

Thyspunt Transmission Lines Integration Project – Addendum to Visual and Tourism Reports



August 2012

A Specialist Report for: SiVEST Environmental



ENGINEERS AND ENVIRONMENTAL CONSULTANTS

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Kerry Schwartz of SiVEST is thanked for her effort in producing the visualisation modelling for this report.

Specialist Declaration

I, Paul da Cruz, declare that I –

- act as an independent specialist consultant in the field of visual impact and tourism assessment
- do not have and will not have any financial interest in the undertaking of the activity, other than remuneration for work performed in terms of the Environmental Impact Assessment Regulations, 2010;
- have and will not have any vested interest in the proposed activity proceeding;
- have no, and will not engage in, conflicting interests in the undertaking of the activity;
- undertake to disclose, to the competent authority, any material information that have or may have the potential to influence the decision of the competent authority or the objectivity of any report, plan or document required in terms of the Environmental Impact Assessment Regulations, 2006; and
- will provide the competent authority with access to all information at my disposal regarding the application, whether such information is favourable to the applicant or not.



PAUL DA CRUZ

1 INTRODUCTION

This report presents an addendum to the Visual Impact and Tourism Reports that were undertaken during the EIR Phase of the Thyspunt Transmission Lines Integration Project (TTLIP) EIA. The need to update these reports has been based upon proposed changes to the corridors and associated power line alignments in the Longmore Forest Area that have arisen from stakeholder engagement in the period following the end of the comment period on the Draft Environmental Impact Report (DEIR). The reports have had to be updated to assess the impact of the proposed changes to the alignments on the visual and tourism environment of the area to the north of the Longmore Forest. As such this addendum report focuses only on the part of the study area that is adjacent to the northern Firebreak of the Longmore Forest, i.e. the Elands River Valley.

1.1 Context of Changes to the Corridors and Alignments along the Longmore Forest Northern Firebreak

Since the completion of the specialist studies for the Thyspunt Transmission Lines Integration Project in the middle of 2011, the SiVEST EIA Team received comment and engaged in consultation with Cape Pine (formerly Mountain to Oceans - MTO), the forestry operators within the Longmore Forest, regarding the proposed alignment of the Northern and Southern Corridors through the Longmore Forest. One of the key issues raised queried the routing of the lines through the forestry compartments within the Longmore Forest, with Cape Pine's position that the proposed power lines should not traverse the active forestry compartments at all, due to the commercial impact of a loss of productive forestry land and associated job losses to a decline in production. Cape Pine expressed that as managers of the Longmore Forest it would be acceptable to them that the power lines if the power lines were aligned within the firebreaks that are located on both the northern and southern periphery of the Longmore Forest. Firebreaks are areas of land largely falling within the boundaries of the Longmore Forest that are not planted, but where the natural fynbos vegetation is managed to reduce the risk of veld fires entering the plantation areas. The Northern Firebreak of the Longmore Forest runs along the ridge at the southern edge of the Elands River Valley, the area immediately to the north of the Longmore Forest that lies between it and the Groendal Wilderness Area further to the north. This ridge visually 'encloses' the Elands River Valley and is the most prominent landscape feature when looking southwards from within the valley. Power lines placed along this ridge would thus be highly visible, as they would 'break' the horizon, as viewed from many parts of the Elands Valley to the north.

The visual impact study for the TTLIP concluded that the routing of the power lines on the crest of the ridge on the Longmore Northern Firebreak (and on the southern edge of the Elands River Valley) would constitute a visual fatal flaw – i.e. an impact that would be unable to be mitigated. This fatal flaw was identified in the context of the visual sensitivity of the Elands River Valley that is explored further below. The Tourism Study also identified the routing of the proposed power lines along this ridge as a fatal flaw, due to the potential visual-based impact of the power lines on the tourism environment within the Elands River Valley. As a result the Northern Corridor as presented within the DEIR was routed away from the crest of the ridge, which entailed that it mostly ran within the forestry compartments. The EIA Team-preferred alignment (see below for an explanation of the EIA Team-preferred alignment) accordingly ran within the forestry compartments, and the corridor did not extend onto the top of the ridge, in order to ensure that the power lines would not be visible from the valley.

This alignment precipitated the comments of Cape Pine on the DEIR, as supported by the Department of Forestry. Based on the concerns raised by these stakeholders meetings and a site visit to the Longmore Forest between Eskom, SiVEST and Cape Pine were convened in early 2012. As a result of these engagements, SiVEST and Eskom agreed to consider the possibility of moving the corridors and alignments out of the forestry compartments and into the firebreak. As a result, Eskom technical staff identified the need to further investigate the technical feasibility of re-routing the corridors and alignment out of the forestry compartments, and identified the best way to undertake this technical assessment was through the undertaking of a LIDAR survey to accurately determine the terrain within the area in question and to undertake a helicopter fly-over. Following the helicopter

fly-over Eskom technical staff proposed an alignment completely within the firebreak and not affecting the compartments at all, but which largely ran on the crest of the ridge and even on the northern facing-slopes of the ridge that run down into the valley. Around the same time, the EIA Team-preferred alignment was altered to take into account the concerns of Cape Pine, while still considering the need to restrict the visual prominence of the lines on the ridge. This alignment runs along the edge of the compartments as far as possible to avoid affecting them, but cutting across small sections of the edge of the compartments. Where the northern firebreak is wide the alignment was routed in areas that reduced the topographical elevation and thus visibility of the proposed lines. These two alignments, along with the older EIA Team-preferred alignment, provide a set of potential alignments within this part of the Northern Corridor that can be comparatively assessed in terms of the impact of the lines on the visual environment and tourism environment of the area. For the purposes of this report the alternative alignments have been named as follows:

- Alternative 1 – Eskom-proposed alignment (within the Northern Firebreak)
- Alternative 2 – Latest EIA Team-preferred alignment
- Alternative 3 – EIA Team-preferred alignment at the time of the DEIR comment period

The figure below indicates the routing of these alignments.

1.2 Rationale for addenda to the Visual and Tourism Studies focused on the Elands Valley

The consideration of routes that would be highly visible on the southern edge of the Elands Valley marks a significant change from the status quo during the DEIR comment period and necessitated that the altered impact of the lines on the Elands River Valley would need to be re-considered, hence the reason for the initiation of this addendum study to the visual impact report in the latter part of the EIA.

In a tourism context a relatively large amount of information regarding the tourism baseline in and around the Elands Valley has become available, and this has needed to be considered by the tourism study for the EIA. In addition due to the nature of tourism activities in the Elands Valley being primarily eco-tourism activities, with a strong reliance on the aesthetics and natural character of the area, the potential visual intrusion caused by the consideration of new routes could have a marked knock-on effect on existing tourism facilities and activities and potential future development of tourism growth in the visually-affected area, hence the addition to the tourism study.

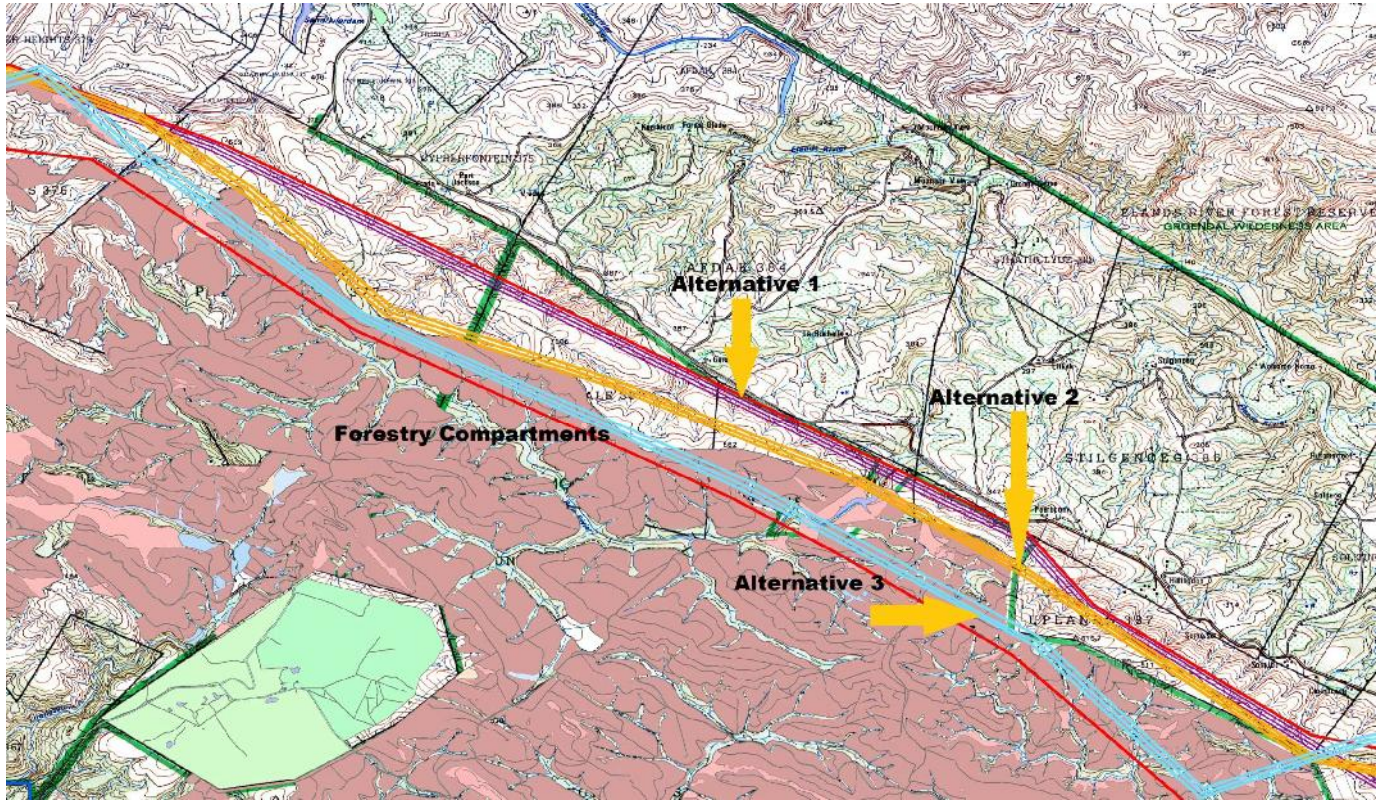


FIGURE 1 – ALIGNMENT OF THE ALTERNATIVES IN THE CONTEXT OF THE LONGMORE NORTHERN FIREBREAK AND THE ELANDS RIVER VALLEY

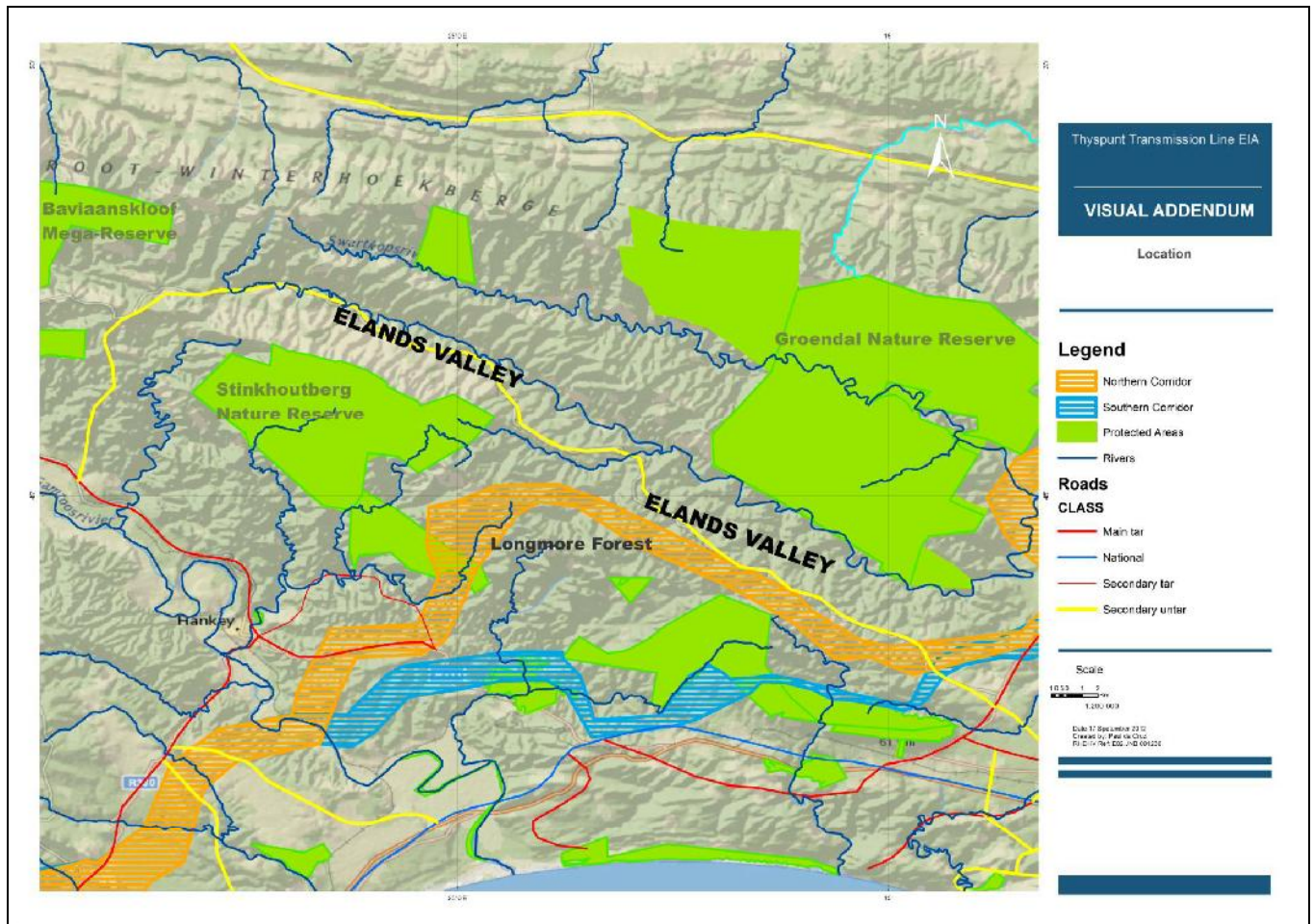


FIGURE 2 – LOCATION OF THE ELANDS VALLEY

1.3 Project Description

Please refer to the full visual and tourism reports for a full technical description. However the primary components of the project are summarised below:

- ☐ 5X400kV lines are proposed to be developed, three in the Northern Corridor and two in the Southern Corridor
- ☐ The lines in each corridor would typically run in parallel to one another except where technical constraints prohibit this
- ☐ Eskom is seeking approval to construct the power lines anywhere within the corridor; the corridors are typically 2km wide except where technical constraints have entailed the corridor has had to be narrowed or widened. The EIA Team-preferred alignment is a proposed alignment for the power lines that the EIA Team has recommended should be developed in order to avoid areas of environmental sensitivity
- ☐ It is anticipated that cross rope suspension towers would be the tower type that would be most likely to be used on these lines. However in areas where the line bends, or where extra stability is required, the self-supporting tower type would be used.
- ☐ Towers are 40m in height, equivalent to the height of a 10-storey building.
- ☐ Each power line would require a servitude of 55m in width, and each power line would typically be spaced 55m apart
- ☐ In most cases the land beneath the overhead lines can be used, as normal, by the landowners. Eskom, however, require that no dwellings or vegetation/crops higher than 4m be established within the servitude.

