and features that may arise after the date of this Report, about which SRK had no prior knowledge nor had the opportunity to evaluate.

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# Acronyms and Abbreviations

| | |
|---|---|
| AMSL | Above Mean Sea Level |
| BA | Basic Assessment |
| DR | Divisional Road |
| EIA | Environmental Impact Assessment |
| EMP | Environmental Management Programme |
| Eskom | Eskom Holdings SOC Limited, Western Operating Unit: Distribution Division |
| GIS | Geographic Information Systems |
| GPS | Global Positioning System |
| ha | hectares |
| mamsl | metres above mean sea level |
| NEMA | National Environmental Management Act 107 of 1998 |
| SRK | SRK Consulting (South Africa) (Pty) Ltd |
| ToR | Terms of Reference |
| VAC | Visual Absorption Capacity |
| VIA | Visual Impact Assessment |

# Glossary

| | |
|---|---|
| Aspect | The direction a slope faces with respect to the sun. |
| Landscape Integrity | The relative intactness of the existing landscape or townscape, whether natural, rural or urban, and with an absence of intrusions or discordant structures (Oberholzer, 2005). |
| Landscape Unit | Portion of an area with similar morphological characteristics. |
| Sense of Place | The unique quality or character of a place, whether natural, rural or urban. Relates to uniqueness, distinctiveness or strong identity. Sometimes referred to as genius loci meaning 'spirit of the place' (Oberholzer, 2005). |
| Viewshed | The topographically defined area from which the project *could* be visible. |
| Visibility | The area from which the project components would actually be visible and which depends upon topography, vegetation cover, built structures and distance. |
| Visual Absorption Capacity | The potential for the area to conceal the proposed development. |
| Visual Character | The elements that make up the landscape including geology, vegetation and land-use of the area. |
| Visual Exposure | The zone of visual influence or viewshed. Visual exposure tends to diminish exponentially with distance. |
| Visual Impact | A description of the effect of an aspect of the development on a specified component of the visual, aesthetic or scenic environment within a defined time and space (Oberholzer, 2005). |
| 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 Quality | The experience of the environment with its particular natural and cultural attributes. |
| Visual Receptors | Individuals, groups or communities who are subject to the visual influence of a particular project (Oberholzer, 2005). |

# 1 Introduction

## 1.1 Background

Eskom Holdings SOC Limited, Western Operating Unit: Distribution Division (Eskom) proposes to build a new single circuit powerline between the Ceres and Witzenberg substations as well as a new substation in Prince Alfred Hamlet, and a powerline tie-in to this proposed new substation (the project) (Figure 2-1).

SRK Consulting (South Africa) (Pty) Ltd (SRK) has been appointed by Eskom to undertake the Basic Assessment (BA) process required in terms of the National Environmental Management Act 107 of 1998 (NEMA), and the Environmental Impact Assessment (EIA) Regulations, 2014. A Visual Impact Assessment (VIA) of the project is one of the investigations commissioned for the BA process.

The VIA will consider both the magnitude of the visual impact (rated according to visual assessment criteria) and the significance of the visual impact (rated according to standard EIA rating methodology, as prescribed in the Terms of Reference [ToR]).

## 1.2 Terms of Reference

The primary aims of the VIA are to describe the visual baseline, assess the visual impacts of the project and identify effective and practicable mitigation measures. More specifically, the ToR for the VIA are as follows:

- Describe the baseline visual characteristics of the study area, including landform, visual character and sense of place, and place this in a regional context;
- Identify potential impacts of the project on the visual environment through analysis and synthesis of the following factors:
    - Visual exposure;
    - Visual absorption capacity;
    - Sensitivity of viewers (visual receptors);
    - Viewing distance and visibility; and
    - Landscape integrity;
- Assess the impacts of the project on the visual environment and sense of place using the prescribed impact assessment methodology (see Appendix C);
- Assess the direct, indirect and cumulative impacts (pre- and post-mitigation) of the final location of infrastructure (and alternatives, if applicable) on visual resources in relation to other proposed and existing developments in the surrounding area;
- Recommend practicable mitigation measures to avoid and/or minimise/reduce impacts and optimise benefits; and
- Recommend and draft a monitoring campaign to ensure the correct implementation and adequacy of recommenced mitigation and management measures, if applicable.

## 1.3 Content of the Report

The EIA Regulations, 2014 (R982 of 2014, as amended by R326 of 2017), prescribe the required content of a specialist report prepared in terms of the EIA Regulations, 2014. These requirements, and the sections of this VIA in which they are addressed, are summarised in Table 1-1.

**Table 1-1: Required content of a specialist report**

| App 6 | Item | Section |
|---|---|---|
| (a) (i) | Details of the specialist who prepared the report; | Page ii |
| (a) (ii) | Expertise of that specialist to compile a specialist report, including a curriculum vitae, | Page ii, App A |

| App 6 | Item | Section |
|---|---|---|
| (b) | A declaration that the specialist is independent in a form as may be specified by the competent authority; | App B |
| (c) | An indication of the scope of, and the purpose for which, the report was prepared; | 1.2 |
| (cA) | An indication of the quality and age of base data used for the specialist report; | 2.4 |
| (cB) | A description of existing impacts on the site, cumulative impacts of the proposed development and levels of acceptable change; | 4 |
| (d) | The duration, date and season of the site investigation and the relevance of the season to the outcome of the assessment; | 2.4 |
| (e) | A description of the methodology adopted in preparing the report or carrying out the specialised process inclusive of equipment and modelling used; | 2.2, 2.3 |
| (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; | 6 |
| (g) | An identification of any areas to be avoided, including buffers; | n/a |
| (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; | Figure 5-1 |
| (i) | A description of any assumptions made and any uncertainties or gaps in knowledge; | 2.5 |
| (j) | A description of the findings and potential implications of such findings on the impact of the proposed activity or activities; | 7.1 |
| (k) | Any mitigation measures for inclusion in the EMPr; | 6 |
| (l) | Any conditions for inclusion in the environmental authorisation; | 6 |
| (m) | Any monitoring requirements for inclusion in the EMPr or environmental authorisation; | 6 |
| (n) (i) | A reasoned opinion whether the proposed activity or portions thereof should be authorised; | 7.2 |
| (n) (iA) | A reasoned opinion regarding the acceptability of the proposed activity or activities; | 7.2 |
| (n) (ii) | 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; | 6 |
| (o) | A description of any consultation process that was undertaken during the course of preparing the specialist report; | n/a |
| (p) | 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 competent authority. | n/a |

# 2 Approach and Method

Visual impacts are a function of the physical transformation of a landscape on account of the introduced object, and the experiential perceptions of viewers.

Given the subjective nature of visual issues, assessing the visual impacts of a development/site in absolute and objective terms is not achievable. Thus, qualitative as well as quantitative techniques are required. In this VIA, emphasis has therefore been placed on ensuring that the methodology and rating criteria are clearly stated and transparent. The focus of the study is to determine the character and sensitivity of the visual environment, identify visual receptors and viewing corridors and identify and assess potential visual impacts and mitigation measures. Impact assessment ratings are motivated and, where possible, assessed against explicitly stated and objective criteria.

## 2.1 Guidelines

There are very few guidelines that provide direction for visual assessment; the most relevant are the Landscape Institute's "Guideline for Landscape and Visual Impact Assessments" (2013) and the Department of Environmental Affairs and Development Planning's "Guideline for Involving Visual and Aesthetic Specialists in EIA Processes" (2005), both of which have been considered in this VIA.

DEA&DP's Guideline identifies typical components of a visual study:

- Identification of issues and values relating to visual, aesthetic and scenic resources through involvement of stakeholders;
- 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 visual absorption capacity (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; and
- A comparison of the existing situation with the probable effect of the proposed project.

Projects that warrant a visual specialist study include those:

- Located in a receiving environment with:
    - Protection status, such as national parks or nature reserves;
    - Proclaimed heritage sites or scenic routes;
    - Intact wilderness qualities, or pristine ecosystems;
    - Intact or outstanding rural or townscape qualities;
    - A recognized special character or sense of place;
    - Outside a defined urban edge line;
    - Sites of cultural or religious significance;
    - Important tourism or recreation value;
    - Important vistas or scenic corridors;

- Visually prominent ridgelines or skylines; and/or
- Where the project is:
  - High intensity, including large-scale infrastructure;
  - A change in land use from the prevailing use;
  - In conflict with an adopted plan or vision;
  - A significant change to the fabric and character of the area;
  - A significant change to the townscape or streetscape;
  - A possible visual intrusion in the landscape; or
  - Obstructing views of others in the area.

The proposed powerline can be classified as a Category 5 development in terms of the guidelines, which include *powerlines*. As the project is situated within an area of high scenic value, a very high visual impact is expected (see Table 2-1), which:

- Has a potentially significant effect on wilderness quality or scenic resources;
- Introduces a fundamental change in the visual character of the area;
- Establishes a major precedent for development in the area.

Such a project typically warrants a Level 4 assessment (see Table 2-2), which includes the following steps:

- Identification of issues raised in the 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;
- Complete 3D modeling and simulations, with and without mitigation; and
- Review by independent, experienced visual specialist (if required).

**Table 2-1: Expected visual impact significance**

| Type of environment | Type of development | | | | |
|---|---|---|---|---|---|
| | Cat 1 | Cat 2 | Cat 3 | Cat 4 | Cat 5 |
| Protected / wild areas | Moderate | High | High | Very high | Very high |
| High scenic, cultural, historical value | Minimal | Moderate | High | High | Very high |
| Medium scenic, cultural, historical value | Little or none | Minimal | Moderate | High | High |
| Low scenic, cultural, historical value / disturbed | Little or none Possible benefits | Little or none | Minimal | Moderate | High |
| Disturbed or degraded sites | Little or none Possible benefits | Little or none Possible benefits | Little or none | Minimal | Moderate |

**Table 2-2: Recommended approach for visual assessment**

| Approach | Type of issue | | | | |
|---|---|---|---|---|---|
| | 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 input recommended | Level 1 visual input | Level 2 visual input | Level 3 visual assessment | Level 4 visual assessment | |

## 2.2 Approach

The approach to the VIA was selected to be as accurate and thorough as possible. Analytical techniques are selected so as to endorse the reliability and credibility of the assessment.

The approach to and reporting of the VIA study comprises three major, phased elements (as summarised in Figure 2-2 below):

1. A description of the visual context;
2. The identification and discussion of the potential visual impacts; and
3. An assessment of those potential impacts.

Visual impacts are assessed as one of many interrelated effects on people (i.e. the viewers and the impact of an introduced object into a particular view or scene) (Young, 2000). In order to assess the visual impact the project has on the affected environment, the visual context (baseline) in which the project is located must be described. The inherent value of the visual landscape to viewers is informed by geology/topography, vegetation and land-use and is expressed *as Visual Character* (overall impression of the landscape), *Visual Quality* (how the landscape is experienced) and *Sense of Place* (uniqueness and identity).

Visual impact is measured as the change to the existing visual environment caused by the project as perceived by the viewers (Young, 2000). The visual impact(s) may be negative, positive or neutral (i.e. the visual quality is maintained). The magnitude or intensity of the visual impacts is determined through analysis and synthesis of the visual absorption capacity (VAC) of the landscape (potential of the landscape to absorb the project), viewshed (zone of visual influence or exposure), visibility (viewing distances), compatibility of the project with landscape integrity (congruence), and the sensitivity of the viewers (receptors).

Sources of visual impacts are identified for the construction and operational phases of the project. The significance of those visual impacts is then assessed using the prescribed impact rating methodology, which includes the rating of:

- Impact consequence, determined by extent, duration and magnitude/intensity of impact (see above);
- Impact probability;
- Impact significance, determined by combining the ratings for consequence and probability; and
- Confidence in the significance rating.

Mitigation measures recommended to avoid and/or reduce the significance of negative impacts, or to optimise positive impacts, are identified for the project. Impact significance is re-assessed assuming the effective implementation of mitigation measures.

## 2.3 Method

The following method was used to assess the visual baseline for the project:

1. Describe the project using information supplied by the proponent and EIA team;
2. Collect and review visual data, including data on topography, vegetation cover and land-use;
3. Conduct fieldwork (conducted in May 2017), comprising an extensive reconnaissance of the study area. The objectives of the fieldwork are to:
    - Familiarise the specialist with the study area and its surroundings;
    - Identify key viewpoints / view corridors; and
    - Determine and groundtruth the existing visual character and quality in order to understand the sensitivity of the landscape.

Visual 'sampling' using photography was undertaken to illustrate the likely zone of influence and visibility. The location of the viewpoints was recorded with a GPS.

4. Undertake a mapping exercise to define the visual character of the study area and identify sensitive areas, opportunities and constraints; and
5. Identify sensitive receptors.

The following method was used to assess the visual impact of the project:

1. Determine the visual zone of influence using a GIS model to calculate the viewshed based on the dimensions, particularly the elevations, of the pylons;
2. Determine the likely distance at which visual impacts will become indistinguishable using photographs from key viewpoints;
3. Rate impacts on the visual environment and sense of place based on a professional opinion and the prescribed impact rating methodology;
4. Recommend practicable mitigation measures to avoid and/or minimise impacts and/or optimise benefits); and
5. Provide environmental management measures to be included in the Environmental Management Programme for the project (EMPr).

