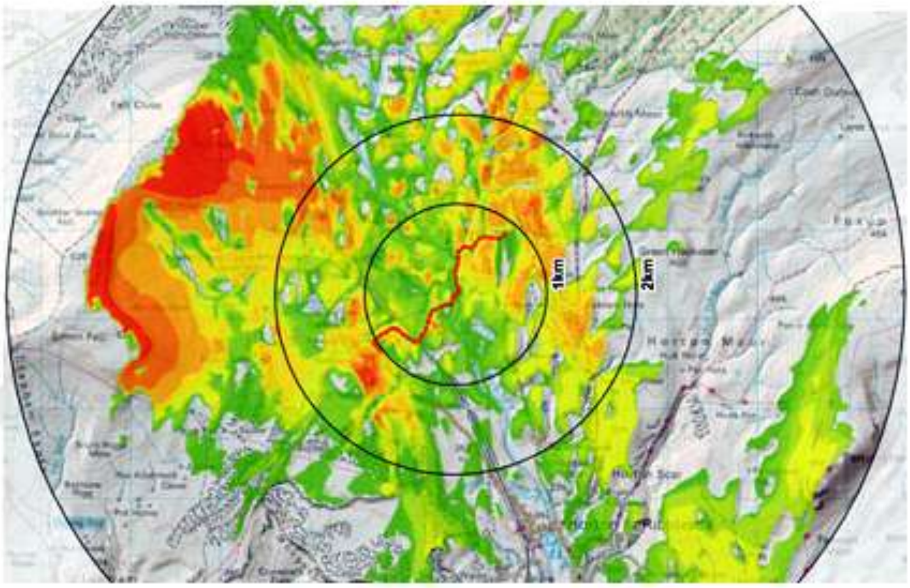
REPORT

August 2012

Vunene Mining (Pty) Ltd
- Usutu Mine

- Visual Impact Assessment



Report Number. VIA-REP-325d-12-BB
Revision: BB
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LIST OF ABBREVIATIONS

DEA	National Department of Environmental Affairs
DOE	Department of
DWA	Department of Water Affairs
CSP	Concentrating Solar Power
CPV	Concentrating Photovoltaic
CLFR	Compact Linear Fresnel Reflectors
EIA	Environmental Impact Assessment
GIS	Geographic Information System
GPS	Global Positioning System
HIA	Heritage Impact Assessment
kV	Kilo Volt
kWh	Kilo watt hour
km	Kilometres
MTS	Main Transmission Substation
MW	Megawatt
MWp	Megawatt peak
SLR	Single Lens Reflex
VAC	Visual Absorption Capacity
VIA	Visual Impact Assessment
VT	Vegetation Type

Critical viewpoints:
Important points from where viewers will be able to view the proposed or actual development and from where the development may be significant.

Field of view:
The field of view is the angular extent of the observable world that is seen at any given moment. Humans have an almost 180º forward-facing field of view. Note that human stereoscopic (binocular) vision only covers 140º of the field of view in humans; the remaining peripheral 40º have no binocular vision due to the lack of overlap of the images of the eyes. The lower the focal length of a lens (see below), the wider the field of view.

Mitigation (in the context of Visual Impact Assessment):
Any action taken or not taken in order to avoid, minimise, rectify, reduce, eliminate, or compensate for actual or potential adverse visual impacts.

Focal length:
The focal length of a lens is a measure of how strongly the lens converges (focuses) or diverges (defocuses) light. Focal length refers to the "strength" of a lens, in other words how many times the lens magnifies an image (brings it closer) or widens an image (makes it look further away). The standard lens on most SLR cameras has a focal length of 50 mm. Using a 50mm lens as a start, a 200 mm lens will magnify an image four times (i.e. 4 x magnification). The focal length of an average human eye is 22 mm.

Scenic value:
Degree of visual quality resulting from the level of variety, harmony and contrast among the basic visual elements.

Sense of place:
The character of a place, whether natural, rural or urban. It is allocated to a place or area through cognitive experience by the user.

View shed:
The theoretical area within which an observer is likely to see a specific structure or area in the landscape. It is generated from a digital terrain model (DTM) made up of 3D contour lines of the landform. Intervening objects, structures or vegetation will modify the view shed at ground level.

Visual absorption capacity (VAC):
The ability of elements of the landscape to "absorb" or mitigate the visibility of an element in the landscape. Visual absorption capacity is based on factors such as vegetation height (the greater the height of vegetation, the higher the absorption capacity), structures (the larger and higher the intervening structures, the higher the absorption capacity) and topographical variation (rolling topography presents opportunities to hide an elements in the landscape and therefore increases the absorption capacity).

Visual character:
The overall impression of a landscape created by the order of the patterns composing it; the visual elements of these patterns are the form, line, colour and texture of the landscape's components. Their interrelationships are described in terms of dominance, scale, diversity and continuity. This characteristic is also associated with land use.

Visual exposure:

Visual exposure is based on distance from the project to selected viewpoints. Visual exposure or visual impact tends to diminish exponentially with distance.

Visual quality:
Subjective evaluation of the visible components of the environment by viewers

Visually sensitive:
Areas in the landscape from where the visual impact is readily or excessively encountered

1 INTRODUCTION

Environmental Assurance (Pty) Ltd (Envass), as an independent environmental consultant has been appointed by Vunene Mining (Pty) Ltd to undertake the Visual Impact Assessment (VIA) for the proposed opencast and surface coal mining on Leeuwenburg 137 IT, Roodewal 270 IT, Holbank 265 IT, Vlakfontein 266 IT, Vlakfontein 269 IT, Mooiplaats 290 IT, Witpunt 267 IT, Transutu 257 IT and Jan Hendriksfontein 263 IT, in the Msukaligwa Local Municipality.

1.1 SCOPE OF WORK

The scope of work included in this Visual Assessment specialist report is to:

- Describe the existing visual characteristics of the proposed site and its environs.
- Determine the area from which the proposed mining area will be visible.
- Propose possible mitigation measures.
- The overall objective of the Visual Impact Assessment (VIA) is to assess the significance of the visual impacts that will be caused by the mining activities.

1.2 METHODOLOGY AND APPROACH TO STUDY

The following sequence was employed in this Visual Assessment Report:

- The desktop survey made use of the 1:50 000 map and 1:10 000 aerial photographs. These were used to identify landforms and landscape patterns, as well as to determine the view shed of the area. The view shed for the development based on the maximum height of the mine tailings facilities (proposed development of maximum 20 m).
- In order to model the decreasing visual impact of the mine activities, concentric radii zones of 1km to 15km from the mine activities were superimposed on the view shed to determine the level of visual exposure. The closest zone to the mine activities indicates the area of most significant impact, and the zone further than 10km from the mine activities indicates the area of least impact. The visual exposure ratings of the zones have been defined as follows:
    - <1 km (very high);
    - 1 - 2 km (high);
    - 2 - 5 km (moderate);
    - 5 -10 km (low); and
    - > 15 km (insufficient)
- An extensive photographic survey of the site and surrounding areas was conducted which determine the visibility of the mining activities from various viewpoint.
- Potential visual impacts were identified using standard criteria such as geographic view shed and viewing distance, as well as qualitative criteria such as importance to surrounding land users and compatibility with the existing landscape.