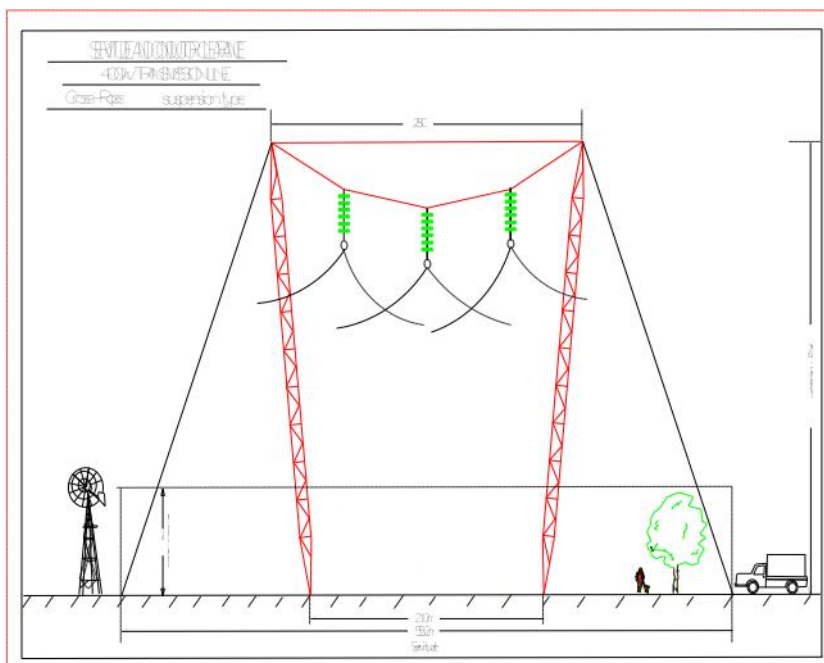


FIGURE 3 – THE CROSS-ROPE SUSPENSION TOWER TYPE

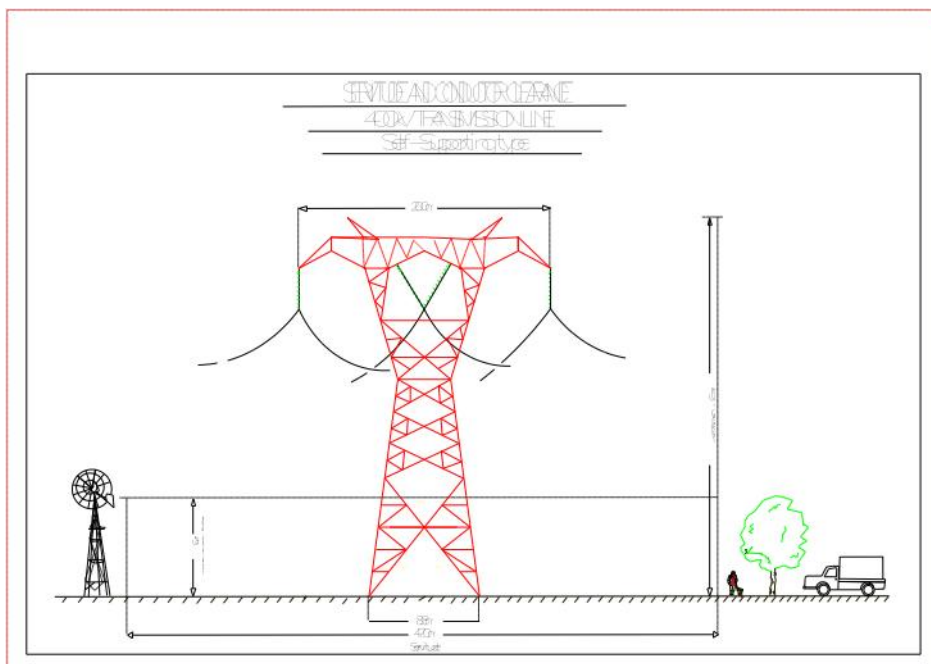


FIGURE 4 – THE SELF-SUPPORTING TOWER TYPE

1.4 Assumptions and Limitations

1.4.1 Visual

This report has assessed the potential visual impacts related to the most recently proposed alignments of the Northern Corridor within the Longmore Northern Firebreak. This report has focussed solely on the implications of the proposed development and alignments for the visual environment, and not for the wider set of environmental parameters that would be affected by the proposed power lines, as will need to be done by the Final EIR.

The identification of visual receptors has been based on feedback from the public, including potentially-affected landowners and other stakeholders. In addition, analysis of the study area tourism and other recreational facilities has been undertaken to identify sensitive receptor locations. A desktop search for households / farmsteads within the corridor using Google Earth has been undertaken. Lastly notes and observations in the field have been used to add to the list of receptors. It should be noted that not all receptor locations may perceive the proposed power lines in a negative way. Where no receptor or property-specific feedback has been received, a number of broad assumptions have been made in terms of the identification of sensitive receptors; e.g. homesteads / farmsteads in a largely natural setting have been assumed to be likely to be sensitive from a visual perspective.

Viewsheds have not been generated for the proposed lines due to the complexity associated with generating viewsheds off multiple points on each of the lines. Rather distance banding from the lines has been used to gain an understanding of the level of visual exposure associated with the power line alignments. The visual contrast rating as developed by the US Department of Interior's Bureau of Land Resources has been used as the methodology to assess the level of visual impact at each receptor point.

It should be noted that the purpose of the visual modelling is to give the reader of this report *an indication* of how power lines along different proposed alignments will appear in the context of the landscape at that location. It should be noted that the results of the visualisation may differ slightly from how the power lines may look in

reality; however the purpose of the visualisation of the lines is not to provide an exact life-like replica of how the lines would appear, but to allow the reader to gain an indication of how the power lines may appear within the landscape setting and to gain an understanding on how the lines would intrude into the view. It should be noted that the tower positions as provided in the modelling have had to be selected at random as design of tower locations along respective alignments has not yet occurred. The appearance of the towers and lines would be able to be 'refined' should a more realistic model of the towers and lines be provided. **Kerry Schwartz of SiVEST has undertaken the visual modelling.**

Due to budget constraints visualisation modelling has not been able to be undertaken for all key observation locations and for all line alternatives being considered. In instances where visual modelling has not been available Google Earth ground level view has been used to gain an understanding of the likely visual exposure of the lines from the various key observation locations. Not all potentially affected sensitive receptor locations could be visited due to access constraints.

1.4.2 Tourism

All efforts were made to identify all tourist facilities and activities within the affected part of the Valley. The affected part of the Valley was taken to be the area of the Valley that would be subject to visual exposure from the proposed power lines.

This report is not an exhaustive assessment of tourism in the Valley, nor is it an economic assessment of how the proposed power lines would impact on the economy of the Valley. Information has been gathered to allow the assessment of the potential impact of the proposed lines on the tourism environment and tourist-related activities in the area to be undertaken.

As most of the tourism facilities in the Elands Valley are ecotourism-based, this report has focussed on the impact of the proposed line on leisure tourism. Due to the physical constraints of accessing the Northern Firebreak from the Elands Valley, it is believed that any business tourism related to the construction of the proposed lines in this area would not affect the Valley in a significant way.

As there has been no base data collected to determine how visitors to tourist facilities in the Elands Valley would perceive the development of power lines and the likely effect that this would have on tourist visitation to the Valley, it is very difficult to definitively assess how tourist visitation to the Valley may be affected, and to what degree. No studies in a South African context exist to serve as a case study of the impact of the development on high voltage power lines on tourist visitation to an area. The conclusions drawn in this report with respect to the likely impact on tourism demand must thus be viewed in this context.

Visual Impact Assessment Section



FIGURE 5 – VIEW SOUTH FROM THE ACCESS ROAD TO TANGLEWOOD

2 SUMMARY OF THE VISUAL BASELINE OF THE ELANDS RIVER VALLEY

2.1 Physical Landscape Characteristics and Visual Implications

The Elands River Valley is a relatively long valley, stretching approximately 50km from the head of the valley to the point at which the wider valley flattens out in the vicinity of Rocklands. The valley forms in the vicinity of the farms Melkhoutfontein and Erasmuskraal to the east of the Baviaanskloof Wilderness Area and to the north of the Gamtoos River Valley at Patensie. At its head the valley is shallow, although already well-defined, being bounded by the hills of the Elands Rivier Berge to the south and the foothills of the Groot Wintershoek Mountains to the north, with the Cockscomb peak forming a prominent landmark at the valley's western end. The valley retains its mountainous sides along its entire length, with the Groot Winterhoek Mountains forming its northern edge, and a steep sided high ridge running on the southern side of the valley all the way to Rocklands where the ridge diminishes.

In its upper reaches the valley is relatively narrow, with the flat terrain on the valley floor being utilised for intensive cultivation of crops. In its mid reaches the valley widens out slightly, but then becomes more incised around the Sand River Dam and eastwards to the area surrounding the Bulk River Dam. As the Elands River drains further eastward, it becomes more incised, forming a steep-sided valley within the wider valley. Human settlement and farming activity (in the form of cultivation) is largely focussed within the valley bottom where many of the farmsteads are located. Flatter areas have been cleared to form pastures and even centre pivots, however in the lower reaches of the valley, terrain that is sufficiently flat to allow cultivation is largely limited to the valley floor and certain parts of the side slopes. Within the valley, a mosaic of thicket and fynbos exists, with thicket vegetation and even small patches of forest occurring on the side valleys, and grassy fynbos occurring in the flatter areas and spurs. However much of this vegetation has been transformed, either through the clearing for pastures, or through the invasion of extensive areas by alien vegetation, in particular wattles and eucalyptus. Over the past few years, the Working for Water Programme has been operational along the entire length of the valley and much of the wattle has been cleared, allowing natural thicket and fynbos vegetation to start regenerating. This project has played a large role in restoring a more natural look to the valley with the removal of many large infestations of wattle.

As the valley flattens out in the area to the west of Rocklands, the human footprint in the landscape increases. The presence of smallholdings increases, and there are a number of chicken hatcheries present. There are extensive stands of tall alien exotic vegetation which have not yet been cleared. Where the terrain is open, views to the sprawling KwaNobuhle Township to the north-east also heightens the human presence within the landscape.



FIGURE 6 – VIEW INTO THE HEAD OF THE ELANDS RIVER VALLEY

Importantly in a visual aesthetic context the sides of the valley along most of its length are natural – with the steep and often rocky terrain of the valley sides precluding any use other than grazing. Many of the mountainous areas on the sides of the valley are formally preserved, especially the northern side of the lower reaches of the valley which forms part of the Groendal Wilderness Area, and part of the southern valley sides forming part of the Stinkhoutberg Nature Reserve. The presence of the natural hills that enclose the valley on both sides provide the valley with a very natural visual character, and a highly scenic component. Scenic quality or visual quality of a landscape typically increases with greater relief, as well as with increasing complexity of visual elements; As stated by Porteous, (1996), the greater the topographical variation, the greater the scenic quality (see also the references quoted in Wu et al, 2006). This is certainly the case in the Elands River valley where the rising mountainous terrain on either side of the valley provides great aesthetic and scenic value.

There is a very low human footprint within most of the valley. The predominant rural landuses within the valley is cattle farming, and thus much of the natural vegetation has been retained, or if transformed to pasture, still retains a natural character. Many of the farmsteads that do occur are well hidden from the main access road through the valley, and an impression of a very low density of human habitation is prevalent as one drives along the Elands Valley Road. The only visible human intrusion within the valley apart from the scattered homesteads and some farming infrastructure is a low voltage power line that runs up the valley from the Rocklands area. The forestry operations to the south of the valley are not highly prominent, although in the lower reaches of the valley east of the Bulk River Dam, rows of pine trees on the edge of the northern-most compartments are visible from parts of the valley.



FIGURE 7 – VIEW TO THE SOUTH FROM THE ACCESS ROAD TO THE MOUNTAIN VIEW FARM. NOTE THE HIGHLY NATURAL CHARACTER OF THE LANDSCAPE

Most of the valley can thus be considered to have a largely natural visual character, with certain parts displaying a rural or pastoral component where pastures or fields occur. This natural visual character is heightened by the very low human footprint. This highly natural character plays a strong role in affecting the visual sensitivity of the area, as discussed below.

2.2 Visual Sensitivity of the Elands River Valley

Visual Sensitivity is an important factor in gauging whether a new development would be perceived to be an impact or not. Visual sensitivity can be defined as the degree to which anthropogenic intrusions into, or alterations to the landscape would be perceived negatively by the people that inhabit or frequent that area. The degree of visual sensitivity of an area is closely related to the aesthetic quality of the area, as well as to the value placed in the aesthetic quality of the landscape. In landscapes where the visual character is predominantly natural and where there is a high aesthetic or natural scenic quality to the landscape, the visual sensitivity is typically high. This is particularly the case where activities (from which economic benefit is derived) that are based on the enjoyment / appreciation of the natural and / or scenic features of the landscape are practiced. The Elands River Valley fulfils all of these characteristics of a highly natural visual character, scenic quality, and the presence of activities that are based upon the appreciation of these natural character and scenic quality of the area. Accordingly the Valley can be considered to be a highly visually sensitive area.

This sensitivity is reflected in many of the responses to the proposed TTLIP development through the course of the EIA public participation process to date. The Elands River Conservancy has submitted comments in writing and recorded through meetings that have outlined the value placed in the natural context of the valley. In a written

submission from the Conservancy to the TTLIP EIA Team, one of the reasons given for residents having bought property in the area is because of the area's beauty and closeness to nature. This submission also details how during a 10 year period prior to 2009, many residents in the valley initiated ecotourism initiatives as a way of generating income, taking advantage of the valley's location at the gateway to the Baviaanskloof Wilderness Area and being located adjacent to the Groendal Wilderness Area. It is stated that these eco-tourism activities rely heavily on visual aesthetics and biodiversity (Report compiled by the Elands River Conservancy about the proposed transmission lines through the Elands River Valley, 2009). Verbal communication with many of the residents of the Valley has confirmed that many people have moved to the area for its lack of human development and serenity. Many residents have expressed the view to the author of this study that even the smaller Eskom reticulation lines that supply the valley with electricity are an unwelcome visual intrusion. These statements were all made in opposing the proposed transmission lines within, or adjacent to the Elands River Valley during the latter stages of the Scoping Phase of this EIA. They adequately demonstrate the visual sensitivity of the Valley and its residents. This visual sensitivity is a very important factor in assessing the visual impact of the proposed power lines on the Valley, as explored further below.

2.3 Location of Visual Sensitive Receptors

Potential sensitivity to visual impacts is closely interrelated to the presence of sensitive visual receptors / receptor locations in the study area. For the purposes of this report, a sensitive receptor is defined as a receptor which would potentially be adversely impacted by the proposed power lines. This takes into account a subjective factor on behalf of the viewer – i.e. whether the viewer would consider the impact as a negative impact. The adverse impact is often associated with the alteration of the visual character of the area in terms of the intrusion of power lines into a 'view', which is perceived to affect the 'sense of place'. Thus receptors of visual impacts in areas / landscapes where the current visual character of the environment is part of the appeal of an area and thus has a socio-economic or cultural importance are more likely to be considered as sensitive receptors. As such a distinction must be made between receptor locations and sensitive receptor locations – receptor locations may be able to view the proposed power lines and substations, but would not necessarily be adversely affected by any visual intrusion associated with the power lines

The low density of human habitation within the Valley entails that individual receptor locations can be pinpointed. It should be noted that due to the visual sensitivity of the valley discussed above, all farmsteads, as well as tourism facilities have been classified as sensitive receptor locations. Accesses, in particular public access roads can also be termed as receptor locations.



FIGURE 8 – A FARMSTEAD IN THE ELANDS RIVER VALLEY. THIS FARMSTEAD IS NORTH-FACING, TOWARDS THE MOUNTAINS OF THE GROENDAL WILDERNESS AREA

In terms of the most recent proposed alignments of the Northern Corridor lines, a certain section of the valley would be potentially be able to view the proposed power lines. Due to a distance factor that entails that locations beyond a certain radius of the lines would be unlikely to distinguish the lines from the background not all parts of the valley would be exposed to views of the proposed power lines. For the purposes of this report, the area of focus within the wider Valley stretches from the farm Elandsfontein (i.e. Wistaria and Oaklands) in the west to the farms Solitude and Boschfontein in the east (i.e. Waverly Hills). Within this area the following receptor locations have been identified:

TABLE 1 – RECEPTOR LOCATIONS IN THE ELANDS RIVER VALLEY

Receptor Name	Receptor Type
Afdak Farmstead	Farmstead
Bergplaas Farmstead	Farmstead
Burrows Hiking and Bush Camp	Accommodation and Tourism Facility
De Hoek Farmstead	Farmstead
Eikenek	Homestead
Forest Glade Farmstead	Farmstead
Golden Grove Farmstead	Farmstead
Gumdale Farmstead	Farmstead

Receptor Name	Receptor Type
Hillingdon Farmstead	Farmstead and Tourism Facility
Keurkloof Farmstead	Farmstead
Meadows Farmstead & 4X4	Farmstead and Tourism Facility
Monte Vista Farmstead	Farmstead
Mountain View Farmstead	Farmstead
Mountain View Camp	Accommodation and Tourism Facility
Mountain View Farmstead 2	Farmstead
Mpunza Hunting Lodge	Accommodation and Tourism Facility
Oaklands Farmstead	Farmstead
Offcamber Bush Camp	Accommodation and Tourism Facility
Offcamber Guest House	Accommodation Facility and Owners House
Orange Grove Farmstead	Farmstead
Otter Creek Homestead	Homestead
Peerboom Farmstead	Farmstead
Private Household	Homestead
Private Household 2	Homestead
The River Cottage	Farmstead
Sand River Lodge	Accommodation and Tourism Facility
Sand River Lodge – Owners House	Farmstead
Solitaire Creek	Farmstead
Solitude Farmstead	Farmstead
Solitude Farmstead 2	Farmstead
Stilgenoeg Farmstead 3	Farmstead
Stilgenoeg Farmstead	Farmstead
Stilgenoeg Farmstead 2	Farmstead
Tanglewood Camping Site	Accommodation and Tourism Facility
Tanglewood Farmstead	Farmstead
Waverley Hills Christian Centre	Accommodation and Tourism Facility
Welcome Home Farmstead	Farmstead
Welcome Home Farmstead 2	Farmstead
Wistaria Farm	Farmstead

