

**MEMORANDUM**

19 July 2019

Attention: Shane Melotte, Energy Forms

Reference

From: Stacey Brodbeck

14019/MemRev05

RE: SUNTOP SOLAR FARM MODIFICATION – UPDATE TO ORIGINAL
VISUAL IMPACT ASSESSMENT FINDINGS

Dear Shane

This memo presents the findings of our assessment of the proposed modification to the Suntop solar farm. This assessment has been prepared for Energy Forms to assist their preparation of the EIS for the modification.

1. Background

A solar farm at Suntop was approved December 2018 (NSW Development Consent SSD 8696, issued 4 December 2018). Envisage Consulting prepared the Visual Impact Assessment for the approved solar farm (Envisage Consulting Pty Ltd, May 2018).

A modification to the approved solar farm is now proposed. This assessment of the proposed modification is, in part, based upon the original findings of the Suntop Visual Impact Assessment.

2. Proposed Modification

The approved position of the substation is shown **FIGURE 1** (Appendix 1 of the Development Consent).

The proposed modification involves:

- the relocation of the substation to the north west side of the Transgrid transmission line and north of the waterway. The proposed modified position of the substation is shown **FIGURE 2**.
- Separation of the substation into two key components being:
 - The main substation containing the transformer(s) and connection into the grid (shown in red on **FIGURE 2**)
 - The E-house containing up to 4 X 40ft containers to house medium voltage (MV) and low voltage (LV) switchgear as well as auxiliary equipment (shown in blue on **FIGURE 2**).
- An increase in the overall size of the substation area (approximately six times larger):
 - The site area of the main substation would be 165m x 215m (35,475m²) including the APZ buffer (21,875m² excluding the buffer)
 - The site area of the E-house would be 125m x 80m (10,000m²). An allowance has been made for up to two switchgear and two auxiliary buildings (40 ft containers).
- Increased landscaping along the western boundary:

- Following discussions between the proponent and the landholder to the immediate west of Suntop 1, the landholder has advised their preference for a continual line of landscape planting along the western boundary of the project site as opposed to the approved "broken" sections of landscaping along this boundary.

There is no change to the proposed height of substation components. For assessment purposes, a height of approximately 10m has been assumed over the substation area based on advice from Energy Forms.