## 2.4 Data

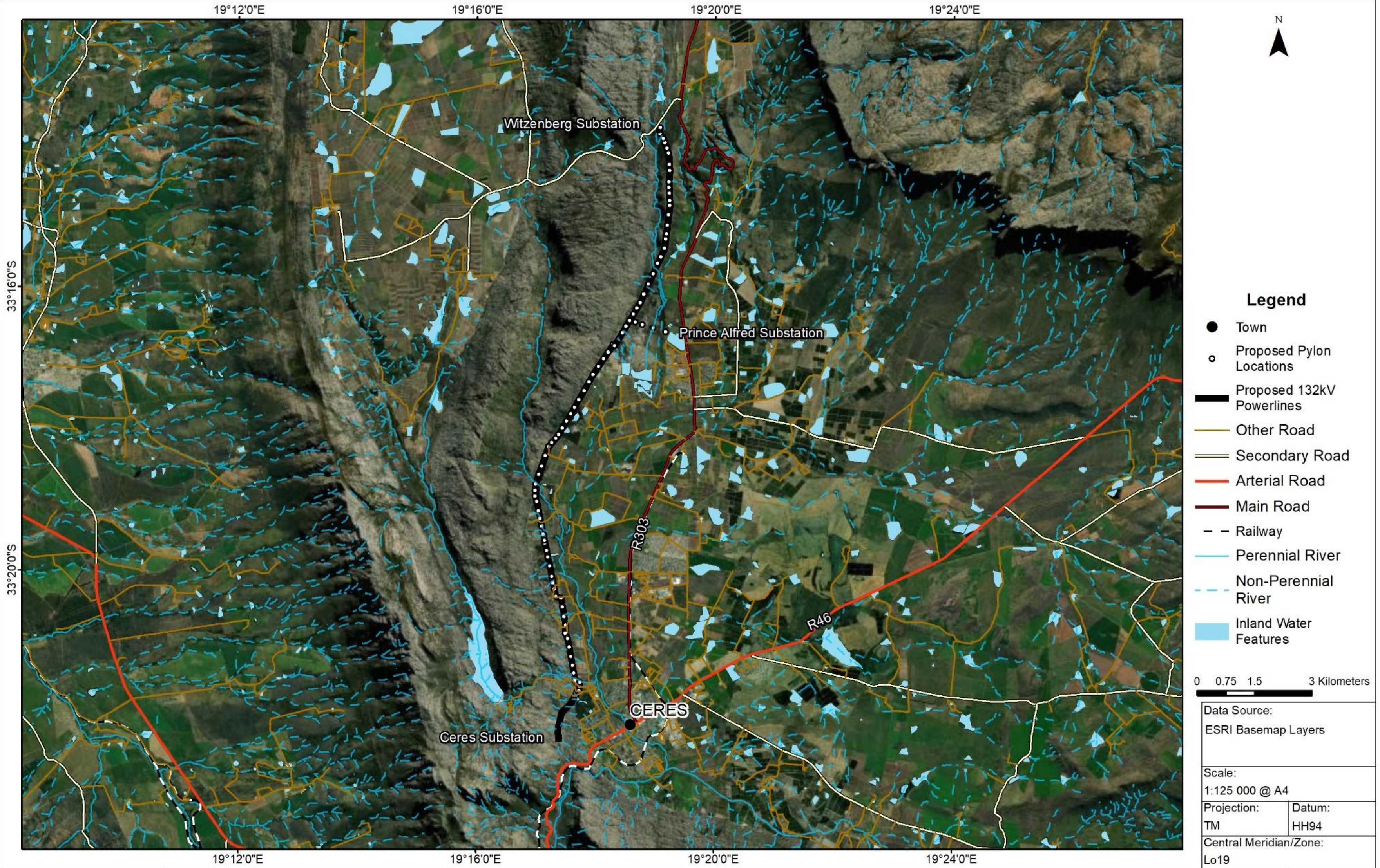
A site visit was undertaken in May 2017, when the project initiated[1]. The site visit duration and timing were appropriate to provide the specialist with impressions of the site and surroundings. As the project area is very remote, the site characteristics observed in May 2017 remain representative of present site characteristics.

The following additional information sources were used:

- Maps indicating the location and layout of the project;
- Topographic data, including contours, elevation, slope and gradients;
- Aerial images; and
- Other specialist studies for the EIA and/or other available literature on geology, vegetation, land use, receptors etc.

The information is sufficiently recent and detailed to provide appropriate inputs into the VIA.

[1] The project was subsequently split, and the Ceres and Witzenberg powerline project was suspended until 2020.




| | |
|---|---|
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| Central Meridian/Zone: Lo19 | |
| Date: 05/08/2020 | Compiled by: GOVN |
| Project No: 532062 | Fig No: 2-1 |

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WITZENBERG POWERLINE VISUAL IMPACT ASSESMENT
BASEMAP

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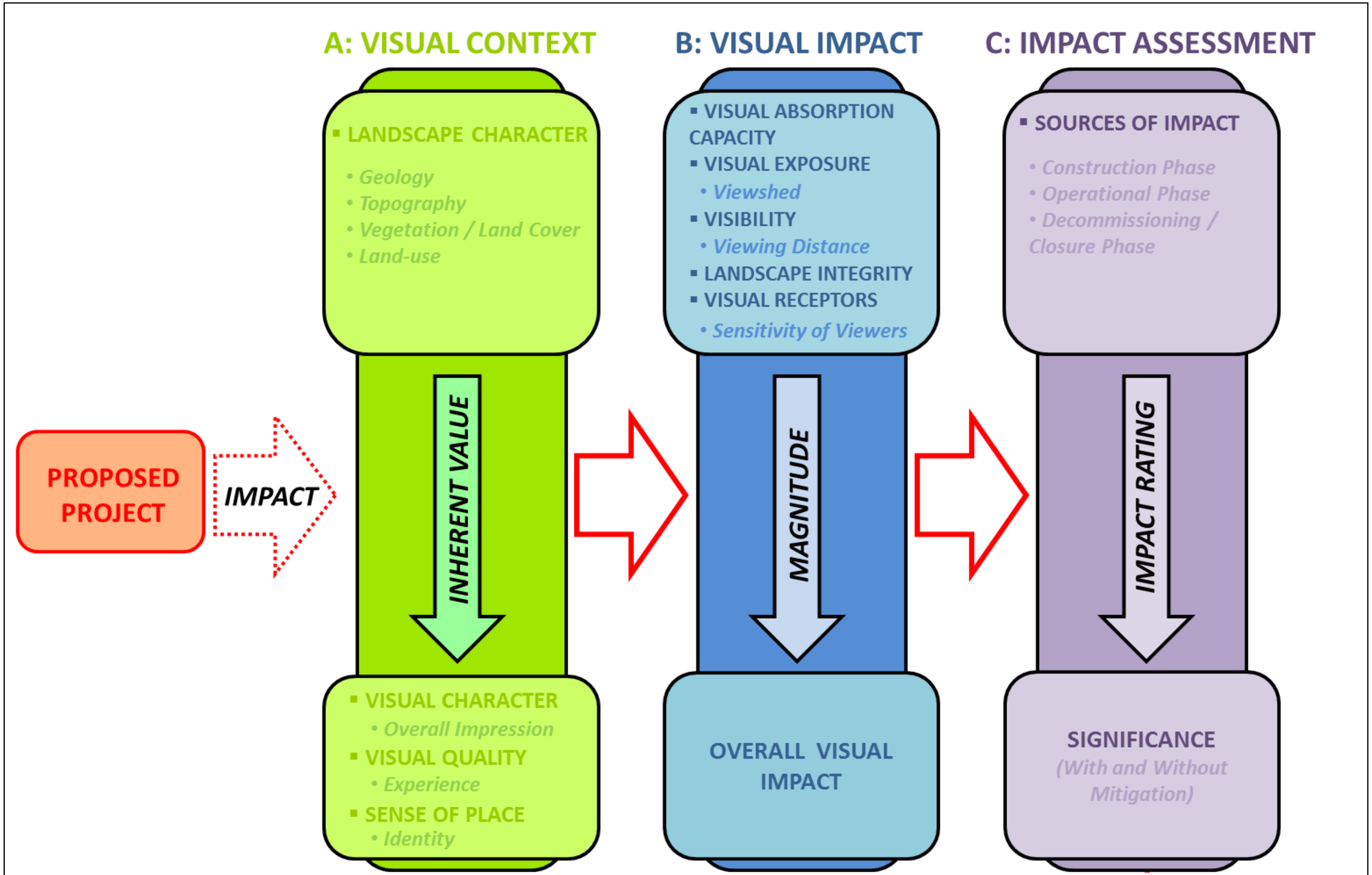



| srk consulting | **CERES – WITZENBERG VIA**<br>APPROACH AND METHOD | Project No.<br>532062/42A |
|---|---|---|

**Figure 2-2: Approach to and method for the VIA**

## 2.5 Assumptions and Limitations

As is standard practice, the VIA is based on a number of assumptions and is subject to certain limitations, which should be borne in mind when considering information presented in this report. These assumptions and limitations include:

- VIA is not, by nature, a purely objective, quantitative process, and depends to some extent on subjective judgments. Where subjective judgments are required, appropriate criteria and motivations for these are clearly stated;
- The assessment is based on technical information supplied to SRK, which is assumed to be accurate. This includes the proposed locations, dimensions and layouts of the project components;
- The study focuses on the components of the project that are anticipated to have the greatest visual impact because of their height and/or scale, namely access roads, pylons and the Prince Alfred Substation. However, the other components of the project are considered in the assessment of the overall visual impact;
- The study area is defined as the area within a ~ 20 km radius of the site, as the visual impact beyond this distance can be considered negligible;
- The viewshed calculations were undertaken using 20 m contour intervals. The viewsheds depict the area from which the project might be visible. The viewsheds do not take localised undulations, vegetation and existing man-made structures - which may obscure views - into account. This means that the project is not necessarily visible from everywhere within the viewsheds, i.e. from some places the project may be obscured by existing structures, vegetation or local variations in topography. They therefore indicate a "maximum exposure" or "worst case" scenario;
- The viewsheds are based on the heights of the pylons above ground level, assumed to be 20 m; and
- This study does not provide motivation for or against the project, but rather seeks to give insight into the visual character and quality of the area, its VAC and the potential visual impacts of the project.

The findings of the VIA are not expected to be affected by these assumptions and limitations.

# 3 Project Description

Eskom proposes to construct a ~17 km single circuit (132 kV) powerline from the existing Ceres Substation to the existing Witzenberg Substation, as well as a new substation in Prince Alfred Hamlet, and a ~1 km powerline tie-in to this proposed new substation. The project is required to supplement the electrical power supply in the region. Key aspects of the project include:

- Construction of a new single circuit powerline (132kV) on 87 pylons parallel to (and ~32 m apart from) the existing 66 kV (steel lattice pylons) and 11 kV (wood pole) powerlines between Ceres and Witzenberg substations[2]. For the first 13 km, the powerline alignment rises gently from an elevation of ~465 m above mean sea level (mamsl) at Ceres Substation to 550 m, whereafter it rises sharply up the Witzenberg (Ridge) over the last 4 km to an elevation of ~1 000m at the Witzenberg Substation. The substation is adjacent to and accessed from the Witzenberg Valley Road which connects through to the Agterwitzenberg agricultural area. The Prince Alfred Substation is at an elevation of ~530 m;
- Installation of a 132 kV feeder bay at the Ceres Substation;
- Construction of a new 132kV Prince Alfred Hamlet substation will be constructed.

The proposed structures (pylons) will be braced double steel poles (20 m high) and steel monopoles – 12 m high (Figure 3-1).

Existing farm roads will be utilised for the full extent of the route except on Witzenberg Ridge. Using the existing 66kV pole positions as a guide, Eskom have identified and mapped various access scenarios in this area:

- Existing access tracks to be used;
- No existing access and new access tracks not technically feasible (i.e. access will be manual or via helicopter) Helicopter assisted assembly has been selected for Pylons 68 to 71 and 63 to 65 due to access restrictions and environmental sensitivities at these sites. It is anticipated that a new 4x4 track will be required to access Pylons 72 to 74;
- No formal access track, but informal jeep tracks to be used; and
- No existing access track and construction of a new access track.

[2]Subsequent to compilation of the VIA, the alignment between pylons 19 and 26 was shifted 300 m to the west to a avoid wetlands. This new alignment has not affected the VIA.

**Figure 3-1: Indicative representation of the pylon types considered for the project - steel monopole (left) or braced double steel poles (right)**

### 3.1.1 The No-Go Alternative

The No-Go Alternative will retain the *status quo* and involve no construction of a powerline, nor a substation at Prince Alfred. No new visual impacts will occur.

# 4 Visual Context (Affected Environment)

The following description of the affected environment focuses on the *Visual Character* of the area surrounding and including the project (the study area) and discusses the *Visual Quality* and *Sense of Place*[3]. This baseline information provides the context for the visual analysis.

## 4.1 Landscape Character

Landscape character is the description of the pattern of the landscape, resulting from particular combinations of natural (physical and biological) and cultural (land use) characteristics. It focuses on the inherent nature of the land rather than the response of a viewer (Young, 2000).

Refer to Figure 4-4 for visual representations of landscape character.

One distinct landscape unit occur in the study area:

1. The Ceres Valley.

The key characteristics of the Ceres Valley are discussed below in the context of this landscape unit.

### 4.1.1 Geology and Topography

The geology and topography of the area, together with the Mediterranean climate, provide the framework for the basic landscape features and visual elements of the study area.

The study area is surrounded by dramatic mountains of the Cape Fold Belt underlain by geological formations of the Bokkeveld Group and Table Mountain Group. Shale and sandstone form low rolling hills across the wider Ceres Valley bottom. The weather-resistant quartzitic sandstone, mainly of the Skurweberg Formation, forms steep rocky mountains such as the North-South trending Witzenberg and Skurweberg Mountains.

The Ceres Valley (also known as the Warm Bokkeveld Valley) is a large fertile basin enclosed by the Skurweberg and Witzenberg Mountains to the west, the Hex River Mountains to the south and east, and the Gydoberg Mountains and Waboomberg Mountains to the north. From the town of Ceres - the lowest point in the valley at approximately 460 mamsl - the landscape rises gently over a distance of 13 - 16 kms to the north and east, before rising sharply at the foothills to form the northern and eastern perimeter of the basin. In contrast, spectacular mountain ranges immediately to the west and south abut Ceres. Gydo Pass (R303) in the north of Ceres Valley connects the Warm Bokkeveld with the higher altitude Koue Bokkeveld near the Witzenberg Substation. The Witzenberg Valley Road connects the R303 to the Agterwitzenberg farming area in an extensive, hidden undulating valley ~ 900 mamsl.

Michell's Pass (R46) is a spectacular scenic route aligned next to the narrow valley of the Breede River through the Witzenberg Mountains, providing access from the south to Ceres. The topography of the powerline alignment can be conceptualised in three sections:

- Section 1: A ~13 km long predominantly South-North alignment from the Ceres Substation to the to the base of the Witzenberg Ridge, mostly on flat land between farmland (orchards) and the base of the Skurweberg Mountain Range;
- Section 2: A ~4.0 km long predominantly South-North alignment from the base of the Witzenberg Ridge along a natural, exposed

[3] These terms are explained in the relevant sections below.

ridgeline rising sharply by ~ 500 m to the Witzenberg Substation. The ridgeline is considerably lower than the main Witzenberg Range to the west; and

- Section 3: A ~1.5 km long predominantly Southwest-Northeast alignment from the junction with the proposed link to the proposed Prince Alfred Hamlet substation to the base of the Witzenberg Ridge, mostly on flat, vacant land at the base of the Witzenberg/Skurweberg Mountain Range.

The topographical landscape of the flatlands has been very significantly modified by agricultural and peri-urban development, whereas the mountain ranges are largely pristine.

### 4.1.2 Vegetation

The study area is located within the Cape Floristic Kingdom and the Fynbos Biome and in the original extent of the following vegetation types:

- Winterhoek Sandstone Fynbos on the steep, rugged slopes of the Witzenberg and Skurweberg Mountains;
- North Hex Sandstone Fynbos on the steep, rugged slopes of the Hex River Mountains;
- Ceres Shale Renosterveld on the wide Ceres Valley plain; and
- Kouebokkeveld Shale Fynbos on the foothills to the north and east of the Ceres Valley.

The natural vegetation of the area is predominantly low to moderately tall shrubland. However, much of the natural vegetation in the Ceres Valleys has been lost to commercial agriculture, primarily orchards to the south and west (where the powerline will be routed), and dryland wheat farming to the east. The area to the east and north of the Witzenberg Substation comprises high-altitude orchards, with the Witzenberg Range to the west. Natural vegetation cover on the steeper slopes of the mountains has mostly remained intact because it is not suitable for development, in addition to which some areas are proclaimed nature reserves.