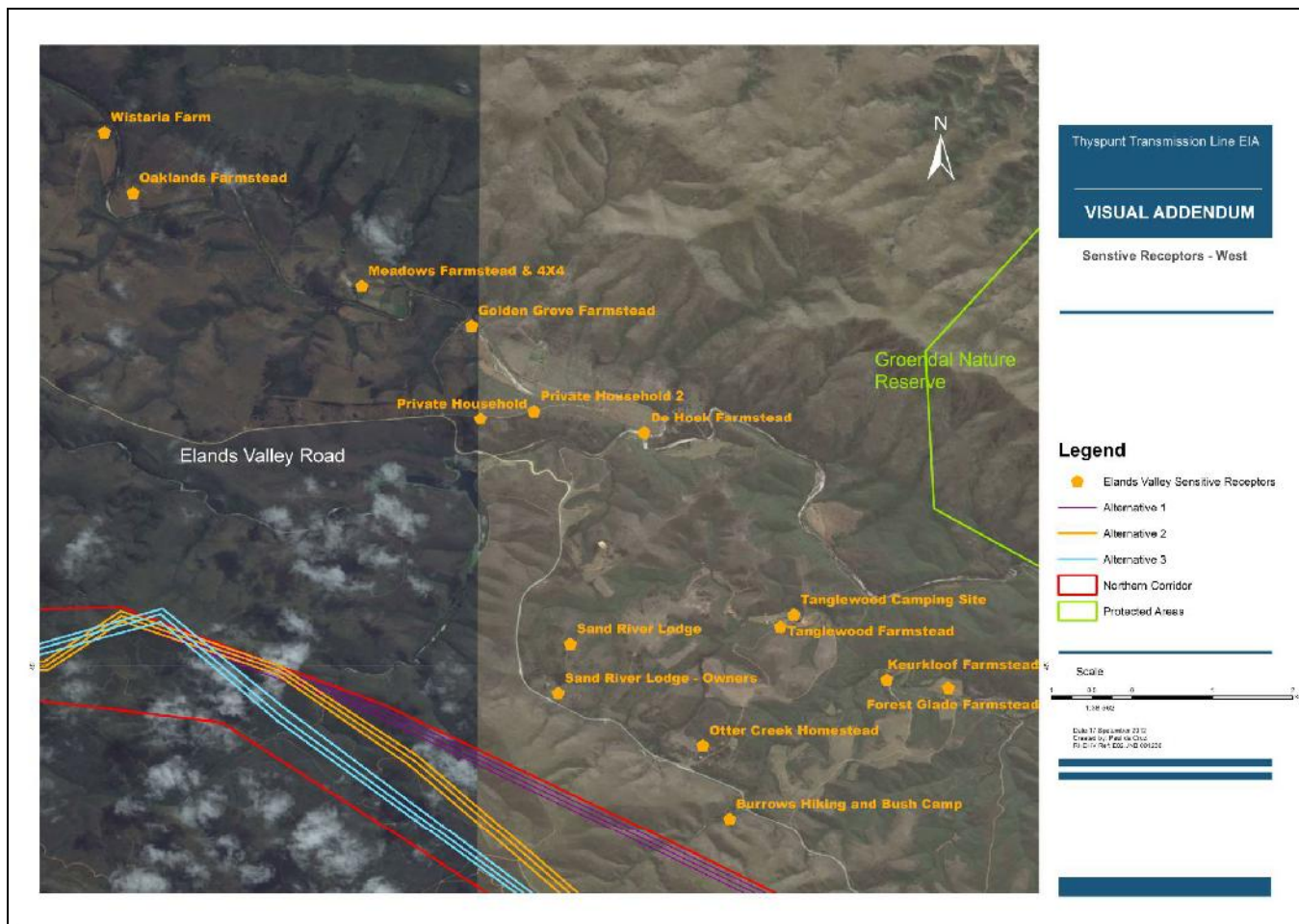


FIGURE 9 – RECEPTOR LOCATIONS (WEST)

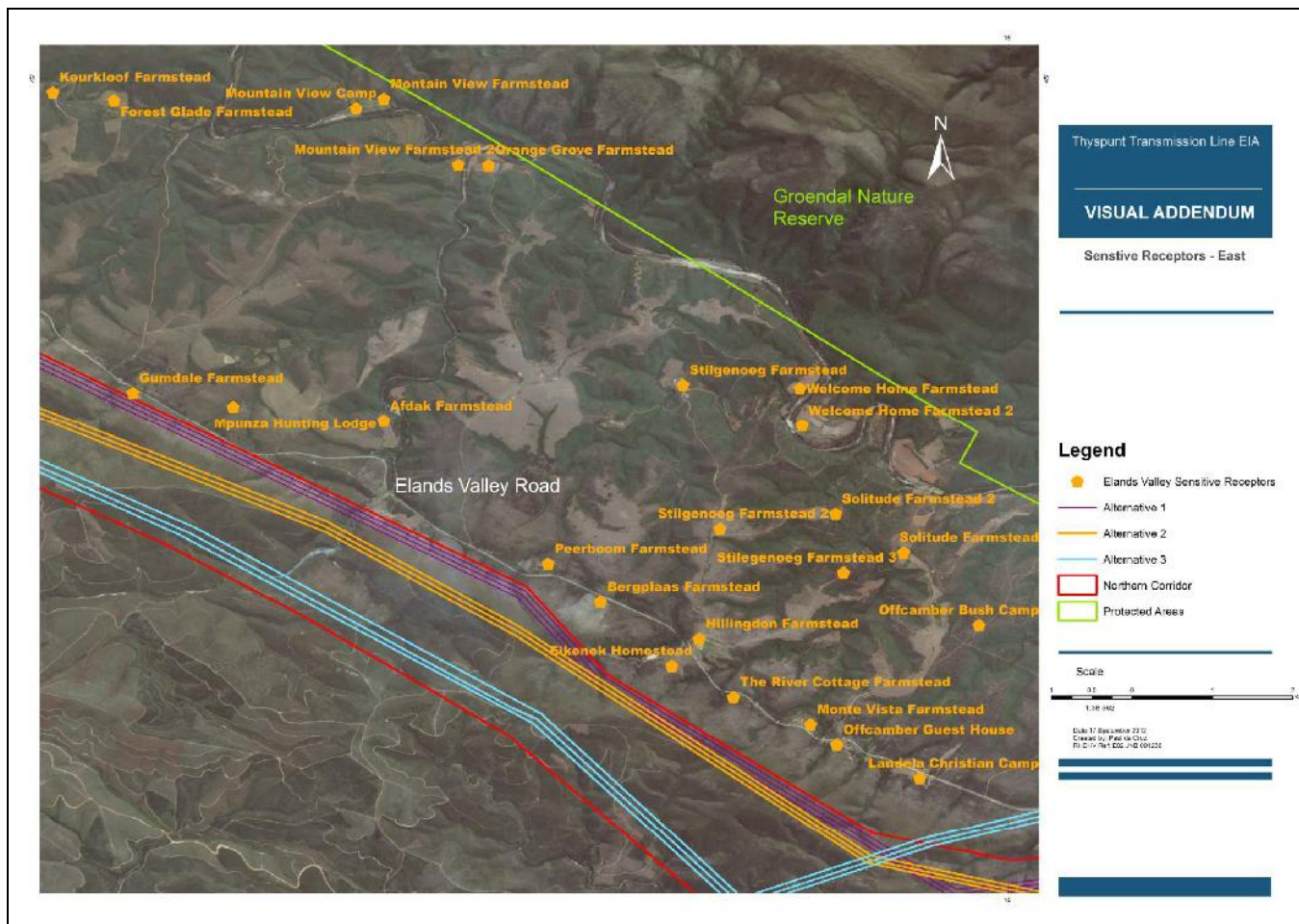


Figure 10 – Sensitive Receptor Locations - East

It is important to note that visual impacts would not only be limited to these locations. In some areas there are tourism activities such as hiking trails or 4X4 routes which would have a view of the proposed power lines. Similarly, owners of properties would be visually exposed to the power lines while travelling to and from their homesteads or within their properties. Lastly the entire stretch of the Elands River Gravel Road that provides public access to the valley (and which also links to Baviaanskloof and Patensie to the west) through the area that would be visually exposed to the power lines is considered to be a sensitive receptor road.

2.4 Generic Visual Impacts associated with power lines

Transmission power line towers are by their nature very large objects and thus highly visible. The standard tower height of a proposed 400kV power line is 40m (equivalent in height to a 10-storey building). The height of a tower / pylon thus means that the pylon is typically visible from a large radius around the tower. A power line consists of a series of towers spaced approximately 400m apart in a linear alignment. The power line consisting of a number of these tall towers spaced linearly is thus typically highly visible.

The degree of visibility of an object is only one aspect of the potential visual impact, but there are other factors that influence the nature of visual impact. As described above the landscape and aesthetic context of the environment in which the object is placed, as well as the perception of the viewer are also important factors. In the context of power lines, the type of tower used as well as the degree to which the towers would impinge upon or obscure a view is also a factor in the experiencing of visual impacts associated with the power line.

The distance of the viewer / receptor location away from the power line is the most important factor in the context of the experiencing of visual impacts. Beyond a certain distance, even large structures such as power lines tend to be much less visible, and are difficult to differentiate from the surrounding landscape. The visibility of an object is likely to decrease exponentially with increasing distance away from the object, with maximum impact being exerted on receptors at a distance of 500m or less. The impact decreases exponentially as one moves away from the source of impact, with the impact at 1000m being a quarter of the impact at 500m away (see the figure below). At 5000m away or more, the impact would be negligible.

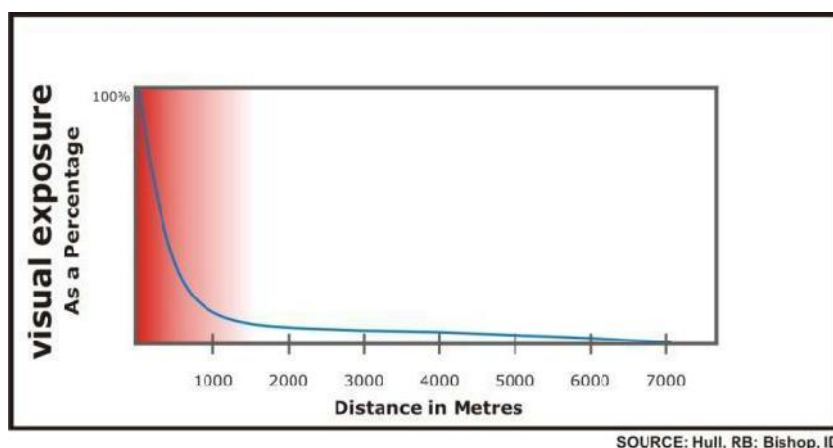


FIGURE 11 – DIAGRAM ILUUSTRATING DIMIISHING VISUAL EXPOSURE OVER DISTANCE

As described above, power lines are not a feature of the natural environment, but are rather representative of human (anthropogenic) intrusion into the natural environment. Thus when placed in a largely natural landscape, power lines can be perceived to be highly incongruous in the context of the setting. The height and linear nature of power lines exacerbate this incongruity with the natural landscape, as the towers can impinge on views within the landscape. In addition, the practice of clearing a strip of vegetation under the power line servitude in certain

vegetation types can exacerbate the visibility and incongruity of the power line in a largely natural setting, by causing fragmentation of natural vegetation, thus making the power line more visible, especially from greater distances. The cleared strip of land is often highly visible and draws the viewer's attention to the power line servitude, especially when it occurs within a context of natural thicket / bushveld vegetation where bushes or trees commonly occur.

Power lines are often perceived to be a source of visual impact if they affect or change the visual quality of a landscape. It is in this context of incongruity with a natural setting that power lines are often perceived to be a source of visual impact. The perception of the viewer /receptor of impact is also very important, as certain receptors may not consider the development of a power line to be a visual impact. The perception of visual impacts is thus highly subjective and thus involves 'value judgements' on behalf of the receptor. The context of the landscape character, the scenic / aesthetic value of an area, and the types of landuse practiced tend to affect the perception of whether power lines are an unwelcome intrusion, and thus the sensitivity of receptors to the erection of power lines in an area. Power lines are often perceived as visual impacts where value is placed on the scenic or aesthetic character of an area, and where activities such as tourism are practised which are based upon the enjoyment of, or exposure to, the scenic or aesthetic features of the area. Sensitivity to visual impacts is typically most pronounced in areas set aside for the conservation of the natural environment (such as protected natural areas or conservancies), or in areas in which the natural character or scenic beauty of the area acts as a draw card for visitors (tourists) to visit the area. Residents and visitors to these areas may perceive power lines to be an unwelcome intrusion that would degrade the natural character and scenic beauty of the area, and which would potentially even compromise the practising of tourism activities in the area.

Conversely, the presence / existence of other anthropogenic objects associated with the built environment may influence the perception of whether a power line is associated with a visual impact. Where buildings and other linear structures such as roads, railways and especially other power lines exist, the visual environment could be considered to be already altered from a natural context and thus the introduction of a new power line into this setting may be considered to be less of a visual impact than if there was no existing built infrastructure visible.

Visual impacts can be experienced by different types of receptors, such as people driving along roads, or people living / working in the area in which the power line is visible. The receptor type in turn affects the nature of the typical 'view' of a potential source of visual impact, with views being permanent in the case of a residence or other place of human habitation, or transient in the case of vehicles moving along a road. The nature of the view experienced affects the intensity of the visual impact experienced. Viewing distance is a critical factor in the experiencing of visual impacts, as beyond a certain distance, even large objects such as power line towers tend to blend in with the landscape. The visibility of an object tends to decrease exponentially with increasing distance away from the object. Other factors, as listed below can impact the nature and intensity of a potential visual impact associated with a power line:

- the location of a power line in the landform setting – i.e. in a valley bottom or on a ridge top. In the latter example the power line would be much more visible and would 'break' the horizon.
- the presence of macro- or micro-topographical features such as buildings or vegetation that would screen views from a receptor position to the power line.
- The number of power lines proposed to run in parallel to each other
- temporary factors such as weather conditions (presence of haze, or heavy mist) which would affect visibility

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

3 VISUAL CONTRAST RATING

In order to better understand the visual impacts associated with the proposed power lines a visual contrast assessment has been undertaken. This is done in order to quantify the degree of visual contrast or change that would be caused by the proposed power lines at a number of key observation locations (including static receptor locations and along sensitive receptor roads). The visual (3D) modelling of the power lines from certain key observation locations (which are related to sensitive receptor locations) has enabled an accurate, realistic picture of the likely visual contrast that would be caused by the development to be assessed. Assessing the degree of visual change at key observation points will allow a further judgement of the degree of 'acceptability' of the visual change to be made, and to suggest further mitigation measures to be suggested.

In order to allow the effect of the visual contrast at the key observation locations within the study area to be assessed, the visual baseline of the landscape at these locations needs to be established. As prescribed by the US Department of Interior's Bureau of Land Management's Visual Resource Management Methodology, it is important to describe the visual baseline of the landscape at each key receptor location in order to allow the objective assessment of the degree of change in visual contrast that would result from the proposed power lines. This study has used a methodology to establish the degree of visual contrast that is largely based upon the BLM visual contrast rating methodology. This methodology prescribes that a number of basic structural elements of different physical components of the landscape at a key observation location be assessed. These basic elements include:

- ☐ Form
- ☐ Line
- ☐ Colour
- ☐ Texture

According to the methodology the landscape is divided into three components of which landscapes are typically comprised:

- ☐ Land form (Topographic units)
- ☐ Vegetation (including natural vegetation and planted vegetative features such as fields)
- ☐ Human Structures (e.g. buildings, power lines, etc.).

A table indicating the structural elements of different physical components of the landscape that can be individually described to allow an accurate understanding of the visual baseline at each key observation location is presented to give an indication of the visual landscape baseline. This is followed by a table which assesses these components of the landscape under a scenario where the turbines were developed. The degree of visual change / visual contrast that will be created is thus able to be examined. The visual contrast rating methodology requires that a landscape be assigned a tolerance level relating to the degree of acceptable visual change of that landscape (named visual resource management classes in the BLM methodology). This assessment follows the comparative tables. The tolerance levels applicable to the study area are examined below

3.1 Key Observation Locations

Due to time and budget limitations, not all sensitive receptor locations have been able to be assessed using the visual contrast methodology. It should also be noted that a number of receptor locations would not be able to view the lines due to their location and position within the landscape – in the valley floor of the Elands River Valley

where topography would shield them from the views towards the proposed power lines. As a result a number of key observation locations have been carefully selected to represent the typical views towards the power lines from a representative set of locations.

The list below indicates the following key observation locations for which the visual contrast rating has been undertaken:

- ☐ Burrows Hiking Trail
- ☐ Elands Valley Road east of Sand River Dam
- ☐ Mpunza Lodge
- ☐ Mountain View Access Road
- ☐ Solitude Farmstead 2
- ☐ Hillingdon Farmstead

These locations have been chosen as they are representative of different parts of the Elands Valley that would potentially be affected by the lines – the eastern part – Solitude and Hillingdon, the central part – Mountain View Access Road and Mpunza Lodge, and the western most part – Elands Valley Road near the Sand River Dam, Burrows Hiking Trail and the Tanglewood Access Road.

The table below lists the receptor locations that are located relatively close to each of the key receptor locations for which the key receptor location is broadly representative of the type of view and level of visual exposure.

TABLE 2 – KEY OBSERVATION LOCATIONS AND THE RECEPTOR LOCATIONS FOR WHICH THE VIEW OF THE KEY OBSERVATION LOCATIONS ARE REPRESENTATIVE

Key Observation Locations						
Burrows Hiking	Elands Road	River	Mpunza Lodge	Mountain View	Solitude 2	Hillingdon
Otter Creek	Private Household		Gumdale	Access roads to farms in the same part of the valley	Stillegenoeg 2	Peerboom
	Private Household 2		Afdak		Stillegenoeg 3	Offcamber Guesthouse
	Sand River Lodge				Solitude	Eikenek
	Sand River Owners House				Offcamber Bush Camp	Bergplaas
						Monte Vista
						River Cottage

Not all receptor locations are listed in the above table, as a number of receptors located lower down in the valley where their position in the landscape would entail that the topography would shield the receptor from viewing the lines. These receptor locations are:

- Solitaire Creek
- Welcome Home
- Welcome Home 2
- Orange Grove
- Mountain View 2
- Mountain View
- Mountain View Camp
- Forest Glade
- Keurkloof
- Tanglewood
- Tanglewood Camping Site
- De Hoek
- Golden Grove
- The Meadows
- Oaklands
- Wistaria

It should be noted that the accesses to all of these receptor locations are from the Elands River Road, and at some point the southern ridge or valley side will become visible for people driving up from these receptor locations. Many of the properties in the Valley traverse both the valley and higher ground, and there will be parts of the properties which will be visually exposed to the power lines where they are visible along the ridge to the south.