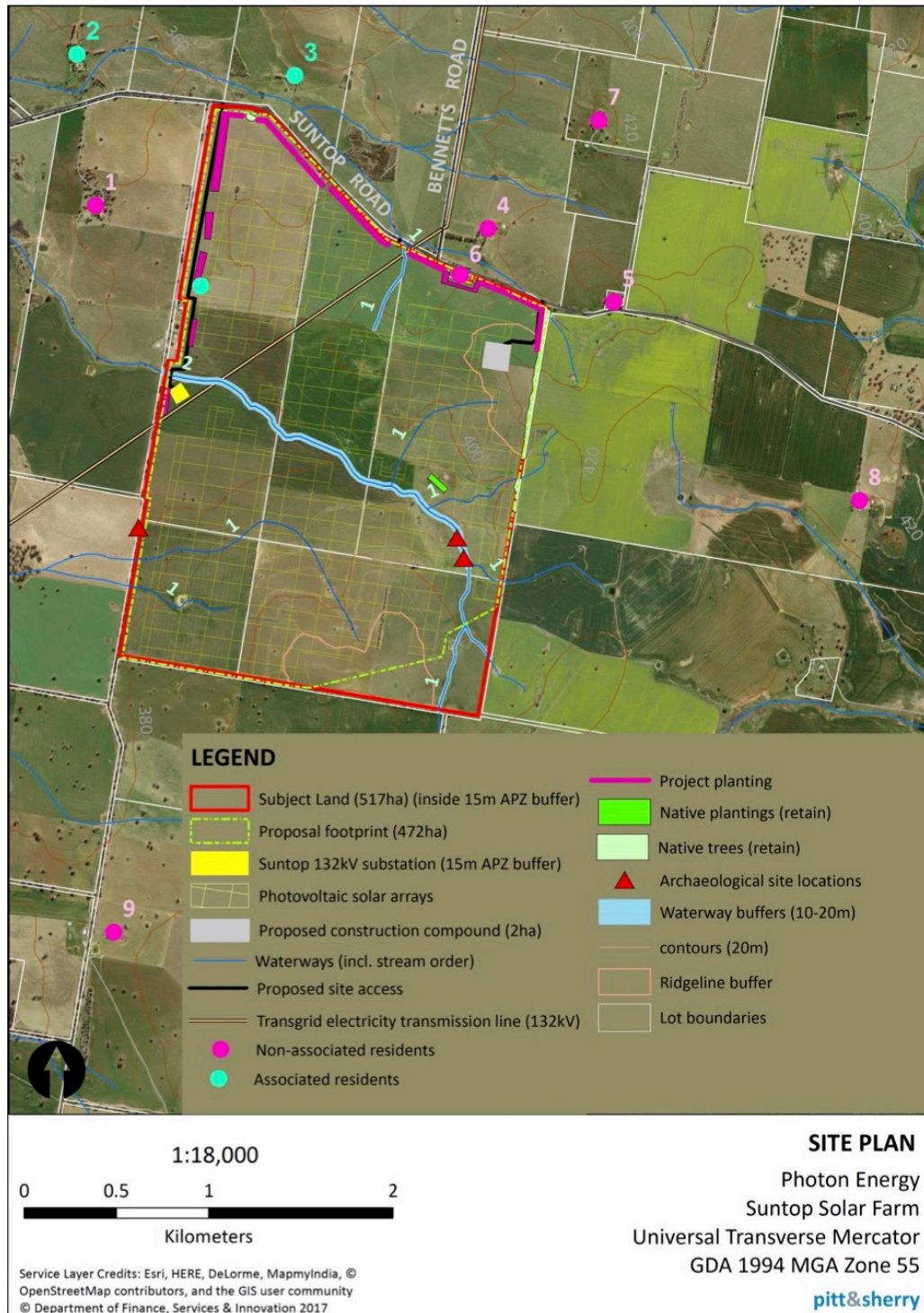


FIGURE 1: APPROVED PROJECT LAYOUT (APPENDIX 1, Development Consent SSD 8696)

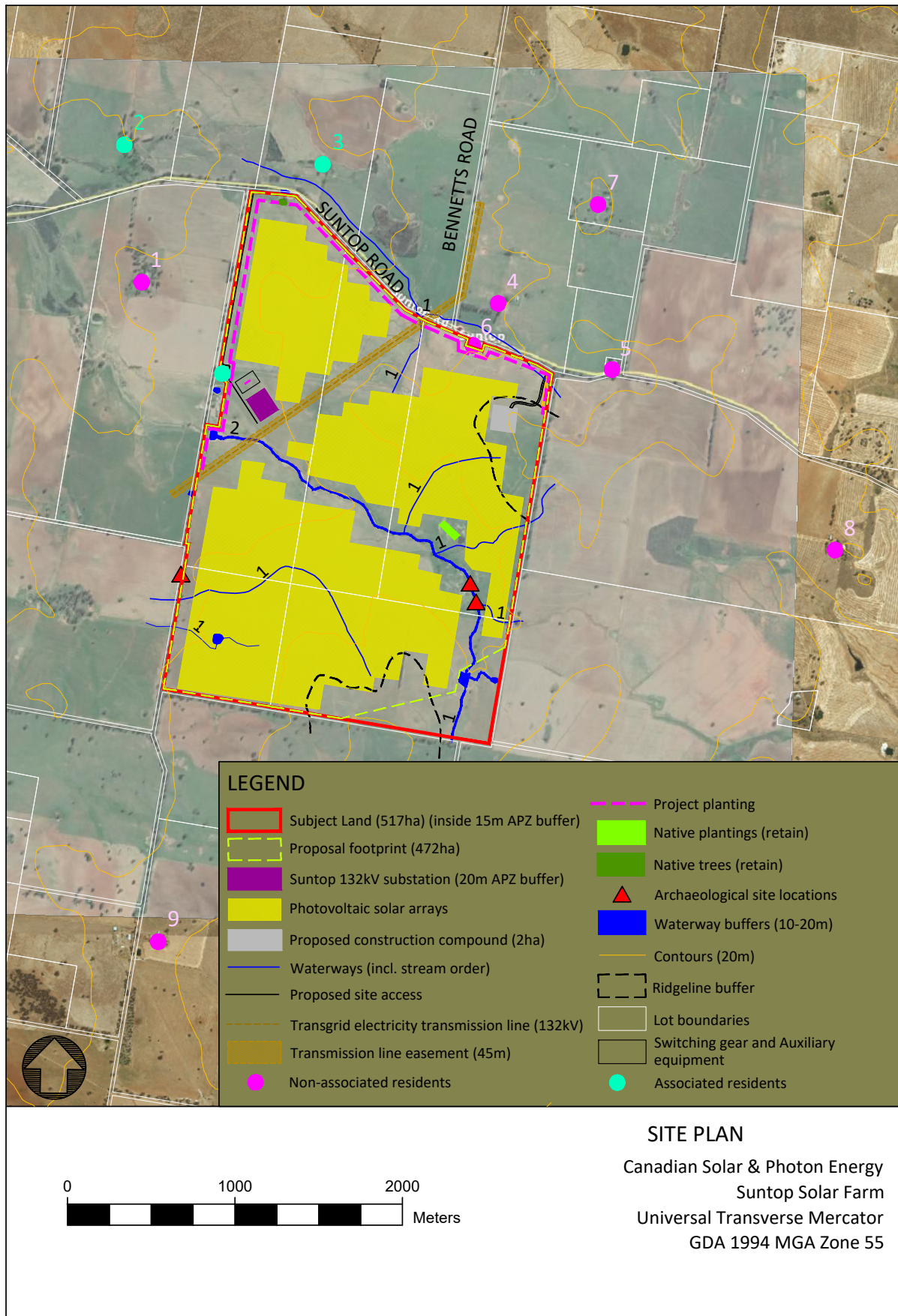


FIGURE 2: PROPOSED MODIFIED SUBSTATION LOCATION (provided by EnergyForms, 19 July 2019)

3. Summary of visual changes

A comparison of the key visual changes between the approved Project and the proposed modification is presented in **TABLE 1**.

TABLE 1: SUMMARY OF KEY VISUAL CHANGES

	Approved Project	Proposed modification
Location of substation	<p>Installed in the vicinity of the existing TransGrid electricity transmission lines and waterway:</p> <p>North of the lines and south of the waterway</p> <p>Approximately 1.5km from Suntop Road</p>	<p>Installed in the vicinity of the existing TransGrid electricity transmission lines and waterway:</p> <p>North of the lines and north of the waterway</p> <p>Approximately 850m from Suntop Road</p>
Configuration of substation	<p>A single 132kv substation on a concrete slab, including two transformers and associated 132kv switchgear (two shipping-container-sized buildings).</p> <p>An image of the likely appearance of the substation was included in the original VIA and is shown at FIGURE 3.</p>	<p>Two substation areas: An E-house; and the main substation containing transformers</p> <p>It is understood the E-house would include four shipping-container-sized buildings (switching rooms and auxiliary buildings).</p> <p>Based on the TransGrid Plan and Elevation provided by Energy Forms (Source Design File:\\vsw08323\ics_sgare\$\4\25901_35\MTZ-100201_00.DGN) we have been advised the appearance of the substation would be largely as described in the original EIS and similar to the image shown at FIGURE 3.</p>
Size of substation	<p>The substation footprint is approximately 60m x 80m in size (4,800m²)</p> <p>There would be a concrete pad with gravel placed around the equipment and fence to restrict vegetation growth and provide a safe working environment in accordance with Australian Standards.</p>	<p>The overall substation footprint is 31,875m² including the APZ buffer:</p> <ul style="list-style-type: none"> - The main substation would be 175m x 125m (21,875m² excluding the buffer). - The site area of the E-house would be 125m x 80m (10,000m²). <p>It is understood that the substation components would not occupy all of the land area set aside for the substation, and that the substation would be largely as described in the original EIS.</p>
Access to substation	The main access road off Suntop Road would provide access to the substation	No change
Security	3m high security fencing around the substation	No change
Safety	A 20m asset protection zone (APZ) would be maintained around the substation with no internal vegetation	No change

	Approved Project	Proposed modification
	One water supply tank outside the APZ with a capacity of 50,000L will be located near the substation	
Bunding	Ensure the substation is suitably banded	No change
Construction of the 132kV substation	<ul style="list-style-type: none"> – Site Establishment and clearing (if required) – Bulk earthworks via a range of plant that may include scrapers, bulldozers, excavators, rollers, trucks and loaders – Detailed civil works including drainage, earthing, foundations etc. generally using excavators, piling rigs, trucks and cranes 	No change
Landscaping along the western boundary	The approved Concept Landscape Plan was illustrated in Figure 9-1 of the original Visual Impact Assessment and included "broken" landscape planting along the western boundary.	A continual line of landscape planting is now proposed along the western boundary.

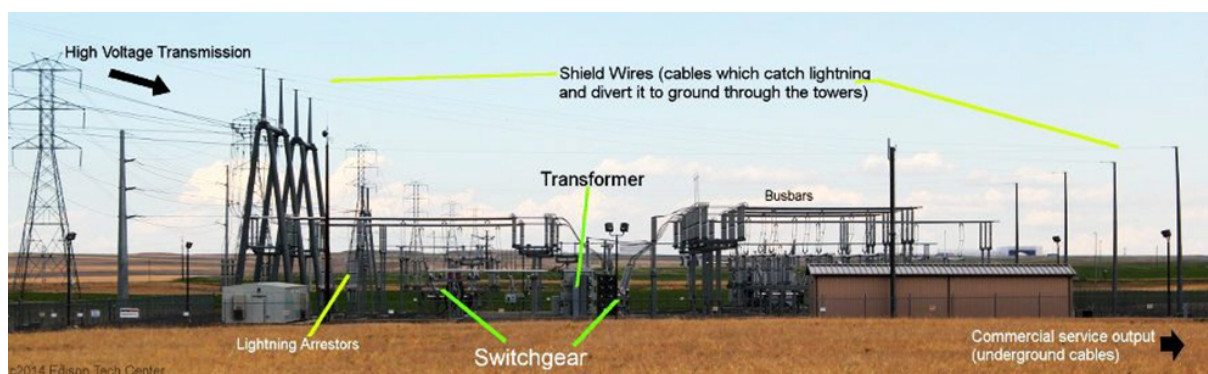


FIGURE 3: EXAMPLE OF A SIMILAR SUBSTATION TO THAT PROPOSED (IMAGE FROM PHOTON ENERGY)

4. Viewpoints

In the original assessment of the approved Suntop solar farm, 26 private viewpoints were found to have potential views of the solar farm. Only one private viewpoint (of the 26 assessed) was found to have potential views of the substation. This viewpoint was identified as Viewpoint 1 (VP1) and was located immediately west of the approved Suntop solar farm. A map of viewpoint locations and their predicted impact rating is provided at **APPENDIX A**.

Two properties - VP2 and VP3 - have become 'associated residents' since the approval of Suntop solar farm. These properties are 'associated' with the proposal as they have been purchased by the Suntop 1 landowner. 'Associated residents' generally have greater resilience to visual changes associated with the proposal.

5. Assessment of proposed modification

The assessment of the proposed modification follows the same assessment methodology presented in the original VIA. The methodology presented in the original VIA is provided at **APPENDIX B**.

The originally assessed impact rating of Suntop 1 (following construction and following implementation of recommended mitigation measures such as planting and colouring of ancillary structures) is summarised for each viewpoint in **TABLE 2**. The Table also presents the assessed impact ratings for each viewpoint including the proposed modification (following construction and following implementation of recommended mitigation measures). Note that the predicted magnitude of change reflects the complete proposal, that is, the originally proposed solar farm together with the proposed modification.