Isolated stands of alien trees (e.g. *Eucalyptus* and pine) occur around farmsteads and along access roads to the farms, and other alien trees such as beefwoods are used as windrows between crop fields.

Although there are many drainage lines crossing the valleys, these watercourses have been severely affected by agricultural activities.

### 4.1.3 Land Use

Although the Ceres area is known for its fruit production (apple, pear, stone fruit), particularly at the base of the Hex River and Skurweberg Mountains, the predominant crops in the central parts of the valleys are wheat and lucerne. High-altitude farming is undertaken in the Agterwitzenberg farming area, and the Koue Bokkeveld. Farmsteads and farm dams are scattered throughout the area. An extensive network of gravel roads connects farms and settlements.

The R46 (a provincial road from Tulbagh) passes east of Wolseley and through Michell’s Pass to Ceres. Michell’s Pass is a scenic route that winds its way through the mountains along the Breede River providing attractive scenery. After descending into Ceres, the R46 traverses the Ceres Valley towards the north-east. The R303 connects Ceres to Prince Alfred Hamlet and then, via the Gydo Pass, connects the Warm Bokkeveld with the higher altitude Koue Bokkeveld.

The Witzenberg Valley Road connects the R303 to the elevated Agterwitzenberg farming area.

The Ceres Rail Company has reinstated the Ceres rail line through Michell’s Pass and offers scenic train trips between Cape Town and Ceres.

The town of Ceres serves as a regional centre in the Witzenberg Local Municipality. Ceres is located in the south-west of the Ceres Valley nestled at the base of the Skurweberg Mountains to the west and the Hex River Mountains to the south.

Tourism is important in the area with protected areas proclaimed in the surrounding mountains (such as the Winterhoek Mountain Catchment Area, Matroosberg Mountain Catchment Area and Koue Bokkeveld Mountain Catchment Area).

The Ceres Substation is located on the outskirts of Ceres at the base of the east-facing slopes of Skurweberg Mountain Range.

The proposed powerline route generally follows the alignment of an existing 66 kV and 11 kV powerlines to the Witzenberg Substation.

## 4.2 Visual Character

Visual character is descriptive and non-evaluative, which implies that it is based on defined attributes that are neither positive nor negative. It refers to the overall experience and impression of the landscape, such as natural or transformed (see Figure 4-1). Typical character attributes, used to describe the visual character of the affected area and to give an indication of potential value to the viewer, are provided in Figure 4-2.

A change in visual character cannot be described as having positive or negative attributes until the viewer’s response to that change has been taken into consideration. The probable change caused by the project is assessed against the existing degree of change caused by previous development.

The basis for the visual character of the region is provided by the geology, vegetation and land use of the area, giving rise to a predominantly undulating valley characterised by agricultural activity and peri-urban development, enclosed in a spectacular mountainous basin under predominantly pristine natural cover. Most of the wider area can therefore be defined as a *natural transition landscape* of mostly natural scenery, with rural and urban elements and artefacts visible in the landscape (see Appendix D).

View towards Witzenberg Substation

Powerlines on Witzenberg Ridge

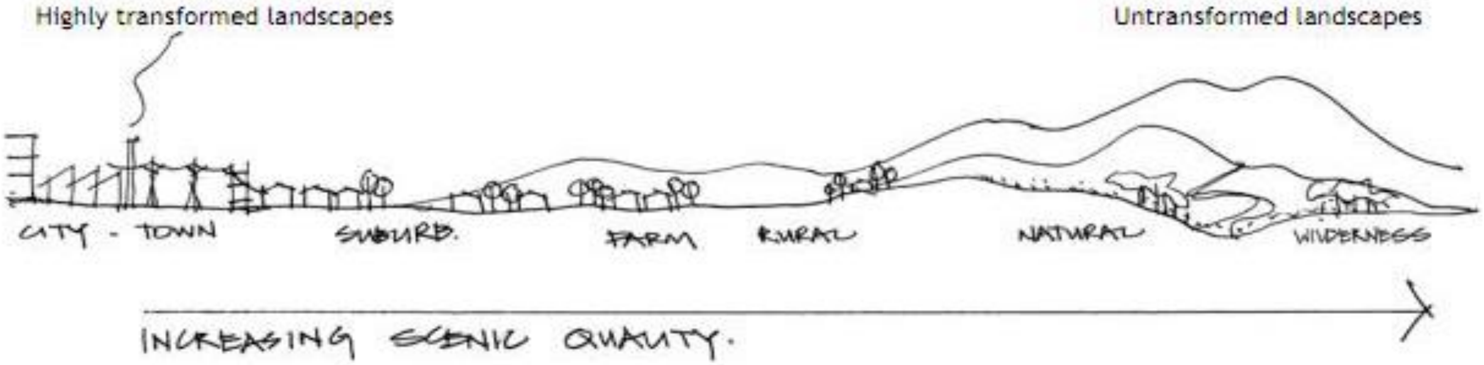
View from Prince Alfred Hamlet Substation Site from VP 26

View down across Ceres Valley

| srk consulting | **CERES – WITZENBERG VIA**<br>Visual Character | Project No.<br>532062/42A |
|---|---|---|

**Figure 4-1: Visual character**

| Highly Transformed Landscape – Urban/Industrial | Transition Landscape | Modified Rural Landscape | Natural Transition Landscape | Untransformed Landscape – Natural |
|---|---|---|---|---|
| Substantially developed landscape. High levels of visual impact associated with buildings, factories, roads and other related infrastructure (e.g. powerlines). | Transitional landscape associated with the interface between, rural, agricultural area and more developed suburban or urban zones. | Typical character is rural landscape, defined by field patterns, forestry plantations and agricultural areas and associated small-scale roads and buildings. | A changing landscape character associated with the interface between natural areas and modified rural / pastoral or agricultural zones. | No / minimal impact associated with the actions of man. National parks, coastlines, pristine forest areas. |




*Source:* (CNDV, 2006)

(Shan Ding Lu, 2012)

(Night Jar Travel South Africa, 2012)

*(Boschkloof, 2012)*

**Figure 4-2: Typical visual character attributes**

## 4.3 Visual Quality

Aesthetic value is an emotional response derived from our experience and perceptions. As such, it is subjective and difficult to quantify in absolute terms. Studies in perceptual psychology have shown that humans prefer landscapes with higher complexity (Crawford, 1994). Landscape quality can be said to increase when:

- Topographic ruggedness and relative relief increases;
- Water forms are present;
- Diverse patterns of grasslands, shrubs and trees occur;
- Natural landscape increases and man-made landscape decreases; and
- Where land use compatibility increases.

The visual quality of the overall area is largely ascribable to the rural and peri-urban patterns across the Ceres (and elevated Koue Bokkeveld) Valleys nestled in spectacular and rugged mountains covered in natural vegetation.

The visual quality of the area can be experienced through a number of views (Figure 4-3). These views include:

- Complex rolling views from and across the valleys towards the mountains;
- Extended (long) closed views from vantage points looking out across the valley towards the mountains; and
- Short closed views to nearby mountains and in the Koue Bokkeveld.

Some elements detract from the visual quality in the study area, notably vertical elements traversing the landscape including the existing 66 kV and 11 kV powerlines from the Witzenberg Substation, 400 kV and 765 kV powerlines traversing the Skurweberg and Witzenberg respectively, existing substations, urban areas (Ceres and Prince Alfred Hamlet), roads and agro-processing facilities. As such the visual quality of the study area is considered to be ***moderate***.

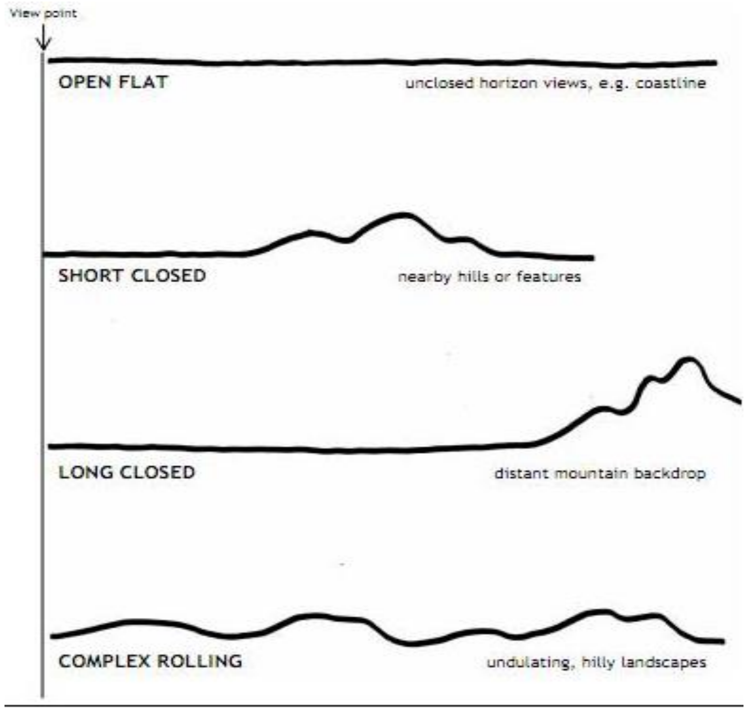



**Figure 4-3: Types of views in the landscape**
*Source: (CNDV, 2006)*

## 4.4 Sense of Place

Our sense of a place depends not only on spatial form and quality, but also on culture, temperament, status, experience and the current purpose of the observer (Lynch, 1992). Central to the idea of 'sense of place' or *Genius Loci* is identity. An area will have a stronger sense of place if it can easily be identified, that is to say if it is unique and distinct from other places. Lynch defines 'sense of place' as "the extent to which a person can recognise or recall a place as being distinct from other places – as having a vivid or unique, or at least a particular, character of its own" (Lynch, 1992).

It is often the case that sense of place is linked directly to visual quality and that areas/spaces with high visual quality have a strong sense of place. However, this is not an inviolate relationship and it is plausible that areas of low visual quality may have a strong sense of place or – more commonly – that areas of high visual quality have a weak sense of place. The defining feature of sense of place is uniqueness, generally real or biophysical (e.g. trees in an otherwise treeless expanse), but sometimes perceived (e.g. visible but unspectacular sacred sites and places which evoke defined responses in receptors). Tourism can sometimes serve as an indicator of sense of place insofar as it is often the uniqueness (and accessibility) of a space/place which attracts tourists.

The region has scenic value in terms of the rural/agricultural setting and sense of nature invoked by the encircling spectacular mountainous backdrop. The region has attractive visual-spatial qualities and residents and tourists are attracted to the area because of its scenery and location in the landscape. The visual-spatial qualities are influenced by the rural patterns created by rolling wheatfields, the patchwork of fruit orchards and vineyards in a mountainous setting, offset to some extent by urban developments, agroprocessing facilities and some derelict portions adjoining these areas. Views across the valley and from Gydo Pass add to the sense of place of the area. Tourists are also attracted to the area during the winter months when the surrounding mountains, including the lower reaches of the Koue Bokkeveld at Gydo Pass are often covered in snow.

One's connection or relationship to a place when defining sense of place is also important. Cross (2001) defines six categories of relationships with place (Table 4-1): biographical, spiritual, ideological, narrative, cognitive and dependent.

**Table 4-1: Relationship to place**

| Type of Relationship | Process |
|---|---|
| Biographical (historical and familial) | Being born in and living in a place. Develops over time. |
| Spiritual (emotional, intangible) | Feeling a sense of belonging. |
| Ideological (moral and ethical) | Living according to moral guidelines for human responsibility to place.<br>Guidelines may be religious or secular. |
| Narrative | Learning about a place through stories, family histories, political accounts and fictional accounts. |
| Cognitive (based on choice and desirability) | Choosing a place based on a list of desirable traits and lifestyle preferences. |
| Dependent | Constrained by lack of choice, dependency on another person or economic opportunity. |

*Source: Adapted from Cross* (2001)

The relationship of receptors in the study area (refer to Section 5.3) to place is likely to be predominantly biographical or cognitive. A farmer in the Ceres Valley, for example, whose farm has been in the family for generations will have a spiritual attachment to the area. Visitors to the area may have decided to visit the Ceres Valley because they were (cognitively) enticed by the scenic characteristics of the area (steep, rugged mountains and rural patterns across the valley).

# 5 Analysis of the Magnitude of the Visual Impact

The following section outlines the analysis that was undertaken to determine the **magnitude or intensity** of the overall visual impact of the project. Various factors were considered in the assessment, including:

- Visual exposure;
- Visual absorption capacity;
- Potential visual receptors;
- Visibility and viewing distance; and
- Compatibility with the existing landscape / townscape integrity.

The analysis of the magnitude or intensity of the visual impact, as described in this section, is summarized and integrated in Table 5-6 and forms the basis for the assessment and rating of the impact as documented in the next section (Section 6).

## 5.1 Visual Exposure

Visual exposure is determined by the zone of visual influence or viewshed. The viewshed is the topographically defined area that includes all the major observation sites from which the project *could* be visible. The boundary of the viewshed connects high points in the landscape and demarcates the zone of visual influence.

For the purposes of this study, the viewsheds for the powerline are based on the heights of the pylons above ground level. A viewshed was generated for the powerline in the Ceres Valley (pylon numbers 1 to 88, Figure 5-1).

The method used to determine the zones of influence included GIS modelling based on 20 m contours.

The viewshed analysis assumes maximum visibility of the project in an environment stripped bare of vegetation and structures. It is therefore important to remember that the project is ***not necessarily visible from all points within the viewshed*** as views may be obstructed by elements such as trees, dense scrub, built structures and/or localised variations or irregularities in topography (see visibility from specific viewpoints in Section 5.4).