3.2 Tolerance Levels relating to degree of acceptable change

As described above, the study area is highly natural in visual character, with a high scenic component to the landscape. In this context of value being placed on the naturalness of landscape would entail that emphasis would thus be on preserving the natural character and beauty, in which human objects have spatially limited and non-intensive visual characteristics and prominence. Accordingly the associated objective would be to create as little visual change and contrast to the landscape as possible, by limiting the degree of visual intrusion caused by a development such as the proposed wind farm. Put in another way, the objective would be to only allow development that did not degrade the visual context. The degree of visual intrusion associated with the proposed power lines is thus important in this context. Accordingly the following visual objective, and thus tolerance level has been identified for the study area:

TABLE 3 – VISUAL CHANGE OBJECTIVE AND TOLERANCE LEVEL FOR THE STUDY AREA

Landscape Context	Visual Change Objective	Tolerance Level
Rural environments – largely natural landscapes	Maintain the natural character as far as possible and limit intrusion of large-scale human objects	Low degree of change in visual contrast permitted

The tolerance level of the valley must also be viewed in the context of the potential buffer around the Cape Floral Kingdom World Heritage Site, of which the Baviaanskloof Mega-Reserve forms a part. Although the main part of the Baviaanskloof is west of the Elands Valley, the Groendal and Stinkhoutberg Nature Reserves form part of the Mega-Reserve and as such form part of the World Heritage Site (refer to the tourism potential section below for

more information on the World Heritage Site and Mega-Reserve). As part of the Operational Guidelines for the Implementation of the World Heritage Convention (2008), buffer zones around World Heritage Sites should be provided for the proper conservation of the property, and as such an adequate buffer zone should be provided. According to the United Nations Environment Programme's World Conservation Monitoring Centre summary on the Cape Floral Kingdom World Heritage Site, the Baviaanskloof component currently has no buffer that has been declared. However the principles of the buffer should be taken into account as the affected part of the Elands Valley would likely partly fall within the buffer zone around the Baviaanskloof component, if one were to be declared in future. The text of the operational guidelines (2008) is important in this context:

For the purposes of effective protection of the nominated property, a buffer zone is an area surrounding the nominated property which has complementary legal and/or customary restrictions placed on its use and development to give an added layer of protection to the property. This should include the immediate setting of the nominated property, important views and other areas or attributes that are functionally important as a support to the property and its protection.

The inclusion of the "setting" of the property and of "important views" is relevant in the context of the potential visual impact of the power lines. This relates directly to the tolerance level of the Valley, as the potential inclusion of the Valley into the Mega-Reserve and its location within its planning ambit engenders it with links to the World Heritage Site. In this context significant visual intrusion and thus visual impact due to power lines, especially in a context where the power lines may be prominent as viewed from the Valley or World Heritage Site are highly relevant in the consideration of the setting of the tolerance level for the Valley. The tolerance level for the valley given above is in keeping with the tolerance level that would be associated with the World Heritage Site and areas immediately adjacent to it, which would entail minimal disturbance to the natural landscape.

3.3 Visual Contrast Rating at Key Observation Locations

It should be noted that the purpose of the visual modelling is to give the reader of this report *an indication* of how power lines along different proposed alignments will appear in the context of the landscape at that location. It should be noted that the results of the visualisation may differ slightly from how the power lines may look in reality; however the purpose of the visualisation of the lines is not to provide an exact life-like replica of how the lines would appear, but to allow the reader to gain an indication of how the power lines may appear within the landscape setting and to gain an understanding on how the lines would intrude into the view. It should be noted that the tower positions as provided in the modelling have had to be selected at random as design of tower locations along respective alignments has not yet occurred. The appearance of the towers and lines would be able to be 'refined' should a more realistic model of the towers and lines be provided. **Kerry Schwartz of SiVEST has undertaken the visual modelling.**

3.3.1 Burrows Hiking Trail



☐ Pre-Construction (Current Visual Baseline)

	Landform	Vegetation	Structures
Form	Relatively simple landscape form with the near ground valley sides providing the greatest dimensional mass, as differentiated from the background ridge.	The fynbos vegetation is amorphous in a landscape context and thus is not an important factor in form.	No structural landscape component present
Line	Relatively simple linear element in landscape due to immediate proximity of the hills (context of viewer within an incised valley). The most prominent lines are the angular lines of near valley sides, with a less prominent horizontal line of the skyline in the background of the view. Prominent butt edges between these two aspects of the landscape.	Natural fynbos vegetation in landscape is amorphous thus has a very weak line element.	No structural landscape component present
Colour	Dominant colours are dull to bright green hues with aspects of grey hues present due to the outcropping bedrock on the far ridge	Very little colour contrast of natural vegetation, however the dead cleared alien vegetation in the valley floor provides a slight contrast.	No structural landscape component present
Texture	Coarse textured landscape look due to proximity of bushy fynbos vegetation.	Natural vegetation is scrubby to bushy thus providing a coarse texture to the landscape. Parts of the far ridge appear to have a smoother texture due to the distance factor.	No structural landscape component present

☐ Post Construction (Landscape Context if Power lines Developed)

	Landform	Vegetation	Structures (Alternative 1)	Structures (Alternative 2)	Structures (Alternative 3)
Form	Relatively simple landscape form with the near ground valley sides providing the greatest dimensional mass, as differentiated from the background ridge.	The fynbos vegetation is amorphous in a landscape context and thus is not an important factor in form.	Power lines will be highly visible against the sky and valley in the forward view of anyone hiking up the valley. The lines would appear directly above the viewer, stretching across the valley. The spacing of 3 sets of lines across the valley would provide strong dimensional mass to this introduced structural feature. Importantly	Power lines will be partly visible against the sky and valley in the forward view of anyone hiking up the valley. The lines would appear in front of the viewer, stretching across the valley, but at a distance down the valley, thus having weak dimensional mass. Power lines would be indistinct within the context of	Power lines will be partly visible against the sky and valley in the forward view of anyone hiking up the valley. The lines would appear in front of the viewer, stretching across the valley, but at a distance down the valley, thus having weak dimensional mass. Power lines would be indistinct within the context of

	Landform	Vegetation	Structures (Alternative 1)	Structures (Alternative 2)	Structures (Alternative 3)
			power lines would intrude strongly into the view and would become a dominant focal point in the landscape.	the view.	the view.
Line	Relatively simple linear element in landscape due to immediate proximity of the hills (context of viewer within an incised valley). The most prominent lines are the angular lines of near valley sides, with a less prominent horizontal line of the skyline in the background of the view. Prominent butt edges between these two aspects of the landscape.	Natural fynbos vegetation in landscape is amorphous thus has a very weak line element.	The power lines strung across the valley would introduce a set of strong horizontal lines into the view up the valley. The horizontal lines would be a particularly strong focal component viewed against the sky directly above the viewer.	The power lines strung across the valley would introduce a set of horizontal lines into the view up the valley; however these would not occupy the immediate area in front of the viewer and would be relatively indistinct.	The power lines strung across the valley would introduce a set of horizontal lines into the view up the valley; however these would not occupy the immediate area in front of the viewer and would be indistinct.
Colour	Dominant colours are dull to bright green hues with aspects of grey hues present due to the outcropping bedrock on the far ridge	Very little colour contrast of natural vegetation, however the dead cleared alien vegetation in the valley floor provides a slight contrast.	The dark colouration of the lines against the sky (whether blue or grey) will contrast strongly with the background colour, as well with the background hills, providing a distinct contrast.	The dark colouration of the lines against the sky (whether blue or grey) will provide a weak contrast with the background colour, as well as of the background hills.	The dark colouration of the lines against the sky (whether blue or grey) will provide a weak contrast with the background colour, as well as of the background hills.
Texture	Coarse textured landscape look due to proximity of bushy fynbos vegetation.	Natural vegetation is scrubby to bushy thus providing a coarse texture to the landscape. Parts of the far ridge appear to have a smoother texture due to the distance factor.	The lines will introduce a linear, spaced textural component.	The lines will have a very limited textural effect.	The lines will have a very limited textural effect.

☐ Degree of Visual Contrast Caused

	Alternative 1				Alternative 2				Alternative 3			
	Strong	Moderate	Weak	None	Strong	Moderate	Weak	None	Strong	Moderate	Weak	None
Form	X						X				X	
Line	X						X				X	
Colour		X					X				X	
Texture		X					X				X	
Degree of Visual Contrast:	STRONG				WEAK				WEAK			

Aligned along Alternative 1 the power lines will be highly visible as they cross the valley above and in front of the viewer and will become a prominent landscape feature. This visual prominence will be exacerbated by the presence of three power lines strung across the valley and intruding into the natural horizon. Aligned along the other two alternatives the lines will be much less visually prominent due to their location much further up the valley.

Degree of acceptability of visual contrast created and visual intrusion factor:

By introducing a strong dimensional form element and prominent lines into the natural landscape, and most importantly by intruding into the skyline, the power lines along Alternative 1 will provide a very strong contrast and thus high degree of visual intrusion that will detract from the natural aspect of the landscape. This effect must be viewed in the context of the receptor location – a hiking trail set up to allow the appreciation of the natural beauty of this particular valley, an activity which places strong emphasis on the natural character and aesthetics of the environment. Although they will be visible, the lines under Alternative 2 and 3 will be much less visually prominent from this point, and thus less intrusive.

Along Alternative 1 the degree of visual the degree of visual contrast of the power lines is thus not consistent with the tolerance level for this type of visual context.

Along Alternatives 2 and 3 the degree of visual contrast of the power lines will be in keeping with the tolerance level for the visual context at this location¹.

1 It should be noted that if the viewer were to hike further up the valley, then the power lines aligned along Alternative 1 and 2 would become visually much more prominent. The receptor location was at the end of the trail at the time of the survey.

3.3.2 Elands Valley Road east of Sand River Dam



□ Pre-Construction (Current Visual Baseline)

	Landform	Vegetation	Structures
Form	Relatively complex landscape form of background hills created by spurs and valleys, with the foothills in the middle ground contrasting with far mountains in background	Foreground trees have strong dimensional mass. Fynbos vegetation is amorphous in terms of form and has weak dimensional mass.	Weak Structural landscape component; telephone poles in near ground are vertical structural features
Line	Complex linear element in landscape with multiple lines of spurs and valleys. There is a weak digitate edge between	Natural fynbos vegetation in landscape in amorphous and has very weak line element.	Vertical and angular lines of telephone poles in foreground, but very weak structural component.

	the middle ground hills and higher background mountains. Road creates a band in the landscape.		
Colour	Dominant colours are bright green hues of fynbos vegetation on hills, contrasting with grey hue of road substrate	Very little colour contrast of natural vegetation	Structural component non dominant in terms of colour
Texture	Smooth or fine-grained texture in background (hills)	Uniform texture of vegetation	Sparse, non dominant impact on texture

☐ Post Construction (Landscape Context if Power lines Developed)



FIGURE 12 - VISUALISATION OF POWER LINES ALONG ALTERNATIVE 1 AS VIEWED FROM THE ELANDS VALLEY ROAD NEAR THE SAND RIVER DAM

	Landform	Vegetation	Structures (Alternative 1)	Structures (Alternative 2)	Structures (Alternative 3)
Form	Relatively complex landscape form of background hills created by spurs and valleys, with the foothills in the middle ground contrasting with far mountains in background	Foreground trees have strong dimensional mass. Fynbos vegetation is amorphous in terms of form and has weak dimensional mass.	<p>Weak Structural landscape component; telephone poles in near ground are vertical structural features</p> <p>Power lines will be visible in between the top of the near ridge and the far ridge. As such they will break the horizon only in a limited part of the view.</p> <p>The distance factor of 2km will make the power line towers indistinct against the hill slopes</p>	<p>Weak Structural landscape component; telephone poles in near ground are vertical structural features</p> <p>Power lines will be visible in between the top of the near ridge and the far ridge. As such they will not break the horizon.</p> <p>The distance factor of 2km will make the power line towers indistinct against the hill slopes</p>	<p>Weak Structural landscape component; telephone poles in near ground are vertical structural features</p> <p>Power lines will be partly visible in a gap in the topography, sitting in between the top of the near ridge and the far ridge. As such they will not break the horizon.</p> <p>The distance factor of 2km will make the power line towers indistinct against the hill slopes</p>
Line	Complex linear element in landscape with multiple lines of spurs and valleys. There is a weak digitate edge between the middle ground hills and higher background mountains. Road creates a band in the landscape.	Natural fynbos vegetation in landscape in amorphous and has very weak line element.	<p>Vertical and angular lines of telephone poles in foreground, but very weak structural component</p> <p>Vertical lines of the far power line towers and the horizontal aspect of the lines will be visible, but the distance factor and the location of the lines within the background will make this an insignificant linear factor.</p>	<p>Vertical and angular lines of telephone poles in foreground, but very weak structural component</p> <p>Vertical lines of the far power line towers and the horizontal aspect of the lines will be visible, but the distance factor and the location of the lines within the background will make this an insignificant linear factor.</p>	<p>Vertical and angular lines of telephone poles in foreground, but very weak structural component</p> <p>Vertical lines of the far power line towers and the horizontal aspect of the lines will be visible, but the distance factor and the location of the lines within the background will make this an insignificant linear factor.</p>
Colour	Dominant colours are bright green hues of fynbos vegetation on hills, contrasting with grey hue of road substrate	Very little colour contrast of natural vegetation	Metallic colouration of new power lines will be visible, but will be indistinct due to the distance factor.	Metallic colouration of new power lines will be visible, but will be indistinct due to the distance factor.	Metallic colouration of new power lines will be visible, but will be indistinct due to the distance factor.
Texture	Smooth or fine-grained texture in background (hills)	Uniform texture of vegetation	Power lines are unlikely to affect the natural texture of the landscape due to their indistinct appearance.	Power lines are unlikely to affect the natural texture of the landscape due to their indistinct appearance.	Power lines are unlikely to affect the natural texture of the landscape due to their indistinct appearance.

☐ Degree of Visual Contrast Caused

	Alternative 1				Alternative 2				Alternative 3			
	Strong	Moderate	Weak	None	Strong	Moderate	Weak	None	Strong	Moderate	Weak	None
Form			X				X				X	
Line			X				X				X	
Colour			X				X				X	
Texture			X				X				X	
Degree of Visual Contrast:	WEAK				WEAK				WEAK			

For all three alternatives the power lines will be visible within part of the view towards the southern mountains only and will not break the horizon. Any potential contrast effect and visual intrusion factor associated with the introduction of a colour change and breaking of natural form and line in the background landscape will be greatly reduced by distance the distance factor and limited spatial extent of the power lines within the background.

Degree of acceptability of visual contrast created and visual intrusion factor:

Although there would be a small degree of visual intrusion caused by the power lines in all three alternatives within a natural mountainous background, the distance factor would render this visual intrusion relatively insignificant. This is not a static receptor location and thus views towards the background would be temporary / fleeting. **Thus for all 3 alternatives the degree of visual contrast is thus in keeping with the tolerance level for this type of visual context.**

3.3.3 Mpunza Lodge



□ Pre-Construction (Current Visual Baseline)

	Landform	Vegetation	Structures
Form	Somewhat complex landscape form with the near ground valley side differentiated from the background ridge. Background hills have the greatest dimensional mass.	The fynbos vegetation is amorphous and thus is not an important factor in terms of form. The trees in the valley head below the ridge have weak dimensional mass.	Very weak structural landscape component; low voltage power line in middle ground and water tank are visible
Line	Relatively simple linear element in landscape due to close proximity of landscape features in the view. Angular lines of near valley sides, but	Natural fynbos vegetation in landscape is amorphous and has very weak line element.	Vertical and horizontal lines of existing low voltage power line in middle ground, but very weak component.

	most prominent lines are horizontal – of the ridge line (horizon) and accentuated by horizontal outcropping of bedrock just below ridge. Weak edges in landscape		
Colour	Dominant colours are dull green hues with patches of yellow hues of fynbos vegetation on the hillslopes, along with greys of outcropping bedrock on far ridge that provides a slight contrast	Very little colour contrast of natural vegetation, with the darker green of the pine trees in the valley head as the trees occupy a small part of the view.	Non dominant component – green of water tank blends in with green hues of the hillside.
Texture	Smooth or fine-grained texture in background (hills).	Uniform texture of vegetation of far ridge, but slightly coarser, random textured effect created by scattered yellow fynbos bushes on the nearer hillside.	Sparse, non dominant impact on texture



FIGURE 13 - VISUALISATION OF POWER LINES ALONG ALTERNATIVE 1 AS VIEWED FROM THE MPUNZA LODGE

	Landform	Vegetation	Structures (Alternative 1)	Structures (Alternative 2)	Structures (Alternative 3)
Form	Somewhat complex landscape form with the near ground valley side differentiated from the background ridge. Background hills have the greatest dimensional mass.	The fynbos vegetation is amorphous and thus is not an important factor in terms of form. The trees in the valley head below the ridge have weak dimensional mass.	Power lines will be highly visible against the background ridge. The proximity of the lines spaced down the ridge would provide strong dimensional mass to this introduced structural feature. Importantly power lines would break the horizon and would become a dominant focal point in the landscape.	Power lines will only be partly visible in the far eastern part of the view, and will not have an impact on the landscape form.	Power lines will not be visible at all, hence they will exert no visual impact
Line	Relatively simple linear element in landscape due to close proximity of landscape features in the view. Angular lines of near valley sides, but most prominent lines are horizontal – of the ridge line (horizon) and accentuated by horizontal outcropping of bedrock just below ridge. Weak edges in landscape	Natural fynbos vegetation in landscape is amorphous and has very weak line element.	The power lines would introduce a strong vertical (towers) and horizontal line component into the landscape. The horizontal lines would be a particularly strong focal component viewed against the skyline.	Power lines will only be partly visible in the far eastern part of the view, and will not have an impact on lines within the landscape.	Power lines will not be visible at all, hence they will exert no visual impact
Colour	Dominant colours are dull green hues with patches of yellow hues of fynbos vegetation on the hillslopes, along with greys of outcropping bedrock on far ridge that provides a slight contrast	Very little colour contrast of natural vegetation, with the darker green of the pine trees in the valley head as the trees occupy a small part of the view.	Metallic silver colouration of new power lines will be highly visible and will contrast strongly with the green background of the hills, providing a distinct contrast.	Power lines will only be partly visible in the far eastern part of the view, and will not have an impact on colour in the landscape.	Power lines will not be visible at all, hence they will exert no visual impact
Texture	Smooth or fine-grained texture in background (hills).	Uniform texture of vegetation of far ridge, but slightly coarser, random textured effect created by scattered yellow fynbos bushes on the nearer hillside.	Power line towers spaced apart and in a linear alignment will introduce a clear ordered textural element to the landscape that is not present in the natural baseline of the view.	Power lines will only be partly visible in the far eastern part of the view, and will not have an impact on the landscape textural characteristics.	Power lines will not be visible at all, hence they will exert no visual impact

☐ Degree of Visual Contrast Caused

	Alternative 1				Alternative 2				Alternative 3			
	Strong	Moderate	Weak	None	Strong	Moderate	Weak	None	Strong	Moderate	Weak	None
Form	X							X				X
Line	X							X				X
Colour	X							X				X
Texture	X							X				X
Degree of Visual Contrast:	STRONG				NONE				NONE			

Aligned along Alternative 1 the power lines will be highly visible on the background ridge, and will become a prominent landscape feature. This visual prominence will be exacerbated by the presence of three power lines strung across the hillside, and the breaking of the horizon.