- Possible mitigation measures were identified.

1.3 ASSUMPTIONS

- The core study area can be defined as an area with a radius of not more than 10 km from the mine activities and a total study area with a radius of 15 km from the mine activities. This is because the visual impact of structures beyond a distance of 10km would be so reduced that it can be considered negligible even if there is direct line of sight. The total study areas are extended to 15 km to include the closes town (Ermelo).

- It is assumed that there are no alternative locations for the mine activities and that the visual assessment, therefore, assessed only the proposed site.

- It is assumed that the no-go (no development) alternative is not a feasible and reasonable alternative.

1.4 LIMITATIONS

- Visual perception is by nature a subjective experience, as it is influenced largely by personal values. For instance, what one-viewer experiences as an intrusion in the landscape, another may regard as positive. Such differences in perception are greatly influenced by culture, education and socio-economic background. A degree of subjectivity is therefore bound to influence the rating of visual impacts. In order to limit such subjectivity, a combination of quantitative and qualitative assessment methods has been used. A high degree of reliance has been placed on GIS-based analysis view shed and visibility analysis, and on making transparent assumptions and value judgements, where such assumptions or judgements are necessary.

- The viewshed generated in GIS is not 100% accurate and has therefore been ground truthed during the site visit. Some viewpoints, which are indicated on the view shed as being inside of the view shed, can be outside of the view shed. This is due to the modification of the natural environment by surrounding mining activities and other activities. Natural vegetation also place a significant role and can have a positive or negative influence on the viewshed

1.5 LEGAL REQUIREMENTS

There are no specific legal requirements for visual impact assessment in South African. Visual impacts are, however required to be assessed by implication when the provisions of relevant acts governing environmental impacts management are considered.

2 DESCRIPTION OF PROPOSED DEVELOPMENT

2.1 LOCATION

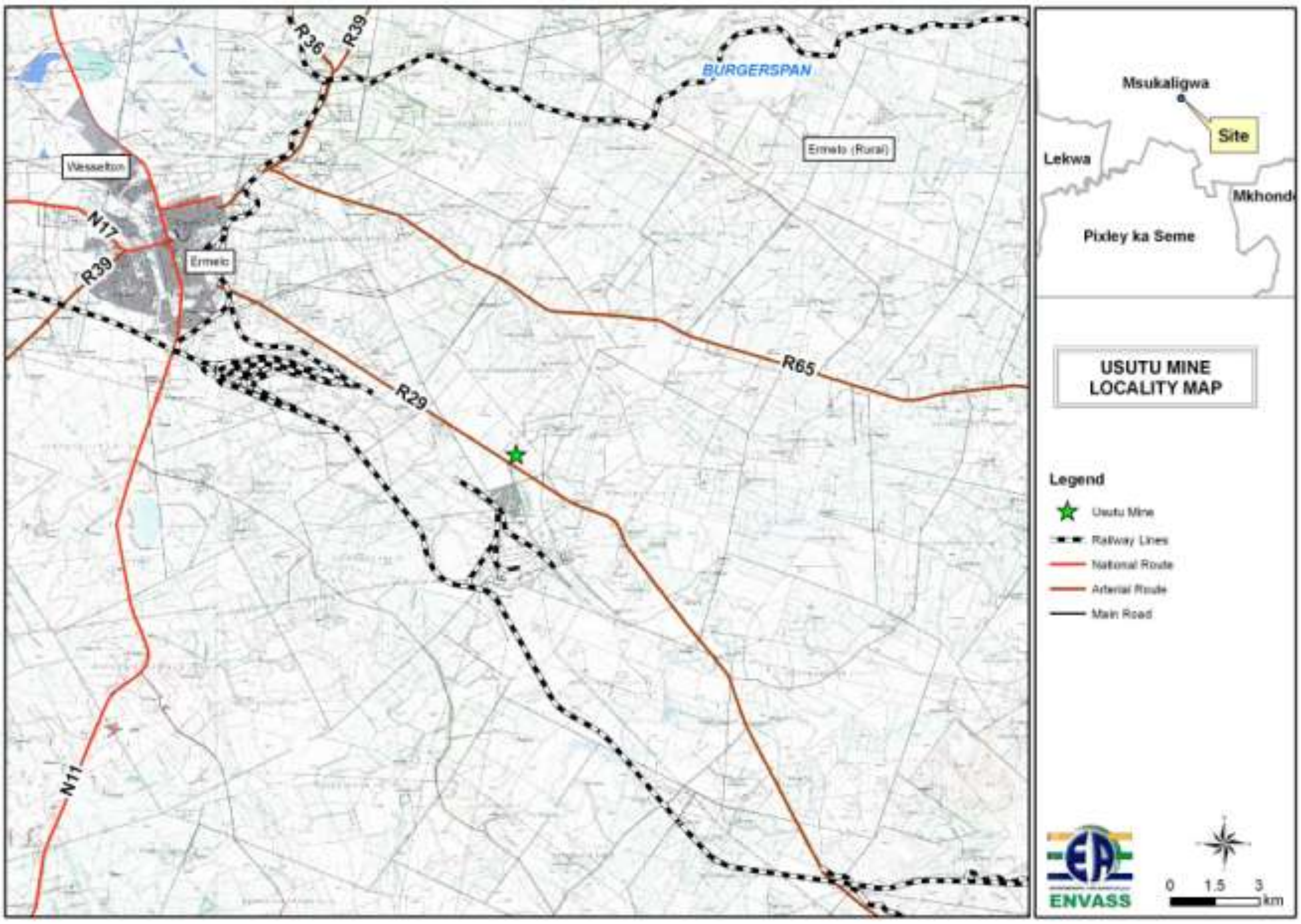

Figure 1: Locality map of the Usutu mining area

2.2 DESCRIPTION OF THE PROPOSED PROJECT

The Usutu Coal Colliery opencast mine is located 18 kilometres southeast of Ermelo (see Figure 1). This is an existing coalmine, which was under care and maintenance for a period, subsequent to which mining operations were restarted.

The proposed rollover open cast mining method entails the following:

The coal residues are at a depth of approximately 6 – 26 meters (see Figure 2). A box cut of approximately 500 - 700 meters by 70 - 80 meters will be made, using excavators and other heavy mining machinery, to extract the coal such as excavators and articulated dump trucks. The cover material (e.g. topsoil and sandstone), excavated during the initial box cut, will be stockpiled (approximately 20m high) in separate stockpiles. Care will be taken to ensure that the topsoil, subsoils, softs, hards, B lower, Parting and C upper will not be mixed during this stockpiling procedure. This forms the visual section of the mining activities and the visual assessment is based on the location of the stockpile area.

The coal will thereafter be mined and as soon as the total in situ coal volume has been extracted from the primary box; the method will rollover to the second strip. The rollover method assumes that the mining operator rehabilitates and restores the disturbed area as the mining process progresses. Thus by the time the mine has been mined in totality; the rehabilitation of the disturbed area should at the end of the life of the mine be lagging by approximately three (3) strips.