Analysis of the viewsheds of the proposed powerline and access roads is instructive and leads to the following observations:

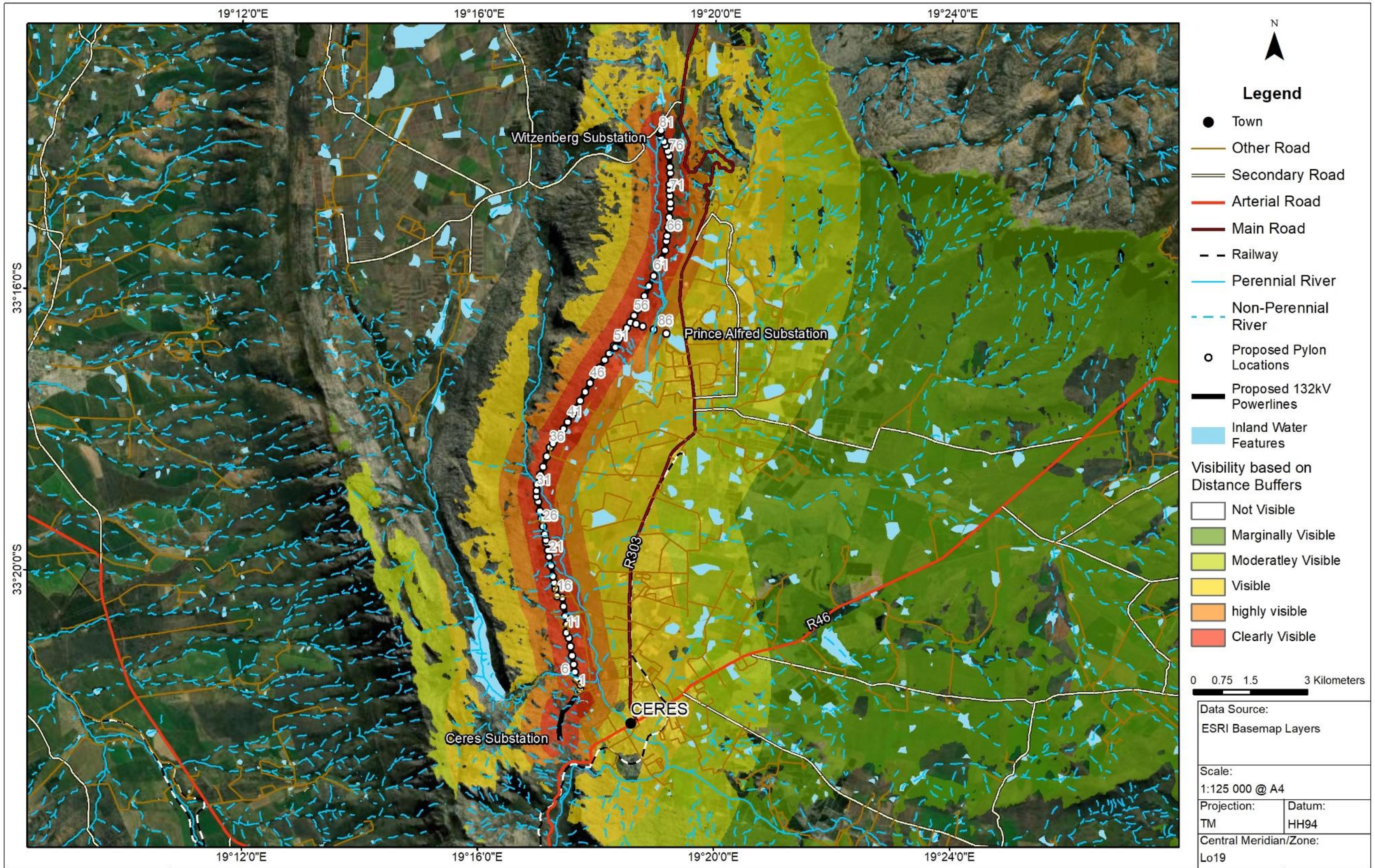
- The powerline (and Prince Alfred Substation) are exposed and will be visible in the foreground[4], middleground and background from much of the Ceres Valley, including from Ceres, Prince Alfred Hamlet, the R46 and the R303. The viewshed does not account for the screening provided by the urban fabric in Ceres and minor variations in topography (20 m contours were used to generate the viewsheds);
- The powerline (and Prince Alfred Substation) are exposed and will be visible the middleground and background from mountain ranges to the south and west; and
- Exposure in the Koue Bokkeveld is limited.

Although the powerline and access road on Witzenberg Ridge will be highly visible to receptors in the foreground, mostly to the east, the visual exposure will be ***moderate*** as the viewshed does not account

[4] See Table 5-2 for viewing distance categories.

for the screening provided by the built fabric, existing orchards and trees which will significantly limit visual exposure (in the foreground) to the east.

Exposure, including exposure to the access road on the Witzenberg Ridge, where little or no screening is afforded, will be ***high***.




srk consulting

WITZENBERG POWERLINE VISUAL IMPACT ASSESMENT

VIEWSHED

| Date: | Compiled by: |
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| 24/07/2020 | GOVN |
| Project No: 532062 | Fig No: 5-1 |

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## 5.2 Visual Absorption Capacity

The VAC is the potential for the area to conceal the proposed project. Criteria used to determine the VAC of the affected area are defined in Table 5-1.

Factors contributing to the VAC include:

- Topography and vegetation that is able to provide screening and increase the VAC of a landscape;
- The degree of urbanisation compared to open space. A highly urbanised landscape is better able to absorb the visual impacts of similar developments, whereas an undeveloped rural landscape will have a lower VAC; and
- The scale and density of surrounding development.

These factors frequently apply at different scales, by influencing the VAC in the foreground (e.g. dense bush, small structures), middleground and background (e.g. tall forests, hills, cityscapes).

The VAC of the Ceres (and Koue Bokkeveld) Valley areas are increased by topography as the areas are surrounded by mountains thereby limiting the viewshed, particularly to the west. Effective screening is provided by orchards, trees and windrows to the east of the powerline, albeit becoming less effective in the more northern sections of the alignment, and ineffective on Witzenberg Ridge. The Skurweburg and Witzenberg increase the VAC and also provide a modicum of screening insofar as they prevent silhouetting effects.

Stands of trees surrounding farmsteads and some roads will provide partial screening to isolated farmsteads. The low growing natural vegetation will not increase the VAC of the valley.

The overall study area is rated as having a ***moderate*** VAC as topographical variations in the landscape, orchards and the windrows (and other planted trees) will provide effective screening, though the powerline will be more visible from viewpoints nearer the Witzenberg Substation.

## 5.3 Visual Receptors

Receptors are important insofar as they inform visual sensitivity. The sensitivity of viewers is determined by the number and nature of viewers and how they may be impacted. Viewers can be deemed to have:

- High sensitivity if they view the project from e.g. residential areas, nature reserves and scenic routes or trails;
- Moderate sensitivity if they view the project from e.g. sporting or recreational areas or places of work; and
- Low sensitivity if they view the project from or within e.g. industrial, mining or degraded areas, or are transient viewers on roads.

Potential viewers and their sensitivity to visual impacts include the following:

- **Residents of Ceres and Prince Alfred Hamlet**: Visibility from residences in Ceres and Prince Alfred Hamlet is likely to be low, since the urban fabric obtrudes views beyond the very immediate foreground.
- **Motorists**: The provincial roads (e.g. the R46 and R303) and Witzenberg Valley Road traversing the area are used daily by the local farming community, local residents and by visitors / tourists. Motorists using Gydo Pass, a fairly scenic route, will be more sensitive to the powerline because of the proximity of the powerline and access road to the road (within 500 m).
- **Farmers and farm labourers**: The powerline may be visible to the numerous farmsteads in the Ceres Valley and southern extreme of the Koue Bokkeveld. Many of the farmers and

labourers are already exposed to existing powerlines and telephone lines in the area.

- **Visitors/Tourists**: Visitors to the area are particularly sensitive receptors and are likely to use the R46 and R303 roads in the Ceres Valley (and up Gydo Pass). The Ceres Rail Company offers scenic train trips between Cape Town and Ceres. Hikers in the surrounding mountains will also be exposed to the powerline.

The sensitivity of viewers or visual receptors potentially affected by the visual impact of the project is considered to be ***moderate*** because many receptors are exposed to existing powerlines in the study area, including powerlines along the same route, though visitors / tourists are more sensitive receptors.

**Table 5-1: Visual Absorption Capacity Criteria**

| High | Moderate | Low |
|---|---|---|
| The area is able to absorb the visual impact as it has:<br>• Undulating topography and relief<br>• Good screening vegetation (high and dense)<br>• Is highly urbanised in character (existing development is of a scale and density to absorb the visual impact). | The area is moderately able to absorb the visual impact, as it has:<br>• Moderately undulating topography and relief<br>• Some or partial screening vegetation<br>• A relatively urbanised character (existing development is of a scale and density to absorb the visual impact to some extent. | The area is not able to absorb the visual impact as it has:<br>• Flat topography<br>• Low growing or sparse vegetation<br>• Is not urbanised (existing development is not of a scale and density to absorb the visual impact to some extent.) |
| <br>*http://www.franschhoek.co.za* | <br>*http://wikipedia.org* | <br>*http://www.butbn.cas.cz* |
| <br>*http://commons.wikimedia.org* | <br>*http://blogs.agu.org* | <br>*http://fortheinterim.com* |

## 5.4 Viewing Distance and Visibility

The distance of a viewer from an object (in this case the powerline, access roads and Prince Alfred Substation) is an important determinant of the magnitude of the visual impact. This is because the visual impact of an object diminishes/attenuates as the distance between the viewer and the object increases. Thus the visual impact at 1 000 m would, nominally, be 25% of the impact as viewed from 500 m. At 2 000 m it would be 10% of the impact at 500 m (Hull and Bishop, 1988 in (Young, 2000).

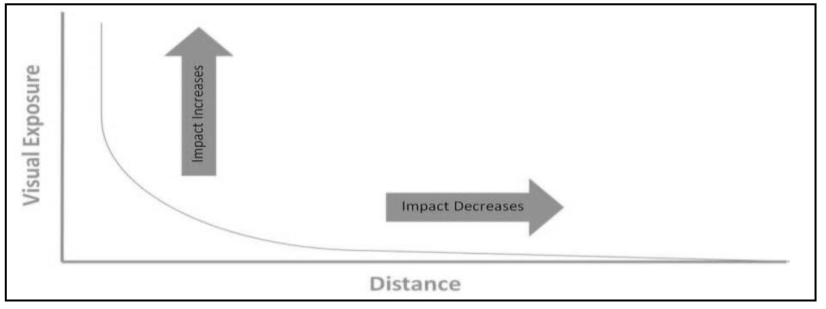



**Figure 5-2: Visual Exposure vs Distance**

*Source: Adapted from Hull and Bishop, 1998 in (Young, 2000)*

Three basic distance categories can be defined for a project of this scale (as discussed and represented in Table 5-2):

- Foreground;
- Middleground; and
- Background.

A range of viewpoints were selected in the study area in order to identify potential receptors and to provide an indication of the likely visibility of the project. The viewpoints were not randomly selected but were chosen because they are likely to best represent the visibility of the powerline to receptors.

The selected viewpoints are shown in Figure 5-5 and views from these viewpoints are shown in photographs included as Appendix D. The criteria used to determine the visibility of the proposed project are set out in Table 5-3 and the visibility from each viewpoint is summarised in Table 5-4.

Although the focus of the visibility analysis is on the very visible access road on Witzenberg Ridge and pylons, the overhead cables are likely to be visible in the foreground and potentially visible in the middleground (refer to Table 5-3).

**Table 5-2: Distance Categories**

| | |
|---|---|
| **FOREGROUND (0 – 500 m)** | The zone where the proposed project will dominate the frame of view. The project will be *highly visible* unless obscured. |
| **MIDDLEGROUND (500 m – 3 km)** | The zone where colour and line are still readily discernible. The project will be *moderately visible* but will still be easily recognisable. |
| **BACKGROUND (> 3 km)** | This zone stretches from 3 km to the point from where the project can no longer be seen. Objects in this zone can be classified as *marginally visible* to *not visible*. |

**Figure 5-3: Ceres Substation and views across Ceres Valley**

Buildings and trees in the town will screen the powerline and Ceres Substation from many receptors in Ceres. (see Figure 5-3). Buildings in the town may partially screen the powerline and Prince Alfred Substation from many receptors in Prince Alfred Hamlet, though in this area there are very few trees /orchards providing additional screening (see Figure 5-4 .

Where the powerline is visible to receptors (likely to be further than 500 m), the distance from the powerline and the grey palette of the mountainous backdrop, will reduce the visibility of the pylons

The access road on Witzenberg Ridge and the powerline will be highly visible to sensitive receptors using Gydo Pass), although individual pylons may be screened by local variations in topography and bends in the road. These pylons may also blend into the grey background of the west-facing mountain slopes and powerline silhouettes against the skyline are not anticipated.

Although the visibility of the powerline will be higher near Gydo Pass, the overall visibility of the powerline and access road is rated as ***moderate***.

**Figure 5-4: Powerline alignment at base of Skurweberg**

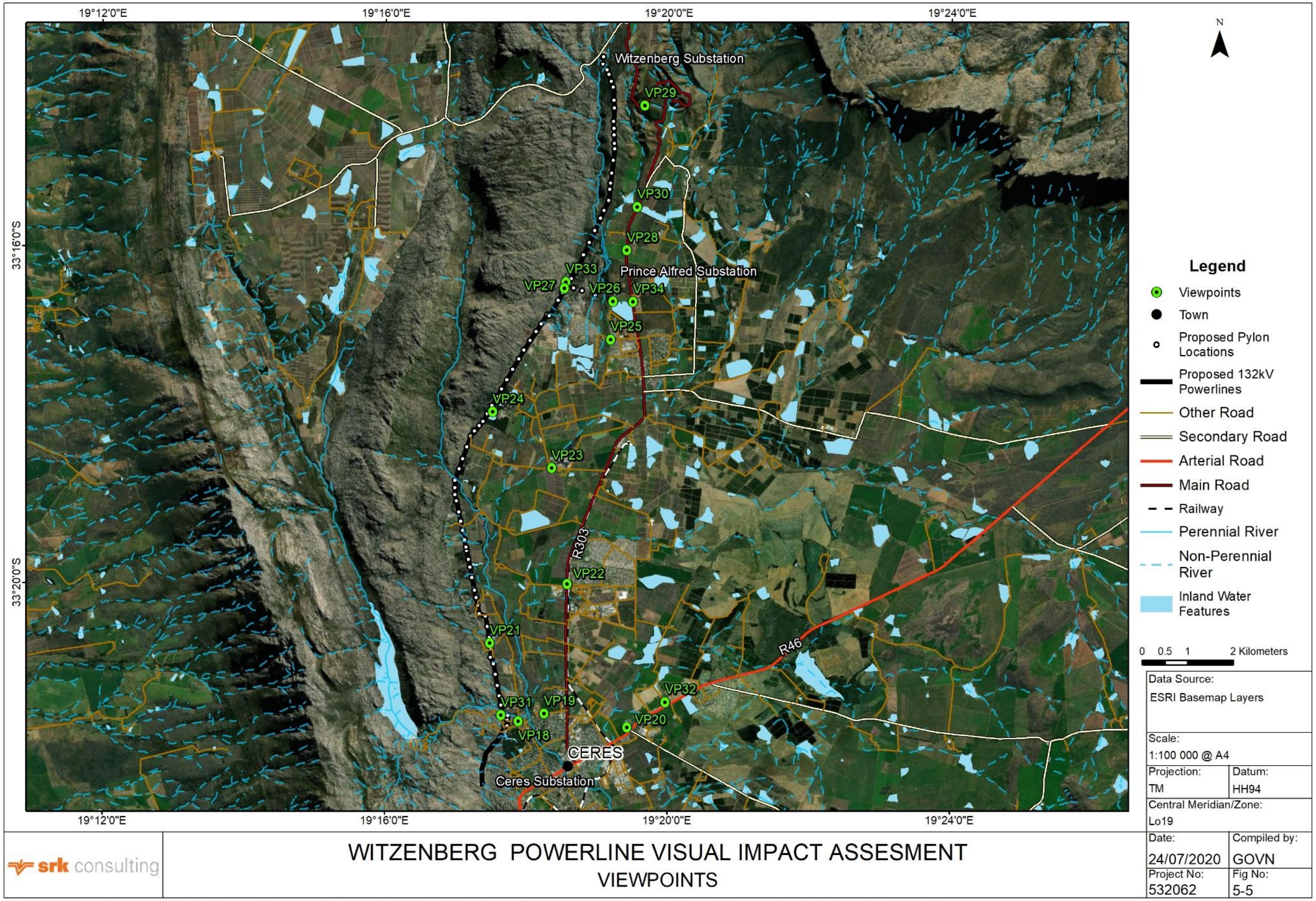
**Table 5-3: Visibility Criteria**

| | | |
|---|---|---|
| **NOT VISIBLE** | Project cannot be seen | |
| **MARGINALLY VISIBLE** | Project is only just visible / partially visible (usually in background zone) |  |
| **VISIBLE** | Project is visible although parts may be partially obscured (usually in middleground zone) |  |
| **HIGHLY VISIBLE** | Project is clearly visible (usually in foreground or middleground zone) |  |