The 'associated resident' viewpoints are identified in **TABLE 2** by grey colouring.

Photomontages

Photomontages were prepared by Cambium Group for two private viewpoints (VP1 and VP7) to illustrate the potential changes associated with the proposed modification to those residents. The original and revised photomontages are included as **Appendix C**. Photomontages compare the original Suntop 1 proposal with the Suntop 1 modification proposal. Photomontages do not include recommended mitigation measures.

The photomontages were prepared independently by Cambium Group and have been used to inform this report.

TABLE 2: ASSESSED VIEWPOINTS AND PREDICTED VISUAL IMPACT LEVELS

Viewpoint (VP)	Approved Project – Assessment from Original Visual Impact Assessment ¹				Assessment of Proposed modification ²		
	Sensitivity (criteria in TABLE 2-1)	Magnitude of change (criteria in TABLE 2-2)	Impact level of approved project (criteria in TABLE 2-3)	Impact level of approved project with mitigation measures implemented	Magnitude of change (criteria in TABLE 2-2)	Impact level of proposed modification (criteria in TABLE 2-3)	Impact level of approved project with mitigation measures implemented
VP1 (associated resident) Lot 53 DP 753238	<p>HIGH</p> <p>Approximately 490m from the Site boundary</p> <p>The residence is on an elevated ridge</p> <p>Direct views from the house are generally not possible due to the surrounding garden</p> <p>The Site is seen from the paddock east of the residence</p>	<p>MODERATE</p> <p>From this viewpoint which is just east of the residence, a moderately large proportion of the PV solar farm could be seen</p> <p>Could potentially see the substation</p> <p>The closest row of the panels would be half a kilometre away</p>	MODERATE-HIGH	<p>MODERATE</p> <p>The approved Concept Landscape Plan included "broken" landscape planting along the western boundary.</p> <p>Views of the PV panels (particularly the rows closest to VP1) and the original substation would reduce through planting, however, panels would remain visible above the height of screen planting.</p>	<p>MODERATE</p> <p>From VP1, the approved location of the substation would be visible, and the proposed modified location of the substation would be visible.</p> <p>The modified substation would replace some of the area previously proposed for solar panels and therefore result in more land seen as pasture when viewed from this viewpoint. However, it would be slightly closer (150 - 200m).</p>	MODERATE-HIGH No change to impact level	<p>MODERATE</p> <p>A continual line of landscape planting is now proposed along the western boundary.</p> <p>Proposed planting would reduce views of the closest PV panels (particularly the rows closest to the western boundary). Additionally, ancillary structures associated with the substation are recommended to be colour-treated to better match the surrounding and decrease visibility and contrast. Panels and taller substation structures would remain visible above the height of screen planting.</p>
VP2 (associated resident) 898 Suntop Road,	<p>HIGH</p> <p>Approximately 780m from the Site boundary</p>	<p>LOW</p> <p>A moderate proportion of the solar farm would be seen, although obstructed by existing</p>	MODERATE	MODERATE-LOW	<p>LOW</p> <p>No change.</p>	LOW Impact has reduced as VP2 is now an	LOW

¹ Extract from Table 7-1 *Proposed Suntop Solar Photovoltaic (PV) Farm, Visual Impact Assessment*, Envisage Consulting, 7 May 2018

² The sensitivity of 'associated residents' has decreased since the original VIA. VP2 and VP3 were both rated as having HIGH sensitivity in the original VIA. Their sensitivity has now decreased to LOW.