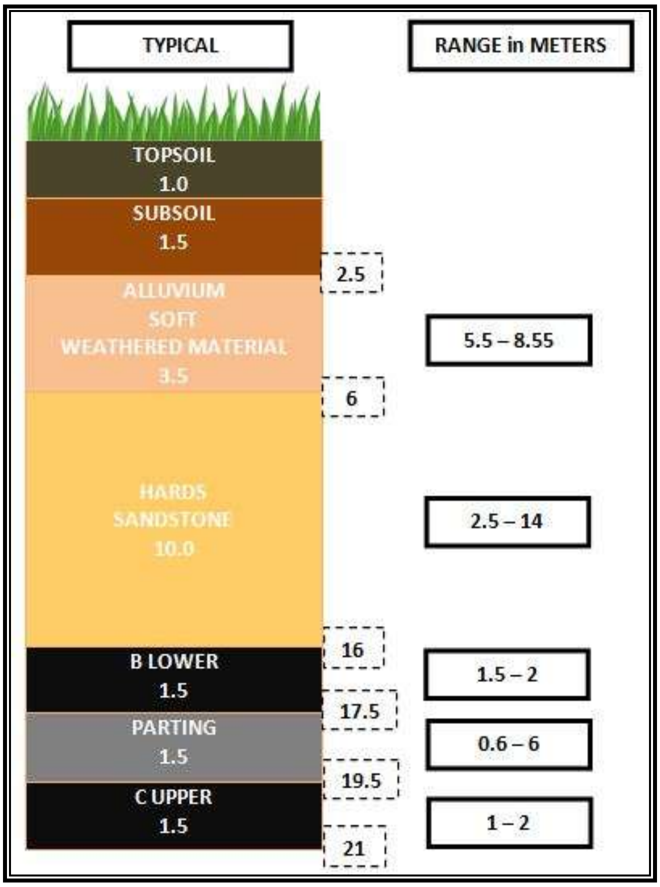

Figure 2: Geological description of the Coalmine areas

Crushing screening and de-stoning plants will be erected at Usutu Colliery for the processing of the Run of Mine (ROM) coal. The ROM coal will be transported and then sold to Eskom once the contracts are concluded.

Through geological assessments and the feasibility study it has been determined that the coal reserve on the above mentioned farms have an economic value and can be mined optimally via opencast and underground mining methods. Based on the proposed production rate of 3 000 000 tonnes per year, the life of mine is estimated at approximately 30 years.

3 CRITERIA USED IN THE ASSESSMENT OF VISUAL IMPACTS

3.1 VIEW POINTS AND VIEW CORRIDORS

Viewpoints have been selected based on prominent viewing positions in the area. The selected viewpoints and view corridors are used as a basis for determining potential visual ability and visual impacts of the proposed mine activities. Three viewpoints were identified based on sensitivity and visual impact of the area.

3.2 VISUAL EXPOSURE

Visual exposure is based on distance from the project to selected viewpoints. Visual exposure or visual impact tends to diminish exponentially with distance. The visibility or visual exposure of any structure or activity is the point of departure for the visual impact assessment. It stands to reason that if the proposed mine activities and associated infrastructure were not visible, no visual impact would occur. Visual exposure is determined by the viewshed or the view catchment being the area within which the proposed development will be visible.

3.3 VISUAL SENSITIVITY

Visual sensitivity can be determined by the number of factors in combination, such as prominent topographic or other scenic features, including:

- High points, ridges and spurs (visible from a greater distance and determines the horizon effects);
- Steep slopes (tends to be more prominent and visible from a distance);
- Axial vistas.

3.4 LANDSCAPE INTEGRITY

Landscape integrity is visual qualities represented by the following qualities, which enhance the visual and aesthetic experience of the area:

- Intactness of the natural and cultural landscape;
- Lack of visual intrusions or incompatible structures;
- Presence of a ‘sense of place’.

3.5 DETERMINE THE VISUAL ABSORPTION CAPACITY (VOC)

The VAC is the capacity of the receiving environment to absorb the potential visual impact of the proposed facility. The VAC is primarily a function of the vegetation, and will be high if the vegetation is tall, dense and continuous. Conversely, low growing, sparse and patchy vegetation will have a low VAC. Topography and built forms have the capacity to ‘absorb’ visual impact. The digital terrain model utilised in the calculation of the visual exposure of the facility does not incorporate potential visual absorption capacity (VAC). It is therefore necessary to determine the VAC by means of the interpretation of the vegetation cover, topography and structures.

4 DESCRIPTION OF AFFECTED AREA AND ENVIRONMENT

This section of the report provides a description of the current status of the environment. This provides a baseline context for assessment of the proposed mine activities.

4.1 SURROUNDING AREA

Figure 3: Surrounding Area, Mine activities and Power station

Old Farmhouse that is located in the area.

Figure 4: Surrounding Area, Old farmhouse.

Camden Power Station and supporting infrastructure. The Camden town is located next to the power station.

Mine Stockpile area

Figure 5: Surrounding Area, Stockpile and Camden Power station

Figure 6: Surrounding Infrastructure

The Ermelo area is known for the coal mine activities that take place in the area. The two other main activities that take place in the area is power generation by the burning of coal and agriculture. Due to the meandering landscape and the uniform vegetation the area has a medium to high visual absorption capacity (VAC). This means that mining activities can be visually absorbed by the surrounding area. Mining activities are of short term (i.e. Opencast is between 2-5 years) and if the rehabilitation is done correctly then no visual impact should be present.