**Table 5-4: Visibility from Viewpoint**

| Landscape Unit | Viewpoint # | Location | Co-ordinates | Direction of view from the viewpoint | Time photograph taken | Potential significant receptors and visibility |
|---|---|---|---|---|---|---|
| Ceres Valley | VP18 | Residential area of Ceres (Plantation Street) | 33°21'38.34"S; 19°17'53.34"E | West | 12h23 | Residents of Ceres – not visible to marginally visible as the urban fabric and planted trees provide effective screening. |
| | VP19 | Residential area of Ceres (Plantation Street) | 33°21'32.96"S; 19°18'15.52"E | West | 12h31 | Residents of Ceres – marginally visible as screening is provided by trees surrounding the Ceres Substation. |
| | VP20 | R46 (Ceres industrial area) | 33°21'42.52"S; 19°19'25.86"E | West | 10h36 | Residents of Ceres – marginally visible as the powerline is over 3 km away and the pylons will blend into the grey background. |
| | VP21 | Base of Skurweberg, near Pylons 12 and 13 | 33°20'42.78"S: 19°17'29.05"E | West | 13h46 | Incidental farmworkers – highly visible (Pylons 12 and 13 within 50m). |
| | VP22 | Southwestern corner of Bella Vista residential area | 33°20'0.40"S; 19°18'34.72"E | West | 12h41 | Residents of Bella Vista to the east and motorists on the R303 – not visible to marginally visible as distance, undulations and planted trees provide effective screening. |
| | VP23 | In orchards east of R303 | 33°18'37.96"S; 19°18'21.25"E | West | 12h52 | Farmworkers to the east – not visible as distance, undulations and orchards provide effective screening. |
| | VP24 | Campsite at base of Skurweberg, near Pylons 40 and 41 | 33°17'57.87"S; 19°17'31.28"E | West | 12h52 | Campers at campsite abutting the powerline – highly visible (Pylons 40 and 41 within 50m). |
| | VP25 | Prince Alfred Hamlet | 33°17'6.17"S; 19°19'11.12"E | West | 09h42 | Residents of Prince Alfred Hamlet – marginally visible as distance provides some screening. |
| | VP26 | Prince Alfred Hamlet Substation site | 33°16'38.98"S; 19°19'12.82"E | West | 11h21 | Occasional pedestrians from Prince Alfred Hamlet – highly visible as viewing point is at the substation site. |
| | VP27 | Tie-in from Prince Alfred Hamlet Substation | 33°16'29.92"S; 19°18'31.54"E | North | 12h09 | Occasional pedestrians – highly visible (Pylons 54 and 55 within 50m). |
| | VP28 | R 303 | 33°16'2.52"S; 19°19'24.57"E | Southwesrt | 09h36 | Motorists on the R303 – not visible to marginally visible as planted trees provide effective screening |
| Gydo Pass | VP29 | Midway up Gydo Pass on R303 | 33°14'19.48"S; 19°19'39.68"E | South | 09h22 | Motorists on the R303 – highly visible on exposed Witzenberg Ridge. |

| Landscape Unit | Viewpoint # | Location | Co-ordinates | Direction of view from the viewpoint | Time photograph taken | Potential significant receptors and visibility |
|---|---|---|---|---|---|---|
| | VP30 | Base of Gydo Pass on R303 | 33°15'31.58"S; 19°19'33.26"E | West | 09h30 | Motorists on the R303 – highly visible on exposed Witzenberg Ridge. |
| Ceres Valley | VP31 | Ceres Substation | 33°21'34.02"S; 19°17'38.64"E | Northeast | 08h12 | Occasional pedestrians and campers – highly visible (Pylon 5 within 30m). |
| | VP32 | West central Ceres Valley | 33°21'24.57"S; 19°19'58.18"E | West | 10h32 | Residents of Ceres – not visible as the powerline is over 3 km away and the pylons will blend into the grey background. |
| | VP33 | Tie-in from Prince Alfred Hamlet Substation | 33°16'25.29"S; 19°18'32.97"E | North | 12h07 | Occasional pedestrians – highly visible (Pylons 54 and 55 within 50m). |
| | VP34 | R 303 near Prince Alfred Hamlet | 33°16'39.42"S; 19°19'29.85"E | unknown | No VP in folder | Motorists on the R303 – visible (Prince Alfred Hamlet Substation within 500 m) |

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## 5.5 Compatibility with Landscape Integrity

Landscape (or townscape) integrity refers to the compatibility of the development/visual intrusion with the existing landscape. The landscape integrity of the project is rated based on the relevant criteria listed in Table 5-5.

**Table 5-5: Landscape Integrity Criteria**

| High | Moderate | Low |
|---|---|---|
| The project:<br>• Is consistent with the existing land use of the area;<br>• Is highly sensitive to the natural environment;<br>• Is consistent with the urban texture and layout;<br>• The buildings and structures are congruent / sensitive to the existing architecture / buildings; and<br>• The scale and size of the development is similar to nearby existing development. | The project:<br>• Is moderately consistent with the existing land use of the area;<br>• Is moderately sensitive to the natural environment;<br>• Is moderately consistent with the urban texture and layout;<br>• The buildings and structures are moderately congruent / sensitive to the existing architecture / buildings; and<br>• The scale and size of the development is moderately similar to nearby existing development. | The project:<br>• Is not consistent with the existing land use of the area;<br>• Is not sensitive to the natural environment;<br>• Is very different to the urban texture and layout;<br>• The buildings and structures are not congruent / sensitive to the existing architecture / buildings; and<br>• The scale and size of the development is different to nearby existing development. |

South of Witzenberg Ridge, the powerline is partially compatible with the existing land use of the Ceres Valley where it adjoins urban or agricultural areas, i.e. the powerline is moderately sensitive to the natural environment. The proposed powerline will be aligned next to the 66kv and 11 kV powerlines: receptors are familiar with the existing powerline along this alignment, and the proposed powerline replicates the land use along this section. However, the powerline and access road on Witzenberg Ridge are not sympathetic to the sensitivity of the mountainous natural environment to the west and are not, therefore, compatible with this landscape. The remaining wooden pylons only marginally increase the compatibility of the powerline with the existing land use.

The compatibility reduces on Witzenberg Ridge.

Overall, the landscape integrity of the powerline is rated as ***moderate***.

## 5.6 Magnitude of the Overall Visual Impact

Based on the above criteria, the expected magnitude or intensity of the overall visual impact of the project has been rated. Table 5-6 provides a summary of the criteria, a descriptor summarizing the status of the criteria and projected impact magnitude ratings.

The overall expected magnitude of the visual impact of the powerline is rated as ***moderate*** as only a comparatively short portion of the powerline traverses a mountainous region and a scenic mountain pass.

**Table 5-6: Magnitude of Overall Visual Impact**

| Criteria | Rating | Comments |
|---|---|---|
| Visual Exposure (Viewshed) | Moderate – High | The powerline and access road on Witzenberg Ridge will be highly visible to receptors in the foreground, mostly to the east. However , the viewshed does not account for the screening provided by the built fabric and existing orchards and trees which will significantly limit visual exposure (in the foreground) to the east.<br>Exposure on the Witzenberg Ridge, where little or no screening is afforded, is more acute. |
| Visual Absorption Capacity | Moderate | Topographical variations in the landscape, orchards and the windrows (and other planted trees) will provide effective screening, though the powerline will be more visible from viewpoints nearer the Witzenberg Substation |
| Viewer Sensitivity (Receptors) | Moderate | Many receptors are exposed to existing powerlines in the study area, including powerlines along the same route, though visitors / tourists are more sensitive receptors. |
| Viewing Distance and Visibility | Moderate | Due to the high visibility of the powerline to users of Gydo Pass, moderate visibility of Prince Alfred Substation and low visibility in Ceres Valley foreground. |
| Compatibility with Landscape Integrity | Moderate | The powerline and access road on Witzenberg Ridge are moderately compatible with existing land use in the Ceres Valley but is less compatible on Witzenberg Ridge |

# 6 Impact Assessment and Mitigation Measures

The following section describes the visual impacts during the construction, operational and decommissioning phases and assesses them utilising SRK's impact rating methodology.

Direct visual and aesthetic impacts are likely to result from a number of project interventions and/or activities:

- Earthworks, resultant scarring and construction activities (including clearing of vegetation and dust); and
- Change in character of the site caused by the new powerline and access roads.

The visual and aesthetic impacts generated by the project are likely to be associated with changes to sense of place and visual intrusion.

## 6.1 Construction Phase

### 6.1.1 Altered Sense of Place and Visual Intrusion from Construction Activities

Visual impacts will be generated by construction activities such as vegetation stripping and earthworks (which can cause scarring), and from construction infrastructure, plant and materials on site (e.g. site camp, cranes and stockpiles). Dust generated at the site will be visually unappealing and may further detract from the visual quality of the area. Such impacts are typically limited to the immediate area surrounding the construction site and the construction period.

Loss of sense of place in the Ceres Valley south of Witzenberg Ridge is limited as construction activities will be marginally congruent with the current nature of the surrounding area (*viz*. agricultural activities, agroprocessing, urban development) and the construction footprints will be visible from only a limited number of viewpoints.

Loss of sense of place is expected during installation of the pylons along the Witzenberg Ridge section of the powerline route since construction and the change in the state of the site (scarring, construction equipment and dust generation) is incongruent with the current natural state of the surrounding area and the construction footprints will be visible to highly sensitive receptors, e.g. on Gydo Pass. Vegetation clearance on the steeper vegetated mountain slopes will be particularly visible to receptors as the resultant scarring will be incongruent with the existing character of these natural areas.

Very few construction activities will occur within the foreground (< 500 m), reducing exposure, and construction impacts will be of comparatively short duration.

The impact is assessed to be of ***low*** significance with and without the implementation of mitigation measures (Table 6-1)

**Table 6-1: Altered sense of place and visual intrusion during construction**

| | *Extent* | *Intensity* | *Duration* | *Consequence* | *Probability* | *Significance* | *Status* | *Confidence* |
|---|---|---|---|---|---|---|---|---|
| **Without mitigation** | Regional | Medium | Short-term | Low | Definite | **LOW** | -ve | High |
| | 2 | 2 | 1 | 5 | | | | |
| **Essential Mitigation Measures**:<br>▪ Limit and phase vegetation clearance and the footprint of construction activities to what is absolutely essential.<br>▪ Utilise existing access roads as far as possible. If new roads are required, then avoid clearing natural vegetation to facilitate access to the final pylon positions. If access across natural vegetation is required, then prune/remove large trees and shrubs rather than clearing vegetation completely.<br>▪ Avoid excavation, handling and transport of materials which may generate dust under high wind conditions.<br>▪ Consolidate the footprint of the construction camp(s) to a functional minimum. Screen the yard with materials that blend into the surrounding area.<br>▪ Keep construction sites tidy and confine all activities, material and machinery to as small an area as possible.<br>▪ Rehabilitate disturbed areas incrementally and as soon as possible, not necessarily waiting until completion of the Construction Phase. | | | | | | | | |
| **With mitigation** | Regional | Medium | Short-term | Low | Definite | **LOW** | -ve | High |
| | 2 | 2 | 1 | 5 | | | | |

## 6.2 Operational Phase

### 6.2.1 Altered Sense of Place and Visual Intrusion from the Proposed Powerline and Access Roads

The region has scenic value in terms of the rural setting influenced by the rural patterns created by rolling wheatfields, patchwork of fruit orchards and vineyards, and the sense of nature invoked by the spectacular mountainous backdrop. Residents and tourists are attracted to the area because of its scenery and location in the landscape. The landscape has, however, been modified by vertical elements in the landscape including 66 kV and 11 kV powerlines along the proposed powerline route.

Although localised screening means that the 13 km southern section of the powerline up to Witzenberg Ridge will not be visible from much of the Ceres Valley, the 4 km section up Witzenberg Ridge will be highly visible to sensitive receptors in Gydo Pass and from the northwestern corner of Ceres Valley. The powerline will present to the former in the middleground (i.e. marginally beyond 500 m) and is likely to alter the visual quality (of Gydo Pass) and, therefore, alter the sense of place to receptors moving through this space.

Although the powerline is moderately compatible with the existing land use of the southern Ceres Valley where it abuts rural areas, the powerline will be considerably less compatible with the natural environment of Witzenberg Ridge, reducing the overall landscape integrity of the powerline.

Numerous existing tracks and farm roads will be used to access the southern section of the powerline. In addition to other access options, (see Section 3) a new access road along Witzenberg Ridge is contemplated. This will present as severe scar in the landscape and will be extremely incongruent with the current natural state of the surrounding area.

The impact is assessed to be of ***high*** significance and with the implementation of mitigation is reduced to ***medium*** (Table 6-2).

**Figure 6-1: Steel lattice pylon blends into the mountainous grey backdrop**

**Table 6-2: Altered sense of place and visual intrusion from the proposed powerline and access roads**

| | *Extent* | *Intensity* | *Duration* | *Consequence* | *Probability* | *Significance* | *Status* | *Confidence* |
|---|---|---|---|---|---|---|---|---|
| **Without mitigation** | Regional | Medium | Long-term | High | Definite | **HIGH** | -ve | High |
| | 2 | 2 | 3 | 7 | | | | |
| **Essential Mitigation Measures**: ▪ Install pylons so that they do not protrude and "silhouette" above Witzenberg Ridge. ▪ Install lattice structure pylons as far as possible, especially on Witzenberg Ridge (Figure 6-1). ▪ Do not install or affix lights on pylons. ▪ Do not construct an access road on Witzenberg Ridge. ▪ Rehabilitate areas affected by scarring and implement measures to prevent erosion. ▪ Design access roads so that the surface of the access road faces away from receptors, where possible. ▪ Avoid clearing natural vegetation from access roads completely, rather prune vegetation as required. ▪ Do not prune vegetation adjacent to the roads. ▪ Construct terrace / foundation walls using materials that blend in with the surroundings (e.g. sandstone stone-packing, riverstone gabions). | | | | | | | | |
| **With mitigation** | Regional | Low | Long-term | Medium | Definite | **MEDIUM** | -ve | High |
| | 2 | 1 | 3 | 6 | | | | |

### 6.2.2 Altered Sense of Place and Visual Intrusion from the Proposed Prince Alfred Substation

The region has scenic value in terms of the rural setting, but in the vicinity of Prince Alfred Hamlet is somewhat compromised by urban development and agroprocessing facilities. Although localised structures may screen the substation and connecting powerline, they will be visible to some receptors in the hamlet, but are not likely to alter the visual quality and sense of place. Both are moderately compatible with the existing local land use, with limited effect on overall landscape integrity.