The power lines along Alternatives 2 and 3 will be partly visible or not visible at all, thus they will be highly indistinct or invisible.

Degree of acceptability of visual contrast created and visual intrusion factor:

The Alternative 1 power lines, by introducing a strong dimensional form element and prominent lines into the natural landscape, and most importantly by breaking the horizon, will provide a very strong contrast and thus high degree of visual intrusion that will detract from the natural aspect of the landscape. This effect must be viewed in the context of the receptor location – a lodge for hunting activities which places strong emphasis on the natural character and aesthetics of the local environment. Aligned along alternatives 2 and 3 the power lines will be barely visible or not visible at all, and will thus not have any significant visual impact.

Along Alternative 1 the degree of visual contrast created by the power lines is thus not consistent with the tolerance level for this type of visual context.

Along Alternatives 2 and 3 the degree of visual contrast created by the power lines will be in keeping with the tolerance level for this type of visual context.

3.3.4 Mountain View Access Road



□ Pre-Construction (Current Visual Baseline)

	Landform	Vegetation	Structures
Form	Somewhat complex landscape form, with middle ground plateau and background ridge both having strong dimensional mass.	The fynbos vegetation is amorphous and thus is not an important factor in terms of form, especially with distance. The thicket patches in the valleys in the middle ground have weak dimensional mass.	No current structural landscape component in view
Line	Relatively simple linear elements in landscape with horizontal lines dominating in terms of the flat line of the middle ground 'plateau' and the horizontal line of the background ridge	Natural fynbos vegetation in landscape is amorphous and thus has a very weak line element.	No current structural landscape component in view

	and horizon. There are some angular lines of the spur and valley lines in the near ground. A butt edge is present between the plateau in middle ground and background ridge		
Colour	Dominant colour in landscape is the bright green of fynbos and pastures on the middle ground plateau.	Very little colour contrast of natural vegetation, with predominant colour being the bright green of fynbos. Some contrast created through the darker green of the thicket vegetation in valleys, but these occupy a small component of landscape. Seasonal introduction of splashes of lilac hues to near ground of the landscape with the emergence of fynbos flowers.	No current structural landscape component in view
Texture	Smooth or fine-grained vegetative texture dominates the landscape, with a small element of regular texturing created by ridging and furrowing within the pastures on the plateau.	Smooth and fine grained texture of fynbos vegetation is dominant. In limited areas the coarser-grained texture of thicket vegetation in the valleys is present.	No current structural landscape component in view

☐ Post Construction (Landscape Context if Power lines Developed)

	Landform	Vegetation	Structures (Alternative 1)	Structures (Alternative 2)	Structures (Alternative 3)
Form	Somewhat complex landscape form, with middle ground plateau and background ridge both having strong dimensional mass.	The fynbos vegetation is amorphous and thus is not an important factor in terms of form, especially with distance. The thicket patches in the valleys in the middle ground have weak dimensional mass.	Power lines will be visible on top of the background ridge, and will break the horizon in certain areas, introducing a structural component to the landscape. The distance factor of 3km will make the power lines less distinct against on the ridge top (weak dimensional mass), but will still draw focus where the run on top of the ridge	Power lines will be visible on top of the background ridge, although not breaking the horizon. They will introduce a structural component to the landscape. The distance factor of 3km will make the power lines less distinct against on the ridge top (weak dimensional mass), but will still draw focus where the run high up on the ridge	Power lines will be barely visible (only tops of towers will be visible), and thus due to this factor and the distance factor the lines will have no impact on landscape form.
Line	Relatively simple linear elements in landscape with horizontal lines dominating in terms of the flat line of the middle ground 'plateau' and the horizontal line	Natural fynbos vegetation in landscape is amorphous and thus has a very weak line element.	Horizontal lines of the power lines on the ridge top will accentuate the horizontal line of the horizon and will draw more attention. The distance factor will make the lines less distinct, but will still draw	Horizontal lines of the power lines on the ridge top will accentuate the horizontal line of the horizon and will draw more attention. The distance factor will make the lines less distinct. .	Power lines will be barely visible (only tops of towers will be visible), and thus due to this factor and the distance factor the lines will have no impact on lines in the landscape.

	Landform	Vegetation	Structures (Alternative 1)	Structures (Alternative 2)	Structures (Alternative 3)
	of the background ridge and horizon. There are some angular lines of the spur and valley lines in the near ground. A butt edge is present between the plateau in middle ground and background ridge		attention where they appear above the horizon.		
Colour	Dominant colour in landscape is the bright green of fynbos and pastures on the middle ground plateau.	Very little colour contrast of natural vegetation, with predominant colour being the bright green of fynbos. Some contrast created through the darker green of the thicket vegetation in valleys, but these occupy a small component of landscape. Seasonal introduction of splashes of lilac hues to near ground of the landscape with the emergence of fynbos flowers.	Metallic colouration of new power lines will be visible, but will be indistinct due to the distance factor.	Metallic colouration of new power lines will be visible, but will be indistinct due to the distance factor.	Power lines will be barely visible (only tops of towers will be visible), and thus due to this factor and the distance factor the lines will have no impact on landscape colour.
Texture	Smooth or fine-grained vegetative texture dominates the landscape, with a small element of regular texturing created by ridging and furrowing within the pastures on the plateau.	Smooth and fine grained texture of fynbos vegetation is dominant. In limited areas the coarser-grained texture of thicket vegetation in the valleys is present.	Power lines are unlikely to affect the natural texture of the landscape due to their indistinct appearance.	Power lines are unlikely to affect the natural texture of the landscape due to their indistinct appearance.	Power lines will be barely visible (only tops of towers will be visible), and thus due to this factor and the distance factor the lines will have no impact on the textural nature of the landscape.

☐ Degree of Visual Contrast Caused

	Alternative 1				Alternative 2				Alternative 3			
	Strong	Moderate	Weak	None	Strong	Moderate	Weak	None	Strong	Moderate	Weak	None
Form		X					X					X
Line		X					X					X
Colour			X				X					X
Texture			X				X					X

Degree of Visual Contrast:	MODERATE	WEAK	NONE
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Along Alternative 1 the power lines will be visible along a long portion of the ridge top and will break the horizon in certain places. The same will be true for Alternative 2, except the lines will not break the horizon. Any potential contrast effect and visual intrusion factor associated with the introduction of a colour change and breaking of natural form and line in the background landscape would be reduced by the distance factor. The lines will be visible and will nonetheless provide a focal point in the context of a highly natural landscape.

Along Alternative 3, the relative non-visibility of the lines will entail that there is no visual impact.

Degree of acceptability of visual contrast created and visual intrusion factor:

Along Alternatives 1 and 2 the presence of the lines would introduce a degree of visual intrusion within a natural mountainous background. However the distance factor would render this visual intrusion less significant than if the receptor location was located closer to the southern ridge. This is not a static receptor location and thus views towards the background would be temporary / fleeting. Although the degree of visual contrast is only moderate for Alternative 1 the landscape context is highly natural, and the presence of the power lines on top of a long stretch of the ridge, although distant, would constitute a visual intrusion in this context. Alternative 2 would be less intrusive and importantly the lines would not break the horizon. Alternative 3 would be barely visible, thus the lines will not intrude onto or detract from the natural visual context in any measurable way.

Thus along Alternative 1 the degree of visual contrast of the power lines would be inconsistent with the tolerance level for this type of visual context.

Along Alternatives 2 and 3, the degree of visual contrast would be in keeping with the tolerance level for this type of visual context.

3.3.5 Solitude Farmstead 2



☐ Pre-Construction (Current Visual Baseline)

	Landform	Vegetation	Structures
Form	Relatively complex landscape form, with middle ground valley side and background ridge both having strong dimensional mass.	The fynbos vegetation is amorphous in a landscape context and thus is not an important factor in form, especially with distance. The thicket patches in the valleys in the middle ground have weak dimensional mass.	Structures are visible in the near ground (vicinity of house) only, otherwise no structural component.
Line	Relatively simple linear elements in landscape with horizontal lines dominating in terms of the line of the middle ground valley side and the horizontal line of the background ridge and horizon. There are some angular lines of the spur and valley lines on the background ridge.	Natural fynbos vegetation in landscape has very weak line element.	Vertical lines of power lines in near ground, otherwise no structural component.
Colour	Dominant colour in landscape is the bright green hues of fynbos and the darker green of thicket vegetation in middle ground valley side.	Very little colour contrast of natural vegetation, with predominant colour being the bright green of fynbos and slightly darker green of thicket vegetation.	No current structural landscape component in wider landscape beyond homestead.
Texture	Smooth or fine-grained vegetative texture dominates the background ridge, with a slightly coarser texture of thicket vegetation on the middle	Smooth and fine grained texture of fynbos vegetation is dominant. In limited areas the coarser-grained texture of thicket vegetation in the valleys is prominent.	No current structural landscape component in wider landscape beyond homestead.

	ground valley side.		
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☐ Post Construction (Landscape Context if Power lines Developed)

	Landform	Vegetation	Structures (Alternative 1)	Structures (Alternative 2)	Structures (Alternative 3)
Form	Relatively complex landscape form, with middle ground valley side and background ridge both having strong dimensional mass.	The fynbos vegetation is amorphous in a landscape context and thus is not an important factor in form, especially with distance. The thicket patches in the valleys in the middle ground have weak dimensional mass.	In places (where not shielded by higher ground on the ridge top) power lines will be visible high up or in places on top of the background ridge, and will break the horizon in certain areas, introducing a structural component to the landscape. The distance factor of 3km will make the power lines less distinct against on the ridge top (weak dimensional mass), but will still draw focus where the run on top of the ridge	In places (where not shielded by higher ground on the ridge top) power lines will be visible high up or in places on top of the background ridge, and will break the horizon in certain areas, introducing a structural component to the landscape. The distance factor of 3km will make the power lines less distinct against on the ridge top (weak dimensional mass), but will still draw focus where the run on top of the ridge	Power lines will only be visible in a very limited part of the overall view, and even in this area only the upper parts of the structures will be visible. Thus the limited visibility of the lines and towers, combined with the distance factor will entail that the lines will effectively have no impact on landscape form.
Line	Relatively simple linear elements in landscape with horizontal lines dominating in terms of the line of the middle ground valley side and the horizontal line of the background ridge and horizon. There are some angular lines of the spur and valley lines on the background ridge.	Natural fynbos vegetation in landscape has very weak line element.	Horizontal lines of the power lines on the ridge top will accentuate the horizontal line of the horizon and will draw more attention to this natural focal point. The distance factor will make the lines less distinct, but will still draw attention where they appear on the horizon.	Horizontal lines of the power lines on the ridge top will accentuate the horizontal line of the horizon and will draw more attention to this natural focal point. The distance factor will make the lines less distinct, but will still draw attention where they appear on the horizon.	Power lines will only be visible in a very limited part of the overall view, and even in this area only the upper parts of the structures will be visible. Thus the limited visibility of the lines and towers, combined with the distance factor will entail that the lines will effectively have no impact lines visible in the landscape.
Colour	Dominant colour in landscape is the bright green hues of fynbos and the darker green of thicket vegetation in middle ground valley side.	Very little colour contrast of natural vegetation, with predominant colour being the bright green of fynbos and slightly darker green of thicket vegetation.	Metallic colouration of new power lines will be visible, but will be indistinct due to the distance factor.	Metallic colouration of new power lines will be visible, but will be indistinct due to the distance factor.	Power lines will only be visible in a very limited part of the overall view, and even in this area only the upper parts of the structures will be visible. Thus the limited visibility of the lines and towers, combined with the distance factor will entail that the lines will effectively have no impact on colour in the landscape.

	Landform	Vegetation	Structures (Alternative 1)	Structures (Alternative 2)	Structures (Alternative 3)
Texture	Smooth or fine-grained vegetative texture dominates the background ridge, with a slightly coarser texture of thicket vegetation on the middle ground valley side.	Smooth and fine grained texture of fynbos vegetation is dominant. In limited areas the coarser-grained texture of thicket vegetation in the valleys is prominent.	Power lines are unlikely to affect the natural texture of the landscape due to their indistinct appearance.	Power lines are unlikely to affect the natural texture of the landscape due to their indistinct appearance.	Power lines will only be visible in a very limited part of the overall view, and even in this area only the upper parts of the structures will be visible. Thus the limited visibility of the lines and towers, combined with the distance factor will entail that the lines will effectively have no impact on landscape textural nature.

☐ Degree of Visual Contrast Caused

	Alternative 1				Alternative 2				Alternative 3			
	Strong	Moderate	Weak	None	Strong	Moderate	Weak	None	Strong	Moderate	Weak	None
Form		X				X						X
Line		X				X						X
Colour			X				X					X
Texture			X				X					X
Degree of Visual Contrast:	MODERATE				MODERATE				NONE			

Where the Alternative 1 and 2 lines are not shielded by higher topography on the ridge, the power lines will be visible along a long portion of the ridge top and will break the horizon in certain places. Any potential contrast effect and visual intrusion factor associated with the introduction of a colour change and breaking of natural form and line in the background landscape would be reduced by the distance factor. The lines and structures will be visible however and will nonetheless provide a focal point in the context of a highly natural landscape as viewed from the receptor location.

Along Alternative 3, the very limited visibility of the lines will entail that there is no introduction of a visual contrast in this landscape view.

Degree of acceptability of visual contrast created and visual intrusion factor:

Along Alternatives 1 and 2, the presence of the lines would introduce a degree of visual intrusion within a natural mountainous background. However the distance factor would render this visual intrusion less significant than if the receptor location was located closer to the southern ridge. Although the

degree of visual contrast would be moderate, the landscape context is highly natural, and the presence of the power lines on top of a long stretch of the ridge, although distant, would constitute a visual intrusion in this context.
Along Alternative 3, the very limited visibility of the lines will entail that there is no introduction of a visual contrast in this landscape view.

Thus along Alternatives 1 and 2 the degree of visual contrast is inconsistent with the tolerance level for this type of visual context.
Along Alternative 3 the degree of visual contrast is in keeping with the tolerance level for this type of visual context.

3.3.6 Hillingdon



□ Pre-Construction (Current Visual Baseline)

	Landform	Vegetation	Structures
Form	Relatively simple landscape form, with flatter middle ground grading steeply up to the ridge. The ridge has the strongest dimensional mass within the landscape and is a dominant feature.	The fynbos vegetation is amorphous in a landscape context and thus is not an important factor in form, especially with distance. The thicket patches in the valleys in the middle ground have weak dimensional mass. The tall, dead eucalyptus trees in the foreground have strong dimensional mass.	Structural component present in the foreground and middle ground in the form of farmsteads, as well as low voltage power lines. These features have relatively weak dimensional mass.
Line	The strongest line element is the horizontal line of the top of the ridge and horizon. Due to the proximity of the ridge the angular lines of the spur and valley lines within the ridge sides are also prominent. The butt edge between the foreground pastures and the ridge is accentuated by colour difference	Where present (on the ridge slopes), the natural fynbos vegetation in landscape has very weak line element. The foreground dead eucalyptus and those on part of the ridge slopes are associated with stark vertical lines.	Vertical and angular lines of low voltage power line and households in middle ground, but these are not dominant.
Colour	Dominant colour in landscape is the bright green hues of fynbos on the ridge sides in the background and of the pastures in the near and middle ground. The darker green of thicket vegetation and stands of pine and wattles provides a contrast.	Strong contrast between the bright green kikuyu grass pastures and the darker hillsides where scrub vegetation and stands of exotic trees occur.	White of homesteads, but indistinct in landscape.
Texture	'Textureless' look of the kikuyu pastures contrasts with the more textured hillside in the background.	Smooth and fine grained texture of fynbos vegetation contrasts with the coarser texture of thicket vegetation and exotic tree stands. Dead trees provide a small element of ordered texture.	Structural aspect of landscape is texturally indistinct.