4.2 TOPOGRAPHY

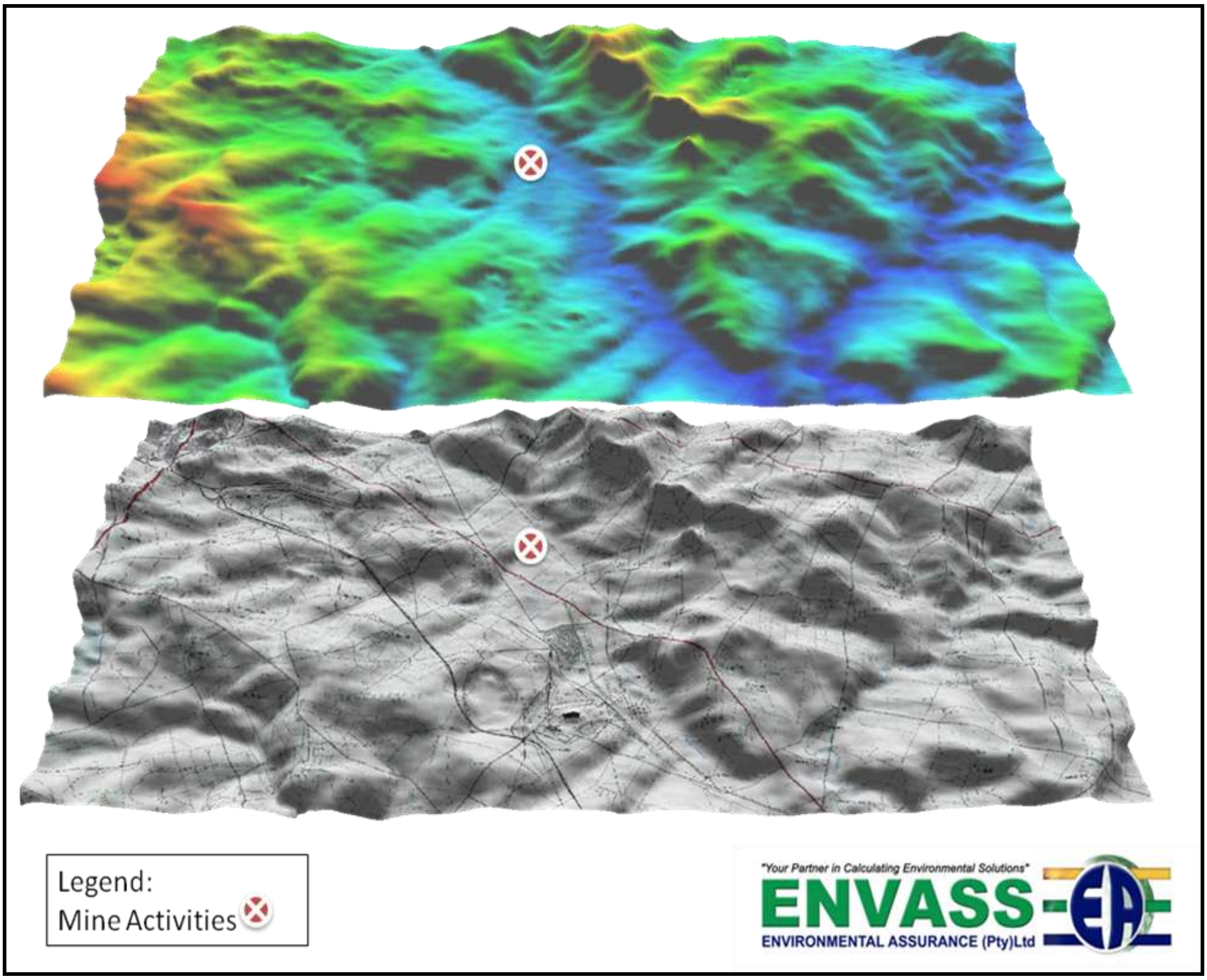

Figure 7: 3-D model of the topography of the area

The topography of the area can be described as a meanderings landscape, with rocky sandstone outcrops and low-lying areas. The area is located in the upper Vaal catchment and the site is located between the Humanspruit en Witpuntspruit.

4.3 TEMPERATURE AND PRECIPITION

Usutu Colliery falls within the summer rainfall region of South Africa. The climate is temperate with characteristically warm summers and cold winters. Frost occurs during the winter months peaking with an average occurrence of nine days in July. Summer precipitation occurs in the form of mist, drizzle, hail and most often thundershowers and lightning storms.

The mean annual rainfall is 748mm, 83% of which occur during the months of October to March. The mean rainfall is given in Table 1: Mean rainfall measured over 54-year period at Ermelo weather station.

Table 1: Mean rainfall measured over 54-year period at Ermelo weather station

MONTH	MEAN RAINFALL (mm)
January	126
February	94
March	83
April	35
May	19
June	8
July	9
August	11
September	28
October	87
November	131
December	124
MEAN ANNUAL	748

The highest recorded rainfall for periods of between 30 minutes and 24 hours are given in Table 2: Maximum below together with the 1:50 and 1:100 year computed rainfall events for a period of 24 hours.

Table 2: Maximum precipitation

24 hr max recorded	24 hr 50 year recurrence	24 hr 100 year recurrence	24 hr RMF recurrence
79mm	98.8mm	108.1mm	118.1mm

The mean daily maximum exceeds 23˚C between October and March, the hottest months. The daily maximum temperatures in the winter months (May to August) vary between 16˚C and 19˚C. The daily minimum temperatures during the winter months vary between <-11.1˚C and 4˚C.

Table 3: The mean maximum and minimum temperatures

MONTH	MEAN	DAILY MAX	DAILY MIN	EXTREME MAX	EXTREME MIN
January	18.7	25.4	12.1	34.4	3.3
February	18.3	24.9	11.7	35.0	4.4
March	17.2	23.7	10.7	32.8	0.0
April	14.8	22.2	7.4	30.0	-3.3
May	11.8	19.8	3.8	28.3	-6.8
June	8.6	16.4	0.8	25.0	-8.9
July	8.4	16.5	0.4	25.1	-11.1
August	11.2	19.6	2.8	29.4	-11.1
September	14.3	22.4	6.1	33.3	-6.8
October	17.0	24.7	9.4	34.4	-2.2
November	17.5	24.6	10.4	35.6	0.0
December	18.4	25.2	11.7	34.2	3.3
AVERAGE	14.7	22.1	7.3	30.5	-3.2

4.4 FLORA

The study site is situated on various farms in the Ermelo area, which lies within the summer rainfall area. Bredenkamp and van Rooyen (1995) classified the study site to fall within the Moist Sandy Highveld Grassland vegetation type, and should be dominated by *Erogistis sp*. and *Themeda triandra*. Dicotyledonous forbs although well represented within the biome, should not be abundant. The vegetation type into which Accocks (1988) classified the area is the North eastern sandy Highveld, specifically the Near Bankenveld veldt type occurring in the western side of the Drakensburg. The area should most likely be dominated by Graminoid species, such as *Tristachya leucothrix*, *T. triandra* and *E. racemosa*.
This biome according to Accocks, is dominated by sourveld species, and while not considered suitable for grazing is typically utilised for agricultural purposes.

The mining right is approximately 17 247 058 ha, consisting of low undulating hills. These are covered by predominately short sclerophyllis plant species occurring near the crests of these hills, with taller more palatable species below towards the bases of the hills. The study areas are predominantly used for grazing areas. Pastures are also established widely in the area.

A total of 29 species in seven (7) families were recorded over the study area. Graminoid species (Poaceae) were the most dominant, accounting for 45% of the total species diversity. Members of the daisy (Asterceae) family were also well represented, accounting for 28% of the total species diversity.

4.5 EXISTING LAND USE

The majority of the surrounding land is zoned for agricultural as indicated in Figure 8.