The impact is assessed to be of ***low*** significance with and without the implementation of mitigation measures (Table 6-3).

**Table 6-3: Altered sense of place and visual intrusion from the proposed Prince Alfred Hamlet Substation**

| | *Extent* | *Intensity* | *Duration* | *Consequence* | *Probability* | *Significance* | *Status* | *Confidence* |
|---|---|---|---|---|---|---|---|---|
| **Without mitigation** | Local | Low | Long-term | Low | Definite | **LOW** | -ve | High |
| | 1 | 1 | 3 | 5 | | | | |
| **Essential Mitigation Measures**: ▪ Be sensitive towards the use of glass or material with a high reflectivity which may cause glare and increase visual impacts. ▪ Use low-impact fencing of appropriate colour, such as diamond wire-mesh fencing which is less visually intrusive when viewed from a distance. Palisade fencing and other solid fence structures should be avoided. ▪ Consider using excess excavated material to construct a low (< 1 m) vegetated berm around the substation site to screen the bulk of the substation. | | | | | | | | |
| **With mitigation** | Local | Low | Long-term | Low | Probable | **LOW** | -ve | High |
| | 1 | 1 | 3 | 5 | | | | |

## 6.3 The No Go Alternative

The No Go alternative entails no change to the *status quo*, in other words, the 132 kV powerline and Prince Alfred Hamlet Substation will not proceed. The No Go alternative will have visual benefits, as there will be less visual intrusion and loss of sense of place, especially on Witzenberg Ridge.

## 6.4 Cumulative Impact

Figure 6-2 presents the matrix used to evaluate the cumulative visual impacts of the project on the sense of place of the study area. This matrix presents the relationship between two quantities; severity of impacts (importance and magnitude) and extent of impact (geographic size).

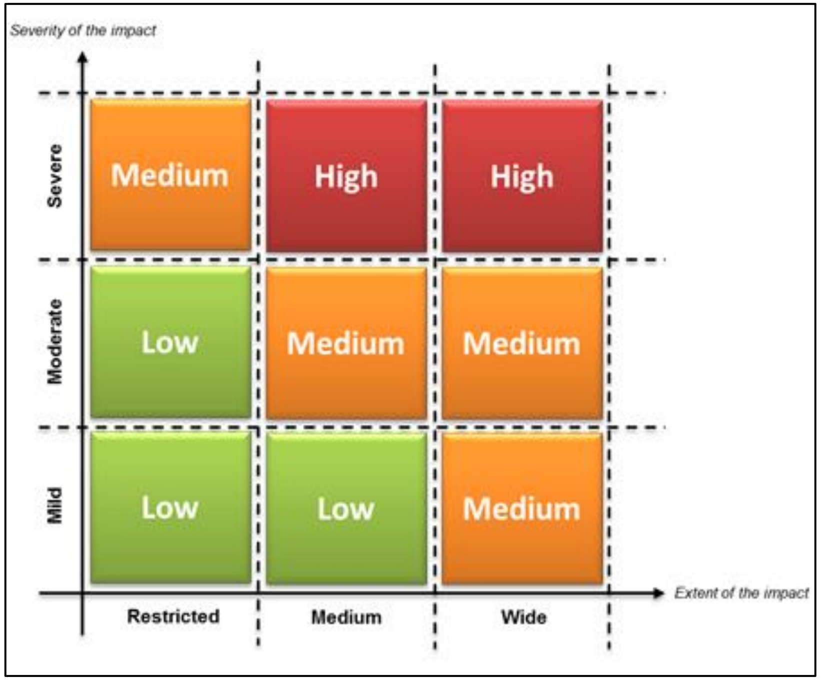


**Figure 6-2: Cumulative impact evaluation matrix**

The study area has scenic value in terms of the rural setting and sense of nature invoked by the spectacular mountainous backdrop. Residents and tourists are attracted to the area because of its scenery location in the landscape and visual-spatial qualities (rural patterns in a mountainous setting). The landscape has, however, been modified by vertical elements in the landscape including powerlines.

There are numerous large powerlines in the project's area of influence notably the existing 400 kV and 765 kV overhead powerlines traversing the Witzenberg Mountains and Ceres Valley and the existing 66 kV and 11 kV powerlines from existing substations in Ceres and at Witzenberg.

The proposed powerline will add to the cumulative visual impact of powerlines – the powerline will further alter the sense of place to receptors in parts of Ceres Valley and Gydo Pass.

The *severity* of the impact on the visual landscape and sense of place is rated as moderate, and is assessed to be of a medium *extent*. The cumulative impact is thus assessed to be of ***medium*** significance.

The Western Cape has many impressive mountain passes and more and more of them appear to be regarded as convenient corridors for powerlines, and an unknowable threshold may be reached where cumulative sense of place impacts to mountain passes are no longer tolerable.

# 7 Findings and Recommendations

The VIA describes and interprets the visual context or affected environment in which the project is located: this provides a visual baseline or template and aims to ascertain the aesthetic uniqueness of the project area. To better understand the *magnitude* or *intensity* of visual and sense of place impacts, the capacity of the project area and receptors to accommodate, attenuate and absorb impacts was analysed in considerable detail. To assess impact significance, the powerline and substation were "introduced" into the baseline, taking account of the attenuating capacity of the project area.

## 7.1 Findings

The following findings are pertinent:

- Eskom proposes to construct a ~17 km single circuit (132 kV) powerline between the existing Ceres and Witzenberg Substations, as well as a new substation in Prince Alfred Hamlet, and a powerline tie-in to this proposed new substation.
- The basis for the **visual character** of the region is provided by the geology, vegetation and land use of the area. Most of the Ceres Valley can be defined as a *natural transition landscape* of mostly natural scenery, with rural and urban elements and artefacts visible in the landscape.
- The **visual quality** of the overall area is largely ascribable to the rural and peri-urban patterns across the Ceres (and elevated Koue Bokkeveld) Valleys nestled in spectacular and rugged mountains covered in natural vegetation. Some elements detract from the visual quality in the study area, notably vertical elements traversing the landscape including the existing 66 kV and 11 kV powerlines from the Witzenberg Substation, 400 kV and 765 kV powerlines traversing the Skurweberg and Witzenberg respectively, existing substations, urban areas (Ceres and Prince Alfred Hamlet), roads and agroprocessing facilities.
- The region has scenic value in terms of the rural/agricultural setting and sense of nature invoked by the encircling spectacular mountainous backdrop. The region has attractive visual-spatial qualities and residents and tourists are attracted to the area because of its scenery and location in the landscape. The visual-spatial qualities are influenced by the rural patterns created by rolling wheatfields, the patchwork of fruit orchards and vineyards in a mountainous setting, offset to some extent by urban developments, agroprocessing facilities and some derelict portions adjoining these areas. Views across the valley and from Gydo Pass add to the **sense of place** of the area. Tourists are also attracted to the area during the winter months when the surrounding mountains, including the lower reaches of the Koue Bokkeveld at Gydo Pass are often covered in snow.
- The **visual exposure** analysis indicates that the powerline will be exposed and will be visible throughout the study area. The viewsheds do not, however, take into consideration the screening provided by minor variations in topography, planted trees nor the built fabric in Ceres and Prince Alfred Hamlet. Exposure in the Koue Bokkeveld is limited.
- The **VAC** of the area is increased by topography as the area is surrounded by mountains thereby limiting the viewshed, particularly to the west. Effective screening is provided by orchards, trees and windrows to the east of the powerline, albeit ineffective on Witzenberg Ridge.
- **Receptors** include residents of Ceres and Prince Alfred Hamlet, motorists on the provincial roads (R46 and R303), farmers and farm labourers, and visitors/tourists to the area. Many receptors are exposed to existing powerlines in the study area, including

powerlines along the same route, but visitors / tourists are more sensitive receptors.

- **Visibility** of the southern section of the powerline is lower in the Ceres Valley landscape units, but visibility (of Witzenberg Ridge) is higher the northeastern corner of the valley and from Gydo Pass.
- **Landscape integrity** refers to the compatibility of the development with the existing landscape South of Witzenberg Ridge, the powerline is partially compatible with the existing land use of the Ceres Valley where it adjoins urban or agricultural areas. However, the powerline and access road on Witzenberg Ridge are not sympathetic to the sensitivity of the mountainous natural environment to the west and are not, therefore, compatible with this landscape. The remaining wooden pylons only marginally increase the compatibility of the powerline with the existing land use.
- **During construction**, loss of sense of place in the Ceres Valley south of Witzenberg Ridge is limited as construction activities will be marginally congruent with the current nature of the surrounding area (viz. agricultural activities, agroprocessing, urban development) and the construction footprints will be visible from only a limited number of viewpoints. Loss of sense of place is expected during installation of the pylons along the Witzenberg Ridge section of the powerline route since construction and the change in the state of the site (scarring, construction equipment and dust generation) is incongruent with the current natural state of the surrounding area and the construction footprints will be visible to highly sensitive receptors, e.g. on Gydo Pass. Vegetation clearance on the steeper vegetated mountain slopes will be particularly visible to receptors as the resultant scarring will be incongruent with the existing character of these natural areas. Very few construction activities will occur within the foreground (< 500 m), reduce exposure and construction impacts will be of comparatively short duration. The impact is assessed to be of ***low*** significance with and without the implementation of mitigation measures.
- Although localised screening means that the 13 km southern section of the powerline up to Witzenberg Ridge will not be visible from much of the Ceres Valley, the 4 km section up Witzenberg Ridge will be highly visible to sensitive receptors in Gydo Pass and from the northwestern corner of Ceres Valley. The powerline will present to the former in the middleground (i.e. marginally beyond 500 m) and is likely to alter the visual quality (of Gydo Pass) and, therefore, alter the sense of place to receptors moving through this space. In addition to other access options, a new access road along Witzenberg Ridge is contemplated. This will present as severe scar in the landscape and will be extremely incongruent with the current natural state of the surrounding area. The impact of the **powerline and access roads** is assessed to be of ***high*** significance and with the implementation of mitigation is reduced to ***medium***.
- Although localised structures may screen the Prince Alfred Hamlet Substation and tie-in powerline, they will be visible to some receptors in the hamlet, but are not likely to alter the visual quality and sense of place. Both are moderately compatible with the existing local land use, with limited effect on overall landscape integrity. The impact of the **Prince Alfred Hamlet Substation** is assessed to be of ***low*** significance and with and without the implementation of mitigation measures.

## 7.2 Conclusion

The proposed powerline, access roads and new substation in Prince Alfred Hamlet are likely to transform the natural transition landscape in a region with attractive visual-spatial qualities. The powerline and contemplated access road on Witzenberg Ridge will be visible throughout the study area, although localised screening and the VAC of the area limit the viewshed, particularly to the west. Many receptors are exposed to existing powerlines in the study area, including powerlines along the same route, while visitors / tourists are more sensitive receptors.

Construction phase impacts are deemed acceptable, but visual and sense of place impacts of the powerline and access roads are assessed to be of ***high*** significance. However, if mitigation measures, notably to:

- Install pylons so that they do not protrude and "silhouette" above Witzenberg Ridge; and
- Not construct an access road on Witzenberg Ridge

are implemented, the impacts reduce and are considered acceptable.

On the assumption that mitigation measures are effectively implemented, the specialist is of the opinion that, in respect of visual impacts, there is no reason not to authorise the project.

## Prepared by

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**Chris Dalgliesh**

Principal Environmental Consultant

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**Sue Reuther**

Partner

# 8 References

Boschkloof. (2012, October). *Cederberg Farm Experience*. Retrieved from http://www.boschkloof.com/cederberg-guest-farm-citrusdal.htm

CNDV. (2006). *Strategic Initiative to Introduce Commercial Land Based Wind Energy Development to the Western Cape: Towards a Regional Methodology for Wind Energy Site Selection. Reports 1 – 6.*

Crawford, D. (1994). Using remotely sensed data in landscape visual quality assessment. *Landscape and Urban Planning 30*, 17-81.

Cross, J. E. (2001). What is Sense of Place? *Prepared for the 12th Headwaters Conference, November 2-4, 2001.* Retrieved July 2020, from https://www.researchgate.net/publication/282980896_What_is_Sense_of_Place/link/56256fbf08aeabddac91cd62/download

Lynch, K. (1992). *Good City Form.* London: The MIT Press.

Night Jar Travel South Africa. (2012, August). Retrieved from http://www.nightjartravel.com

Shan Ding Lu. (2012, August). Retrieved from http://www.shandinglu.org

Young, G. (2000). *First Draft Gamsberg Zinc Project: Specialist Study Report: Visual Environment. Newtown Landscape Architects, 10 March 2000.*

# Appendices

# Chris Dalgliesh

## Principal Consultant

| | |
|---|---|
| **Profession** | Environmental Practitioner |
| **Education** | MPhil (EnvSci) with Distinction, Cape Town, 1994<br>BBusSc (Hons), Cape Town, 1985 |
| **Registrations/ Affiliations** | Registered Environmental Assessment Practitioner (South Africa)<br>Member International Association of Impact Assessment<br>Director SRK South Africa 2018 -<br>Director SRK Australia 2019 -<br>Director SRK Investments 2011 - 2020<br>Director SRK Global 2013 - 2017<br>SRK Cape Town Managing Partner 2007 – 2015 |

## Specialisation

Environmental management consulting.

## Expertise

Chris Dalgliesh has been involved in management and environmental projects for the past 33 years. His expertise includes:

- EIA and ESIA (EMPR);
- environmental and social due diligence;
- socio-economic impact assessments;
- stakeholder engagement;
- strategic environment assessments and management plans;
- state of environment reporting;
- environmental management frameworks;
- site safety reports for the nuclear industry;
- natural resource management;
- waste management.

## Employment

| | |
|---|---|
| **2000 – present** | SRK Consulting (Pty) Ltd, Director, Partner and Principal Environmental Consultant |
| **1999 – 2000** | Arcus Gibb (Pty) Ltd, Associate, Cape Town, South Africa |
| **1996 – 1998** | African Environmental Solutions (Pty) Ltd, Senior Environmental Consultant |
| **1994 – 1996** | Environmental Evaluation Unit, Environmental Consultant, UCT |
| **1991 – 1993** | Novello Music Publishers, Marketing Manager, London, UK |
| **1988 – 1990** | JR Phillips, Product Manager, Wokingham, UK |
| **1986 – 1988** | Unilever, Trade and Assistant Brand Manager, Durban, South Africa |

## Publications

I have been interviewed and quoted in numerous environmental and sustainability articles published in the press and sector specific journals, including *Engineering News, Mining News, Business Report and Cape Times,* and am a frequent guest lecturer.

