



# **CLERMONT SOLAR FARM**

**VISUAL IMPACT ASSESSMENT REPORT** 

Prepared For Epuron

Final Issue: February 2017



Prepared By Environmental Ethos on behalf of Epuron

REF NO. 16006

DRAFT ISSUE: 16 FEBRUARY 2017

This disclaimer, together with any limitations specified in the proposal, apply to use of this report. This report was prepared in accordance with the scope of services for the specific purpose stated and subject to the applicable cost, time and other constraints. In preparing this report, Environmental Ethos relied on: (a) client/third party information which was not verified by Environmental Ethos except to the extent required by the scope of services, and Environmental Ethos does not accept responsibility for omissions or inaccuracies in the client/third party information; and (b) information taken at or under the particular times and conditions specified, and Environmental Ethos does not accept responsibility for any subsequent changes. This report has been prepared solely for use by, and is confidential to, the client and Environmental Ethos accepts no responsibility for its use by other persons. This proposal is subject to copyright protection and the copyright owner reserves its rights. This proposal does not constitute legal advice.

### **CONTENTS**

1. INTI	RODUCTION	1
1.1.	Location	1
1.1.	Policy Context	2
2. SCO	PE OF THE ASSESSMENT	2
3. MET	rhodology	3
3.1.	Desktop Assessment	3
3.2.	Field Study	3
3.3.	Impact Assessment	3
3.4.	Evaluation of significance and mitigation of potential impacts	4
4. PRC	DECT DESCRIPTION	4
4.1.	Construction	5
4.2.	Operation	6
5. BAS	ELINE CONDITIONS	7
5.1.	Viewshed Analysis	7
5.2.	Landscape Character	7
5.3.	Views and Visual Amenity	8
6. ASS	ESSMENT OF VISUAL EFFECT	8
7. ASS	ESSMENT OF VISUAL IMPACT	15
7.1.	Changes to Landscape Character	15
7.2.	Changes to Views and Visual Amenity	16
7.3.	Significance of Predicted Impacts	17
8. POT	ENTIAL MITIGATIONS MEASURES	20
9. CON	NCLUSION	20
APPENDIX	X A:	22

### 1. INTRODUCTION

This report has been prepared by Environmental Ethos on behalf of the proponent Epuron to assess the potential visual impact of the Clermont Solar Farm (the Project). The Project comprises of the installation and operation of a 150 MW solar farm that will utilise photovoltaic (PV) modules to generate electricity.

The Project site is freehold rural property at Alpha Street Bypass Road, described as Lot 6 SP159756, Lot 220 CLM102 and Lot 153 CLM230 within the Issac Regional Council area. The total footprint of the proposed development will cover an area of approximately 310 hectares (ha) and will be completed in up to two (2) stages.

### 1.1. Location

The Project site is located approximately 6 kilometres west of the town of Clermont, within the Central Queensland region, *refer Figure 1*. The study area is bounded by Alpha Street Bypass Road to the north and rural properties to the east, west, and south. The connecting substation is located to the south east of the Project site, adjoining Clermont Rubyvale Road. Connection to the substation is required as part of the Project. The site is currently used for broad acre grazing, which is the primary land use within the Project surrounds.



Figure 1: Site Location Plan

The Project site is slightly undulating land with a gentle slope from south to north. Native vegetation on the site has been predominantly cleared for grazing and there is some recent regrowth occurring across the site. A drainage line runs through the north western section of the site.

An existing track (Lindley Road) passes through the centre of the site connecting the adjoining property to the west with Alpha Bypass Road. Whilst access will be retained along this track, this assessment did not include the track as it is within the Project site.

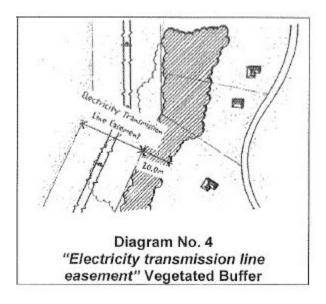
### 1.1. Policy Context

The Project site is located within the rural zone as identified in the *Belyando Shire Planning Scheme*, (Issac Regional Council, July 2008)<sup>1</sup>. The Performance Criteria relating to landscape values within the rural zone is PC10 as detailed below:

PC10 Ridgelines and Escarpments Ridgelines and escarpments are maintained in a natural state to protect rural character, landscape	No acceptable solution is prescribed.
values, and visual amenity.	

The Performance Criteria relating to vegetation buffers and electricity transmission line easements within the rural zone is PC22 as detailed below:

# PC22 "Electricity transmission line easement" – Vegetated Buffers Vegetated buffers adjoining an "electricity transmission line easement" are maintained to provide: (a) a visual buffer to the easement; and (b) a separation distance from the easement. AS22 Existing vegetation, comprising trees and/or shrubs, shall be retained within 20 metres of an "electricity transmission line easement" as shown in Schedule 2, Division 4: Powerline / Electricity Easements, Section 4.2 Diagram 4.



### 2. SCOPE OF THE ASSESSMENT

The scope of this visual impact assessment is outlined below:

- Description of the methodology used to undertake the study.
- Description of the elements of the Project with the potential to impact visual amenity during construction and operation.
- Assessment of the potential visibility of the Project and baseline conditions.
- Identification of landscape character, views and visual amenity.
- Assessment of the visual effect and impact of the Project including potential changes to landscape character, views, and visual amenity.

<sup>&</sup>lt;sup>1</sup> http://www.isaac.qld.gov.au/planning-schemes

 Assessment of potential mitigations measures to avoid, mitigate or manage potential impacts.

### 3. METHODOLOGY

The methodology used in this assessment is based on the *Guidelines for Landscape and Visual Impact Assessment (GLVIA)*, Third edition, Landscape Institute and Institute of Environmental Management & Assessment, 2013<sup>2</sup>.

### 3.1. Desktop Assessment

A desktop study of base information was undertaken including topography, drainage, vegetation, land use, transport, and agricultural land management practices within the Project area. The Zone of Theoretical Visibility (ZTV) referred to as the 'viewshed', was identified based on topography and vegetation. The potential location of visually sensitive receptors (rural dwellings and roads) within the viewshed, were identified to inform the scope of the field study. The types of vegetation communities within the Project area was reviewed in relation to their location and screening potential.

### 3.2. Field Study

A field study was undertaken and photographs collected from publically accessible viewpoints throughout the Project's viewshed. Photographs were also collected from private properties where landowners had requested this as part of the community consultation process. The screening potential of existing landform and vegetation was confirmed on site. The landscape character of the Project site and surrounding areas was assess in relation to the visual absorption capacity of the landscape, the condition, and the contribution to the scenic amenity from surrounding roads and rural properties.

### 3.3. Impact Assessment

The assessment of visual impacts includes changes in the character of available views resulting from the Project, and changes in the visual amenity of visual receptors. The assessment process takes into consideration the baseline conditions for both landscape character and visual amenity, and assesses these against the proposed effect of change resulting from the Project. The process for assessing the sensitivity of landscape and visual receptors to changes is outlined below.

### **Landscape Character**

The sensitivity of each Landscape Character Unit was assessment in relation to the extent to which the landscape could accommodate change of a particular type and scale without unacceptable adverse effects on the existing landscape character, also known as the 'Visual Absorption Capacity'. The extent to which a landscape can accept such change is dependent on the physical characteristics of the landscape and the scale and nature of the change in contrast to the receiving environment. Landscape sensitivity is also dependent on the relative importance of the landscape values identified

<sup>&</sup>lt;sup>2</sup> Guidelines for Landscape and Visual Impact Assessment (GLVIA), Third edition, Landscape Institute and Institute of Environmental Management & Assessment, 2013

VISUAL IMPACT ASSESSMENT REPORT

within each landscape character type. In this case the proposed changes is from grazing land to a solar farm.

### **Visual Sensitive Receptors**

Visual Sensitive Receptors (VSR) are individuals and/or defined groups of people who have the potential to be visually affected by the project. The sensitivity of each VSR is dependent on both the sensitivity of the group to changes in the landscape/view, and the location and activity of the VSR. The value a community places on a landscape/views can also be recognised through designation, for example the designation of a lookout or scenic route.

### **Magnitude of Change**

The magnitude of change in the visual baseline is dependent on the proportion the Project occupies in a viewer's field of vision, the extent of intrusion into the foreground, middle-ground and background, the capacity or ability of the landscape to accommodate the change, the duration of the effect, and the reversibility of the effect.

### 3.4. Evaluation of significance and mitigation of potential impacts

### **Impact Significant**

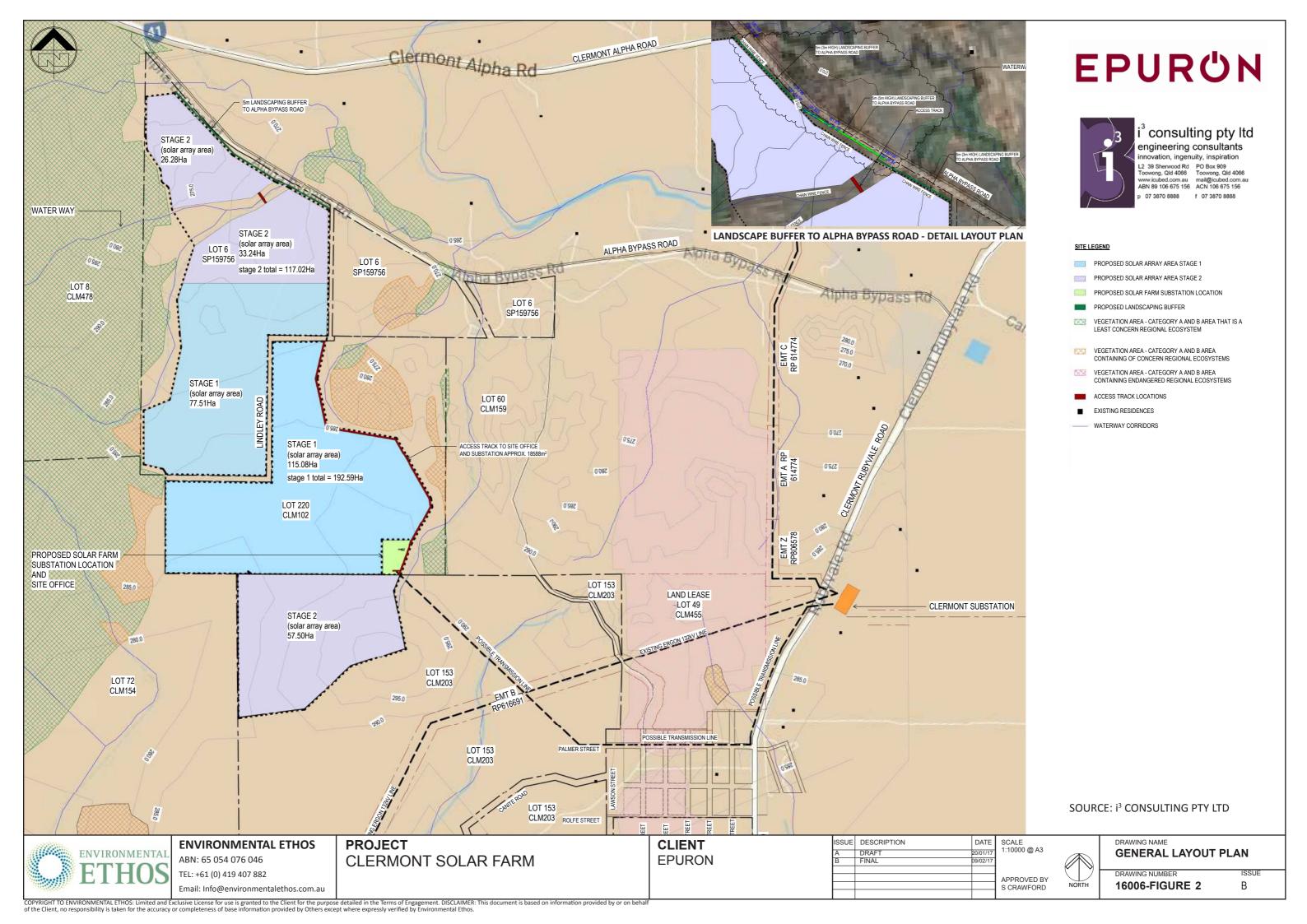
Evaluation of the significance of visual impacts is undertaken using a process similar to a risk matrix, where the significance of impacts are determined by comparing the impact magnitude against the sensitivity of landscape character and visual receptors. It should be noted the matrix approach provides a guide to potential severity of impacts; to ensure potential impacts are detailed such that mitigation measures are identified and assessed, a narrative section is included in the evaluation.

### **Mitigation Measures**

The Project includes 'embedded' mitigation measures, that is, the design of the Project has taken into consideration the requirement for visual screening and incorporated vegetation screening into the layout of the Project. Embedded mitigation measures will vary over time as vegetation grows and the screens become established. The Project description outlines the proposed landscape treatments to the boundary of the solar farm.

### 4. PROJECT DESCRIPTION

The general layout of the Project is as shown in *Figure 2*. The main elements of the Project with the potential to effect visual change are the construction and operation of the solar panels and tracking system, the associated infrastructure (inverters, substation, office building), and the proposed transmission line connection to the existing substation. Vegetation screening, fencing, and access roads are also proposed as part of the Project and these elements will also effect visual change. The key components of the Project with the potential to result in landscape and visual change are summaries in *Tables 1 and 2*.



### 4.1. Construction

Table 1. Project Elements and Processes during Construction

Project element/process	Indicative Imagery
Installation of tracking system and solar modules: including minor levelling and footings.	
Construction of plant and associated infrastructure: including control room, inverters and substation.	
Construction of transmission line: including vegetation clearing, minor levelling and footings.	
Security fencing: a chain wire security fence is proposed around the boundary of the solar farm.  Typical approximate height 2.4 m chain wire with 3 strands of barbed wire above – total height 3 m.	Company
<b>Screen planting:</b> a 3 to 5 m high x 5 m wide screen of endemic vegetation is to be planted along the Project's northern boundary adjoining Alpha Bypass Road.	

### 4.2. Operation

Table 2. Project Elements and Processes during Operation

### Project element/process

### Indicative Imagery

### Solar panels and tracking system:

Solar panels: approximate size 1 m x 2 m or 0.9 m x 2.7 m Solar arrays: approximate size 2 m x 7 m or 2.7 m x 8.1 m

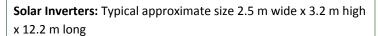
Rows: 4 to 7 m apart

Tracking system and solar array: maximum 3 m above natural

ground

Operational processes include tracking, cleaning, and minor

maintenance.



Operational processes include minor maintenance.



# Substation and switch/control building: Typical approximate

height of main elements

Lightening pole: approximately 22 m high

Gantry: approximately 16 m high

Transformers: approximately 8 to 9 m high



Operational processes include minor maintenance.

**Transmission line:** Typical approximate height of main elements dependent on final design - maximum 35 m high.

Operational processes include minor maintenance.



Screen planting: refer to site layout plan

Screen approximately 3 m to 5 m high x 5 m wide

Operational processes include maintaining vegetation screen along Alpha Bypass Road.



### 5. BASELINE CONDITIONS

The baseline for the visual assessment is an understanding of the existing landscape and visual qualities within the site and surrounding area that may be affected by the proposed development.

### 5.1. Viewshed Analysis

The extent of the viewshed is the extent of potential visibility of the Project within the landscape. Visibility was assessed based on topography and the screening potential of existing vegetation. The extent of the viewshed is as outlined in *Figure 3*.

### 5.2. Landscape Character

The landscape character units within the viewshed are detailed below:

### **Undulating Grazing Landscape**

The majority of the Project site and surrounding land to the south and east is characterised by an undulating landscape predominately used for cattle grazing. Some remnant vegetation remains along ridgelines, drainage lines, fence lines, road reserves, and in isolated groups. Regrowth vegetation is evident within the Project site. Views across the landscape are generally mid to long-range, with a backdrop of low wooded ridgelines. Constructed elements within the landscape include rural fences, unsealed and sealed roads, agricultural buildings, rural dwellings, and transmission lines.

The closest rural dwellings are located to the north of the Project, while to the east the lot sizes reduce and there is an increased density of dwellings on the outskirts of Clermont.

The landscape is large scale with a homogenous pattern of grazing land and native vegetation, typically found in the region. Landscape values within this LCU include the wooded ridgelines, rural character and native vegetation.



Plate 1: Photograph of Undulating Grazing Landscape (Project site)

### **Undulating Landscape with Native Vegetation**

To the west and south east of the Project site the landscape character becomes more wooded with large areas of native vegetation. The topography is undulating to hilly and the views are short to midrange. Constructed elements within the landscape are similar to those found in the Grazing Landscape unit, with the addition of Clermont substation.

Rural dwellings are scattered throughout the landscape and are predominately accessed from Clermont Rubyvale Road.

The landscape is large scale and is commonly found in the region. Landscape values within this LCU include the wooded ridgelines and native vegetation.



Plate 2: Photograph of Undulating Landscape with Native Vegetation

### 5.3. Views and Visual Amenity

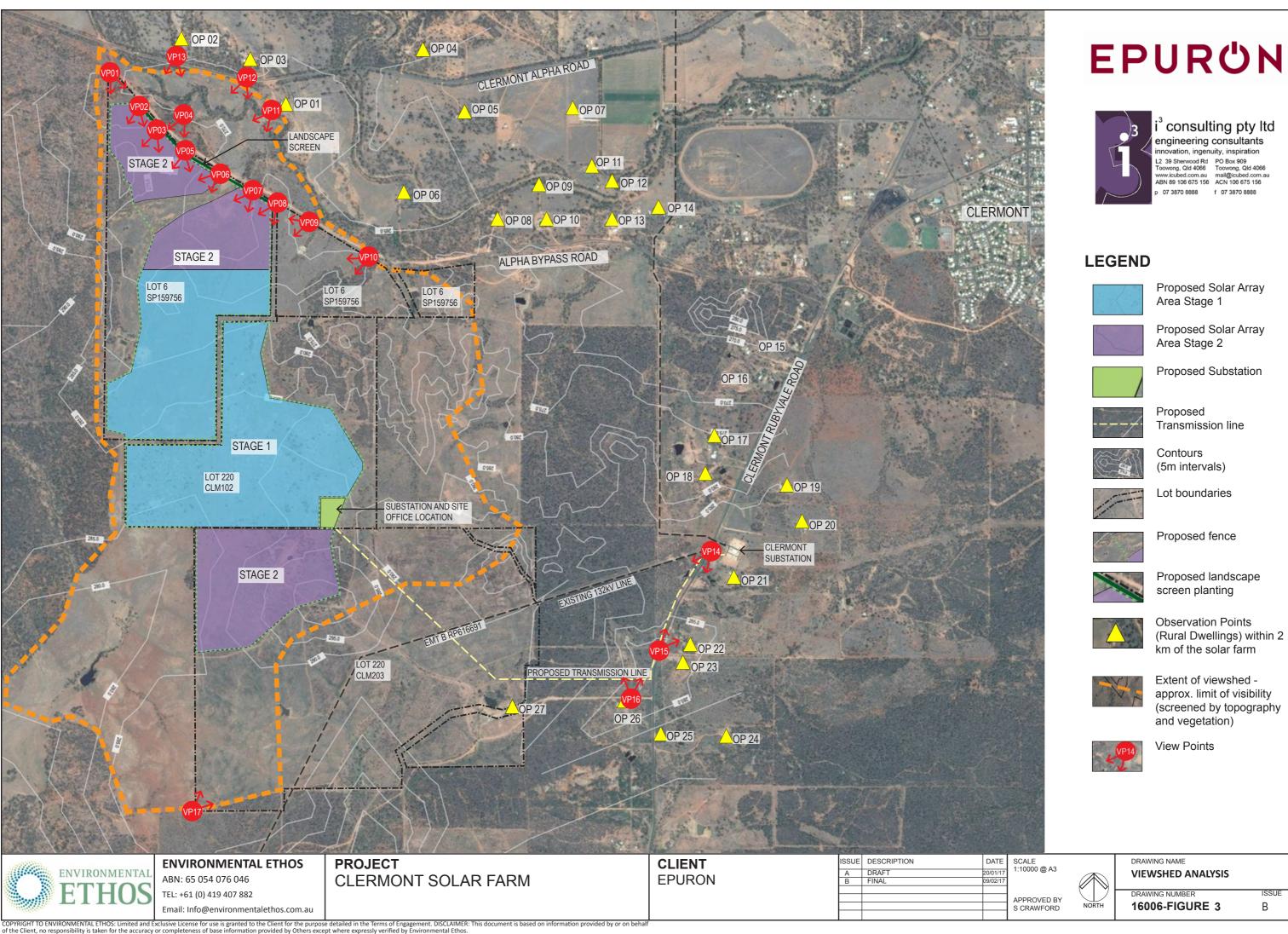
The visual amenity assessment has been undertaken based on representative viewpoints from publically accessible locations and selected private properties within the viewshed. The location of the 17 viewpoints are shown in the *Figure 3*. The representative views are detailed in *Appendix A*.

### 6. ASSESSMENT OF VISUAL EFFECT

Impacts on views and the visual amenity may occur during both construction and operational stages of the Project. The magnitude of change to views and visual amenity is dependent on the extent of visual exposure or visibility of the various Project elements, the compatibility of the development with the surrounding landscape, and the duration of the impacts.

Since mitigation measures have been embedded into the Project in the form of planting along Alpha Bypass Road, residual impacts refer to post establishment phase.

A summary of the predicted magnitude of change from each key viewpoint is outlined in Table 3.



В

REF NO. 16006 CLERMONT SOLAR FARM

VISUAL IMPACT ASSESSMENT REPORT

Table 3. Magnitude of Change to the Visual Baseline

VIEWPOINT LOCATION AND DIRECTION (REFER APPENDIX B & C)	PROJECT VISIBILITY AND DISTANCE TO THE NEAREST PROJECT ELEMENT	LOCATION OF THE PROJECT IN THE FIELD OF VIEW	COMPATIBILITY OF THE PROJECT WITH THE VISUAL BASELINE	MAGNITUDE OF CHANGE IN THE VISUAL BASELINE	DURATION	VIEWER NUMBERS
VP01 Alpha Bypass Road Short to middle distance view looking south east	Distance to project boundary approximately 200 m. Stage 1 not visible. Stage 2 substantially screened by existing vegetation.	Stage 1 not visible.  Stage 2 potentially slightly visible in background behind existing vegetation.	Solar panels are considered moderately compatible to the existing landscape as although they are not characteristic of a rural landscape their low profile (less than 4 m above ground level) does not present a significant vertical disruption within the landscape.	The main long term change to the visual baseline will be the slight visibility of the Stage 2 solar panels behind the existing vegetation.	Operating life of Solar Farm.	Low
VP02 Alpha Bypass Road Short to middle distance view looking south	Distance to project boundary >10 m. Stage 1 not visible. Stage 2 project elements visible prior to establishment of screen planting include security fence, solar panels, tracking system, and inverters. In the long term the vegetation screen will be visible screening the security fence and Stage 2 solar farm.	Stage 1 not visible.  Stage 2 visible in the foreground and middle ground until the screen planting becomes established.	Solar panels as for VP01. Security fence and inverters are considered moderately compatibility to the existing landscape as these elements have a low profile in the landscape.	The main long term change in the visual baseline will be the shortening of views as a result of the vegetation screen. Prior to establishment of the screen planting, the solar farm will be visible as a low profile constructed element in the landscape.	Operating life of Solar Farm.	Low

VP03 Alpha Bypass Road Long distance view looking south	Distance to project boundary >10 m. Stage 1 solar panels and inverters visible - distance approx. 950 m  Stage 2 project elements visible prior to establishment of screen planting include security fence, solar panels, tracking system, and inverters. In the long term the vegetation screen will be visible screening the perimeter fence and solar farm.	Stage 1 potentially visible in background  Stage 2 visible in the foreground and middle ground until the screen planting becomes established.	As for VP02	As for VP02	Operating life of Solar Farm.	Low
VP04 Oswald Property Long distance view looking south	Distance to project boundary approximately 80 m. Stage 1 distance approx. 900 m  Stage 2 project elements visible – as for VP03	Stage 1 potentially slightly visible in background behind existing vegetation  Stage 2 visible in the middle ground, partially screened by existing vegetation. Proposed vegetation planting will screen views of the Project.	As for VP02	As for VP02 Existing vegetation provides a partial screening.	Operating life of Solar Farm.	Low
VP05 Alpha Bypass Road	Distance to project boundary >10 m.	As for VP03	As for VP02	As for VP02	Operating life of Solar Farm	Low

Long distance view	Stage 1 potentially visible in					
looking south	background – distance 800 m.					
	Stage 2 project elements visible – as for VPO3					
VP06	Distance to project boundary	As for VP03	As for VP02	As for VP02	Operating	Low
Alpha Bypass Road	approximately 25 m. Stage 1 not visible.				life of Solar Farm.	
Long distance view						
looking south west	Stage 2 project elements visible – as for VP03					
VP07	Distance to project boundary	Stage 1 potential	As for VP02	As for VP02	Operating	Low
Alpha Bypass Road	>10 m. Stage 1 potentially visible in	slightly visible in background		Existing vegetation provides a partial screening.	life of Solar Farm.	
Long distance view	background behind existing					
looking south west	vegetation – distance 520 m.	Stage 2 slightly visible in the middle ground				
	Stage 2 project elements potentially partially visible behind existing vegetation	behind existing vegetation. Proposed vegetation planting will screen views of the Project.				
VP08	Distance to project boundary	Stage 1 potentially	As for VP02	The main long term change in	Operating	Low
Alpha Bypass Road	>10 m. Stage 1 majority screened by	slightly visible in background, majority		the visual baseline will be the security fencing. There may	life of Solar Farm.	
Long distance view	topography, small section	screened by		also be limited visibility of the		
looking south west	may be visible in background—distance 450 m.	topography Stage 2 – security		solar farm, however the majority is screened by existing topography.		
		fence visible in the middle ground,				

VISUAL IMPACT ASSESSMENT REPORT

VP09 Alpha Bypass Road Long distance view looking south west	Stage 2 majority screened by topography, potential for security fence to be visible.  Distance to project boundary approximately 300 m.  Project screened by	majority of solar farm screened by topography.  Solar farm not visible	Solar farm not visible	Solar farm not visible	N/A	N/A
VP10 Alpha Bypass Road Long distance view looking south west	topography and existing vegetation.  Distance to project boundary approximately 540 m. Stage 1 majority screened by topography and existing vegetation, small section potentially visible in the back ground– distance 600 m.  Stage 2 not visible	Stage 1 potentially slightly visible in background, majority screened by topography and existing vegetation Stage 2 – not visible.	Solar panels as for VP01.	The main long term change in the visual baseline will be the slight change in view in the background, the majority of the solar farm is screened by topography and existing vegetation.	Operating life of Solar Farm.	Low
VP11 Oswald Property – House Yard Short to middle distance view looking south Viewpoint at rural dwelling OP01	Distance to project boundary approximately 600 m.  Project screened by existing vegetation.	Solar farm not visible	Solar farm not visible	Solar farm not visible	N/A	N/A
VP12	Distance to project boundary approximately 720 m.	Solar farm not visible	Solar farm not visible	Solar farm not visible	N/A	N/A

Clermont Alpha Road Short to middle distance view looking south	Project screened by existing vegetation.					
VP13 Clermont Alpha Road Short to middle distance view looking south	Distance to project boundary approximately 380 m.  Project screened by existing vegetation.	Solar farm not visible	Solar farm not visible	Solar farm not visible	N/A	N/A
VP14 Clermont Rubyvale Road Middle to long distance view looking south	At proposed location of new transmission line.  Solar Farm not visible.  New transmission line visible.	New transmission line visible in foreground and middle ground.	Transmission line moderate compatibility to the existing landscape character due to presence of existing transmission lines.	The main long term change to the visual baseline will be the additional transmission line infrastructure in the view.	Operating life of Solar Farm.	Low
VP15 Clermont Rubyvale Road Middle distance view looking north	At proposed location of new transmission line.  Solar Farm not visible.  New transmission line visible.	New transmission line visible in foreground and middle ground.	Transmission line moderate compatibility to the existing landscape character due to presence of existing transmission lines.	The main long term change to the visual baseline will be the additional transmission line infrastructure in the view.	Operating life of Solar Farm.	Low
VP16 Track between Canite and Palmer	Distance to new transmission line approximately 185 m.  Solar Farm not visible.	New transmission line potentially visible in the middle ground	Transmission line has low to moderate compatibility to the existing landscape character as there is minimal	The main long term change to the visual baseline will be the partial view of the additional	Operating life of Solar Farm.	Low

VISUAL IMPACT ASSESSMENT REPORT

Roads  Short to middle distance view looking north  Viewpoint adjoining rural dwelling OP026		above existing vegetation.	transmission line infrastructure in the existing view.	transmission line above the existing vegetation.		
VP17 Wilby Property – rear boundary Long distance view looking north	Distance to project boundary approximately 1 km.  Project screened by topography and existing vegetation.	Solar farm not visible	Solar farm not visible	Solar farm not visible	N/A	N/A

### 7. ASSESSMENT OF VISUAL IMPACT

### 7.1. Changes to Landscape Character

The landscape character of the Project site and surrounding areas is predominately an open undulating landscape used for cattle grazing. Natural woodland vegetation covers large areas to the west and south east of the Project site and along drainage lines, road reserves, fence lines and in isolated patches. An unsealed road (Alpha Bypass Road) adjoins the Project site's northern boundary, this road is the only publically accessible location from which the solar farm is potentially visible. Existing vegetation between the proposed solar farm and private dwellings screen views from these sensitive receptors.

The *Undulating Grazing Landscape* LCU is considered to have a 'moderate' Visual Absorption Capacity relative to the type of change resulting from the Project. The large scale and pattern of open gazing lands and native vegetation is considered likely to be able to absorb the low horizontal profile of the Project without significant disruption. The Project is unlikely to alter the horizon line, and will have minimal impact on the undulating topography.

The *Undulating Landscape with Native Vegetation* LCU is considered to have a 'moderate' Visual Absorption Capacity to the type of change resulting from the new transmission line since this type of infrastructure is already evident within the landscape.

Potential changes to the existing landscape character resulting from the Project, both in the short term and long term, are detailed below.

### Short Term Changes to Landscape Character

Stage 1 of the Project is located in the middle of the site and is potentially visible in the background when viewed from Alpha Bypass Road approximately 700 m to 1 km north of Stage 1. The proposed solar farm substation and site office will not be visible from Alpha Bypass Road. Changes to landscape character resulting from Stage 1 will potentially be discernable as a small change in land cover from grazing land to solar panels in the background of views. Since the majority of the Project is approximately 3 metres above ground level, the resulting built element is largely horizontal with none to very limited vertical disruption to the horizon line. The solar farm is located within the existing areas of open grazing land and retains the framework of surrounding native vegetation, resulting in little to no visual disruption to the 'pattern' of the landscape.

Stage 2 of the Project includes sections to the north and south of Stage 1. The southern section of Stage 2 is unlikely to be visible from Alpha Bypass Road. The northern section of Stage 2 adjoins Alpha Bypass Road, the built elements with the potential to be visible from this section of road are the solar panels, tracking system, inverters, and security fence. The potential visibility of these project elements will change the character of the landscape from grazing land typically found in the area, to a solar farm which is uncommon in the region. This change in landscape character will be noticeable from the 1 km section of Alpha Bypass Road from which the Project is visible. The Project will have little to no visual disruption to the 'pattern' of the landscape and the change in landscape character will be short —term (while the screen planting becomes established) and only noticeable over a short period of time as people travel pass the Project site.

The proposed transmission line connecting the Project to the existing Clermont substation will be visible from Clermont Rubyvale Road. Since there is currently existing high and low voltage transmission lines in this area the addition of another similar infrastructure elements is likely to result in a slight change to the landscape character along the corridor. The transmission line passes approximately 185 metres to the north of rural dwellings on the track between Canite and Palmer Roads. There is the potential for the proposed transmission line to be noticeable above the canopy of intervening native vegetation. Due to existing transmission line infrastructure in the area, and the limited extent of visibility of this new element, it is considered likely the result will be a slight change to landscape character.

### Long Term Changes to Landscape Character

Upon establishment of the landscape screen planting along the northern boundary of the Project site adjoining Alpha Bypass Road, the solar farm will be screened from the road and no longer visible. Long term changes in landscape character are considered insignificant since the solar farm will be screened by vegetation and the presence of native vegetation is consistent with the existing landscape character.

The transmission line connection to Clermont substation will remain visible in the long term from both Clermont Rubyvale Road and dwellings adjoining Canite Road. Whilst similar infrastructure elements exist in the area, a 'slight' perceptible change to landscape character may remain as a result of the additional infrastructure.

### 7.2. Changes to Views and Visual Amenity

The visual effect of the Project on views and visual amenity within the viewshed is outlined below.

### Changes to views from Alpha Bypass Road

Alpha Bypass Road adjoins the Project's northern boundary and provides the only publically accessible views to the solar farm. The view corridor along Alpha Bypass Road is characterised by generally mid to long-range views across undulating gazing land, with some short-range views of native vegetation as represented in VP01 to VP03 and VP05 to VP10 (*refer Appendix A*). Existing vegetation along the view corridor is intermittent and provides some screening to the Project.

The Project has the potential to be visible from the 1 km section of Alpha Bypass Road that adjoins the Project's boundary. The main changes to the view corridor as a result of the Project are outlined below:

- Stage 1 solar farm potentially visible as a long narrow band of solar panels and inverters in the background of views. Due to the distance between the viewer and the Project, individual elements may not be discernable. The Project will be visible for a short period of time as people travel along the road.
- Northern sections of Stage 2 solar farm potentially visible in the short term, changes to views will be in the foreground and middle ground as a result of the construction of the solar panels, tracking system, inverters, and security fence.

VISUAL IMPACT ASSESSMENT REPORT

 In the long term, establishment of the 3 to 5 metre high landscape buffer along the northern boundary will screen the solar farm from the road, and the native vegetation screen will be visible in the foreground.

Due to the limitations to visibility of the solar farm once the screen planting is established along the northern boundary, the resulting change to views and visual amenity along Alpha Bypass Road is considered 'slight - a small change to the visual baseline which is insignificant, not distinct and is expected to blend with the baseline view'.

### Changes to views from Clermont Rubyvale Road

A section of the proposed transmission line will be visible within the road corridor of Clermont Rubyvale Road. Since this road corridor already has high and low voltage transmission lines it is considered likely that the inclusion of an additional transmission line will result in a 'noticeable change over a small area of the view' but will not alter the visual amenity within the road corridor.

### Changes to views from Rural Dwellings

The assessment of potential changes to views from rural dwellings within the viewshed was based on the desktop viewshed analysis and site assessment. Access to two private properties was provided by the landowners as part of the site assessment. At both properties the landowners provided direction on the views they considered had the potential to be impacted by the Project. Photographic records were taken and assessed in relation to potential visibility of the Project. The assessment found the solar farm is not considered likely to visible from any rural dwellings (refer VP04 and VP17, *Appendix A*).

An assessment was also undertaken from the front of a property on Canite Road in relation to the potential visibility of the proposed transmission line to be located approximately 185 metres to the north (refer VP16). The assessment identified existing vegetation would provide some screening however the varied height of the existing canopy may result in the top of some sections of the transmission line remaining visible above the canopy. The resulting change in views and visual amenity from seeing sections of the top of the transmission line is considered 'small'.

### 7.3. Significance of Predicted Impacts

The significance of predicted impacts on landscape character and visual amenity have been summarised in *Tables 4 and 5* 

VISUAL IMPACT ASSESSMENT REPORT

Table 4. Significance of predicted impacts on affected landscape character

Landscape Character	Sensitivity to Change	Predicted change	Magnitude of Change	Predicted Impact Significance
Undulating Grazing Landscape	Low to Moderate: a landscape with some local quality and value and has some capacity to accommodate the type of change envisaged	No Change	N/A	N/A
Undulating Landscape with Native Vegetation	Low to Moderate: a landscape with some local quality and value and has some capacity to accommodate the type of change envisaged	Additional transmission line	Slight: a small perceptible changes to the landscape character over a restricted area, but will not alter the fundamental character of the landscape	Slight

Table 5. Significance of predicted impacts on affected views and visual amenity

Views and View Corridors	Sensitivity to Change of Visual Sensitive Receptors (VSR)	Predicted change (Long Term)	Magnitude of Change	Predicted Impact Significance
Views from Alpha Bypass Road to Solar Farm	Low to Moderate: The nature of the VSRs are moderately sensitive to adverse change in the landscape, the visual landscape is partially the focus of attention, e.g. people travelling for work	Increase in vegetation along the view corridor as a result of the screen planting. Little to no visibility of the Project once screen established.	Slight: a small change to the visual baseline which is insignificant, not distinct and is expected to blend with the baseline view	Slight
Views from rural dwellings to Solar Farm	High: the VSRs are sensitive to adverse change in the landscape and the visual landscape is the focus of attention, e.g. place of residence.	No change	N/A	N/A
Views from Clermont Rubyvale Road to transmission line	Low to Moderate: The nature of the VSRs are moderately sensitive to adverse change in the landscape, the visual landscape is partially the focus	Additional transmission line within the road corridor	Small: some perceptible changes to views, but will not alter the fundamental visual amenity of the landscape	Minor

VISUAL IMPACT ASSESSMENT REPORT

	of attention, e.g. people travelling for work			
Views from rural dwellings to Transmission line	High: the VSRs are sensitive to adverse change in the landscape and the visual landscape is the focus of attention, e.g. place of residence	Top of transmission line may be visible above existing vegetation	Small: some perceptible changes to views, but will not alter the fundamental visual amenity of the landscape	Moderate

VISUAL IMPACT ASSESSMENT REPORT

### 8. POTENTIAL MITIGATIONS MEASURES

Proposed screen plantings along Alpha Bypass Road has been integrated into the Project design. *Table 6* summarises the proposed landscape and visual amenity protection measures.

Table 6. Landscape and Visual Protection Measures

Activity	Protection Measure	Description	Application
Design Stage	Transmission line pole design and position	Design of the proposed transmission line to consider potential options to avoid or reduce visual impact.	Engineering plans for transmission line
Construction Stage	Screen planting	Screen plantings are to be installed prior to construction of Stage 2.	As detailed in the Site Layout Plan
Construction Stage	Limiting the extent of disturbance	Disturbance to the landscape will be limited to the footprint of the Project	As detailed in the Site Layout Plan

### 9. CONCLUSION

In conclusion, based on the assumptions and parameters of this assessment, the following results were identified:

- Assessment of the potential change to landscape character as a result of the solar farm identified no long term change is considered likely since the solar farm will be screened by vegetation and the presence of native vegetation is consistent with the existing landscape character.
- The assessment found the proposed transmission line is considered likely to result in a 'slight' change to landscape character. Whilst the proposed transmission line is grouped with similar infrastructure elements, a perceptible change to the landscape character may result over a small area from the presence of additional infrastructure.
- Assessment of potential long term impacts to views and visual amenity along Alpha Bypass Road identified a potential slight change may occur as a result of the solar farm. This visual change results from the shortening of views by the introduction of vegetation in the foreground and the limited potential of slight visibility of the solar farm through the screening vegetation. The solar farm is not considered likely to effect the horizon line. Travellers are generally considered 'low to moderately' sensitive to adverse changes in the landscape as views are of short duration and not the entire focus of attention. The limited change to the views is expected to blend with the visual baseline and is not considered likely to affect the visual amenity of the landscape. The visual impact is considered 'slight'.
- The solar farm is not considered likely to result in any visual impact to existing rural dwellings.
- The Project will not be visible from Clermont Alpha Road.

VISUAL IMPACT ASSESSMENT REPORT

• The potential impact of the proposed transmission line on views and visual amenity from existing dwellings was identified as 'moderate', as sections of the top of the transmission line may remain visible above the existing vegetation canopy, and views from dwellings are considered highly sensitive to change. This potential visual impact effects a small number of sensitive receptors located on the track between Canite and Palmer Roads. The assessment assumed a worst case scenario with a maximum pole height of 35 metres. During the engineering design stage pole design options will be considered that reduce the maximum height and/or the spacing and location of poles to assist in avoiding or reducing potential visual impacts.

- Where the transmission line runs along the Clermont Rubyvale road, this section of the line
  may result in some perceptible changes to views, but will not alter the fundamental visual
  amenity of the landscape since similar infrastructure already exists in the view corridor. The
  potential impact of the additional transmission line on visual amenity within the road
  corridor was considered 'minor'.
- The Project is consistent with the Rural Zone Performance Criteria PC10 as it is considered unlikely to impact ridgelines or escarpments.
- The Project is consistent with the Rural Zone Performance Criteria PC22 as the proposed transmission line has a vegetation buffer of approximately 180 metres to the closest dwelling.

VISUAL IMPACT ASSESSMENT REPORT

## **APPENDIX A:**

### REPRESENTATIVE VIEWS

### Location of proposed solar farm site behind existing vegetation screen



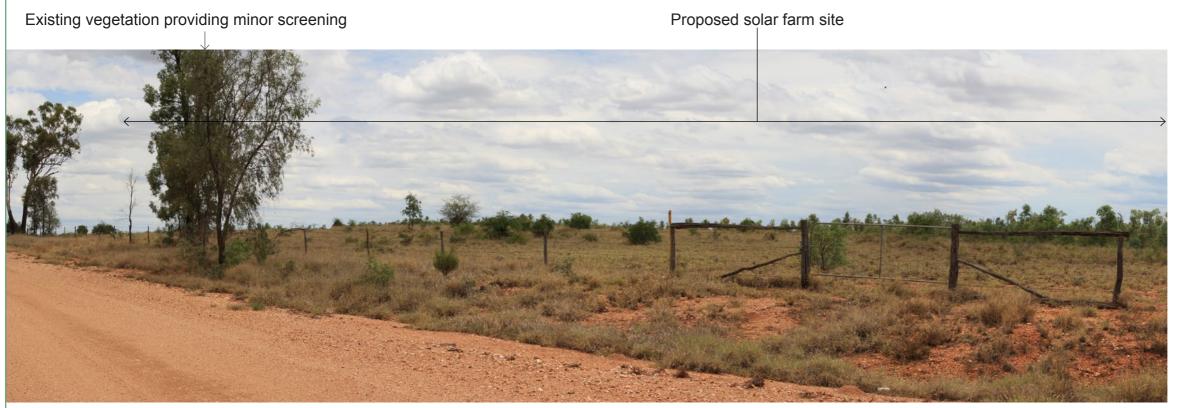
### LANDSCAPE CHARACTER UNITS WITHIN THE VIEW

Undulating grazing land with areas of native vegetation

### **VISUAL AMENITY**

Short to middle distance views with native vegetation in the foreground. Solar Farm project site substantially screened by existing vegetation.

VIEWPOINT 01 EXISTING VIEW - ALPHA BYPASS ROAD LOOKING SOUTH EAST



### LANDSCAPE CHARACTER UNITS WITHIN THE VIEW

Undulating grazing land with areas of vegetation regrowth

### VISUAL AMENITY

Short distance view foreshortened due to a minor ridge line. Recent regrowth evident within grazing landscape. Several scattered trees provide minor screening. Stage 1 Solar Farm not visible. Stage 2 visible in short term. Landscape buffer will screen the Project in the long term.

VIEWPOINT 02 EXISTING VIEW - ALPHA BYPASS ROAD LOOKING SOUTH



**ENVIRONMENTAL ETHOS** ABN: 65 054 076 046

TEL: +61 (0) 419 407 882 Email: Info@environmentalethos.com.au **PROJECT CLERMONT SOLAR FARM** VISUAL IMPACT ASSESSMENT **CLIENT EPURUN**  SSUE DESCRIPTION REPRESENTATIVE **VIEWPOINTS** PROJECT NUMBER

16006

VIEWPOINT LOCATION **ALPHA BYPASS ROAD** 

**VP01 & 02** 

# Proposed solar farm site



### LANDSCAPE CHARACTER UNITS WITHIN THE VIEW

Undulating grazing land with areas of vegetation regrowth

### VISUAL AMENITY

Long distance view to minor ridge line on the horizon. Recent regrowth evident within grazing landscape.

Stage 1 Solar Farm potentially visible in background. Stage 2 visible in short term. Landscape buffer will screen the Project in the long term.

VIEWPOINT 03 EXISTING VIEW - ALPHA BYPASS ROAD LOOKING SOUTH

Location of proposed solar farm site partially screen by existing vegetation



### LANDSCAPE CHARACTER UNITS WITHIN THE VIEW

Undulating grazing land with areas of native vegetation

### VISUAL AMENITY

Short to middle distance views with native vegetation in the foreground. Solar Farm project site partially screened by existing vegetation.

Stage 1 Solar Farm potentially visible in background. Stage 2 visible in short term. Landscape buffer will screen the Project in the long term.

VIEWPOINT 04 EXISTING VIEW - OSWALD PROPERTY (FUTURE HOUSE SITE) LOOKING SOUTH



**ENVIRONMENTAL ETHOS** ABN: 65 054 076 046

TEL: +61 (0) 419 407 882

Email: Info@environmentalethos.com.au

**PROJECT CLERMONT SOLAR FARM** VISUAL IMPACT ASSESSMENT **CLIENT** 

**EPURUN** 

DESCRIPTION	DATE	REPRESENTATIVE
DRAFT FOR CLIENT REVIEW	06/01/17	\ //E\A/DOINITO
FINAL	09/02/17	VIEWPOINTS
		PROJECT NUMBER

16006

VIEWPOINT LOCATION **ALPHA BYPASS ROAD** 

**VP03 & 04** 



Undulating grazing land with areas of vegetation regrowth

### VISUAL AMENITY

Open long distance view across undulating grazing land with native vegetation in the background. Recent regrowth evident within grazing landscape.

Stage 1 Solar Farm potentially visible in background. Stage 2 visible in short term. Landscape buffer will screen the Project in the long term.



### LANDSCAPE CHARACTER UNITS WITHIN THE VIEW

Undulating grazing land with areas of vegetation regrowth

### VISUAL AMENITY

Open long distance view across undulating grazing land with native vegetation in the background. Recent regrowth evident within grazing landscape.

Stage 1 Solar Farm not visible. Stage 2 visible in short term. Landscape buffer will screen the Project in the long term.

VIEWPOINT 06 EXISTING VIEW - ALPHA BYPASS ROAD LOOKING SOUTH WEST

VIEWPOINT 05 EXISTING VIEW - ALPHA BYPASS ROAD LOOKING SOUTH



**ENVIRONMENTAL ETHOS** ABN: 65 054 076 046

TEL: +61 (0) 419 407 882 Email: Info@environmentalethos.com.au **PROJECT CLERMONT SOLAR FARM** VISUAL IMPACT ASSESSMENT **CLIENT** 

**EPURUN** 

DESCRIPTION	DATE	REPRESENTATIVE	
DRAFT FOR CLIENT REVIEW	06/01/17	V/IEVA/DOINITO	
FINAL	09/02/17	VIEWPOINTS	
		PROJECT NUMBER	

16006

VIEWPOINT LOCATION
ALPHA BYPASS ROAD

**VP05 & 06** 



Undulating grazing land with areas of native vegetation

### VISUAL AMENITY

Long distance view with native vegetation in the foreground. Solar Farm project site partially screened by existing vegetation. Stage 1 Solar Farm potentially visible in background. Stage 2 partially visible in short term. Landscape buffer will screen the Project in the long term.

VIEWPOINT 07 EXISTING VIEW - ALPHA BYPASS ROAD LOOKING SOUTH WEST



### LANDSCAPE CHARACTER UNITS WITHIN THE VIEW

Undulating grazing land with areas of native vegetation

### VISUAL AMENITY

Long distance view with native vegetation in the foreground. Majority of Solar Farm project site screened by topography.

VIEWPOINT 08 EXISTING VIEW - ALPHA BYPASS ROAD LOOKING SOUTH WEST



**ENVIRONMENTAL ETHOS** ABN: 65 054 076 046

TEL: +61 (0) 419 407 882

Email: Info@environmentalethos.com.au

**PROJECT CLERMONT SOLAR FARM** VISUAL IMPACT ASSESSMENT **CLIENT** 

**EPURUN** 

	DESCRIPTION	DATE	REPRESENTATIVE
1	DRAFT FOR CLIENT REVIEW	06/01/17	V/IEVA/BOINITO
	FINAL	09/02/17	VIEWPOINTS
ł			PROJECT NUMBER

16006

VIEWPOINT LOCATION
ALPHA BYPASS ROAD

**VP07&08** 



Undulating grazing land with areas of native vegetation

### VISUAL AMENITY

Long distance view with native vegetation in the middle-ground. Solar Farm project site screened by topography and vegetation.

VIEWPOINT 09 EXISTING VIEW - ALPHA BYPASS ROAD LOOKING SOUTH WEST

Location of proposed solar farm site substantially screened behind topography and vegetation



### LANDSCAPE CHARACTER UNITS WITHIN THE VIEW

Undulating grazing land with areas of native vegetation

### VISUAL AMENITY

Long distance view with native vegetation in the background. Solar Farm project site substantially screened by topography and vegetation.

VIEWPOINT 10 EXISTING VIEW - ALPHA BYPASS ROAD LOOKING SOUTH WEST



**ENVIRONMENTAL ETHOS** ABN: 65 054 076 046

TEL: +61 (0) 419 407 882 Email: Info@environmentalethos.com.au **PROJECT CLERMONT SOLAR FARM** VISUAL IMPACT ASSESSMENT **CLIENT** 

**EPURUN** 

DESCRIPTION	DATE	REPRESENTATIVE
DRAFT FOR CLIENT REVIEW	06/01/17	V/IEVA/DOINITO
FINAL	09/02/17	VIEWPOINTS
		PROJECT NUMBER
		I INOULOT NOWIDEN

16006

VIEWPOINT LOCATION
ALPHA BYPASS ROAD

**VP 09 & 10** 

COPYRIGHT TO ENVIRONMENTAL ETHOS: Limited and Exclusive License for use is granted to the Client for the purpose detailed in the Terms of Engagement. DISCLAIME of the Client, no responsibility is taken for the accuracy or completeness of base information provided by Others except where expressly verified by Environmental Etho



Undulating grazing land with areas of native vegetation

### VISUAL AMENITY

Short to middle distance views with native vegetation providing a screen to the solar farm site. Solar Farm project site not visible from this location.

VIEWPOINT 11 EXISTING VIEW - OP01 OSWALD PROPERTY HOUSE YARD LOOKING SOUTH



### LANDSCAPE CHARACTER UNITS WITHIN THE VIEW

Undulating grazing land with areas of native vegetation

### VISUAL AMENITY

Short to middle distance views with native vegetation providing a screen to the solar farm site. Solar Farm project site not visible from this location.

VIEWPOINT 12 EXISTING VIEW - CLERMONT ALPHA ROAD LOOKING SOUTH



**ENVIRONMENTAL ETHOS** ABN: 65 054 076 046

TEL: +61 (0) 419 407 882 Email: Info@environmentalethos.com.au **PROJECT CLERMONT SOLAR FARM** VISUAL IMPACT ASSESSMENT **CLIENT EPURUN**  SUE DESCRIPTION REPRESENTATIVE **VIEWPOINTS** PROJECT NUMBER

16006

VIEWPOINT LOCATION
OSWALD PROPERTY AND
CLERMONT APHA ROAD

VIEWPOINT NUMBER

VP 11 & 12



Undulating grazing land with areas of native vegetation

### **VISUAL AMENITY**

Short to middle distance views with native vegetation providing a screen to the solar farm site. Solar Farm project site not visible from this location.

VIEWPOINT 13 EXISTING VIEW - CLERMONT ALPHA ROAD LOOKING SOUTH



# LANDSCAPE CHARACTER UNITS WITHIN THE VIEW

Undulating landscape with native vegetation.

### VISUAL AMENITY

Medium to long distance view of undulating hills and native vegetation. View includes power lines and road infrastructure.

Proposed transmission line visible.

VIEWPOINT 14 EXISTING VIEW - CLERMONT RUBYVALE ROAD LOOKING SOUTH



ENVIRONMENTAL ETHOS
ABN: 65 054 076 046

TEL: +61 (0) 419 407 882 Email: Info@environmentalethos.com.au PROJECT
CLERMONT SOLAR FARM
VISUAL IMPACT ASSESSMENT

CLIENT

**EPURUN** 

	DESCRIPTION	DATE	REPRESENTATIV
	DRAFT FOR CLIENT REVIEW	06/01/17	V/IEVA/DOINITO
	FINAL	09/02/17	VIEWPOINTS
ĺ			PROJECT NUMBER

16006

VIEWPOINT LOCATION
CLERMONT APHA &
CLERMONT RUBYVALE RDS

VIEWPOINT NUMBER

VP 13 & 14

COPYRIGHT TO ENVIRONMENTAL ETHOS: Limited and Exclusive License for use is granted to the Client for the purpose detailed in the Terms of Engagement. DISCLAIMER: This document is based on information of the Client, no responsibility is taken for the accuracy or completeness of base information provided by Others except where expressly verified by Environmental Ethos.

# Existing power lines

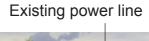
### VIEWPOINT 15 EXISTING VIEW - CLERMONT RUBYVALE ROAD LOOKING NORTH

### LANDSCAPE CHARACTER UNITS WITHIN THE VIEW

Undulating landscape with native vegetation.

### VISUAL AMENITY

Middle distance view of undulating hills and native vegetation. View includes power lines and road infrastructure. Proposed transmission line visible.



### LANDSCAPE CHARACTER UNITS WITHIN THE VIEW

Undulating landscape with native vegetation.

### VISUAL AMENITY

Short to middle distance view of existing screening vegetation between house and existing transmission line easement. Proposed transmission line potentially partially visible above existing vegetation canopy.



VIEWPOINT 16 EXISTING VIEW - CANITE ROAD ADJOINING OP26 SCHRADER PROPERTY LOOKING NORTH



**ENVIRONMENTAL ETHOS** ABN: 65 054 076 046

TEL: +61 (0) 419 407 882

**PROJECT CLERMONT SOLAR FARM** VISUAL IMPACT ASSESSMENT **CLIENT** 

**EPURUN** 

DESCRIPTION	DATE	REPRESENTATIVE
DRAFT FOR CLIENT REVIEW	06/01/17	VIEW DOINTS
FINAL	09/02/17	VIEWPOINTS
		PROJECT NUMBER

16006

VIEWPOINT LOCATION

CLERMONT RUBYVALE & CANITE ROADS VIEWPOINT NUMBER

**VP 15 & 16** 

# Existing topography and vegetation screen

# LANDSCAPE CHARACTER UNITS WITHIN THE VIEW

Undulating grazing land with areas of vegetation regrowth

### VISUAL AMENITY

Long distance view with native and regrowth vegetation in the foreground and middle-ground. Solar Farm project site screened by topography and vegetation.

VIEWPOINT 17 EXISTING VIEW - WILBY PROPERTY LOOKING NORTH EAST



ENVIRONMENTAL ETHOS
ABN: 65 054 076 046

TEL: +61 (0) 419 407 882 Email: Info@environmentalethos.com.au PROJECT
CLERMONT SOLAR FARM
VISUAL IMPACT ASSESSMENT

CLIENT

**EPUR**ŮN

SUE	DESCRIPTION	DATE	REPRESENTATIVE	VIEWPOINT LOCATION	
	DRAFT FOR CLIENT REVIEW	06/01/17	_	WILBY PROPERTY	
	FINAL	09/02/17	VIEWPOINTS		
			DDO IFOT NI IMPED	VIEWPOINT NUMBER	ISSUE
			PROJECT NUMBER	VIEWFOINT NOMBER	ISSUE
			16006	VP 17	R
			10000	· · · /	