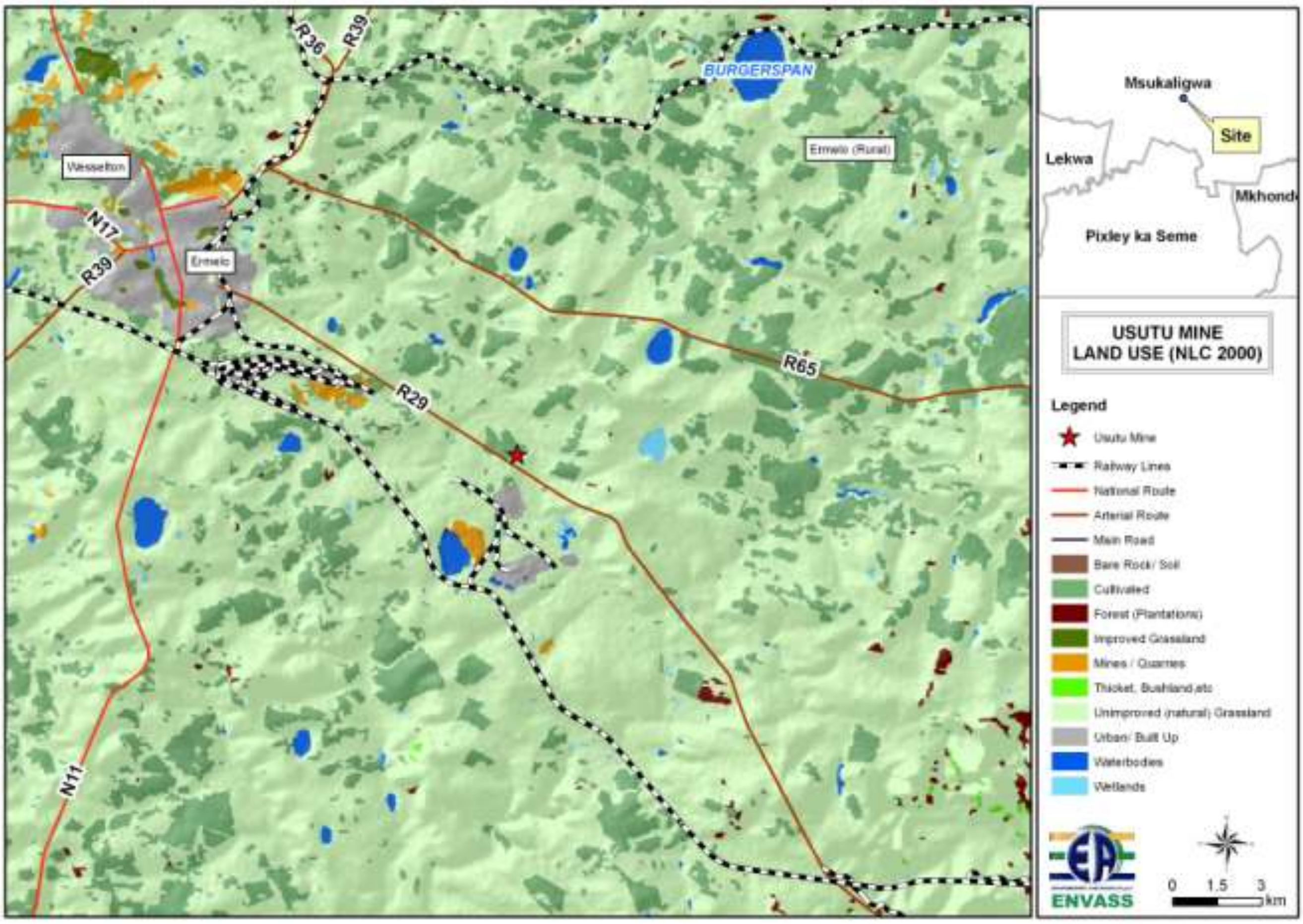

Figure 8: Surrounding Land Use

4.6 SENSE OF PLACE

The concept of "a Sense of Place" does not equate simply to the creation of picturesque landscapes or pretty buildings, but to recognize the importance of a sense of belonging. Embracing uniqueness as opposed to standardization attains quality of place. In terms of the natural environment, it requires the identification, a response to and the emphasis of the distinguishing features and characteristics of landscapes. Different natural landscapes suggest different responses.

The sense of place is created by the grassland, meandering landscape and sandstone outcrops. Coal mining and Power stations plays an important role in the sense of place that has been created. Coal mining has taken place in the areas since the 19th century and continues to be one of the biggest economic drivers of the area and the country. The Highveld is known for Power stations and coal mines.

VIEWSHED RESULTS

5 VIEWSHED

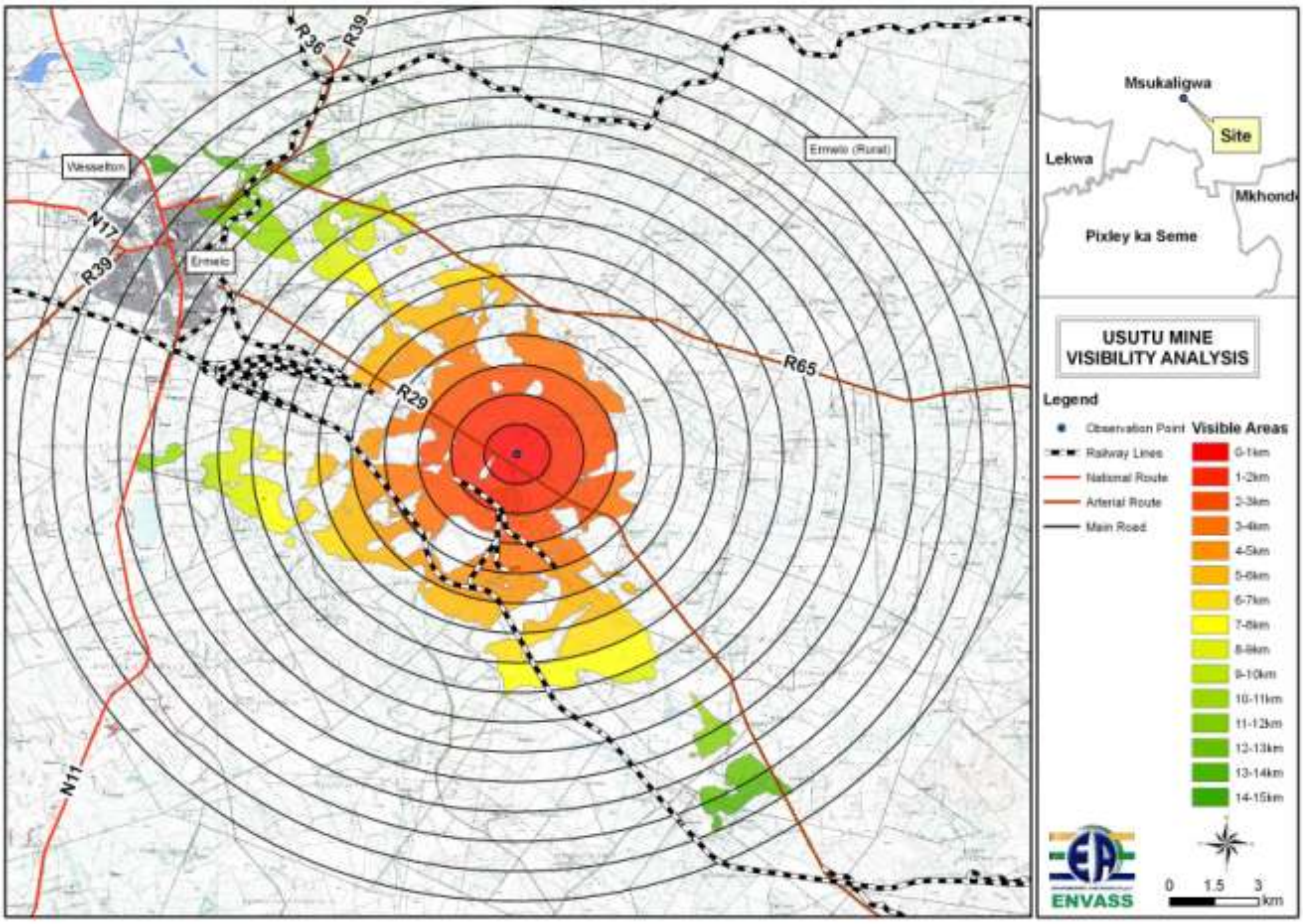

Figure 9: Viewshed of the proposed development showing the theoretical visible areas

The viewshed of the mine activities, which is based on the maximum height 20 m of the stockpile (see Figure 9), which is associated with the opencast mining activities. The visible area is indicated on Figure 9, as the coloured area. These areas are the areas that can be classified as areas that would have a direct line of sight to the mining activities (i.e. the areas from which the Stockpile would theoretically be visible, solely based on topography and not taking vegetation and manmade structure into consideration). Viewshed does not take modification of topography, buildings or vegetation into consideration. For this reason, photographic methods (viewpoint) are, use to verify or correct the viewshed.

5.1 VIEWSHED VISIBILITY

For the assessment of the visibility of the area, the viewshed is divided into four quadrants (i.e. North, East, South, and West). These quadrants are then assessed for the percentage visibility within the 15 km buffer zones. Table 5 is the rating used for the assessment of the visibility of the activity.

Table 4: Visibility of quadrants of the proposed development

Visibility rating		
Quadrants	Rating	
North	0 - 1 km:	Very high
	0 – 2 km	Very high
	2 – 3 km:	High Medium
	3 – 5 km:	Medium
	5 – 10 km:	Low
	10 – 15 km:	Very low
East	0 - 1 km:	Very high
	0 – 2 km	Very high
	2 – 3 km:	Medium high
	3 – 5 km:	Low
	5 – 10 km:	None
	10 – 15 km:	None
South	0 - 1 km:	Very High
	0 – 2 km	Very high
	2 – 3 km:	High Medium
	3 – 5 km:	Medium
	5 – 10 km:	Low
	10 – 15 km:	Very Low
West	0 - 1 km:	Very high
	0 – 2 km	High
	2 – 3 km:	High
	3 – 5 km:	Medium
	5 – 10 km:	Medium low
	10 – 15 km:	Low

Table 5: Visibility rating

Visibility Rating	
None	Not visibility
Very low	0 – 12.5 % visibility
Low	12.5 – 25 % visibility
Medium low	25 – 37.5 % visibility
Medium	37.5 – 50 % visibility
Medium High	50 – 62.5 % visibility
High Medium	62.5 – 75 % visibility
High	75 – 87.5 % visibility
Very High	87.5 – 100 % visibility

5.2 PROPOSED LAYOUT

See Annexure 1 for a map indicating the proposed layout of the mining area and infrastructure.

5.3 VIEW POINTS

Figure 10: Viewpoints

Due to fact that topography modification has taken place by agricultural, vegetation and other mining activities, the viewshed is only a theoretical study. For this VIA to be more accurate viewpoint of sensitivity have be identified and then a visual inspection (photographic inspection) have be conducted from these points to identify the severity of the visual impact of the activities. As indicated in Figure 10, four viewpoints have been identified from where photographic inspections were conducted.

The viewpoints have been identified based on the sensitivity of the areas to visual disturbance and areas that can be negatively impacted by the mine related activities.

5.4 VISUAL EXPOSURE

Viewpoint 1:

Viewpoint 1 is located on the N2 (R29) road. The road enters the site at the northwestern side and then exist the site at the southeastern side of the site. The road runs from Ermelo to Piet Retief, and this road accommodates most of the traffic between these two towns. Traffic between South Africa and Swaziland also use this road. Figure 11 is an indication of the visual exposure from the viewpoint. The visual exposure of the mine activities will be low on the road users; this is due to the short exposure time to the mine activities. The visual exposure for the road will be for less than 7km.

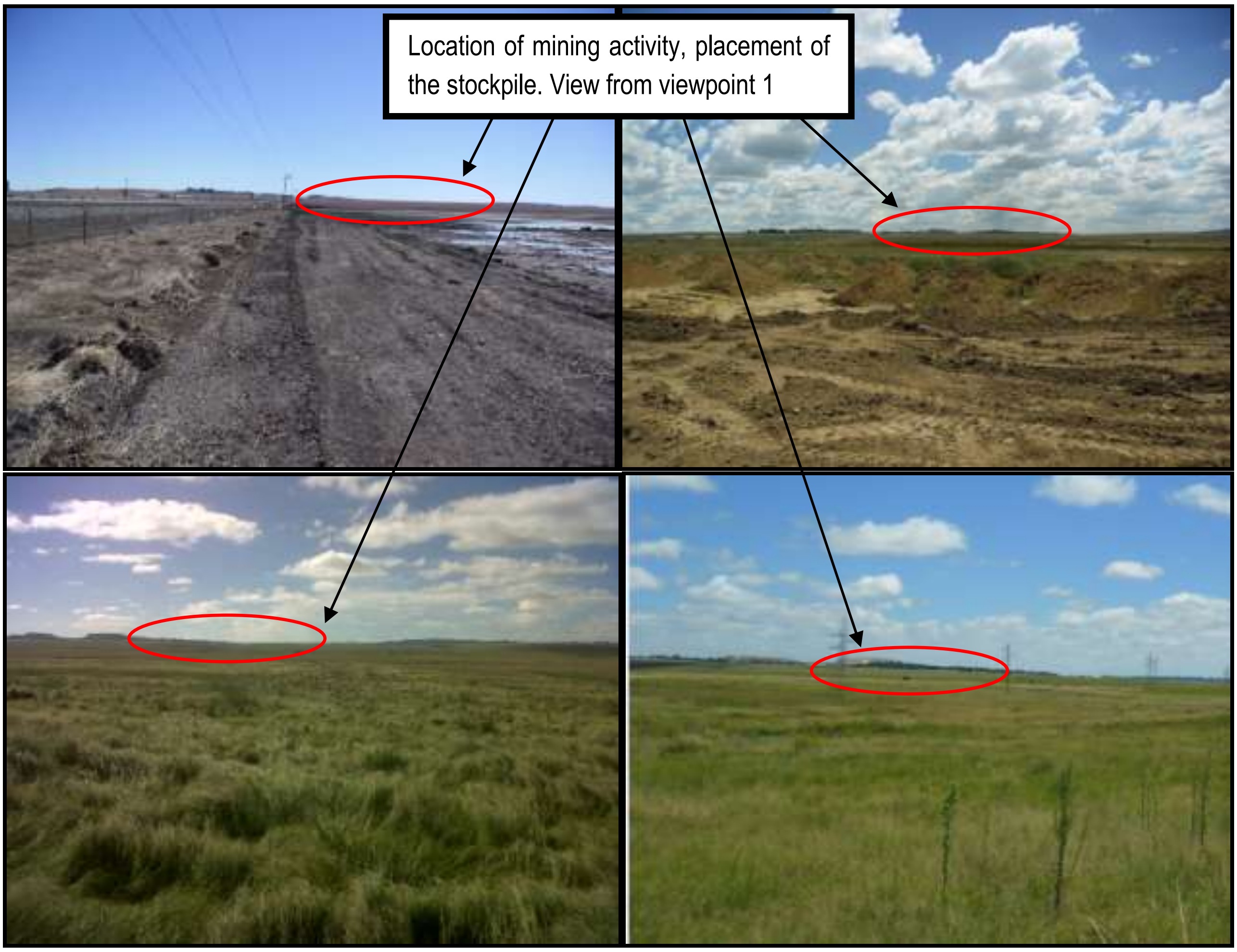

Figure 11: Visibility for Viewpoint 1

Viewpoint 2:

Viewpoint 2 is the town located next to the Camden Power station. Figure 12 is an indication of the visual exposure from the viewpoint. The inhabits of the town will be negatively affected by the mine activities, the exposure will be of medium to short term due to the fact that the stockpiles are not permanent structure. The town is more than 3km from the activity and thus the distance and the landscape absorption capacity will reduce the visual impact on the inhabitants. The visual impact on the inhabitants will be medium to low.