## Languages

English – read, write, speak
Afrikaans – read, write, speak
Dutch - read

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**Principal Consultant**

## Environmental and Social Impact Assessment (ESIA) and Environmental Management Programmes (EMP)

- Coega Development Corporation, four EIAs for Gas to Power Plants (3 000MW), Eastern Cape Province, South Africa, 2020 – ongoing, R2 800 000
- Tronox Mineral Sands, EIA for East Mine In-Pit Residue Storage Facility, Namakwa Sands Mine, Brand se Baai, South Africa, 2019 – ongoing, R900 000
- N.V. Energiebedrijven Suriname, ESIA for Tout lui Faut Kanaalweg Power Plant, Wanica District, Suriname, 2019, US$115 000
- Eskom, EIA for Kappa-Sterrekus Powerline, Western Cape Province, South Africa, 2019 - ongoing, R3 000, 000
- Staatsolie Maatschappij Suriname, ESIA for Cyclic Steam Stimulation Enhanced Oil Recovery Project, Saramacca District, Suriname, 2019, US$50 000
- Staatsolie Maatschappij Suriname, ESIA for Polymer Flood Enhanced Oil Recovery Project, Saramacca District, Suriname, 2019, US$85 000
- Maritieme Autoriteit Suriname, ESIA for Suriname River Dredging Project, Suriname, 2019, US$185 000
- Staatsolie Maatschappij Suriname, ESIA for Saramacca Power Plant, Saramacca District, Suriname, 2018 - 2019, US$125 000
- Tronox Mineral Sands, EIA for coastal setback prospecting, Namakwa Sands Mine, Brand se Baai, South Africa, 2018 – ongoing, R800 000
- Motaengil Africa, IFC compliant EIA for Patriota Hospital, Luanda, Angola, 2018 – ongoing, R640 000
- Ricocure (Pty) Ltd, EIA for Exploration Right application for Offshore Block 3B, West Coast, South Africa, 2018-2019, R150 000
- Sezigyn (Pty) Ltd, EIA for Exploration Right application for Offshore Mid-Orange Basin, West Coast, South Africa, 2018-2019, R150 000
- Rheinmetall Denel, Multi Purpose Nitration Plant EIA, Wellington, Western Cape Province, South Africa, 2018 - ongoing, R650, 000
- Impact Oil and Gas, Orange Deep Basin Seismic Survey EIA, Offshore West Coast, South Africa, 2017, R600,000
- AES, Bengo Landfill EIA, Angola, 2017 - ongoing, US$80,000
- Sungu Sungu Oil (Pty) Ltd, Pletmos Basin EIA, Offshore Southern Cape, South Africa, 2017, R525,000
- City of Cape Town, Vissershok North Landfill Waste Management Licence, Cape Town, Western Cape Province, 2016 – ongoing, R1 250,000
- Mineral Sand Resources, Tormin Mine EIA, Lutzville, Western Cape Province, 2016 – ongoing R1,250,000
- Department of Agriculture, Forestry and Fisheries, Project Definition and EIA for a proposed Aquaculture Development Zone in Saldanha Bay, Western Cape, 2016 – 2018, R1,000,000
- Easigas, EIA for LNG Plant, Mossel Bay, Western Cape Province, South Africa, 2016 – 2017, R600,000
- Gyproc St Gobain, EMPr for gypsum mine, Vanrhynsdorp, Western Cape Province, South Africa, 2016, R125,000
- Tronox Namakwa Sands, EIA for new slimes dam, Brand se Baai, Western Cape Province, South Africa, 2015 – ongoing, R900,000

- The River Club, EIA for redevelopment of the property, Cape Town, Western Cape Province, South Africa, 2015 – ongoing, R1 900,000
- SIMO Petroleum Ltd, ESIA for fuel supply project, Guinea, 2015, US$200,000
- SIMO Petroleum Ltd, EIA for fuel supply project, Liberia, 2015, US$200,000
- Eskom, EIA for Transient Interim Storage Facility, Western Cape, South Africa, 2015 – ongoing, R900,000
- Falcon Oil & Gas, Environment Management Programme Report (EMPr) update and engagement, Western, Northern and Eastern Cape, South Africa, 2014 – 2015, US$90,000
- Department of Environmental Affairs (DEA), Waste Management Licence applications and Basic Assessment for 20 waste facilities, Western Cape, South Africa, 2014 – 2015, R2,600,000
- Sable Mining / West Africa Explorations (WAE), Cumulative Impact Assessment (CIA) for WAE's Nimba iron ore mine, Guinea, May 2014 – on hold, US$90,000
- De Beers Buffalo Camp, Basic Assessment and EMPr Amendment, Kimberley, Northern Cape, 2014, R260,000
- EFG Engineers, EIA for Hermanus bypass road, Western Cape Province, South Africa, 2014 – 2017, R1,200,000
- SRK Turkey, CIA of Copler gold mine, Turkey, 2014, US$30,000
- Sable Mining Africa Ltd, ESIA for railway line and port expansion, Liberia, 2014, US$480,000
- Tronox Namakwa Sands, EIA for abalone farm, Brand se Baai, Western Cape Province, South Africa, 2014 – ongoing, R1,050,000
- Matzikamma Municipality, EIAs for three abalone farms, Doringbaai, Western Cape Province, South Africa, 2014 – ongoing, R1,100,000
- De Beers, EMPr amendment for fine residue pond, Kimberley, South Africa, 2013, R120,000
- AES, ESIA of landfill, Soyo, Angola, 2013, US$70,000
- PetroSA, EIA of offshore gasfield, Southern Cape, South Africa, 2013 – ongoing, R500,000
- EnergieBedrijven Suriname, ESIA for new power plant, Suriname, 2013, US$135,000
- AES, ESIA of Thermal Desorption Unit, Soyo, Angola, 2013, US$65,000
- Staatsolie Maatschappij Suriname, Rapid EIA of power plant expansion, Suriname, September 2012 – 2014, US$100,000
- BP, ESIA of Blocks 18 & 31 Drilling and Seismic Survey, Angola, 2012, US$40,000
- Frontier, EIA for desalination plant and water pipeline, Abraham Villiers Bay, Northern Cape, South Africa, August 2012 – ongoing, R1,250,000
- Tronox Namakwa Sands, EIA /EMPr for two mining application areas, Namakwaland, Western Cape Province, South Africa, 2012 – ongoing, R1,250,000
- Airports Company South Africa, EIA of realignment of runway, Cape Town International Airport, Western Cape, South Africa, R3,175,000
- Grindrod Mauritius, EIA of Matola Coal Terminal Phase 4 Expansion, Maputo, Mozambique, 2012 - 2013, US$425,000
- Maersk, ESIA of Block 16 Seismic Survey, Angola, 2010 – 2011, US$25,000
- Staatsolie Maatschappij Suriname, EIA for diesel, gasoline and LGP pipelines, Suriname, October 2011 – 2013, US$120,000

- Premier Fishing, EIA for re-establishment of fishmeal plant, Saldanha Bay, South Africa, May 2011 – 2015, R1,200,000
- Eni Angola BV, ESIA of development of Block 15/06 West Hub oil fields, Angola, 2011 - 2013, US$110,000
- Falcon Oil & Gas, EMPr, Western, Northern and Eastern Cape, South Africa, 2010 – 2011, US$100,000
- Great Western Minerals Group, EIA and EMPr of rare earth mine, Vanrhynsdorp, Western Cape, South Africa, 2010 – 2012, R1,760,000
- Vale, ESIA of phosphate mine, Nampula Province, Mozambique, 2010 – 2013, US$630,000
- Sonangol Lda, EIA (x6) of onshore hydrocarbon facilities, Luanda, Malange and Lubango, Angola, March – November 2010, US$280,000
- Empresa Moçambicana de hidrocarbonetos and Buzi Hydrocarbons Pty Ltd, ESIA for seismic surveys and exploration drilling in Buzi Block, Sofala Province, Mozambique, 2009 – 2010, US$200,000
- Staatsolie, ESIA of refinery expansion, Paramaribo, South America, 2009 – 2010, US$400,000
- Sasol Technology, EIA for proposed new gas pipeline from Ressano Garcia to Moamba, Mozambique, Moamba, Mozambique, 2009 – 2010, R1,000,000
- Anglo American, State of Environment Report, Strategic Environment Assessment, and ESIA of Gamsberg zinc mine, Aggeneys, South Africa, 2008 – 2010, R13,000,000
- CIC Energy, Environmental screening and fatal flaw assessment of Trans Kalahari Railroad and port, Botswana and Namibia, 2008 – present, R1,300,000
- BHP Billiton, ESIA of Corantijn River dredging, Suriname, 2007 – 2008, US$750,000
- BHP Billiton, ESIA of Bakhuis transport project, Suriname, 2006 – 2008, US$1,600,000
- Altona Developments, EIA of mixed development, Worcester, Western Cape Province, South Africa, 2006 – 2010, R750,000
- BHP Billiton, ESIA of Bakhuis bauxite mine, Suriname, 2005 – 2008, US$3,200,000
- Levendal Developments (Pty) Ltd, EIA of mixed development, Suider-Paarl, Western Cape Province, South Africa, 2005 – 2008, R450,000
- Bevcan, Angola, EIA of canning facility, Viana, Angola, 2005 -2010, US$75,000
- Chevron Texaco, EIA of landifll, Cabinda, Angola, 2004 – 2005, US$90,000
- Attpower Developments (Pty) Ltd, EIA of mixed coastal development, Mossel Bay, Western Cape Province, South Africa, 2004, R600,000
- Intels Services Luanda, EIA of landifll, Cacuaco, Angola, 2004, US$65,000
- Kwezi V3, EIA of waste water treatment works, Gansbaai, Western Cape Province, South Africa, 2003 – 2005, R350,000
- City of Cape Town, EIA of Fisantekraal waste water treatment works, Cape Town, Western Cape Province, South Africa, 2003 – 2004, R450,000
- St Francis Bay Municipality, EIA of beach remediation, St. Francis Bay, Eastern Cape Province, South Africa, 2002 – 2003, R300,000
- City of Cape Town, Environmental Impact Control Report of Vissershok North landfill, Western Cape Province, South Africa, 2001 – 2004, R175,000
- NDC, EMPr for NDC diamond mine, Vredendal district, Western Cape Province, South Africa, 2001 – 2003, R800,000

- Coega Development Corporation, EIA for rezoning, Eastern Cape Province, South Africa, 1999, R85,000
- BHP Billiton, EIA (Scoping) of Alusaf Hillside smelter, Richards Bay, KwaZulu-Natal Province, South Africa, 1999, R150,000
- Gencor, EIA of zinc refinery and phosphoric acid plant, Port Elizabeth, Eastern Cape Province, South Africa, 1995 – 1998, R800,000
- Duferco, EIA of steel rolling mini-mill, Saldanha, Western Cape Province, South Africa, 1997, R90,000
- Hoechst, EIA of polymer extension, Durban, KwaZulu-Natal Province, South Africa, 1993 – 1994, R280,000

## Environmental Planning and Natural Resource Management

- Tronox Mineral Sands (Pty) Ltd, renewal of the Atmospheric Emission Licence for the Namakwa Sands UMM Plant, Brand-se-Baai, Western Cape, 2018-ongoing, R320 000
- Tronox Mineral Sands (Pty) Ltd, renewal of the Atmospheric Emission Licence for the Namakwa Sands Mineral Separation Plant, Koekenaap, Western Cape, 2018-ongoing, R290 000
- Tronox Mineral Sands (Pty) Ltd, renewal and variation of the Atmospheric Emission Licence for the Namakwa Sands Smelter Plant, Saldanha, Western Cape, 2018-ongoing, R300 000
- Kudumane Manganese Resources, EMP Amendment for KMR Manganeese Mine, Hotazel, Northern Cape, 2017 – ongoing, R170 000
- Eskom, Ecological Reports, Duynefontyn and Thyspunt, Nuclear Site Safety Reports Update, South Africa, 2017 – present, R800,000
- DEA&DP, Western Cape State of Environmental Report, 2017, R1,700,000
- Tronox Namakwa Sands, Development of Closure Commitments and Rehabilitation Monitoring Plan Namakwaland, Western Cape Province, South Africa, 2015 – ongoing, R600,000
- West Coast District Municipality, Integrated Coastal Management Plan, West Coast, South Africa, 2012 – 2013, R700,000
- City of Cape Town, Environmental Management Framework and control zones, Cape Town, Western Cape Province, South Africa, 2008 – 2009, R600,000
- Eskom, Ecological Reports, Koeberg, Bantamsklip and Thyspunt, South Africa, 2008 – 2013, R900,000
- City of Cape Town, Environmental Management Framework and control zones, Cape Town, Western Cape Province, South Africa, 2008, R500,000
- Knysna Municipality, State of Environmental Report, Western Cape Province, South Africa, 2004 – 2005, R130,000
- DEA&DP, Western Cape State of Environmental Report, 2004 – 2005, R1,400,000

## Environmental and Social Review and Due Diligence

- HSBC, Annual Monitoring Reports for MIGA Review, Cambambe Hydropower Dam, Angola, 2019 – 2021, €110 000
- Vedanta - Black Mountain Mining (Pty) Ltd, BMM and Gamsberg Water Use Licence and EMPr Performance Assessment, Northern Cape Province, South Africa, 2021, R105,000
- HSBC, Environmental and Social Due Diligence and Annual Review of Lauca Hydropower Dam, Angola, 2014 – 2021, €410 000
- Eramet Comilog Manganese, Environmental Regulatory Due Diligence of Heavy Minerals Mine, Alexander Bay, South Africa, 2020, €11 000