☐ Post Construction (Landscape Context if Power lines Developed)



FIGURE 14 – VISUALISATION OF POWER LINES *ALONG ALTERNATIVE 1* AS VIEWED FROM THE HILLINGDON FARM



FIGURE 15 - VISUALISATION OF POWER LINES ALONG ALTERNATIVE 3 AS VIEWED FROM THE HILLINGDON FARM

	Landform	Vegetation	Structures (Alternative 1)	Structures (Alternative 2)	Structures (Alternative 3)
Form	Relatively simple landscape form, with flatter middle ground grading steeply up to the ridge. The ridge has the strongest dimensional mass within the landscape and is a dominant feature.	The fynbos vegetation is amorphous in a landscape context and thus is not an important factor in form, especially with distance. The thicket patches in the valleys in the middle ground have weak dimensional mass. The tall, dead eucalyptus trees in the foreground have strong dimensional mass.	Power lines will be highly visible against the background ridge. The proximity of the lines spaced down the ridge would provide strong dimensional mass to this introduced structural feature. Importantly power lines would break the horizon and would become a dominant focal point in the landscape.	Power lines will be highly visible against the background ridge. The proximity of the lines spaced down the ridge would provide strong dimensional mass to this introduced structural feature. Importantly power lines would break the horizon and would become a dominant focal point in the landscape.	Power lines will only be visible in a very limited part of the overall view (within a valley in the background ridge). The lines will break the horizon in a small part of the view. Thus the limited visibility of the lines and towers, combined with the distance factor will entail that the lines will effectively have a spatially-limited impact on landscape form.
Line	The strongest line element is the horizontal line of the top of the ridge and horizon. Due to the proximity of the ridge the angular lines of the spur and valley lines within the ridge sides are also prominent. The butt edge between the foreground pastures and the ridge is accentuated by colour difference	Where present (on the ridge slopes), the natural fynbos vegetation in landscape has very weak line element. The foreground dead eucalyptus and those on part of the ridge slopes are associated with stark vertical lines.	The power lines would introduce a strong structural vertical (towers) and horizontal line component into a focal part of the landscape where there are currently not any structures. The horizontal lines would be a particularly strong focal component viewed against the skyline where the lines break the horizon.	The power lines would introduce a strong structural vertical (towers) and horizontal line component into a focal part of the landscape where there are currently not any structures. The horizontal lines would be a particularly strong focal component viewed against the skyline where the lines break the horizon.	Power lines will only be visible in a very limited part of the overall view (within a valley). Thus the limited visibility of the lines and towers, combined with the distance factor will entail that the lines will have a limited impact on lines in the landscape.
Colour	Dominant colour in landscape is the bright green hues of fynbos on the ridge sides in the background and of the pastures in the near and middle ground. The darker green of thicket vegetation and stands of pine and wattles provides a contrast.	Strong contrast between the bright green kikuyu grass pastures and the darker hillsides where scrub vegetation and stands of exotic trees occur.	Metallic silver colouration of new power lines will be highly visible and will contrast strongly with the green background of the hills, providing a distinct contrast.	Metallic silver colouration of new power lines will be highly visible and will contrast strongly with the green background of the hills, providing a distinct contrast.	Power lines will only be visible in a very limited part of the overall view (within a valley). Thus the limited visibility of the lines and towers, combined with the distance factor will entail that the lines will effectively have no impact on colour in the landscape
Texture	'Textureless' look of the kikuyu pastures	Smooth and fine grained texture of fynbos vegetation	Power line towers spaced apart and in a linear alignment	Power line towers spaced apart and in a linear alignment	Power lines will only be visible in a very limited part of the

	Landform	Vegetation	Structures (Alternative 1)	Structures (Alternative 2)	Structures (Alternative 3)
	contrasts with the more textured hillside in the background.	contrasts with the coarser texture of thicket vegetation and exotic tree stands Dead trees provide a small element of ordered texture.	will introduce a clear ordered textural element to the landscape that is not present in the natural baseline of the view.	will introduce a clear ordered textural element to the landscape that is not present in the natural baseline of the view.	overall view (within a valley), and set back from the ridge top. Thus the limited visibility of the lines and towers, combined with the distance factor will entail that the lines will effectively have no impact on landscape textural nature.

☐ Degree of Visual Contrast Caused

	Alternative 1				Alternative 2				Alternative 3			
	Strong	Moderate	Weak	None	Strong	Moderate	Weak	None	Strong	Moderate	Weak	None
Form	X				X						X	
Line	X				X						X	
Colour	X				X						X	
Texture	X				X						X	
Degree of Visual Contrast:	STRONG				STRONG				WEAK			

Along Alternatives 1 and 2 the power lines will be highly visible on the background ridge, and will become a prominent landscape feature. This visual prominence will be exacerbated by the presence of three power lines strung across the hillside, and the breaking of the horizon.

For Alternative 3 the lines will be poorly visible and will not be a prominent visual feature.

Degree of acceptability of visual contrast created and visual intrusion factor:

Along Alternatives 1 and 2, by introducing a strong dimensional form element and prominent lines into the natural landscape, and most importantly by breaking the horizon, the power lines will provide a very strong contrast and thus a high degree of visual intrusion that will detract from the natural aspect of the landscape. This effect must be viewed in the context of the receptor location – although this area has a strong rural / pastoral element to it due to the presence of the pastures and farmsteads, The landscape is predominantly natural with high natural scenic value. As Alternative 3 will be barely visible, there will be no measurable visual contrast created.

Thus along Alternatives 1 and 2, the degree of visual contrast would thus not be consistent with the tolerance level for this type of visual context.

For Alternative 3, the degree of visual contrast would in keeping with the tolerance level for this type of visual context.

3.4 Summary of Visual Impacts at Key Observation Locations

The table below provides a summary of the results of the visual contrast assessment at the key observation locations in the study area:

TABLE 4 – COMPARATIVE ASSESSMENT OF DEGREE OF VISUAL CONTRAST AND CONSISTENCY WITH TOLERANCE LEVEL FOR EACH ALTERNATIVE

Alternative 1

Key Observation Location	Degree of visual contrast in key view (landscape)	Consistency with visual change tolerance level
Burrows Hiking Trail	Strong	Inconsistent with tolerance level
Elands River Road	Weak	Consistent with tolerance level
Mpunza Lodge	Strong	Inconsistent with tolerance level
Mountain View Access Road	Moderate	Inconsistent with tolerance level
Solitude 2	Moderate	Inconsistent with tolerance level
Hillingdon	Strong	Inconsistent with tolerance level

Alternative 2

Key Observation Location	Degree of visual contrast in key view (landscape)	Consistency with visual change tolerance level
Burrows Hiking Trail	Weak	Consistent with tolerance level
Elands River Road	Weak	Consistent with tolerance level
Mpunza Lodge	None	Consistent with tolerance level
Mountain View Access Road	Weak	Consistent with tolerance level
Solitude 2	Moderate	Inconsistent with tolerance level
Hillingdon	Strong	Inconsistent with tolerance level

Alternative 3

Key Observation Location	Degree of visual contrast in key view (landscape)	Consistency with visual change tolerance level
Burrows Hiking Trail	Weak	Consistent with tolerance level
Elands River Road	Weak	Consistent with tolerance level
Mpunza Lodge	None	Consistent with tolerance level
Mountain View Access Road	None	Consistent with tolerance level
Solitude 2	None	Inconsistent with tolerance level
Hillingdon	Weak	Consistent with tolerance level

3.5 Discussion and Implications for Development

The tables above provide an indication of the relative visual impacts associated with each alternative. It is clear that the visual prominence of the power lines routed along Alternative 1, which runs at the edge of, and even down onto the northern-facing slopes of the ridge along parts of the alignment to the east of the Bulk River Dam would create a high degree of visual impact. Importantly in places the lines would break the horizon, and the towers would be visible against the sky. This is an important factor as the lines would be much more visible,

especially from distance, when able to be viewed above the ridge and against the skyline as opposed to against the hillside, where at distance, the lines and even the towers would be harder to distinguish against the vegetated background.

Alternative 2 is associated with a lesser degree of visual contrast and thus visual impact at the key observation locations assessed. Whilst Alternative 1 is largely responsible for a degree of visual intrusion that is not in keeping with the tolerance levels for the affected parts of the valley, Alternative 2 is responsible for an acceptable level of visual contrast and thus arguably no visual impact in the more westerly parts of the Valley. Only in the parts of the valley around the Bulk River Dam and to the east of the Dam does Alternative 2 create a significant visual impact. The alignment of the power lines within the Northern Firebreak and in relation to the compartments is responsible for this slightly different degree of impact across different areas within the affected part of the valley. In the western parts of the valley the firebreak is wider and the forestry compartments are set further back, thus the lines have been able to be placed away from the highest part of the ridge and away from the ridge edge, from where the lines would be most visible to receptors in the valley. In the eastern parts of the valley around the Bulk River Dam the compartments are placed much closer to the edge of the ridge, and in order to avoid impacting the compartments, the lines were placed in a part of the ridge that is highly prominent from the Valley, and accordingly the lines break the horizon in a number of places. The visual prominence and intrusion factor of the lines along Alternative 2 around the Bulk River Dam entails that the lines would create with a high visual impact in this part of the valley.

Alternative 3 was specifically aligned so as not to create any visual intrusion or visual impact in the Elands River, and this is reflected in the results of the visual contrast rating. At none of the receptor locations would the power lines be associated any measurable degree of visual intrusion, and hence would not alter the valley's visual character at any location within the Valley.

From the results of the visual contrast analysis it is clear that in many cases the closer the one moves to the southern ridge the higher the degree of visual prominence of the lines and towers would be. The greatest degree of impact associated with Alternatives 1 and 2 would be exerted at the receptor locations located close to the foot of the ridge – i.e. within 500m-1km of it. At these locations the power lines would be highly prominent, being a focal point of views towards the ridge and detracting from its current natural character. Although many of the receptors are northwards oriented down into the valley and to the mountains within Groendal beyond the valley (also taking advantage of the warmest winter aspect of a household), the aesthetic quality of the southern part of the Valley, the southern-facing vistas are just as important as the northern-facing ones. The Elands Valley Access Road skirts the foot of the southern ridge in many parts of the Valley and generally runs in the southern part of the Valley, thus receptor locations located on, or close to this road will generally have clear views of the southern lip of the valley and will stand to be strongly visually affected by the development of large high voltage power lines on the lip of the valley or on the slopes below the valley edge. It should be noted that in some parts of the Valley the converse is true – in that receptor locations located close to the foot of the ridge would not be able to view the power lines in any alignment, as the ridge acts as a topographical barrier screening the receptor from views of the power lines. In this case, receptor locations located further away from (to the north of) the ridge would have a higher degree of visual exposure to the lines, as the entire profile of the ridge along which the lines are proposed to be aligned would be visible. This greater exposure to the lines is counteracted however by the distance factor, in terms of which the further one moves away from the lines, the less prominent they would become. Beyond 2km, it would be likely that the visual intrusion factor of power lines would become much lower, and although visible, the power lines would be much less intrusive.

For power lines placed on the top or lip of the ridge and adjacent to the compartments, it has been suggested that the growth of the pine trees to their maximum height would be a strong mitigating factor, in that power lines breaking the ridge top (visible on the horizon) would be masked by the trees (30m at their highest) in the immediate background, making them less visible and thus less visually intrusive against a dark green background. This mitigation measure certainly has merit, as the tall trees spaced closed together would assist in masking the power lines, and making them less visible than they would be against the open sky. However this will be a temporary mitigating factor due to the cyclical nature of the harvesting of tress. The trees would only be at their highest for a short period before being harvested, at which time the masking effect would be completely removed.

In terms of other mitigating factors, mist or low cloud would at times temporarily mask the power lines; however these would only be temporary factors. An exacerbating factor in terms of the visibility and prominence of the lines is that the views towards them would be south-facing. Due to the orientation of the southern hemisphere sun, the lines in a southern-facing arc of view would always be 'well-lit' – i.e. having the sun behind the viewer, and the view would never be made less distinct by looking into the sun as would be the case if the lines were placed on the northern side of the valley, which would entail that the viewer would be looking into the direction of the sun, especially in winter when the sun sits in a low position on the northern horizon.



FIGURE 16 – VIEW SOUTHWARDS FROM THE VICINITY OF THE WELCOME HOME FARMSTEAD. NOTE HOW THE TOPOGRAPHY AND THE LANDSCAPE POSITION OF THE RECEPTOR LOCATION PREVENTS ANY VIEWS TOWARDS THE SOUTHERN RIDGE

It should be noted that the topographical character of the valley and the spatial location of many of the receptor locations within the valley entails that these receptors would be subject to no visual impact associated with the proposed power lines. This is an important factor, as not all parts of the Valley would be subject to visual impacts, and these areas closer to the valley bottom would retain their natural ambiance whatever the outcome of the power line routing. However a significant number of receptors would be exposed to visual impacts if Alternatives 1 or were to be chosen as the alignments of the power lines. As discussed above, all accesses to these locations would traverse areas exposed to views of the power lines, and thus no part of the affected stretch of valley would be completely free from visual impacts associated with power lines. Importantly as discussed in the tourism section of the report, the visual intrusion associated with the lines in the parts of the Valley exposed to the intrusive impact of the lines may hinder the future development of tourism facilities (especially ecotourism-related facilities), which is being driven as a critical means by which people would sustainably sustain their livelihoods.

4 CONCLUSIONS AND RECOMMENDATIONS – VISUAL IMPACT

The visual contrast rating methodology has been used to comparatively assess the visual contrast that would be generated at a number of key observation locations by the three proposed alternatives for the Northern lines in the area around the Longmore Northern Firebreak. By assessing whether the degree of visual contrast associated with each alternative is consistent or inconsistent with the tolerance level for the key observation point, the natural visual character and scenic aesthetic qualities of the Valley in which great value is placed have been able to be taken into account by this study. A very low tolerance level for the valley has been assigned due to its natural qualities, absence of human infrastructural alterations in the landscape, and due to its proximity to (and potential inclusion within) the Baviaanskloof Mega-Reserve and thus be proxy the Cape Floral Kingdom World Heritage Site.

The assessment has concluded that Alternative 1 would be associated with the highest degree of visual impact, as it is located on the ridge top and lip of the valley for most of the length of the affected part of the Valley. Alternative 2 would be associated with a slightly lower visual impact, but importantly with significant visual impacts for receptors in the area around, and to the east of the Bulk River Dam. Where Alternatives 1 and 2 would be highly visually intrusive, the affected receptor locations would be subjected to a significant, and an immitigable degree of visual impact. The presence of three lines on the southern ridge would arguably alter the visual character of the ridge irreparably, to the degree that much of the current aesthetic and scenic quality of the immediate surrounds would be lost. In a visual context this would not be acceptable, especially in the specific context of the Elands Valley and the qualities for which it is valued.

From a visual perspective, it would thus be preferable that Alternative 3 be developed, as this would not result in any significant visual intrusion or impact within the Valley. The natural character of the Valley would be retained and the aesthetic qualities of views to the southern ridge would remain unaffected by human development. It is recognised that visual impact is not the only environmental parameter of importance in the context of this part of the study area and in the context of this EIA. However from a purely visual impact perspective, Alternative 3 would be most beneficial to the Valley and its residents and visitors as has been demonstrated.

If Alternative 2 is to be visually sustainable, then the alignment in the vicinity of the Bulk River Dam would need to be moved back away from the top of the ridge into the forestry compartments. This re-alignment would have a commercial impact on the forestry operations, but such this trade-off may need to be considered by the EIA if an equitable outcome that does not unduly impact the Elands Valley and its visual character is sought.

Tourism Assessment Section



FIGURE 17 – PART OF THE MPUNZA HUNTING LODGE

5 DESCRIPTION OF THE CURRENT TOURISM ENVIRONMENT IN THE ELANDS RIVER VALLEY

Tourism is an important component of the Eastern Cape economy. In 2008/9, tourism provided R6, 5bn-worth of revenue to the province, providing 68,752 jobs and providing a R12, 84bn contribution to the GDP of the province (Eastern Cape Tourism Board Annual Report 2008/2009). The wider Nelson Mandela Metro (greater Port Elizabeth) area provides an important tourism focal point in a provincial context, with its seaside attractions along with its excellent transport links and location in close proximity to a number of other provincial attractions such as the Addo complex and the Jeffreys Bay / St Francis Bay seaside complex. The location of the Elands Valley on the outskirts of the Nelson Mandela Metro entails that it is well-placed to take advantage of the tourism economy based in and around the Metro. The Valley also has links to the Gamtoos Valley to the south-west through the Elands River Road which links the Valley to Patensie, and provides direct access to part of the Baviaanskloof Wilderness Area (Bergplaatz section). This section examines the tourism baseline of the Elands Valley in terms of the tourism activities offered and practiced in the Elands River Valley, and focussed on the affected portion of the valley.

5.1 Access links to the Elands River Valley

Tourists, by definition are temporary visitors to an area, and as such physical access into the area is an important factor in terms of the facilitation of visitation to an area and in identifying current and potential access and visitation trends to that area.