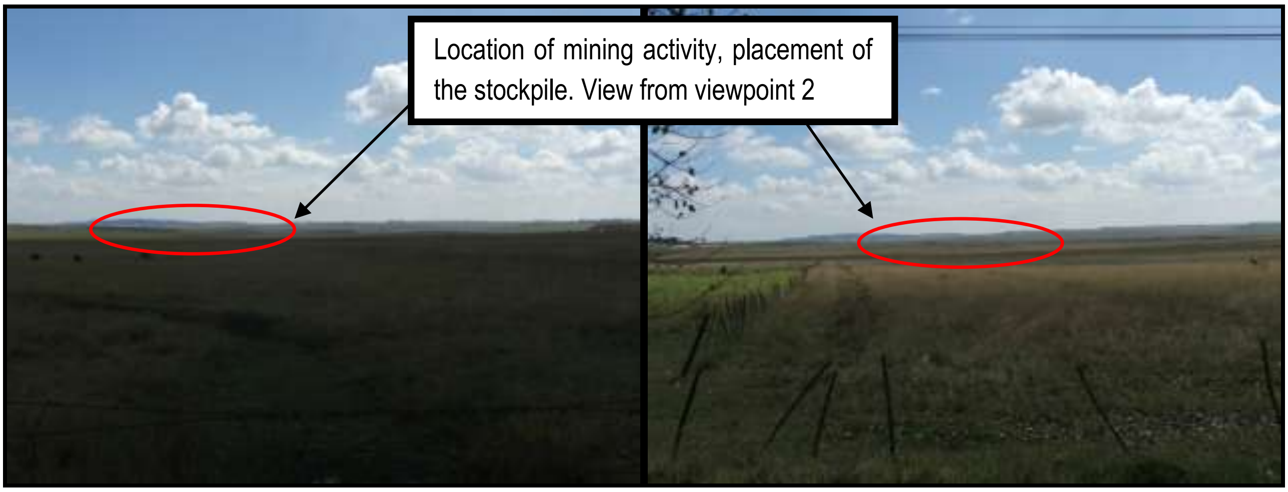

Figure 12: Visibility for Viewpoint 2

Viewpoint 3:

Viewpoint 3 is the game lodge located east of the mining area and the inhabitants living in close approximately to the game lodge. Figure 13 is an indication of the visual exposure from the viewpoint. Figure 13: Visibility for Viewpoint 3 The visual exposure of the game lodge is high but due to the distance from the activity, more than 4km, and the absorption capacity of the area will reduce the visual impact from the game lodge. The stockpile is not a permanent structure and thus the visual impact to the mine activities can be seen as medium to low.

Figure 13: Visibility for Viewpoint 3

5.5 VISUAL IMPACT CRITERIA

Table 6: Criteria for Visual Impact Assessment

Intensity (Magnitude)	
The Intensity of the impact is considered by examining whether the impact is destructive or benign, whether it has a significant, moderate or insignificant, visual impacted.	
(I)nsignificant	The visual impact of the development will not have a negative effect on the surrounding environment and land users
(M)oderate	The development will have an effect on the environment and land users, but will not be significant
(V)ery High	The development will have a significant impact on the environment and land users.
Duration	
The lifetime of the impact that is measure in relation to the lifetime of the proposed development.	
(T)emporary	The impact either will disappear with mitigation or will be mitigated through a natural process in a period shorter than that of the construction phase.
(S)hort term	The impact will be relevant through to the end of a construction phase (1.5 – 2 years)
(M)edium term	The impact will last up to the end of the development phases, where after it will be entirely negated.
(L)ong term	The impact will continue or last for the entire operational lifetime i.e. exceed 30 years of the development, but will be mitigated by direct human action or by natural processes thereafter.
(P)ermanent	This is the only class of impact, which will be non-transitory. Mitigation either by man or natural process will not occur in such a way or in such a time span that the impact is transient.
Spatial Scale	
Classified of the physical and spatial aspect of the impact	
(F)ootprint	The impacted area extends only as far as the activity, such as footprint occurring within the total site area.
(S)ite	The impact could affect the whole, or a significant portion of the site.
(R)egional	The impact could affect the area including the neighbouring farms, the transport routes and the adjoining towns.
(N)ational	The impact could have an effect that expands throughout the country (South Africa).
(I)nternational	Where the impact has international ramifications that extend beyond the boundaries of South Africa.
Probability	
This describes the likelihood of the impact actually occurring. The impact may occur for any length of time during the life cycle of the activity. The classes are rated as follows:	
(I)mprobable	The possibility of the Visual Impact occurring is none, due to the circumstances, design. The chance of this Visual Impact occurring is zero (0%)
(P)ossible	The possibility of the Visual Impact occurring is very low, due either to the circumstances or design. The chance of this Visual Impact occurring is defined as 25% or less
(L)ikely	There is a possibility that the impact will occur to the extent that provisions must therefore be made. The chances of the Visual Impact occurring is defined as 50%
(H)ighly Likely	It is most likely that the Visual Impacts will occur at some stage of the development. Plans must be drawn up before carrying out the activity. The chances of this impact occurring is defined as 75 %.
(D)efinite	The Visual impact will take place regardless of any prevention plans, and only mitigation actions or contingency plans to contain the effect can be relied on. The chance of this

	impact occurring is defined as 100 %.

Table 7: Assessment Criteria and Ranking Scale

PROBABILITY		MAGNITUDE	
Description Meaning	Score	Description Meaning	Score
Definite / don't know	5	Very high / don't know	10
Highly likely	4	High	8
Likely	3	Moderate	6
Possible	2	Low	4
Improbable	1	Insignificant	2
DURATION		SPATIAL SCALE	
Description Meaning	Score	Description /Meaning	Score
Permanent	5	International	5
Long Term	4	National	4
Medium	3	Regional	3
Short term	2	Local/Site	2
Temporary	1	Footprint	1/0

Equation 1: Significant Rating

Significant Rating (SR) = (Extent + Intensity + Duration) x Probability

Table 8: Significant Rating Scale without mitigation

SR < 30	LOW (L)	Visual Impact with little real effect and which should not have an influence on or require modification of the project design or alternative mitigation. No mitigation is required.
30 > SR < 60	MEDIUM (M)	Where Visual Impact could have an influence on the decision unless it is mitigated. An impact or benefit, which is sufficiently important to require management. Of moderate significance - could influence the decisions about the project if left unmanaged.
SR > 60	HIGH (H)	Impact is significant, mitigation is critical to reduce impact or risk. Resulting impact could influence the decision depending on the possible mitigation. An impact, which could influence the decision about whether or not to proceed with the project.