- HSBC, Environmental and Social Compliance Monitoring of Fertilizer Plant and Railway Line, Ghorashal, Bangladesh, 2020 – 2032, $670 000
- BNP Paribas, Environmental and Social Due Diligence of Elandsfontein mine Expansion, Langebaan, South Africa, 2020, R115 000
- Euler Hermes/ UniCredit / Voith, Environmental and Social Due Diligence and Action Plan of Caculo Cabaca Hydropower Dam, Angola, 2020, €30 000
- Vedanta - Black Mountain Mining (Pty) Ltd, BMM and Gamsberg EMPr Performance Assessment, Northern Cape Province, South Africa, 2019, R125,000
- Easigas, ESDD of Avedia LPG terminal, Saldanha Bay, South Africa, 2018, R90 000
- Kropz, Environmental and Social Due Diligence for Competent Persons' Report, Elandsfontein mine, Langebaan, South Africa, 2018, R130 000
- Standard Bank South Africa Limited, Environmental and Social Due Diligence and Environmental and Social Action Plan (ESAP) for Caculo Cabaca Hydropower Dam, Angola, 2017, $23 000
- Voith Hydro, Zenzo Hydroelectric Project Gap Analysis and Environmental and Social Action Plan, Angola, 2017, €30 000
- Voith Hydro, Koysha Hydroelectric Project Gap Analysis, Ethiopia, 2017, €15 000
- AES, Cacuaco Landfill Environmental Compliance Audit, Luanda, Angola, 2017, US$17,500
- Industrial and Commercial Bank of China, Environmental and Social Due Diligence and Environmental and Social Action Plan (ESAP), and Annual Compliance Audits for Caculo Cabaca Hydropower Dam, Angola, 2016-2017, $31 000
- Deutsche Bank, Environmental and Social Due Diligence and Annual Review of Be'er Tuvia Combined Cycle Gas Turbine Power Plant, Israel, 2016 – 2022, €150 000
- Confidential, Environmental and Social Gap Analysis of Caculo Cabaca Hydropower Dam, Angola, 2016, €20 000
- BNP Paribas, Environmental and Social Due Diligence of Elandsfontein mine, Langebaan, South Africa, 2015, R60,000
- Tronox Namakwa Sands, Water Use Licence Audit(s), Namakwaland, Western Cape Province, South Africa, 2015 and 2014, R175,000 (x2)
- Tronox Namakwa Sands, EMPr Performance Assessment, Namakwaland, Western Cape Province, South Africa, 2014, R175,000
- West Africa Exploration Ltd, Environment and social gap analysis of Nimba iron ore mine, Guinea, 2014, US$80,000
- HSBC, Environmental and Social Due Diligence and Annual Review, Cambambe Hydropower Dam, Angola, 2013 – 2017, €255,000
- Tronox Namakwa Sands, EMPr Performance Assessment, Namakwaland, Western Cape Province, South Africa, 2012 – 2013, R150,000
- Biovac, Environmental due diligence audit of pharmaceutical plant, Cape Town, Western Cape Province, South Africa, 2012, R100,000
- SRK UK, Environmental Due Diligence of phosphate mine, Brazil, 2010, US$15,000
- SRK Russia, Environmental Due Diligence of Rossing South uranium mine, Namibia, 2009, US$12,000
- SonaGas, EIA external review of LNG plant EIA, Soyo, Angola, 2006, US$50,000

- Confidential, Environmental Due Diligence, Cape Town, Western Cape Province, South Africa, 2004, R80,000
- Netherlands Commission for EIA, External EIA review of Mavoco hazardous landfill EIA, Maputo, Mozambique, 2002, R30,000

## Management Plans

- Black Mountain Mining (Pty) Ltd, Gamsberg Mine IWWMP Update, Aggenys, Northern Cape Province, South Africa, 2018 – ongoing, R185 000
- West Africa Exploration Ltd, Stakeholder Engagement Plan, Guinea, 2014, US$15,000
- West Africa Exploration Ltd, Biodiversity Action Plan, Guinea, 2014, US$20,000
- Tronox Namakwa Sands, Integrated Water and Waste Management Plan for Namakwa Sands mine, Namakwaland, Western Cape Province, South Africa, 2013 – 2014, R125,000
- Tronox Namakwa Sands, Integrated Water and Waste Management Plan for Namakwa Sands Smelter, Saldanha Bay, Western Cape Province, South Africa, 2013, R110,000
- BHP Billiton, Conceptual Closure and Rehabilitation Plan, Suriname, 2007 – 2013, US$210,000
- Namakwa Sands, Closure Plan, Namakwaland, Northern Cape Province, South Africa, 2003, R170,000

## Socio Economic Impact Assessments

- Department of Environmental Affairs and Development Planning (DEA&DP), Papenkuils Wetland Valuation, South Africa, 2020 – 2021, R500 000
- Departments of Public Works and Basic Education, Helderberg School and Hospital Socio-economic impact assessment, South Africa, 2020, R80 000
- Client: RSK, Basra Master Plan: Modelling of Economic and Population Dynamics, Iraq, 2020 – 2021, $15 000
- Aecom, Social Impact Assessment of Kayamandi Bulk Water Pipeline, South Africa, 2020 - 2021, R80 000
- Allied Gold Corp, Economic specialist study for the Dish Mountain Gold Project, Ethiopia, 2018 – ongoing, $11 000
- Joule Africa, Initial Environmental and Social Assessment of the KPEP Hydropower Project, Cameroon, 2018 – ongoing, $10,800
- Anglo Gold Ashanti, Economic Baseline Report for Siguiri Gold Mine, Guinea, 2018, R130 000
- Pam Golding / Pennyroyal (Gibraltar) Ltd., Economics benefits analysis of Amber Resort Development, Zanzibar, Tanzania, 2017, R300 000
- RSK, EACOP Pipeline Economic Study, Uganda and Tanzania, 2017, $ 40,000
- Tronox, Socio-Economic Impact Assessment of Mining and Associated Operations, South Africa, 2017, R120 000
- SRK UK, Sintoukola Potash Mine Economic Impact Assessment, Republic of Congo, 2012, $30,000
- Staatsolie Maatschappij Suriname, Refinery Expansion Community Relations Plan, Suriname, 2011, $120,000
- SRK UK, Reko Diq Phosphate Mine Review of Economic Impact Assessment, Pakistan, 2010, $7,500
- DEADP, Western Cape State of the Environment Report Economic Study, 2004, R40,000

# Appendix A: Specialist CV

# Appendix B: Specialist Declaration of Independence

## The Specialist

**Note:** Duplicate this section where there is more than one specialist.

I Chris Dalgliesh as the appointed specialist hereby declare/affirm the correctness of the information provided or to be provided as part of the application, and that I:

- in terms of the general requirement to be independent:
  - other than fair remuneration for work performed/to be performed in terms of this application, have no business, financial, personal or other interest in the activity or application and that there are no circumstances that may compromise my objectivity; or
  - am not independent, but another specialist that meets the general requirements set out in Regulation 13 have been appointed to review my work (Note: a declaration by the review specialist must be submitted);
- in terms of the remainder of the general requirements for a specialist, am fully aware of and meet all of the requirements and that failure to comply with any the requirements may result in disqualification;
- have disclosed/will disclose, to the applicant, the Department and interested and affected parties, all material information that have or may have the potential to influence the decision of the Department or the objectivity of any report, plan or document prepared or to be prepared as part of the application;
- have ensured/will ensure that information containing all relevant facts in respect of the application was/will be distributed or was/will be made available to interested and affected parties and the public and that participation by interested and affected parties was/will be facilitated in such a manner that all interested and affected parties were/will be provided with a reasonable opportunity to participate and to provide comments;
- have ensured/will ensure that the comments of all interested and affected parties were/will be considered, recorded and submitted to the Department in respect of the application;
- have ensured/will ensure the inclusion of inputs and recommendations from the specialist reports in respect of the application, where relevant;
- have kept/will keep a register of all interested and affected parties that participate/d in the public participation process; and
- am aware that a false declaration is an offence in terms of regulation 48 of the 2014 NEMA EIA Regulations.


Signature of the specialist:

SRK Consulting (South Africa) (Pty) Ltd

Name of company:

2021-02-26

Date:

# Appendix C: Impact Assessment Methodology

## IMPACT RATING METHODOLOGY

The assessment of impacts will be based on specialists' expertise, SRK's professional judgement, field observations and desk-top analysis.

The significance of potential impacts that may result from the proposed mine expansion will be determined in order to assist decision-makers (typically by a designated authority or state agency, but in some instances, the proponent).

The **significance** of an impact is defined as a combination of the **consequence** of the impact occurring and the **probability** that the impact will occur.

The criteria used to determine impact consequence are presented in the table below.

**Table 1: Criteria Used to Determine the Consequence of the Impact**

| Rating | Definition of Rating | Score |
|---|---|---|
| **A. *Extent*** *– the area over which the impact will be experienced* | | |
| Local | Confined to project or study area or part thereof (e.g. expansion areas) | 1 |
| Regional | The region, which may be defined in various ways, e.g. cadastral, catchment, topographic | 2 |
| (Inter) national | Nationally or beyond | 3 |
| **B**. ***Intensity*** *– the magnitude of the impact in relation to the sensitivity of the receiving environment, taking into account the degree to which the impact may cause irreplaceable loss of resources* | | |
| Low | Site-specific and wider natural and/or social functions and processes are negligibly altered | 1 |
| Medium | Site-specific and wider natural and/or social functions and processes continue albeit in a modified way | 2 |
| High | Site-specific and wider natural and/or social functions or processes are severely altered | 3 |
| **C**. ***Duration*** *– the timeframe over which the impact will be experienced and its reversibility* | | |
| Short-term | Up to 2 years | 1 |
| Medium-term | 2 to 15 years | 2 |
| Long-term | More than 15 years | 3 |

The combined score of these three criteria corresponds to a **Consequence Rating**, as follows:

**Table 2: Method Used to Determine the Consequence Score**

| | | | | | |
|---|---|---|---|---|---|
| ***Combined Score* (A+B+C)** | 3 – 4 | 5 | 6 | 7 | 8 – 9 |
| ***Consequence Rating*** | Very low | Low | Medium | High | Very high |

Once the consequence will be derived, the probability of the impact occurring will be considered, using the probability classifications presented in the table below.

**Table 3: Probability Classification**

| ***Probability**– the likelihood of the impact occurring* | |
|---|---|
| Improbable | < 40% chance of occurring |
| Possible | 40% - 70% chance of occurring |
| Probable | > 70% - 90% chance of occurring |
| Definite | > 90% chance of occurring |

The overall **significance** of impacts will be determined by considering consequence and probability using the rating system prescribed in the table below.

**Table 4: Impact Significance Ratings**

| | | **Probability** | | | |
|---|---|---|---|---|---|
| | | Improbable | Possible | Probable | Definite |
| **Consequence** | Very Low | **INSIGNIFICANT** | **INSIGNIFICANT** | **VERY LOW** | **VERY LOW** |
| | Low | **VERY LOW** | **VERY LOW** | **LOW** | **LOW** |
| | Medium | **LOW** | **LOW** | **MEDIUM** | **MEDIUM** |
| | High | **MEDIUM** | **MEDIUM** | **HIGH** | **HIGH** |
| | Very High | **HIGH** | **HIGH** | **VERY HIGH** | **VERY HIGH** |

Finally the impacts will be also considered in terms of their status (positive or negative impact) and the confidence in the ascribed impact significance rating. The prescribed system for considering impacts status and confidence (in assessment) is laid out in the table below.

**Table 5: Impact Status and Confidence Classification**

| ***Status of impact*** | |
|---|---|
| Indication whether the impact is adverse (negative) or beneficial (positive). | + ve (positive – a ‘benefit’) |
| | – ve (negative – a ‘cost’) |
| ***Confidence of assessment*** | |
| The degree of confidence in predictions based on available information, SRK’s judgment and/or specialist knowledge. | Low |
| | Medium |
| | High |

The impact significance rating should be considered by authorities in their decision-making process based on the implications of ratings ascribed below:

- **INSIGNIFICANT**: the potential impact is negligible and **will not** have an influence on the decision regarding the proposed activity/development.
- **VERY LOW**: the potential impact is very small and **should not** have any meaningful influence on the decision regarding the proposed activity/development.

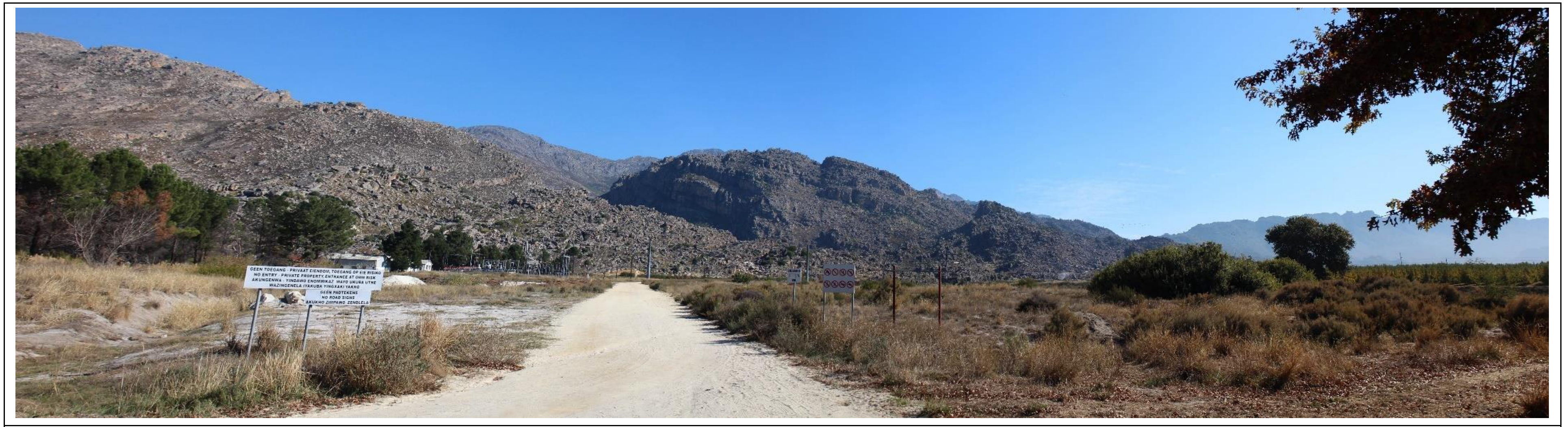
- **LOW**: the potential impact **may not** have any meaningful influence on the decision regarding the proposed activity/development.
- **MEDIUM**: the potential impact **should** influence the decision regarding the proposed activity/development.
- **HIGH**: the potential impact **will** affect the decision regarding the proposed activity/development.
- **VERY HIGH**: The proposed activity should only be approved under special circumstances.

In the VIA, practicable mitigation and optimisation measures will be recommended and impacts will be rated in the prescribed way both without and with the assumed effective implementation of mitigation and optimisation measures. Mitigation and optimisation measures will either be:

- **Essential**: best practice measures which must be implemented and are non-negotiable; and
- **Best Practice**: recommended to comply with best practice, with adoption dependent on the proponent's risk profile and commitment to adhere to best practice, and which must be shown to have been considered and sound reasons provided by the proponent if not implemented.

Negative impacts (with mitigation) rated high or very high will be shaded in red, while positive impacts (with optimisation) rated high or very high will be shaded green.

# Appendix D: Viewpoint Photographs

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|---|---|---|
| srk consulting | **CERES – WITZENBERG VIA**<br>Views from Viewpoint 18 (top) and Viewpoint 19 (bottom) | Project No.<br>532062 |

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**CERES - WITZENBERG VIA**
Views from Viewpoint 20 (top) and Viewpoint 21 (bottom)

Project No.
532062

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**CERES – WITZENBERG VIA**
Views from Viewpoint 22 (top) and Viewpoint 23 (bottom)

Project No.
532062

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|---|---|---|
| srk consulting | **CERES – WITZENBERG VIA**<br>Views from Viewpoint 24 (top) and Viewpoint 25 (bottom) | Project No.<br>532062 |

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**CERES - WITZENBERG VIA**
Views from Viewpoint 26 (top) and Viewpoint 27 (bottom)

Project No.
532062

| | | |
|---|---|---|
| srk consulting | **CERES – WITZENBERG VIA**<br>Views from Viewpoint 28 (top) and Viewpoint 29 (bottom) | Project No.<br>532062 |

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**ROMANSRIVIER - CERES VIA**
Views from Viewpoint 30 (top) and Viewpoint 31 (bottom)

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**ROMANSRIVIER - CERES VIA**
Views from Viewpoint 32 (top) and Viewpoint 33 (bottom)

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Approval Signature: