VANRHYNSDORP, PORTION OF FARM 258: SOLAR AND HYDROGEN ENERGY FACILITY

VISUAL ASSESSMENT

For consideration in the Basic Assessment and
Heritage Impact Assessment (conducted under Section 38 (3) of the National Heritage Resource Act (No. 25 of 1999)

For
EnviroAfrica
PO Box 5367
Helderberg
7135
info@enviroafrica.co.za

Final Report
January 2023

Compiled by:
S.C. Lategan

PO Box 1082
Strand
7139

Report history:

Version	Date	Amendments
Final Ref VIA-258.01	13 January 2023	

Report to be cited: Visual Impact Assessment for Solar and Hydrogen facility on portion farm 258, Vanrhynsdorp , January 2023.

CONTENT

Tables:

Photos

Figures:

Relevant Qualifications & Experience of the Author

Ms Sarien Lategan holds an Honours Degree in Geography as well as a Masters Degree in Town and Regional Planning from the University of Stellenbosch. She has 7 years experience as Town Planner at a local government, 3 years with South African National Parks as planner and project manager of various GEF and World Bank managed, tourist facilities in the Table Mountain National Park and since 2004 as private practitioner involved in inter alia Site Analysis and Visual Impact Assessments for various types of developments ranging from housing, tourism to infrastructure developments.

Declaration of Independence

I, Sarah C. Lategan, declare that I am an independent consultant to EnviroAfrica and, has no business, financial, personal, or other interest in the proposed project or application in respect of which I was appointed, other than fair remuneration for work performed in connection with the application. There are furthermore no circumstances which compromise my objectivity in executing the task appointed for.

SC Lategan
13 January 2023

EXECUTIVE SUMMARY

The project is proposed on a site for which a solar development was previously approved. The original site approved for a solar development comprised about 20ha solely for a Solar PV installation. The amended proposal includes a 10MW Hydrogen plant and a 10MW Module array PV installation. The total area including support infrastructure comprise approximately 40ha.

The infrastructure associated with the Hydrogen plant can be compared to normal industrial installations of limited extend and height. The solar arrays are also of limited height of approximately 2m. All buildings are less than normal double storey in extent.

The assessment established that the receiving environment comprises a production landscape i.e. a landscape used for various types and intensity of agricultural use. It abuts an area of natural vegetation. The site slope northward towards the river. The valley has a very gentle slope but the variation in topography is sufficient to absorb facilities of low vertical extent such as proposed.

The development of the facility will change the character of the area, but the small size of the development reduces the significance. Due to the distance from town, the impact is not significant. The area does not hold very unique or specific visual quality of high significance.

The modelled viewshed is small and restricted due to the topographic character of the landscape. Due to dry conditions and the cold Atlantic air moving over the dry hot landscape, the air has a hazy quality which makes the distinction of element in the distance difficult. This adds to the absorption capacity of the area.

The identified receptors were analyzed and the finding was that none display a high visual significance and therefore the overall visual impact of the proposed project is low. Due to the low impact, no mitigation measures are required.

The cumulative impact of the project is low as only one other project of a similar extent, has been approved in the area and due to the vastness of the landscape, the cumulative impact is rated as low.

1 BACKGROUND

Sarien Lategan of Geostratics was appointed to undertake the visual impact assessment of a 10Megawatt solar facility and Hydrogen Plant, as input to the Environmental process in terms of the National Environmental management Act, 1998 (Act no. 107 of 1998), as amended and the Environmental Impact Assessment Regulations, as amended, undertaken by EnviroAfrica. The site on which the facility is planned comprises a portion of Farm 258, Vanrhynsdorp.

The site is located to the north of the town of Vanrhynsdorp, south of the Droë river in the rural hinterland of the town.

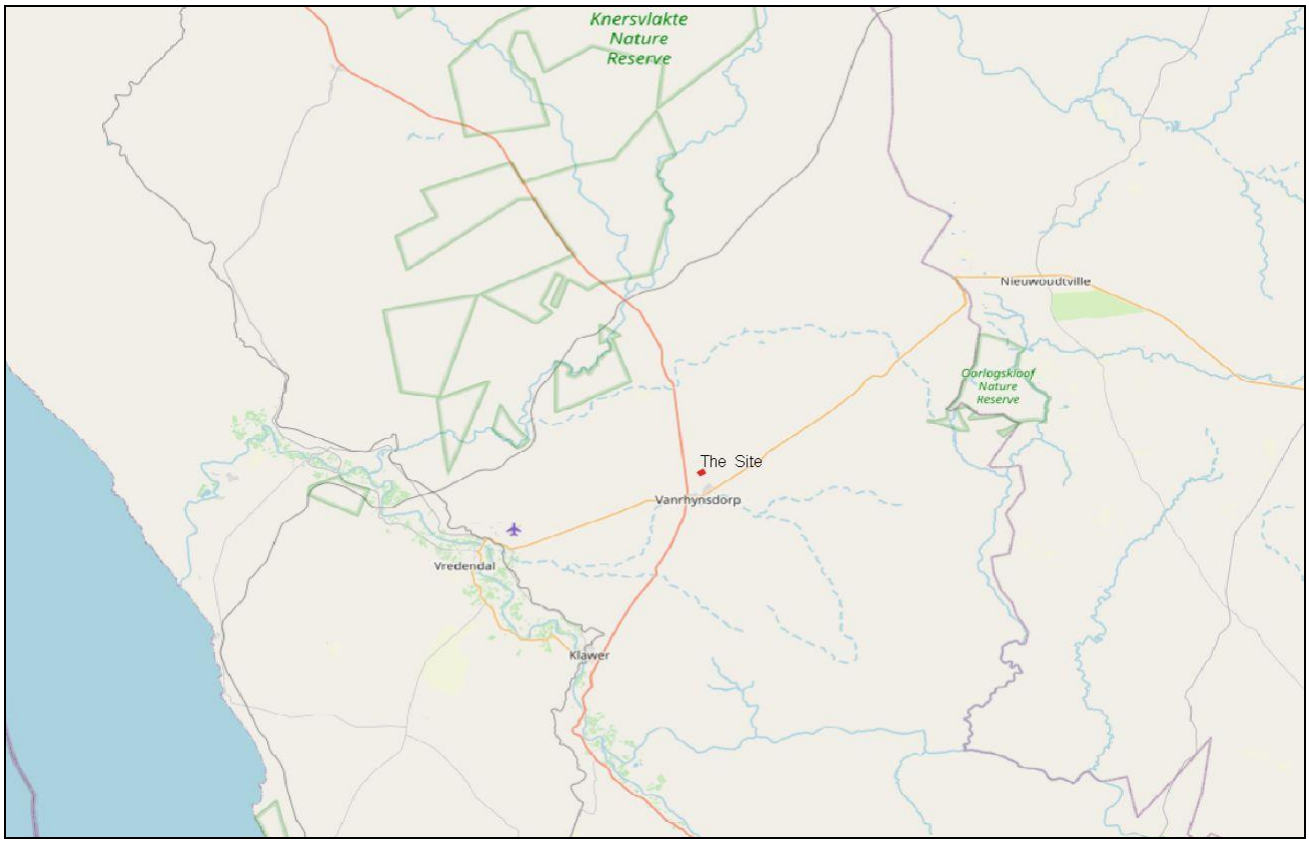


Figure 1 The site in a regional context

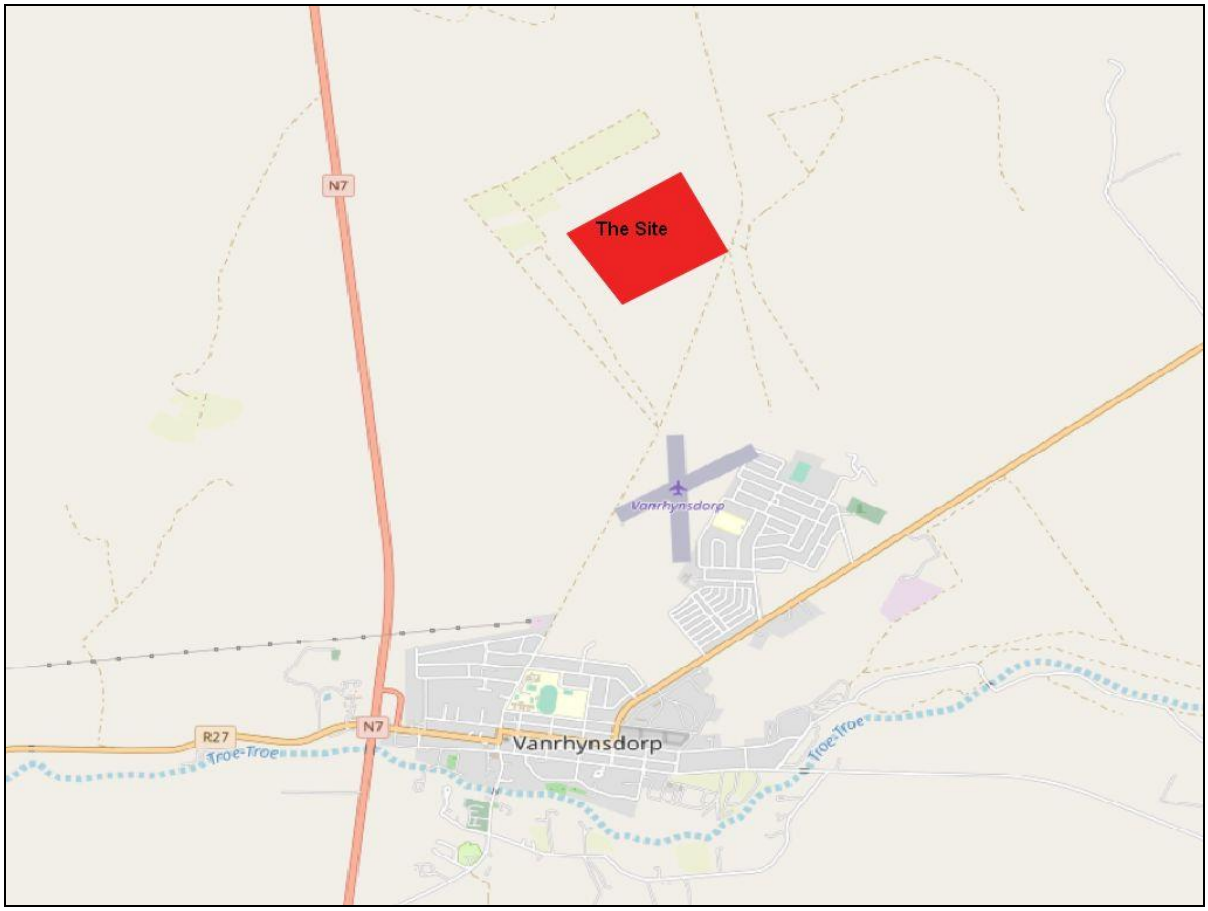


Figure 2 Locality

2 TERMS OF REFERENCE

The applicant intends the development of a solar farm and Hydrogen plant on a portion of Remainder Farm 258, Vanrhynsdorp in the northern edge of the town.

The objective of the Visual Impact assessment is to determine the significance of any visual impact. This assessment will indicate whether from a visual perspective the development constitutes an acceptable level of change and if so what potential mitigation measures can reduce any visual impact as to limit

To determine the potential extent of the VIA required the following broad criteria are considered.

Criteria	Comment
Areas with protection status, e.g. nature reserves	None. Closest is the *Knersvlakte Nature reserve* approx. 13km to the north and the *Op de Berg Private Nature Reserve* 13km to the south
Areas with proclaimed heritage sites or scenic routes	None.
Areas with intact wilderness qualities, or pristine ecosystems	Natural areas, low intensity agriculture and production landscape.

Areas with intact or outstanding rural or townscape qualities	None	
Areas with a recognized special character or sense of place	Distance from residential area into a production landscape	
Areas with sites of cultural or religious significance	None	
Areas of important tourism or recreation value	None	
Areas with important vistas or scenic corridors	Potentially.	
Areas with visually prominent ridgelines or skylines.	Mountain range approximately 20km to the east and the Maskam ridge approx. 13km to the south	

Table 1: Requirements for visual assessment

High intensity type projects including large-scale infrastructure	yes
A change in land use from the prevailing use	Yes
A use that is in conflict with an adopted plan or vision for the area	The site is located in an identified power corridor
A significant change to the fabric and character of the area	Potentially
A significant change to the townscape or streetscape	Potentially
Possible visual intrusion in the landscape	Potentially
Obstruction of views of others in the area	Potentially

Table 2: Nature of intended development

From the above it is clear that the receiving environment holds certain visual elements which may be impacted upon by development of the site.

The potential thus exist that the development of the site may have a significant visual impact. In order to assist authorities to make an informed decision, the input of a specialist is required to assess such potential visual impact.

The term visual and aesthetic is defined to cover the broad range of visual, scenic, cultural, and spiritual aspects of the landscape. The terms of reference for the specialist is to:

- Provide the visual context of the site with regard to the broader landscape context and site specific characteristics.
- Provide input in compiling layout alternatives.
- To describe the affected environment and set the visual baseline for assessment
- Identify the legal, policy and planning context
- Identifying visual receptors
- Predicting and assessing impacts
- Recommending management and monitoring actions

3 Methodology and principles

3.1 Methodology

Table 4: Summary of methodology

Task undertaken	Purpose	Resources used
A screening of the site and environment	To obtain an understanding of the site and area characteristics and potential visual elements	Photographs Site visits
Identify visual receptors	To assess visual impact from specific view points within the viewshed.	Photographs, profiles
Contextualize the site within the visual resources	To present an easy to understand context of the site within the visual resource baseline	Specialist: S Lategan Graphic presentation Superimposed photo's Model in case of high significance
Propose possible mitigation measures	To present practical guidelines to reduce any potential negative impacts.	Specialist: S. Lategan

Throughout the evaluation the following fundamental criteria applied:

- Awareness that "visual' implies the full range of visual, aesthetic, cultural and spiritual aspects of the environment that contribute to the area's sense of place.
- Consideration of both the natural and cultural (urban) landscape, and their inter-connectivity.
- The identification of all scenic resources, protected areas and sites of special interest, as well as their relative importance in the region.
- Understanding of the landscape processes, including geological, vegetation and settlements patterns which give the landscape its particular character or scenic attributes.
- The inclusion of both quantitative criteria, such as visibility and qualitative criteria, such as aesthetic value or sense of place.
- The incorporation of visual input as an integral part of the project planning and design process, so that the findings and recommended mitigation measures can inform the final design and quality of the project.
- To test the value of visual/aesthetic resources through public involvement.

3.1.1 Principles

The following principles to apply throughout the project:

- The need to maintain the integrity of the landscape within a changing land use process
- To preserve the special character or 'sense of place' of the area
- To minimize visual intrusion or obstruction of views
- To recognize the regional or local idiom of the landscape.

3.1.2 Fatal flaw statement

A potential fatal flaw is defined as an impact that could have a "no-go" implication for the project. A "no-go" situation could arise if the proposed project were to lead to (Oberholzer, 2005):

1. Non-compliance with Acts, Ordinance, By-laws and adopted policies relating to visual pollution, scenic routes, special areas or proclaimed heritage sites.
2. Non-compliance with conditions of existing Records of Decision.
3. Impacts that may be evaluated to be of high significance and that are considered by the majority of stakeholders and decision-makers to be unacceptable.

The screening of the site and initial project intentions did not reveal any of the above issues which may result in a fatal flaw.

3.1.3 Assessment explained

The assessment of visual impact is done on two levels namely the absorption rate of the receiving environment and the individual view receptors. The absorption rate of the receiving environment is determined by various elements e.g. topography, land use etc and the assessment will focus on the acceptable level of change of the area.
Visual receptors are assessed individually based on the sensitivity of the receptor, exposure to the development and intrusion rate.
The following framework is used in order to assess view receptors:

Criteria	High	Moderate	Low
Exposure	Dominant, clearly visible	Recognizable to the viewer	Not particularly noticeable to the viewer
Sensitivity	Residential, nature reserves, scenic routes	Sporting, recreational, places of work	Industrial, mining, degraded areas
Intrusion/Obstructive	Noticeable change, discordant with surroundings	Partially fits but clearly visible	Minimal change or blends with surroundings

3.1.4 Gaps and assumptions

1. The assessment is made on a broad development and technology concepts as per the Engineering Report dated January 2020 and site layout proposals dated 28 September 2022.

2. Transmission lines will connect to the ESKOM substation to the west. No detail alignment of this line is currently available and therefore the impact cannot be assessed in detail.

3. It is not known whether any new access roads will be constructed and therefore such infrastructure has not been assessed.

4. Safety issues and approach lines for aircraft using the landing strip abutting the site is regarded outside the scope and terms of reference of this visual assessment.

3.2 Legal Framework, Guidelines and policies

3.2.1 National Environmental Management Act, 107, 1998 and relevant Guidelines:

An assessment in terms of any activity that required an EIA or Basic Assessment may be subjected to a specialist visual assessment in order to determine the significance of the potential impacts to result from a proposed activity.

3.2.2 Western Cape PSDF

No specific relevant references to visual impacts.

3.2.3 Vanrhynsdorp SDF

The site is outside the urban area identified in the SDF.

4 DEVELOPMENT PROPOSAL ALTERNATIVES

4.1 General Description PV units

Construction of Solar energy production facility ("Solar Farm") Consisting of Solar Arrays and a Hydrogen plant. The site will accommodate support infrastructure such as a site office, switching gear and internal roads. The site will be secured with a fence and the facility will be connected to the nations grid with a grid connection line.

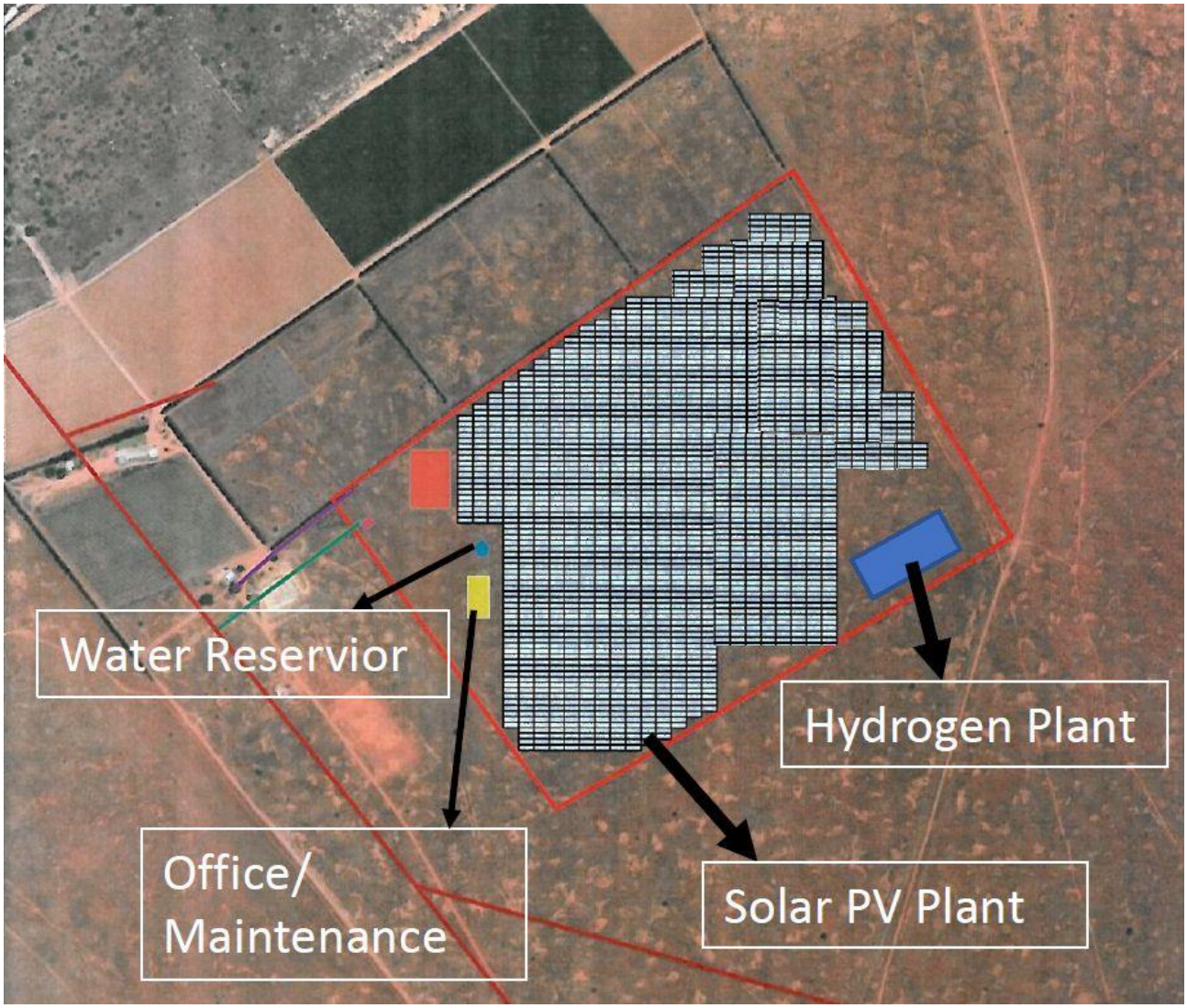


Figure 3: Proposed Layout

4.2 Project Elements CPV units

4.2.1 Extent and layout

The Solar farm will occupy approximately 20ha. The nature of the tracking CPV units are such that the property has to be leveled to less than 1:5 gradient in order to prevent the units to touch the ground when turning on the pedestal. CPV units are positioned in a grid with the active panel side facing north. The units will rotate from east (morning) to west (afternoon). Back of units facing south. Units are position in rows of two with an access roads in between.

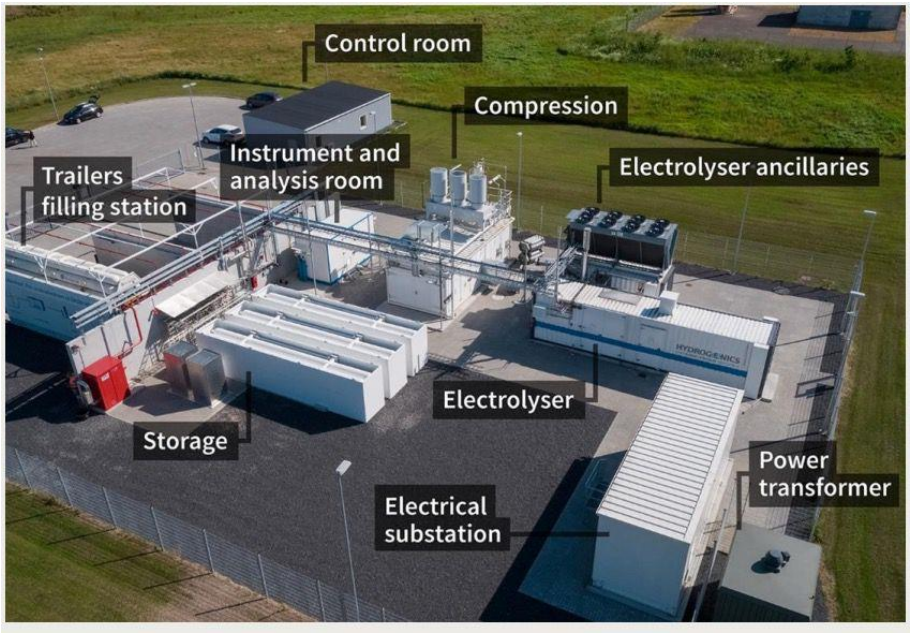


Figure 4 ; Typical Hydrogen Plant

4.2.2 Project perimeter

Double fencing with inner fence consisting of galvanized palisade fence and outer an electrified fence of 2,4m in height.

Figure 5: Typical electrical fence

Figure 6: Typical galvanized palisade fence

4.2.3 Supportive Infrastructure

Typically 20 x 15m respectively.
Black top surface

Figure 8: Transformer Pads and typical transformer

Single 22KV Power lines will feed from the transformers to the ESKOM substation

Figure 7: Typical 22KV single Powerline

4.3 General Description PV units

The development will consists of solar panels mounted on steel supporting array structures and are configured into 33 sub array systems. The development consists of the following elements
1) Solar Array and infrastructure
2) DC to AC Inverter stations (12 units required)
3) LV to MV transformer stations (6 units required)
4) MV to HV transformer stations and feed to Sub Station
Site needs some leveling. Expected height 2,4m but maximum height for any structures assumed at 3m above ground. Arrays orientated north.

Figure 9: Example of PV arrays

4.4 Project Elements PV units

Figure 10: DC to AC inverter Interface

Figure 12: LV to MV Transformer station

Figure 11: MV to HV Transformer

4.4.1 Operational elements

Depending on the exact technology the operational activities can vary. For the typical units described above, teams will access the site and physically clean panels. This is done either by rope access or the use of "cherry pickers". In areas of high dust conditions, cleaning can be more regular.

4.5 Construction elements

For the construction of the typical units describe above, large earth moving equipment will be used as well as high lift equipment and cranes. Large transport trucks for delivery will enter the site during construction. For technology that uses smaller units or static units the scale of equipment required for construction will be less.
Construction process entails:

- clearing and leveling of the site,
- construction of pedestals which involve concrete bases and
- fitting of panels
- construction of internal and access roads
- Fencing and security infrastructure
- Construction of support facilities such as maintenance sheds, etc
- Construction of transmission lines

5 RECEIVING VISUAL ENVIRONMENT

5.1 Description

Understanding the potential impact of a proposed development, an understanding of the receiving environment is important. In this regard the main elements of the receiving environment relates to the character of the current surrounding land use and the absorption capacity of the area. The character of the area entails the sense of place created by the current land use and the scale and type of infrastructure or physical elements within the immediate area. The absorption capacity relates to the density of physical elements and topographical variations of the landscape, and the resulting ability of the landscape to absorb elements in the landscape and effectively reduce the visibility of such elements. The human eye will observe the horizon on a perfectly flat surface at a distance of 30km. This is however significantly reduced by landscape elements which obstruct the view. With a focal length of less than 50mm, elements at such distances are also difficult for the human eye to identify unless the object is of great extent.