The Elands Valley can be accessed from two points only, and as such is relatively remote. The most utilised access is from the Rocklands area, off the R334 provincial road which links the N2 to the west of Port Elizabeth and the Uitenhage area. The Elands Valley road runs westwards from Rocklands, and apart from the un-surfaced Wincanton Road which intersects this road west of Rocklands (linking it to the R334 west of KwaNobuhle), it is the only access to the eastern part of the Valley. The Elands Valley Road traverses the valley along its entire length, heading up the valley towards the Bergplaatz section of the Baviaanskloof Wilderness Area. Past the access to Bergplaatz, the road connects to the R331 provincial road west of the town of Patensie. The R331 is the primary access into the main part of the Baviaanskloof, and links the reserve with the lower parts of the Gamtoos Valley around Hankey and Loerie and the N2 highway. It is important to note that there is no public access to the Elands Valley from the Groendal Wilderness Area to the north, or from the Longmore Forest to the south.

Most tourism facilities and accesses described below are most easily accessed from the eastern entrance to the Valley, as most of these facilities are located within the eastern part of the Valley. The Elands Valley Road provides the most direct access into the Baviaanskloof from the Uitenhage area, and forms a radial route joining Uitenhage, Patensie, and the areas to the south-east around Hankey and the Lady Slipper area.

5.2 Tourism-related activities and facilities in the Elands Valley

Information provided by the Elands River Conservancy to the TTLIP team indicated that the cultivation in the form of wheat farming was the predominant agricultural activity in the Valley in the past. In this sense the Valley was an outlying rural area beyond the Port Elizabeth and Uitenhage conurbations. Due to a climatic shift in rainfall patterns, wheat production decreased over the latter part of the Twentieth Century. In response to this transformation in landuse an important development occurred in the first decade of the current century when

landowners in the valley increasingly started looking to ecotourism as a means to generate income (along with stock farming). This change led to the development of a number of ecotourism activities and facilities in the valley.

In terms of the current status quo, the vast majority of tourism operations in the valley are ecotourism-based activities. It is important to note that these have been set up in the context of the very undisturbed and natural character of the Valley, along with its scenic qualities (which are discussed in the visual section above). The facilities and activities which are present are thus based on the appreciation of / enjoyment of the natural and scenic qualities within the area. The following activities / facilities are thus offered in the Valley:

- Accommodation – various types
- Hiking
- Mountain biking
- Bird Watching
- 4x4 and quadbiking trails
- Hunting



FIGURE 18 – SCENIC VIEW UP THE ELANDS VALLEY TOWARDS THE COCKSCORN MOUNTAIN

The table below lists the location of tourism facilities in the affected part of the Valley.

TABLE 5 – TOURIST FACILITIES IN THE AFFECTED PART OF THE ELANDS VALLEY

Name	Type	Other Activities Practised
Burrows Bush Camp and Trails	Bush Camp, Hiking Trails	Mountain Biking in the Longmore Forest
Llise Dodd Art Studio	Art Gallery	Landscape Painting Activities
Landela Christian Camp	Accommodation - Groups	Hiking Trails
Meadows 4X4 Trail	4X4 Trail	
Mountain View Camp	Accommodation - Bush Camp	Hiking, Fishing
Mpunza Lodge	Hunting Lodge	Hunting through professional hunting services
Offcamber Bush Camp	Bush Camp, 4X4-quadbike trails	Fishing, Game Viewing, Team Building activities
Offcamber Guesthouse	Accommodation - Guesthouse	
Sand River Getaway	Accommodation - Bush Camp	Mountain biking, hiking, birding
Tanglewood Camping Site	Accommodation - Camping	4x4 trails, mountain biking, rock climbing, canoeing, fishing, bird watching, hiking
Waverly Hills Christian Camp	Accommodation Facility – Groups (Dormitory)	Hiking Trails

There are other tourism activities that typically occur in the Valley including:

- Periodic Birdwatching trips to the valley by BirdLife Eastern Cape
- The Elands Valley Road running up the Valley appears to be utilised by bikers on weekends as a destination for day trips out of Port Elizabeth and Uitenhage
- Paragliding activities

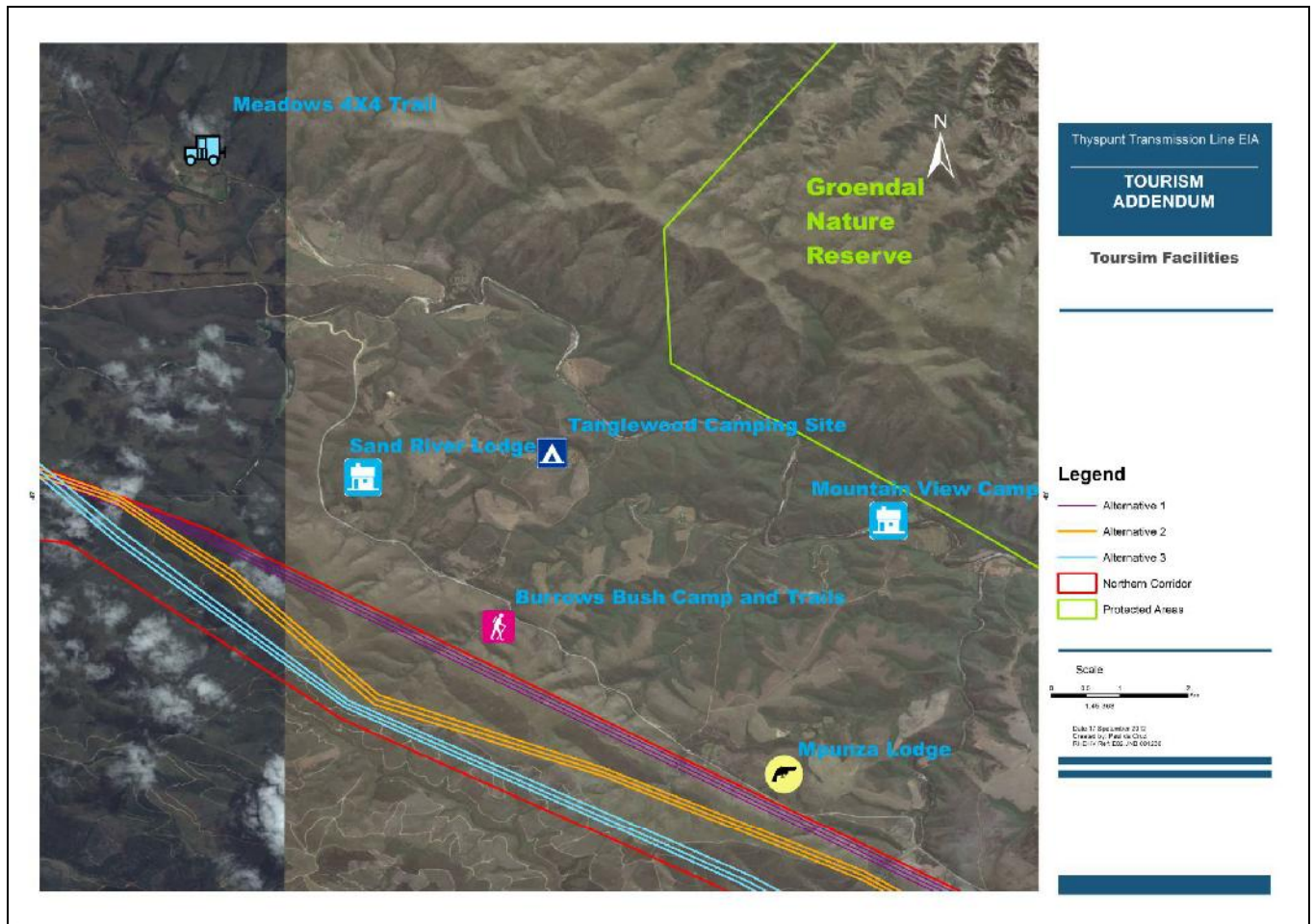


FIGURE 19 – TOURISM FACILITIES (WEST)

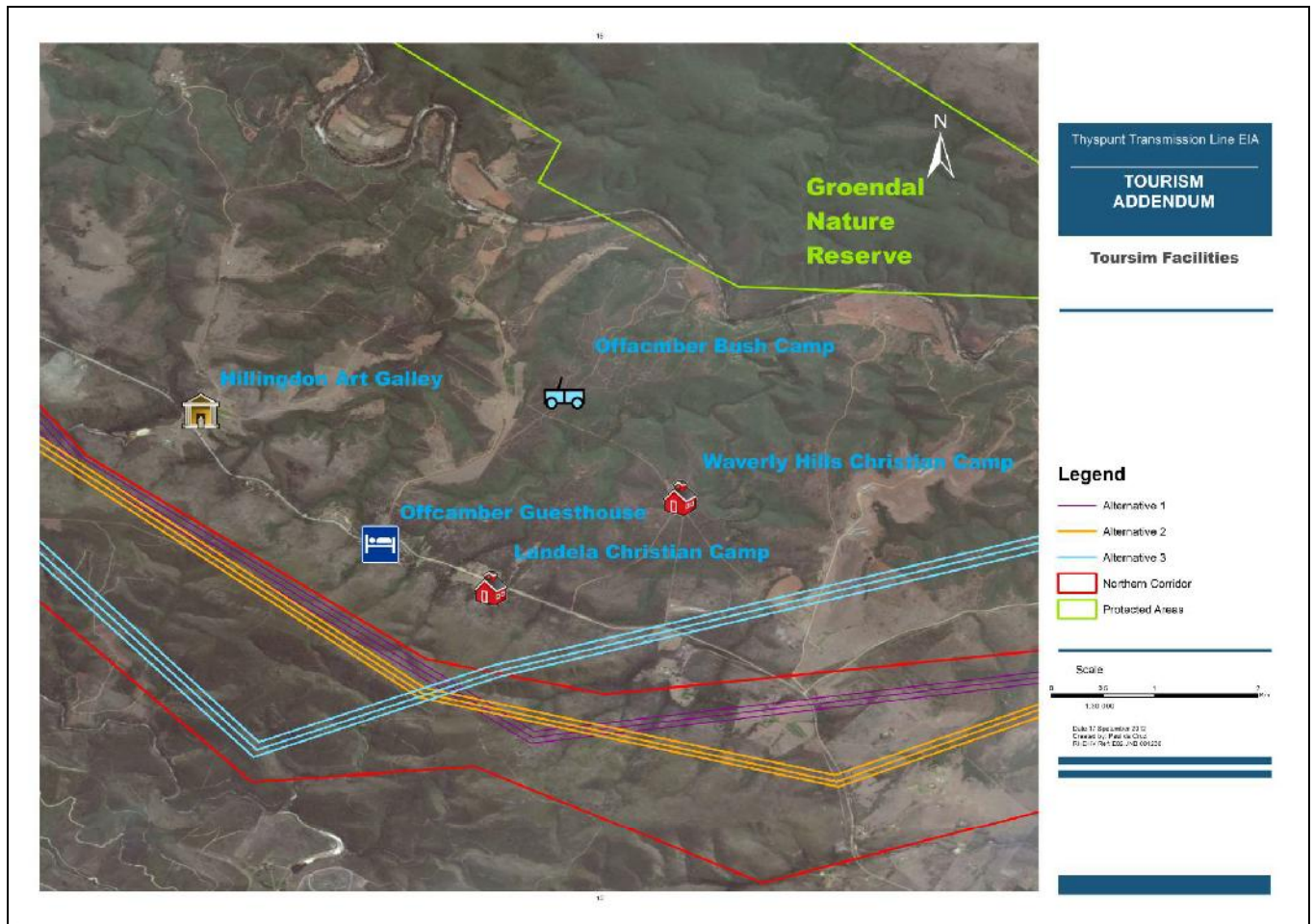


FIGURE 20 – TOURSM FACILITIES (EAST)

It should be noted that the Mount Ingwe Lodge has been omitted off the list above, although it is located in the Elands Valley. The location of Mount Ingwe is sufficiently distant from the affected part of the Valley that it would be unlikely to be affected in any way by the proposed power lines.

5.3 Tourism Routes incorporating the Elands Valley

An important component of tourism in a South African context is the self drive route, as evidenced by a number of routes that are promoted from a tourism perspective in this part of the Eastern Cape. All of the municipalities in the wider area (Kouga Local Municipality, Cacadu District Municipality and the Nelson Mandela Metro) promote tourism routes as a means by which to encourage potential tourists and visitors to explore the respective attractions of the area. The Elands Valley does not fall within any local municipality, rather being part of the Aberdeen Plain DMA, and as such the Cacadu District Municipality is responsible for the management of the area. In spite of its close proximity to the Kouga LM, and parts of the Nelson Mandela Metro, the Elands Valley is not actively marketed as part of any tourism route initiatives of these municipalities. The only current tourism route of which the Valley forms part is the "Travel Baviaans" Route as marketed by the Cacadu DM. This route links the Elands Valley to the wider Baviaans Area, along the Elands Valley Road as a link into the eastern part of the Baviaanskloof. (Please note that the Slipper Way Tourism Route is discussed in the tourism potential section below).

6 TOURISM POTENTIAL OF THE ELANDS VALLEY

In terms of the assessment and discussion of the potential impacts of the proposed TTLIP power lines on the tourism environment of the Elands Valley, the tourism potential of the Valley needs to be explored. This is important, as tourism activity in the Valley is relatively recent and a number of initiatives and plans are afoot to further develop the tourism activities and marketing of the valley. Tourism is increasingly being viewed as an important sustainable economic activity in rural contexts which would be responsible for generating income and thus sustaining people's livelihoods. As such the development of tourism in the Valley is likely to be an important trend that will determine the future socio-economic profile of the Valley and its residents.

As described above, the Valley has a current relatively small tourism base, with a handful of tourism facilities, mostly located in the eastern part of the Valley. Ecotourism as a significant revenue generator for the residents of the Valley is relatively young, and could experience more growth into the future, as the residents of the valley attempt to find ways in which to sustain their livelihoods in a context of increasing uncertainty and instability in the wider farming economy.

The growth of tourism, especially ecotourism would depend on a number of factors, including:

- the prevailing economic climate
- the marketing of tourism activities and initiatives
- the nature of access into the area and physical linkages to other areas
- the management / preservation of its natural features
- the continued aesthetic appeal of an area

In terms of the last factor, the aesthetic appeal of the Valley in terms of its scenic beauty and its largely natural character is a strong positive factor that would greatly facilitate the further development of tourism-related activities aimed at the enjoyment or appreciation of these qualities. As described in more detail in the visual

impact section above, the Valley is characterised by outstanding scenic value, being flanked on both sides by mountain ranges. The low density of human settlement and the relatively limited physical footprint of historical agricultural activities engender the Valley with a highly natural character that is able to be utilised by the future ecotourism activities. The Valley is flanked along much of its length by formally protected areas (nature reserves); hence this natural quality is unlikely to change in these areas. The natural character of the valley is being preserved and even enhanced by a number of factors, including to the relatively recent establishment of a conservancy in the Valley – the Elands River Conservancy. One of the main aims of the Conservancy is to restore the Valley to a relatively natural state and to encourage, low impact, sustainable farming practices. In terms of this aim, large parts of the Valley have aesthetically benefitted from the removal of extensive stands of alien invasive vegetation by the Working for Water Programme, which has started the regeneration of areas of natural thicket and fynbos vegetation, thus enhancing its natural character. Whether increased human visual intrusion in the form of high voltage power lines would adversely affect the growth of tourism activities is explored in the sections below.

The Valley lies in an area of transition between the fynbos and thicket biomes, and as such shares natural features typical to both. This mix of natural features typical to both biomes, along with the presence of pockets of indigenous forest provides an interesting mix of fauna species, in particular birds. Birdwatching has the potential to draw large numbers of birdwatching tourists to an area, and the avifaunal assemblage of the Valley could increasingly provide a strong attraction to nature lovers and birdwatchers in particular.

The tourism potential of the Valley is enhanced by the relative proximity of the area to the PE / Uitenhage Metropole. The relative ease of access between the Elands Valley and these urban areas is evidenced by a number of residents of the Valley who travel to and from PE and Uitenhage on a daily basis to their places of work. One of the benefits of the Valley's tourism attractions is thus that the Valley is very easily accessible from the PE / Uitenhage areas, while being sufficiently distant from these urban areas to give the visitor the impression that one is in the countryside away from the city. The Valley is accessed by a tarred road from Rocklands up to a point, at which it becomes an unsurfaced road. This road is of sufficiently good quality to allow the usual access of all vehicles to the length of the Valley. The utilisation of the Valley by bikers for day trips from Port Elizabeth has already been mentioned above.

In addition the Elands Valley Road provides a potentially important linkage between parts of the wider area that are otherwise physically separated by mountain ranges. Although not being a main arterial road, the Elands Valley Road has significant potential to be promoted and utilised as a scenic route for tourists to access the Baviaanskloof (see below) and the upper parts of the Gamtoos Valley. The linkage provided to these areas via the scenic Elands Valley route is currently very poorly marketed. If this were to change it could potentially provide much more tourist visitation to the Valley (although a large portion of this would be 'passing through', this would provide good exposure to the Valley and its attractions).

It is impossible to predict whether the tourism supply (i.e. the tourism-related facilities and activities) in the Valley will be increased in the future, as this depends on many factors, as listed above. The proposed marketing of the Valley as part of a wider tourism route, as discussed below, could provide an important impetus in growing the current tourism baseline in the Valley through increased exposure.

6.1 Proposed establishment of the Slipper Way Route

At the time of writing, a number of residents and business owners within the wider area to the west of the PE Metropole have launched an initiative to promote businesses in this area, and to facilitate the collective marketing of attractions in and around this part of the province. The initiative has been named the Slipper Way Route. The Route as planned encompasses the rural areas to the west and north-west of Port Elizabeth, including the Elands Valley, Rocklands Area, Lady Slipper Area, Blue Horizon Bay and the Van Stadens area. The initiative is being modelled on the idea of a tourism meander, with its inspiration being the highly successful Midlands Meander in

KwaZulu Natal. The Midlands Meander offers a platform for the marketing of a number of tourism-related businesses and services in a geographic area from Mooi River to Hilton. It is a successful and well-known grouping of tourism routes that has been highly successful in marketing the Midlands of the KZN as a top tourism destination within the province and in a wider South African context.