Table 9: Significant Rating Scale with mitigation

SR < 30	LOW (L)	The Visual Impact is mitigated to the point where it is of limited importance.
30 > SR < 60	MEDIUM (M)	Notwithstanding the successful implementation of the mitigation measures, to reduce the negative visual impacts to acceptable levels, the negative visual impact will remain of significance. However, taken within the overall context of the project, the persistent impact does not constitute a fatal flaw.
SR > 60	HIGH (H)	The visual impact is of major importance. Mitigation of the visual impact is not possible on a cost-effective basis. The visual impact is regarded as high importance and taken within the overall context of the project, is regarded as a fatal flaw. The visual impact is regarded as high significance, after mitigation could render the entire development option or entire project proposal unacceptable.

6 VISUAL IMPACT ASSESSMENT

The previous section identified specific areas where the potential visual impact would occur and their magnitude. This section will attempt to quantify these visual impacts in their respective geographic locations and in terms of the identified issues related to the visual impact.

6.1 POTENTIAL VISUAL IMPACT OF THE MINING ACTIVITIES

Potential visual impact on the road users of the N2 (R29) adjacent to the site, the expected visual impact will be of MEDIUM impact before mitigation and LOW significance after mitigation, as indicated in the table below. Although the Mine Activities will be highly visible from the road, the time of exposure is minimal and thus the impact on the users will be LOW.

Table 10: Impact table summarising the significance of visual impacts on users of public road (N2)

Nature of impact: Potential visual impact on users of public road (N2) in close proximity to the proposed mine activities.		
	No Mitigation	With Mitigation
	Proposed	Proposed
Extent	Regional (3)	Regional (3)
Duration	Short term (2)	Short term (2)
Magnitude	Moderate (6)	Low (4)
Probability	Likely (3)	Likely (3)
Significance Rating (SR)	Medium (33)	Low (27)
Status (positive, neutral or negative)	Negative	
Reversibility	Yes	
Irreplaceable loss of resources	Yes	
Can impact be mitigated	Yes	
Mitigation:	The visual impact can be minimized by the creation of a visual barrier. The area will be rehabilitated after mining is concluded and thus the visual impact will be removed and the area will be restored.	

Potential visual impact on the town located next to the Camden Power station and its inhabitants. The visual impact on the inhabitants will be of MEDIUM significance before mitigation and LOW after mitigation, as indicated in the table below. Although the mine activities will be highly visible from the town, the time of exposure is minimal and thus the impact on the users will be low after mitigation.

Table 11: Impact table summarising the significance of visual impacts on the Town and inhabitants

Nature of impact: Potential visual impact on the land users and town inhabitants located in and around the Camden town.		
	No Mitigation	With Mitigation
	Proposed	Proposed
Extent	Regional (3)	Regional (3)
Duration	Short term (2)	Short term (2)
Magnitude	Moderate (6)	Low (4)
Probability	Likely (3)	Likely (3)
Significance Rating (SR)	Medium (33)	Low (27)
Status (positive, neutral or negative)	Negative	
Reversibility	Yes	
Irreplaceable loss of resources	Yes	
Can impact be mitigated	Yes	
Mitigation:	The visual impact can be minimized by the creation of a visual barrier. The area will be rehabilitated after mining is concluded and thus the visual impact will be removed and the area will be restored.	

Potential visual impact on the residents of the Game lodge and settlements in close proximity to the mine activities. The visual impact on the Game lodge and settlements is expected to be of MEDIUM significance before mitigation and LOW after mitigation, as illustrated in table below.

Table 10: Impact table summarising the significance of visual impacts on residents of the settlements Game lodge in close proximity of the mine activities

Nature of impact: Potential visual impact on the land users and town inhabitants located in and around the Camden town.		
	No Mitigation	With Mitigation
	Proposed	Proposed
Extent	Regional (3)	Regional (3)
Duration	Short term (2)	Short term (2)
Magnitude	Moderate (6)	Low (4)
Probability	Likely (3)	Likely (3)
Significance Rating (SR)	Medium (33)	Low (27)
Status (positive, neutral or negative)	Negative	
Reversibility	Yes	
Irreplaceable loss of resources	Yes	
Can impact be mitigated	Yes	
Mitigation:	The visual impact can be minimized by the creation of a visual	

	barrier. The raea will be rehabilitated after mining is concluded and thus the visual impact will be removed and the area will be restored.

6.2 MITIGATION MEASURES

Mitigation measures may be considered in two categories:

Primary measures that intrinsically comprise part of the development design through an iterative process. Mitigation measures are more effective if they are implemented from project inception when alternatives are being considered. Mining or closure is one of the concepts that are used. The mine closure and rehabilitation, final landform and land-use must be planned before the opencast mining is initiated.

Secondary measures designed to specifically address the remaining negative effects of the final development proposals.

Primary measures that will be implemented will mainly be measures that will minimise the visual impact by softening the visibility of the mining activities by “blending” with the surrounding areas. Such measures will include rehabilitation of the mining area by re-vegetation of the mining site and surrounding area.

Secondary measures will include final rehabilitation, after care and maintenance of the vegetation and to ensure that the final landform is maintained.

In addition the following measures are recommended:

- Dust from Stockpile areas, roads and other activities must be managed by means of dust suppression to prevent excessive dust.
- Blasting must be done under controlled conditions (i.e. Windy days must be avoided) and must be done in such a way that dust is minimised.
- Blasting should not take place before 08:00 and after 16:00.
- Stockpiles should not exceed 20m in height.
- Rehabilitation of the area must be done as the mining is completed.

6.3 CONCLUSION

The construction and operation of the Usutu mine related activities and its associated infrastructure will have a visual impact on the natural scenic resources and the topography. However, with the correct mitigation measures the impact can be decreased to a point where the visual impact can be seen as insignificant.

The moderating factors of the visual impact of the facility in the close range are the following:

- Short exposure time of road users
- The time the structure will be visual due to roll-over mining
- Number of human inhabitants located in the area
- Natural topography and vegetation
- Mitigation measures that will be implemented
- Medium to high absorption capacity of the landscape

In light of the above mentioned factors that reduce the impact of the facility, the visual impact is assessed as LOW VISUAL IMPACT after mitigation measures have been implemented.

Figure 14: The overall Assessment of the Visual Impact

Nature of impact: The overall Assessment of the Visual Impact of the area.		
	No Mitigation	With Mitigation
	Proposed	Proposed
Extent	Regional (3)	Regional (3)
Duration	Short term (2)	Short term (2)
Magnitude	Moderate (6)	Low (4)
Probability	Likely (3)	Likely (3)
Significance Rating (SR)	Medium (33)	Low (27)

Status (positive, neutral or negative)	Negative
Reversibility	Yes
Irreplaceable loss of resources	Yes
Can impact be mitigated	Yes
Mitigation:	The visual impact can be minimized by the creation of a visual barrier. The area will be rehabilitated after mining is concluded and thus the visual impact will be removed and the area will be restored.

The Visual Impact that will occur due to the Mining activities and associated infrastructure can be seen as having Medium impact on the surrounding environment and inhabitants before mitigation measures are implemented. After mitigation has taken place, the visual impact can be seen as Low.

The visual impact that will occur from the mining activities can be sufficiently mitigated to a point where it can be seen as insignificant. Thus, mitigation measures are very important and one of the most significant mitigation measures are the rehabilitation of the area after mining has been concluded. If the rehabilitation of the impact is not done correctly and the final landform do not fit into the surrounding area then the visual impact will remain high and thus become of concern. However, with correct rehabilitation, the impact will be minimal and there should be no visual impact after the landform has been restored.