5.1.1 Viewshed

A digital elevation model computed on 5m contour intervals were used with a view height above ground level of 3m, as the baseline to create the viewshed (Figure 13). Figure 14 illustrates the viewshed and the major landscape elements provides an explanation for the extent of the viewshed.

Towards the town i.e. southern direction the landscape slope upwards. The northern extensions of the town is located on this high ground. From there the land slopes down southward toward the Troe-Troe valley where the main town is located. . The site falls outside the view from the main town. The site is approximately 1,5km from town, but behind the rise in the land.

To the north and north-east the view catchment is restricted to approximately 10km due to the low hills which rise to approximately 200m and then slope down eastwards which obstruct the view. The Vanrhyneveld pass is 30km to the east and the traveler has a view from the pass across the plains. Due to the distance however the town of Vanrhynsdorp is barely visible on a clear day.

The Western Cape Biodiversity Framework included an initial viewshed analysis based on the Knersvlakte core conservation area. This viewshed indicated that the site falls within the view catchment of the Knersvlakte core conservation area. It should be noted that parameters for this viewshed analysis is not provided in the WCBF and simply serve as a note to consider visual impacts due to the low elevation variation of the region and the importance of tourism to the Knersvlakte.

The viewshed modelled in this report however demonstrates that the Knersvlakte Nature Reserve is not within the viewshed of the site. Figure 13 confirms the result of the viewshed.

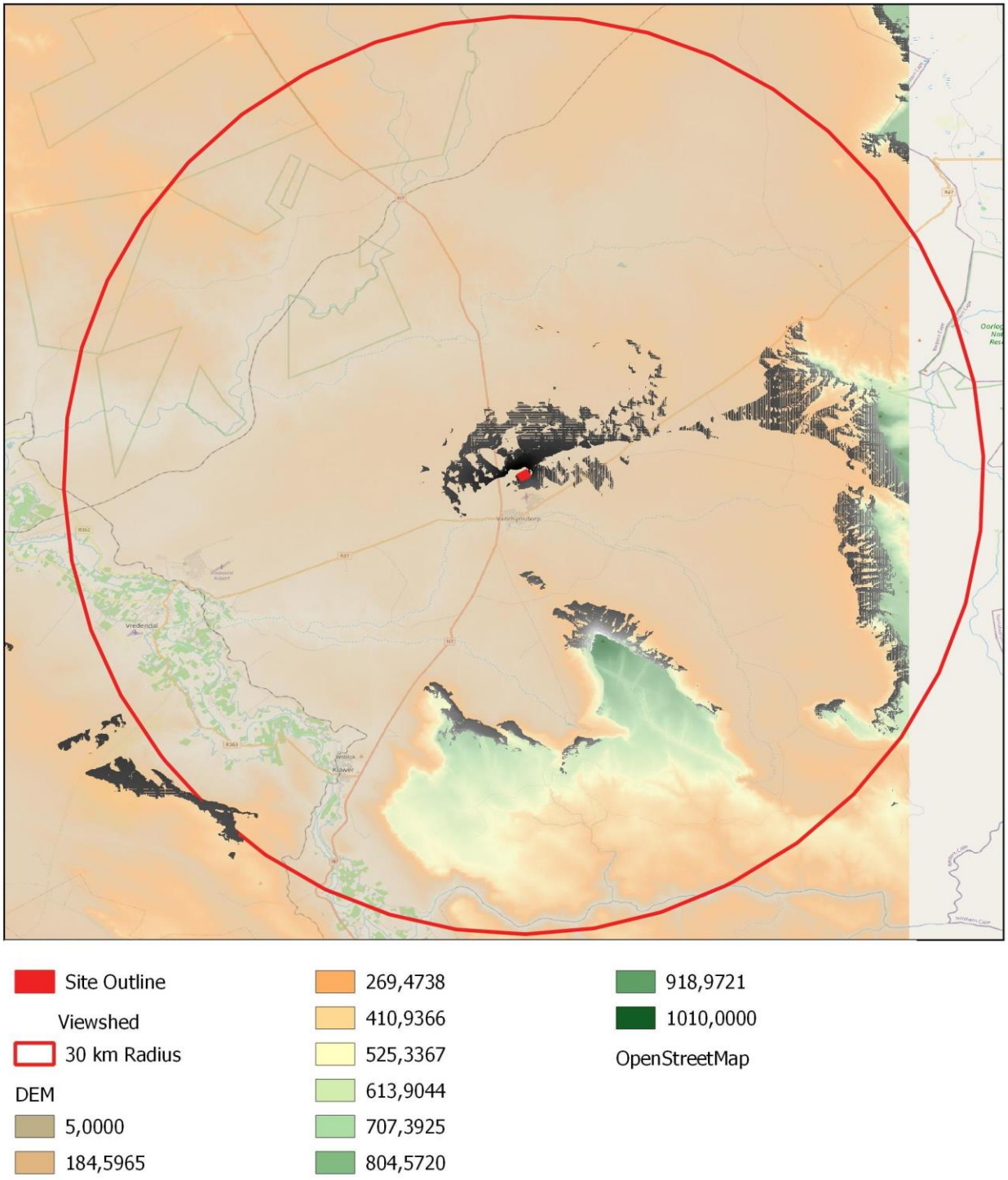


Figure 13 Viewshed

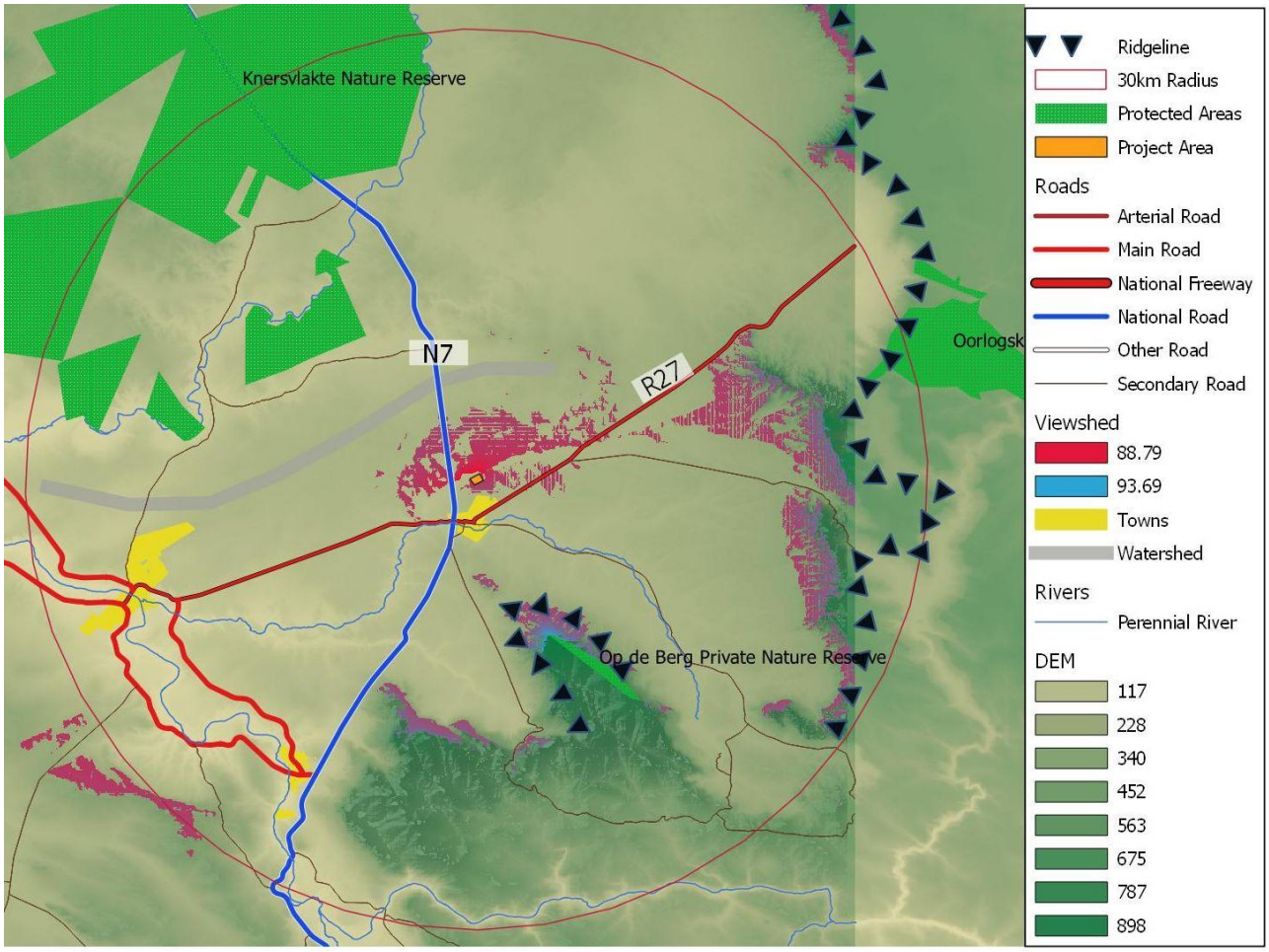


Figure 14 Viewshed and landscape elements

5.1.2 Sense of Place

Although the site is situated away from town it is still within the experiential boundaries of the town. Infrastructure this close to town is thus not totally foreign. A short distance to the north is mining activities.
The area thus lacks a defined character. The urban area approximately 1,5km to thee south, included a low cost residential area, sports grounds and sewage works. It is assumed that the use frequency of the airstrip to the south, is low and the occasional disturbance by small aircraft should not have a significant impact on the quality of life. Most of the time this area which resembles a large vacant area, simply contribute to a feeling of openness. Beyond the borders of the town the area is used for low intensity agriculture.
The site abuts an intensive agricultural area to the north. Toward the north in the distance, some mining activity occurs, but it has no direct physical or visual link to the town.

Although the development will change the character of the area it should be within acceptable levels of change as it is abutting irrigation land which represents more of a production landscape than a natural landscape

Photo 1: Residential area to the south

Photo 2 Character of the area

5.2 Findings

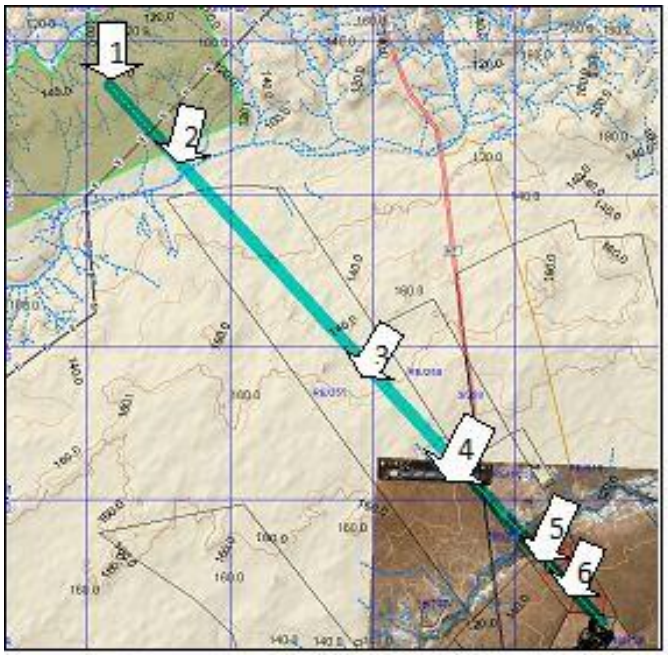
The town of Vanrhynsdorp is situated on a low lying area adjacent the Troe-troe river. Travelling towards the town on any of the main routes namely N7 highway or local R27, one only becomes aware of the town when almost in the town. Only approaching from the east on the R27 is the town visible from about 5km. From any other approach, the town catchment is less than 2km.
To the north of the town the landscape rises about 20m to form a higher plain. The town has extended onto the plain and the site is located on this plain. Due to this topographical character, the northern section of the town is out of view from the main town.

The site is located on the urban edge and characterized by utility type of uses often found on the edge of towns. It is assumed that the residential area has expanded into these non-residential use area.

In conclusion it can be accepted that the site is situated in a transitional area from urban to natural with a range of activities and land uses in the immediate surrounds. The area does not have a

strong sense of place and adaptation to new land uses would be accepted with little if any opposition.

Statement 1: The property is situated in the transitional area from urban to natural, where a mix of land uses are typically found. The area does not have a strong sense of place and any change in land uses within this context, would potentially accepted. The viewshed is limited due to the topography of the landscape and the absorption rate of the landscape is fairly high.



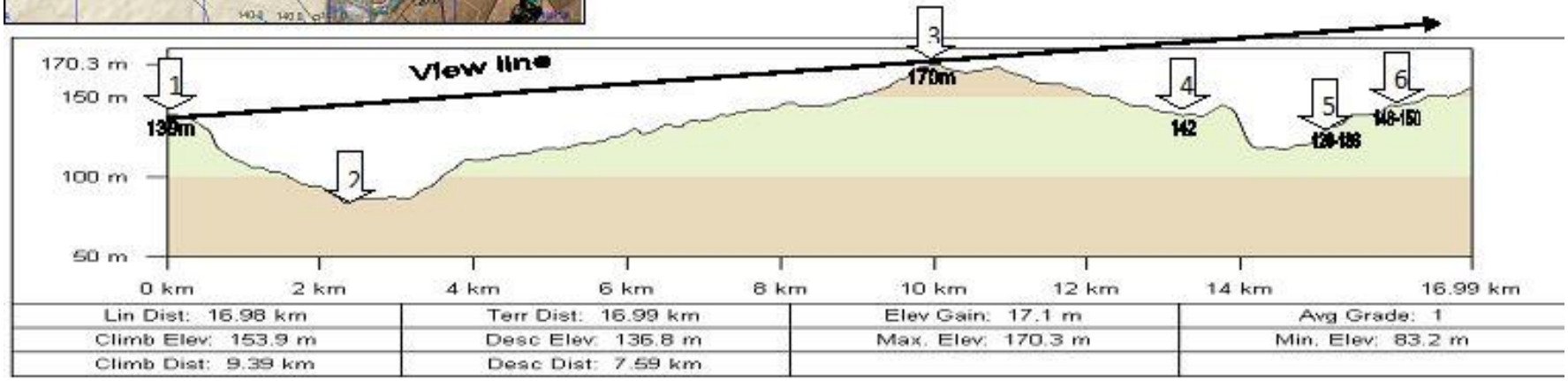
1 = highest point in Moedverloor Knersvlakte Reserve (139m)

2 = Valley

3 = High ground

4 = N7 highway (142m)

The height on the watershed, which represents the highest area of the Moedverloor Knersvlakte Reserve is at 139m ASL. The site are between 126m and 136m at a distance of approximately 15km. The site is thus slightly higher than the reserve and should there be no obstructions in between, a viewer at the reserve would look down onto the site. However, a higher lying area which rise to 170m and in some places 180m is between the reserve and the sites. This means the view from the reserve to the south east is obstructed by this high ground to such an extent that the sites are not visible from the reserve. The



Lin Dist: 16.98 km	Terr Dist: 16.99 km	Elev Gain: 17.1 m	Avg Grade: 1
Climb Elev: 153.9 m	Desc Elev: 136.8 m	Max. Elev: 170.3 m	Min. Elev: 83.2 m
Climb Dist: 9.39 km	Desc Dist: 7.59 km		

Figure 15 Profile confirming viewshed analysis

6 VISUAL RECEPTORS

Visual receptors are those positions from where the development site is potentially visible. Based on the character of the area and the specific land use of the viewpoint, the sensitivity of that viewpoint to visual change can be determined. Generally residential areas and tourism related destinations and routes are sensitive to visual intrusions as they relate to the well-being of residents and the tourism quality of the area.

Table 3 lists the potential receptors and based on the viewshed analysis the expected impact and aspects to be considered.

Table 3 Potential Receptors

Potential Receptor	Comment	Screening
N7	Partially screened by landscape. Only small section within viewshed	Assess profile. Low visibility expected
Town and Residential area to the south	Closest residential area approximately 1.5km from the site. Town outside viewshed.	Sensitive receptor.
R27 westbound	Partially screened by landscape. Small section close to town and Vanrhyns pass within viewshed	Assess profile. Low visibility expected due to distance land topographic screening
Nature Reserves	The Knersvlakte Reserve is outside the viewshed. Oorlogskloof Nature reserve is on the plateau. The town of Vanrhynsdorp is in the distance. Op die berg Reserve. The facility is on the northern slope and would hardly be visible from the reserve	3D modelling and profiles to assess views

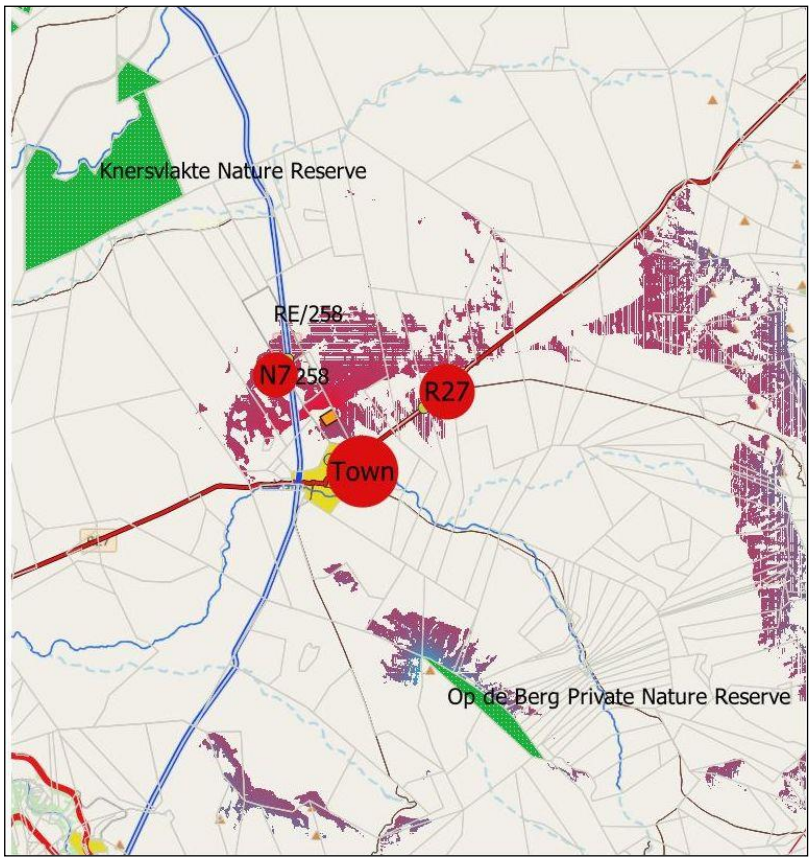


Figure 16 Receptors

6.1 N7 as receptor

Approaching from the north, site comes into view to the left. The solar arrays however front north which implicates that the observer has a sideview of the panels. The hydrogen plant will be behind the arrays and visible similar to fuel tanks. Photo 3 indicates the position of the site when approaching on the N7 from the north.
N7 has been identified as the Cape to Namibia tourist route and from this perspective any changes in the view corridor is important and need to be evaluated as to how it impact on tourism.

Photo 3 North approach on N7

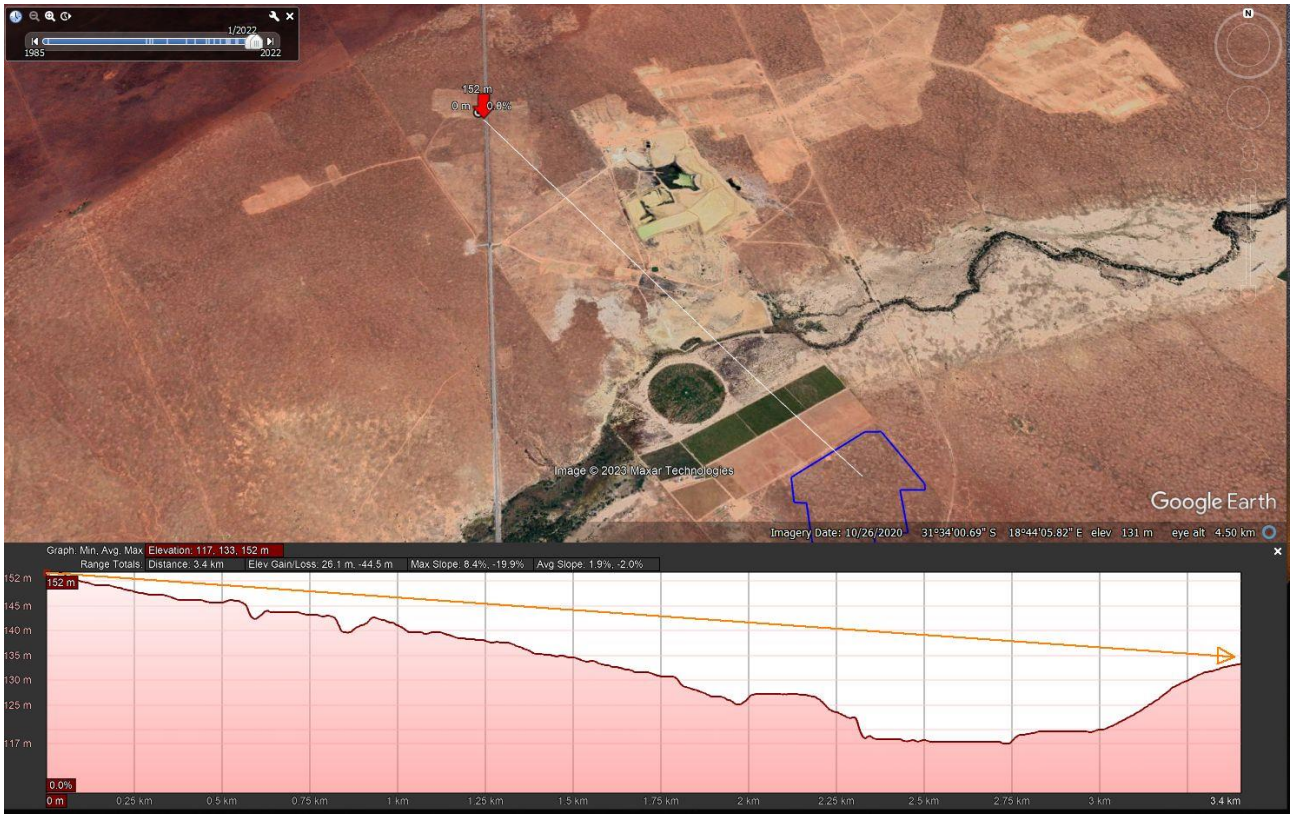


Figure 17 Profile of north approach within viewshed

The facility will stay in view for approximately 3km until the observer reach the bottom of the valley.

Approaching from the south the facility is on the north slope and thus screened from the observer as confirmed in the viewshed analysis.

Table 4 N7 assessment

Criteria	High	Moderate	Low
Exposure	dominant, clearly visible	recognizable to the viewer	not particularly noticeable to the viewer
Sensitivity	residential, nature reserves, scenic routes	sporting, recreational, places of work, Highway	industrial, mining, degraded areas
Intrusion/Obstructive	Noticeable change, discordant with surroundings	Partially fits but clearly visible	minimal change or blends with surroundings

6.2 R27 as Receptor

The site is barely visible from the R27 in a westerly approach. Photo X indicates the general view towards the site. The low rises screen the view and the hazy air makes view of distant objects difficult.

Descending the Vanrhynspass, the town of Vanrhynsdorp is not visible due to the distance and hazy air due to dust or fog which is a daily occurrence. Due to the low extent of the facility close to the town boundaries, should the town be visible on a clear day, it would hardly be distinguishable at this distance.

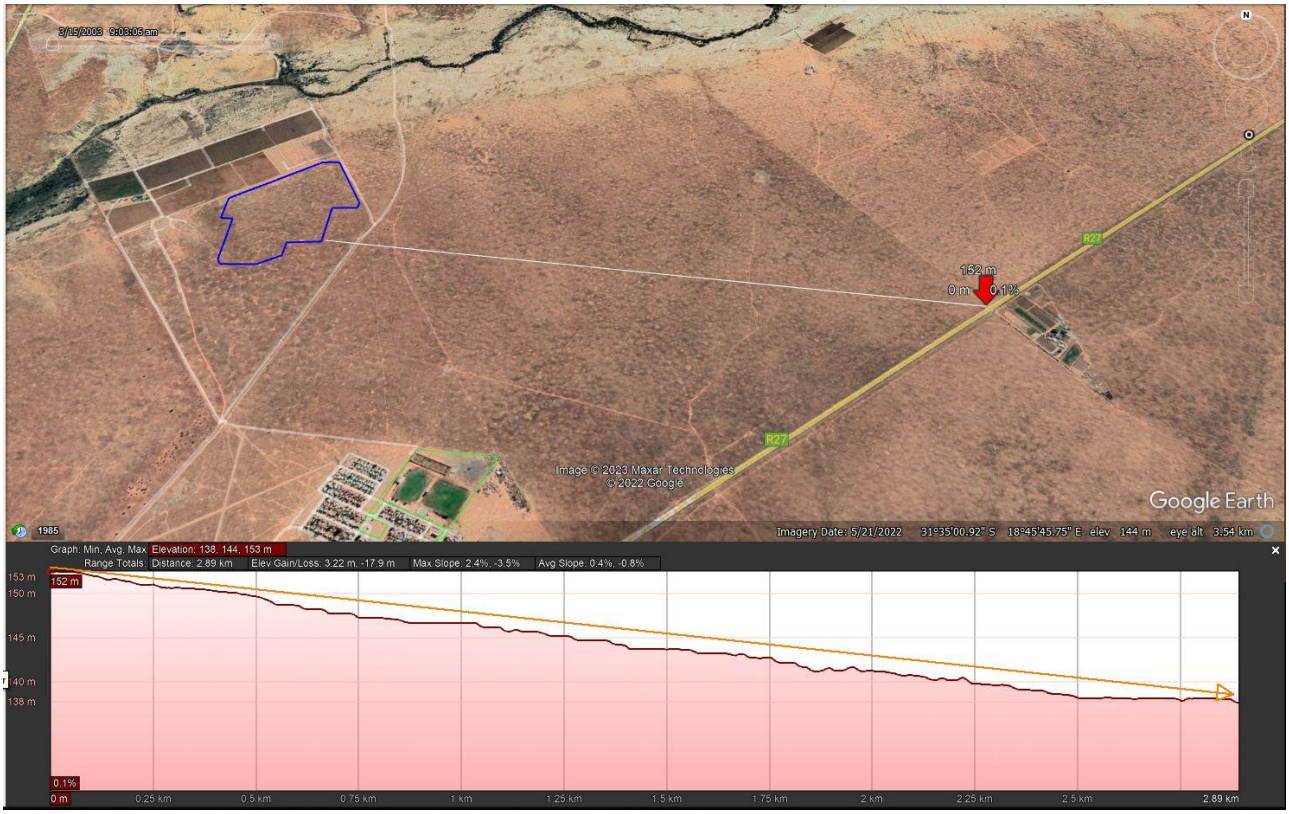


Figure 18 R27 view Profile

Photo 4 View from R27 towards the site 3km east of town

Photo 5 View from Vanrhynspass across the lowland

Table 5 R27 view assessed

Criteria	High	Moderate	Low
Exposure	dominant, clearly visible	recognizable to the viewer	not particularly noticeable to the viewer
Sensitivity	residential, nature reserves, scenic routes	sporting, recreational, places of work, Highway	industrial, mining, degraded areas
Intrusion/Obstructive	Noticeable change, discordant with surroundings	Partially fits but clearly visible	minimal change or blends with surroundings

6.3 Vanrhynsdorp town and residential areas as receptor

The town of Vanrhynsdorp is situated in the valley and is not within the viewshed. It is only the northern extensions that are situated on the rise to the north and approximately on the same level than the project. The project is however on the downward slope and thus the project would be below the horizon from the observers position. Structure of more than 3m in height may be visible. The intrusion level is very low.

Photo 6 Character of residential area on the northern side of town

Photo 7 View from residential area towards site

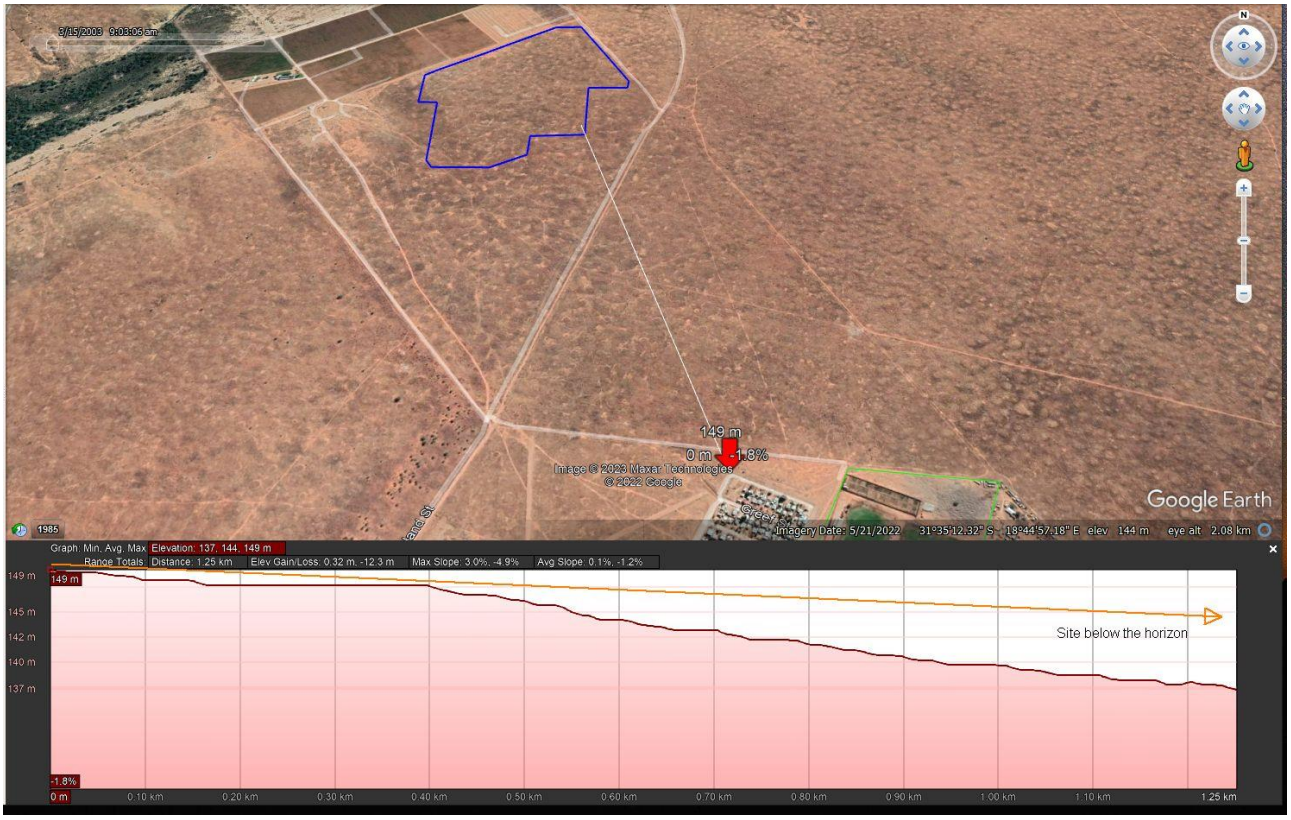


Figure 19 Viewline from residential area towards project

Table 6 Residential area view assessed

Criteria	High	Moderate	Low
Exposure	dominant, clearly visible	recognizable to the viewer	not particularly noticeable to the viewer
Sensitivity	residential, nature reserves, scenic routes	sporting, recreational, places of work, Highway	industrial, mining, degraded areas
Intrusion/Obstructive	Noticeable change, discordant with surroundings	Partially fits but clearly visible	minimal change or blends with surroundings

6.4 Protected areas in the region

The Knersvlakte Nature reserve is outside of the viewshed.

The Op die berg reserve face to the east, but hiking trails to extent to the northern edge of the Maskam mountain. The town is visible from the point. The facility may be visible but due to the orientation of solar arrays to the north, it will not create a glare towards this viewpoint.

The Oorlogskloof Nature reserve is on top of the mountain to the east and the views from the edge of the plateau will be similar to the Vanrhynspass assessed in section 6.2.

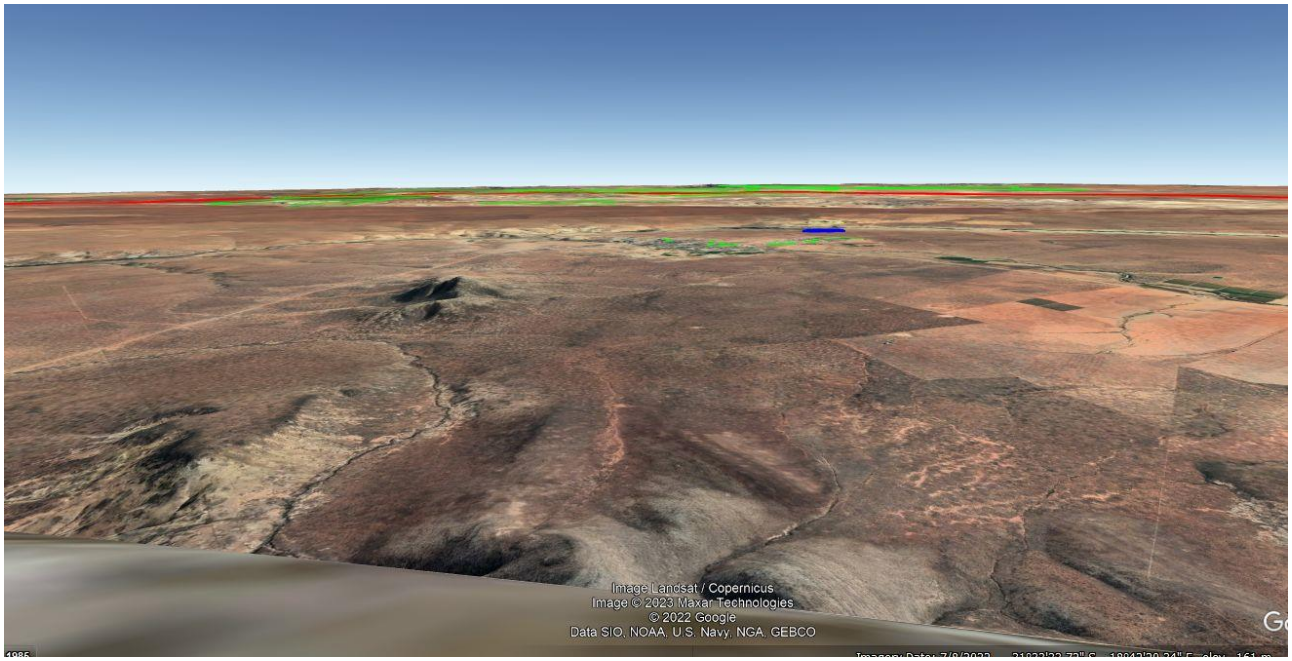


Photo 8 View from Maskam

6.5 Findings

Table 7 indicates that the overall visual impact of the proposed project is very low with regard to the identified view receptors.