The Slipper Way's main aim would be to promote businesses within this area, and to raise awareness of their existence. In addition to providing information on businesses, services and attractions within the area of focus, the Slipper Way would also function as a community forum by which important community-related notices could be distributed to its members.

The initiative is completely self-funded at this stage, and is in the early stages of its development. The first publication advertising the Slipper Way and its members is planned for the middle of September 2012, with the Slipper Way's constitution proposed to be set up shortly thereafter (Gary Gradwell, pers. comm.). In addition to a regular publication, advertising on the web and via social media is also planned. As of yet the Slipper Way management committee has set up no linkages with the tourism boards of the Nelson Mandela Metro, or Eastern Cape Tourism and Parks.

If successful, the establishment of the Slipper Way would be a critically important tool for marketing the Elands Valley as an attractive tourism destination for residents of, and visitors to the PE Metropole. Critical to this would be the exposure of currently little-known and little-advertised tourism establishments within the Valley to a much wider audience, and the promotion of the Valley as an enticing day visit or overnight destination from the Nelson Mandela area. Should the Slipper Way prove to be a successful venture that increases turnover of its member businesses, this would have a strong possibility of attracting other residents in the Valley to set up tourism-establishments. Increased turnover for member businesses could potentially allow increased capital expenditure in upgrading current facilities at these locations, thus improving the tourism product offered. As stated above, it is impossible to say whether the establishment of the Slipper Way would definitely increase tourism demand in the area that would potentially drive an increase in the tourism supply and the tourism product offered to visitors, but it is likely that if proven successful, that the Slipper Way would improve the perception of tourism as an income generator in the Valley, and encourage the investment in existing and potential new tourism-related ventures.



FIGURE 21 - TOURISM-RELATED LINKAGES TO THE ELANDS VALLEY

6.2 Context of the Baviaanskloof Mega-Reserve and the associated World Heritage Site

The location of the Elands Valley in relation to areas potentially providing tourism demand to the Valley (sources of potential customers / visitors), as well as the location of the Valley in relation to other tourism focus areas have been discussed above. Although the Valley is located in close proximity to the Groendal Nature Reserve, a direct public linkage between the two areas is highly unlikely due to the lack of access to the parts of Groendal that border the Valley. The situation is different with respect to the Elands Valley and the Gamtoos Valley (as discussed above the Elands Valley Road provides a tourism link between the two valleys). An important linkage between the Elands Valley and the Baviaanskloof Wilderness Area / Mega-Reserve also exists. This is critical to the Valley in a tourism potential perspective.

The Baviaanskloof is a very large conservation area, both privately and publically owned. The area encompasses the Baviaanskloof Mega-Reserve, which came into being in 2002. According to Boshoff, (2005) the Baviaanskloof Mega-Reserve Project seeks to:

- ▣ conserve the area's spectacular biodiversity,
- ▣ protect its critically important role as a provider of water, and
- ▣ promote sustainable economic development opportunities based on the natural assets of the area, principally by:

- securing a large consolidated core formal protected area, the primary management objective of which is the conservation of biodiversity,
- **establishing a multi-owner contractual reserve network around the core area in which different land-use patterns and forms of conservation status are reconciled and aligned with biodiversity conservation initiatives,**
- managing the mega-reserve network through a partnership between government, the private sector and civil society,
- realising prospects for improving the livelihoods of people living in the rural parts of the region, and
- exposing people to sustainable ways of using the area's natural resources, and incentivising their adoption.

The second aim tied to promoting sustainable economic development (highlighted in bold above), is particularly relevant to the Elands Valley and the Elands River Conservancy. Importantly the Valley and the Conservancy fall within the ambit of the planning area of the Mega-Reserve. The Baviaanskloof Mega-Reserve encompasses the Stinkhoutberg and Groendal Nature Reserves, both of which border the Elands Valley, and as such the valley forms an integral part of the Mega-Reserve and ensuring ecological linkages between its divergent protected components. Most of the aims of the Mega-Reserve listed above relate to conservation and sustainable land management; however the Mega-Reserve has enormous tourism potential and this would link into the aim of promoting sustainable development opportunities (above).

In addition to the Mega-Reserve, the area also forms part of a proclaimed World Heritage Site. In 2004 the Baviaanskloof Nature Reserve was proclaimed, along with seven other reserves in the Cape Floristic Region, as a World Heritage Site. The reserves were nominated under two criteria – significant ecological processes, and biodiversity and threatened species (Boshoff, 2005). The sites' exceptional natural beauty and its culturally important sites and artefacts were used to support the successful nomination.

The presence of the Mega-Reserve and the World Heritage Site provides a context in which sustainable economic development through tourism activities can be promoted and occur within the Elands Valley. According to Boshoff (2005) the appropriate development of the reserve's tourism potential, will undoubtedly provide a number of socio-economic benefits at the local, regional and national levels. Conservation-linked economic development opportunities in this context include those on privately owned land (e.g. private nature reserves and conservancies).

Enormous potential exists for properties in the Elands River to be formally included within the Mega-Reserve through stewardship agreements. In this way much of the wider Valley could be included within the wider Mega-Reserve and be marketed as such. Through its location, current environmental status (in terms of its environmental state and ecological assemblages) and management practices (relating to the Elands River Conservancy), many properties within the Elands Valley would fulfil criteria for inclusion and could be developed, and importantly in this context, marketed as part of the Mega-Reserve. Through the inclusion of properties within the Elands Valley within the Mega-Reserve complex, their tourism marketability and attractiveness to visitors of the area would arguably be increased, as it would place them in the context of one of South Africa's largest protected areas, and would place them although not directly, within the ambit of the Cape Floral Kingdom World Heritage Site.

The Elands Valley is also strategically located as on the entrances to the wider Mega-Reserve, in particular as the entrance to the Bergplaatz component of the reserve, and possibly in future to the Stinkhoutberg component, which is currently highly inaccessible. The establishment of the Slipper Way may enhance this potential, if the Elands Valley is marketed as one of the gateways to the Mega-Reserve, and if properties' inclusion within the Mega-Reserve complex were able to be marketed through this forum.



FIGURE 22 – THE TANGLEWOOD CAMPING SITE

7 POTENTIAL IMPACTS OF THE PROPOSED POWER LINES ON TOURISM IN THE ELANDS VALLEY

The section below investigates how the proposed power lines may impact on tourism in the Elands Valley, firstly in terms of the existing tourism facilities and secondly in terms of tourism potential.

7.1 Potential Impact of the lines on Existing Tourism Activities

Due to the nature of tourism activities that are currently practised in the Elands Valley – being predominantly ecotourism-related, the impact of the proposed power lines on the aesthetic quality of the affected area and its sense of place are important. In this way tourism impact potential is inextricably linked to visual impact. The potential visual impact of the line alternatives has been explored in detail in the first part of this report, and can be summarised as follows:

- ☐ Alternative 1 – significant visual impact for receptors within the area of visual exposure being the length of the affected part of the valley
- ☐ Alternative 2 – significant visual impact for receptors located in the area around, and to the east of the Bulk River Dam, with much less of an impact in the area further to the west

□ Alternative 3 – a negligible impact or no impact

Very importantly however, certain receptor locations would be subject to no visual impact due to their landscape position – i.e. being located low down within the Elands River valley which would entail the topography would block any views to the proposed power lines to the south. It is thus useful to examine which of the tourist facilities / areas of tourism activities would be shielded from any visual impact in this context, and which would be visually exposed to the views of the power lines, as is presented in the table below. It should be noted that for the table below the ‘worst case scenario’ has been used (i.e. the alternative that provides the greatest visual exposure – Alternative 1).

TABLE 6 – TOURSIM LOCATIONS SUBJECT TO VISUAL EXPOSURE FROM THE PROPOSED POWER LINES AND THOSE THAT WOULD NOT BE

Tourism facilities / areas of tourist activity that would be shielded from the power lines	Tourism facilities / areas of tourist activity that would be visually exposed to the power lines
Meadows 4X4 Trail	Burrows Bush Camp and Trails
Mountain View Camp	Llise Dodd Art Studio
Mountain View Hiking Trails	Landela Christian Camp
Tanglewood Camping Site	Mpunza Lodge
	Mpunza Hunting Area
	Offcamber Bush Camp and 4X4 trails
	Offcamber Guesthouse
	Sand River Getaway
	Waverly Hills Christian Camp

From the table above, it is clear that most of the tourism facilities / activities in the affected part of the Elands Valley would be visually exposed to the proposed power lines. This is due to the location of most of these in the southern part of the Elands Valley, close to the Elands Road and thus close to the southern ridge on which the lines are proposed to be located. The degree of visual intrusion that would be exerted by the proposed power lines would vary from location to location, with certain being further away from the lines than others, and other locations being shielded by vegetation or the topography.

The question however, of the degree to which the tourism activities practiced at these locations / in these areas would be affected by views towards the power lines needs to be posed. One of the factors feeding into this would be the intensity of the visual impact at the particular location, and whether views of the power lines would detract from the sense of place at that location. It is important to point out that under no scenario would the lines pass through and into the valley east of the start of the un-surfaced part of the Elands Valley access road, and the lines would not run into the *northern-facing* view of any part of the Valley (except its eastern-most parts). These two factors are important as the lines passing directly through the Valley would exert a very high visual impact, being likely to alter the visual character in significant manner. The north-facing view is also important, as many of the tourist facilities offer a north facing view into the river valley and towards the mountains within Groendal. The non-impacting of these two aspects greatly lessens the possibility that the sense of place of the Valley would be altered for many of the tourism facilities within it.

Certain tourism facilities, e.g. the Mpunza Lodge and Hunting Area, Burrows Hiking Trail, Offcamber and the Llise Dodd Art Gallery would be subject to an intense visual exposure and high visual impact due to the high prominence of the lines on the slopes of the southern ridge. The location of these tourist facilities that would entail that the ridge dominates the ‘visual envelope’ (or immediate view) as visible to the viewer at these locations would

entail that the power lines would exert a significant impact on the sense of place at these locations. These particular tourist facilities rely heavily on the scenic beauty and natural aesthetics of the area as part of the tourism product that is 'sold' or offered to the potential visitor. Thus the potential 'spoiling' of the natural characteristic of the landscape and environment at these locations is likely to be perceived as significant, in particular by the owners. As an example, the owner of the Mpunza Lodge has described how the clients who hunt game on his property are drawn to the area due to its natural scenic beauty and natural setting. The hunting activities take place on the flatter, higher-lying parts of the property with a clear view of the southern ridge, and in his view the attractiveness of the property and the lodge as a hunting destination would be greatly degraded if the power lines were to intrude strongly into the view (Deon Pilcher, pers. comm.)

In spite of the personal views of the owners, it is more difficult to assess how power lines developed in a highly prominent location on top of, or along the sides of the southern ridge would affect whether potential visitor numbers to facilities in the Valley would drop. It should be noted that not all potential visitors would necessarily discern the presence of power lines in the landscape as a factor that would prevent them from visiting or returning to an area, in the respect that other aspects of a tourism product that are perceived to be of poor quality, such as poor management, bad service or sub-standard quality of accommodation facilities may do. It is unlikely that the general public would be sufficiently sensitive or visually discerning to avoid an area completely because it offers views of high voltage lines. Tourists to an area may not be aware of the previous visual context and may not be aware that power lines did not previously form part of the visual baseline of the area. Although this has never been quantified in a South African context, it is highly unlikely that views of power lines would stop tourists from visiting a particular facility altogether. However for the tourism facilities most likely to suffer the highest degree of visual impact, this may cause certain activities to be terminated – i.e. landscape painting in the surrounds of the Llise Dodd Art Gallery due to the loss of the natural character of the surrounding hills. In that respect a significant localised impact on the tourist product of a particular establishment may result. This impact must be viewed in the context of the capital expenditure that all of the owners of the tourism facilities would have had to incur to develop the tourism facilities on their properties. Albeit localised, these impacts at the level of the individual would be significant, and in addition to a loss of earnings or profit margin may importantly preclude a return on capital investment and may threaten the future viability of the operation of the facility.

However in a wider context most of the tourism facilities in the affected parts of the Valley would still be able to offer tourism activities on parts of their properties that were not visually affected by views of the lines, thus the lines if developed would not become an intrinsic part of the environment of these locations, and the tourism product offered would not be affected in its entirety. In this way the location of the lines on the southern ridge and not in the Valley or on the northern side of the Valley is a mitigating factor. Thus as not all of the tourism facilities in the affected parts of the Valley would be subject to a high degree of visual exposure, due to the fact that the lines would not form an intrinsic part of the environment of this area and due to the likely lower degree of sensitivity of the general public to being exposed to views of power lines (as compared to owners), it is thus unlikely that the tourism environment would be affected in a highly significant way due to the development of the lines. As stated above localised impacts may transpire at certain tourism facilities, especially those around the Bulk River Dam, that may threaten the viability of those facilities if certain activities were to be terminated, or if tourist numbers were to drop. It is in this context of the potential impact at the scale of the individual establishment that as stated below, it is recommended that the less visually intrusive alignment be selected.

7.2 Potential impact on Tourism Potential in the Valley

Tourism potential is a complex phenomenon that is dependent on a number of variables as discussed above. The tourism growth in the Valley is just as tied to the marketing of the Valley as a tourist destination (as part of a tourism route or routes) and due to the linkage of the Valley to the Baviaanskloof Mega-Reserve through the inclusion of properties in the Valley part of the Mega-Reserve or through initiatives of the Elands River Conservancy as it is to the intrinsic characteristics of the Valley (its natural character and scenic beauty). In this respect the potential degradation of the visual character of parts of the Valley is important, but not the only and most important factor in determining the tourism growth potential of the Valley. The factors that would affect how

the lines would impact on current tourism activities in the Valley are important in the context of future tourism growth potential; with the following factors being important:

- not all parts of the Valley would be subject to visual impacts with certain parts of the Valley (closer to the Elands River) being subject to no impacts at all,
- the power lines would not become a fundamental part of the visual environment of the Valley, rather only being present in views to the south,
- the likely lower sensitivity of the general public to power-line related visual impacts

These would suggest that the development of the lines would not exert a significant impact on the tourism development potential of the wider Valley. This argument is further enhanced by stating that once the lines were developed, that they would eventually become a part of the visual baseline of the Valley. Thus in a Valley-wide context the tourism potential would be unlikely to be significantly altered. However as localised impacts may transpire in terms of certain existing tourist facilities, the tourism growth potential of these facilities may also be hindered by the development of the lines. Owners who are contemplating investing further capital into the development of the tourism product offered (e.g. the upgrading or expansion of accommodation facilities) are likely to refrain from doing so if they believe that the visual intrusion of the lines has spoilt the aesthetic environment so as to make it unattractive or less desirable to future potential visitors. More important on a practical level, any drop in visitor numbers (it is very difficult to quantitatively assess how the tourism demand would be affected as discussed above) could cut the profit margin of the individual facility, or even result in operating costs becoming greater than income generated under a worst case scenario. This could result in the tourism operation being threatened due to financial non-viability. In that respect, a cumulative impact on the tourism growth potential of the affected part of the Valley may result if a number of owners were to refrain from future investment, or even worse, sell off their properties or stop operating the tourism facilities. In this way the natural growth of the tourist product in the valley may be stilted. This again lends weight to the recommendation made below that the least visually-intrusive alignment should be developed.

8 CONCLUSIONS AND RECOMMENDATIONS –TOURISM

The sections above have characterised the existing tourism baseline and the future tourism potential of the Elands Valley. In a context of the wider Valley, although the impact on tourism demand has unable to be quantified at this stage, a number of factors discussed above could arguably entail that the lines would be unlikely to significantly reduce tourism visitation to the tourist facilities within the affected part of the Elands Valley context, and would be unlikely to significantly retard the future tourism growth of the Valley. However the lines could result in localised tourism-related impacts that would be economically important at the level of the individual operation if certain activities were to stop being practiced due to the visual intrusion of the lines, or if a drop in visitor numbers were to cut profits. Cumulatively, this could also have an impact on the future growth potential of certain areas within the affected part of the Valley, if a number of property owners were discouraged from further investment in the tourism facilities or contemplated the closure of their operations due to financial non-viability, thus limiting the natural growth and improvement of the tourism product in that part of the Elands Valley.

The presence of the lines would be viewed by many as regrettable and in a negative manner. This must be viewed in the context of the high value placed in the natural and aesthetic qualities of the Elands Valley, and its locational context, being situated in immediate proximity to a number of components of the Baviaanskloof Mega-Reserve, and thus the Cape Floral Kingdom World Heritage Site, with the associated emphasis on the protection of the natural features and associated aesthetic quality of the landscape. Taking a risk averse approach keeping in mind the potential effects of the lines at the scale of certain individual operations, it would be preferable from a tourist perspective for the proposed lines to be kept as visually unobtrusive as possible to prevent these potential local level impacts from developing. For this reason, the choosing of certain alignment alternatives over others would be preferable. The recommendations in this respect largely mimic those of the visual study – that Alternative 3 is most preferable as it would be associated with the least degree of visual impact and exposure to the power lines, and conversely Alternative 1 would be least desirable due to its high visual impact. It would be

preferable to retain the natural aesthetic quality of the Valley as this is arguably the most important characteristic of the Valley that would attract tourists.

9 REFERENCES

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APPENDIX A:

Maps