Receptor	Comment	Exposure	Sensitivity	Intrusion	Finding
N7	Screened by landscape.	If visible it will be only briefly. The viewer also travel at 120km/h and observation level is low. Rating: Low	The N7 is a national highway, but also identified as the Cape-Namibia tourist connection. Rating: High to Moderate	The distance from the road reduces any possible intrusion and direction of panels will not impact on any reflection to the road. Potential brief awareness of facility Rating: Low	Low significance
Town	Town outside viewshed. Project below horizon from northern neighbourhood.	Low	Moderate	Low	Low
R27 westbound	Descending the mountain pass views are important as one of the few routes connecting the coast with the interior. Not officially identified as a scenic drive. Closer to town facilities may be visible	The development is not of great vertical or horizontal extent and due to distance barely distinguishable from the surrounding infrastructure Low	Moderate	Only in view line for short duration Rating: Low	Low significance.
Protected areas	Only edge of Oorlogskloof within viewshed. No impact on any other reserve	Due do distance very low	High as conservation areas and tourism destinations	Due to distance and air quality very low	Very low

Table 7: Summary of Visual Receptor assessment

7 CONSTRUCTION

During construction, various large earth moving equipment and equipment will be transported to the site and work on the site. This will impact on the general experience of viewers. This impact is however temporary and not uncommon during construction of infrastructure. Communities have fairly high tolerance levels for such activities if it contributes to the infrastructure of the area.
Rating: Low

8 CUMULATIVE IMPACTS

The Department of Environment and Tourism issued a guideline document in terms of which cumulative impacts should be assessed.[1] This guideline document identifies the types and characteristics of different cumulative effects as summarized in the table below.

Figure X indicates all approved Renewable projects within a 30km radius. Note that the area to the north of the current application was added by default in the database since Rem Farm 258 consists of two portions. Only the southern section was approved and the northern section was not part of the original application approved. The current application is an amendment of the approved application for the southern section of Rem Farm 258.

Table 8: Types and characteristics of cumulative effects

TYPE	CHARACTERISTIC	IDENTIFY POTENTIAL IMPACT
Time Crowding	Frequent and repetitive effects.	Activity remains at the same pace, frequency and intensity over time. No time crowding impacts.
Time Lags	Delayed effects.	No time lag impacts.
Space Crowding	High spatial density of effects.	The project is fairly small and the adjacent approved project also only comprise a 10MW facility. The two projects combined would not create a large scale development footprint and the space crowing is low.
Cross-boundary	Effects occur away from the source.	No impact
Fragmentation	Change in landscape pattern.	Impact on landscape pattern low
Compounding Effects	Effects arising from multiple sources or pathways.	No compounding impacts.
Indirect Effects	Secondary effects.	Minor impacts regarding access to the site
Triggers and Thresholds	Fundamental changes in system functioning and structure.	No fundamental changes to urban or ecological systems or structures

[1] DEAT (2004) Cumulative Effects Assessment, Integrated Environmental Management, Information Series 7, Department of Environmental Affairs and Tourism (DEAT), Pretoria

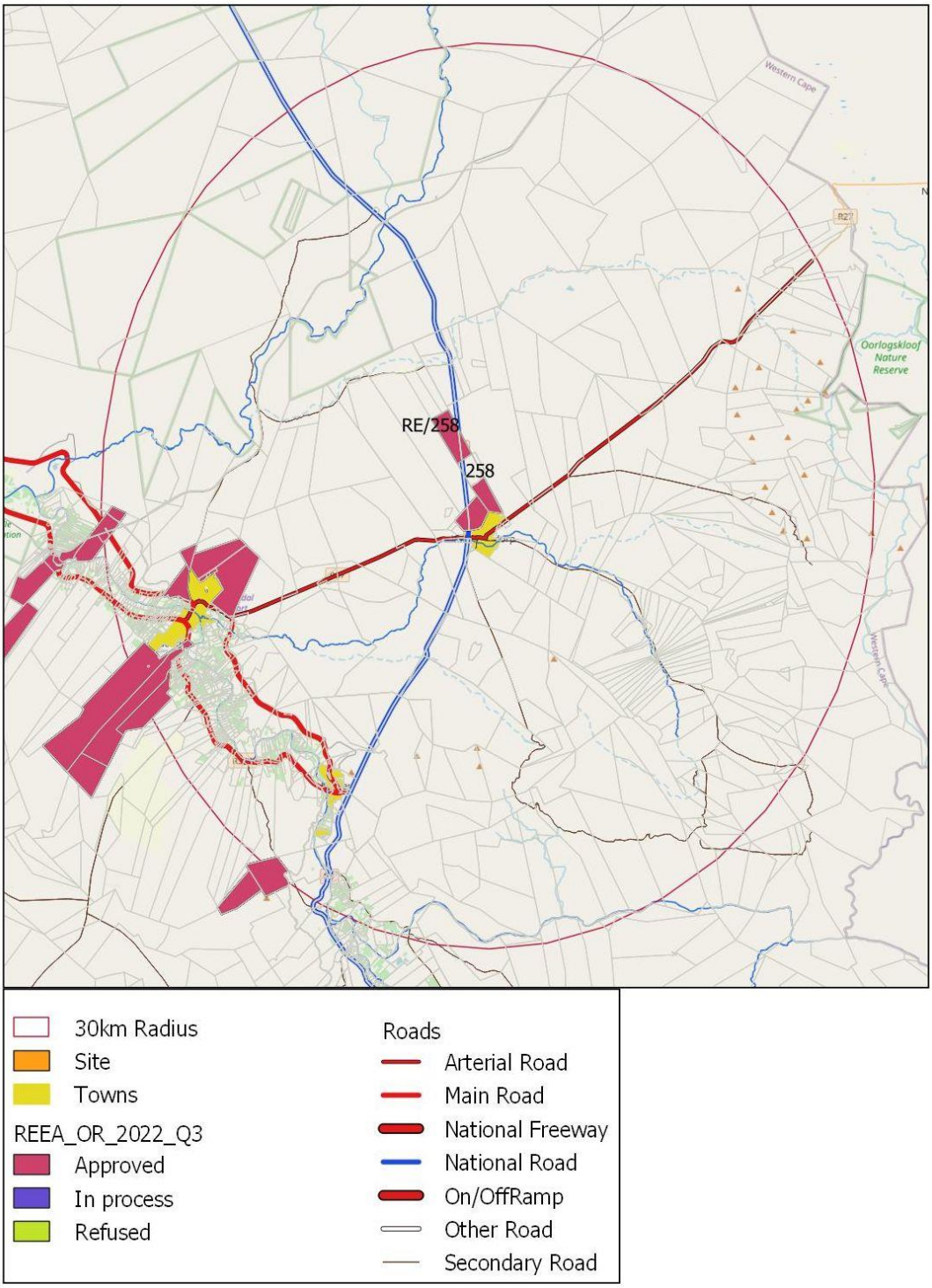


Figure 20 Status of existing renewable energy projects

Statement 3: The cumulative impact of is low due to the small footprint as well as similar small footprint of adjacent approved project.

9 FINDINGS

The undulating landscape has a surprisingly high absorption level and due to the low extent, the viewshed is small and restricted. The impact within the viewshed is within acceptable levels of change and the change in land use is of low significance.

The impact on identified view receptors are low due to the distance from the site, the air quality and the small extent of the project.

The overall visual impact is thus low and it is suggested that the development can be supported from this perspective. No mitigation measures are required.

10 MITIGATION MEASURES

No significant visual impacts have been identified which required mitigation measures. No mitigation measures concerning visual impact is required.

APPENDIX A

GLOSSARY OF TERMS

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

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 elevation model

Visual absorption capacity: 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, structures and topographical variation which hides 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.