Suntop (Lot 97 DP 753238)	The viewpoint is a private home; however, existing vegetation within the property and along Suntop Road obstructs much of the view	vegetation, reducing the view substantially Is unlikely to see the substation		would reduce views into the Site	Was unlikely to see the approved substation location Remains unlikely to see the proposed modified substation	'associated resident'. VP2's sensitivity to the proposal has decreased to low. The low sensitivity ranking, combined with the low magnitude of change, leads to an overall <u>low</u> level of impact.	
VP3 (associated resident) 796 Suntop Road, Suntop (Lot 2 DP 983890)	HIGH Approximately 160m from the Site boundary Is generally at same elevation as Suntop Road Existing trees along Suntop Road may substantially reduce views to the Site from the residence. However, access to the house was not possible during the Site inspection to confirm this, therefore, a worst case has been assumed	MODERATE A relatively small proportion of the Site would be seen In close proximity to proposed panels and inverters (350m to nearest panels) Is opposite the Site entry (which would also be a second entry during construction) Is unlikely to see the substation	MODERATE-HIGH	MODERATE-LOW Views into the Site would reduce via screen planting along the northern 'Suntop Road' boundary	MODERATE No change. Was unlikely to see the approved substation location Remains unlikely to see the proposed modified substation	MODERATE-LOW Impact has reduced as VP3 is now an 'associated resident'. VP3's sensitivity to the proposal has decreased to low. The low sensitivity ranking, combined with the moderate magnitude of change, leads to an	LOW Views into the Site would reduce via screen planting along the northern 'Suntop Road' boundary

						overall moderate-low level of impact.	
VP4 14 Bennetts Road, Suntop (Lot 92 DP 753238)	<p>HIGH</p> <p>The viewpoint is in close proximity to the Site boundary (270m);</p> <p>Existing trees within VP4 property and along Suntop Road potentially reduce views to the Site from the residence</p>	<p>MODERATE</p> <p>The nearest panels would be approximately 400m away</p> <p>A relatively small proportion of the Site would be seen</p> <p>The substation is unlikely to be seen</p>	MODERATE - HIGH	<p>MODERATE-LOW</p> <p>Views would reduce via proposed screen planting along the northern 'Suntop Road' boundary, and planting within VP6 property</p>	<p>MODERATE</p> <p>No change.</p> <p>Was unlikely to see the approved substation location</p> <p>Remains unlikely to see the proposed modified substation</p>	<p>MODERATE - HIGH</p> <p>No change to impact level</p>	<p>MODERATE-LOW</p> <p>No change to post-mitigation impact level</p>
VP5 Lot 51 DP 1082497	<p>HIGH</p> <p>Private home approximately 380m east of the Site boundary</p> <p>The closest panels to the viewpoint would be half a kilometre away</p> <p>Trees between the property and the solar farm would likely limit views</p>	<p>LOW</p> <p>A relatively small proportion of the Site would be seen</p> <p>The substation is unlikely to be seen</p>	MODERATE	<p>MODERATE-LOW</p> <p>Views into the Site would potentially reduce via screen planting along the northern 'Suntop Road' boundary</p>	<p>LOW</p> <p>No change.</p> <p>Was unlikely to see the approved substation location</p> <p>Remains unlikely to see the proposed modified substation</p>	<p>MODERATE</p> <p>No change to impact level</p>	<p>MODERATE-LOW</p> <p>No change to post-mitigation impact level</p>
VP6 Lot 90 DP 657805	<p>HIGH</p> <p>Located immediately north of (adjoining) the Site, on the southern side of Suntop Road</p> <p>This is the closest residence to the proposed panels and inverters</p>	<p>HIGH</p> <p>A relatively small proportion of the solar farm would be seen, however, views of the panels would be possible from three sides of the property</p> <p>The substation would not be seen</p>	HIGH	<p>MODERATE</p> <p>Planting is proposed within the VP6 property. Planting includes shrubs and trees to create a dense screen along the three sides of the property bordering the Site. Screen</p>	<p>HIGH</p> <p>No change.</p> <p>Was unlikely to see the approved substation location</p> <p>Remains unlikely to see the proposed modified substation</p>	<p>HIGH</p> <p>No change to impact level</p>	<p>MODERATE</p> <p>No change to post-mitigation impact level</p>

	<p>The property is lower in elevation than the surrounding solar farm Site</p> <p>The property faces north, and views are directed northward, away from the proposed solar farm</p>	<p>VP6 would also be in close proximity to the proposed construction compound and would be the closest residence to the construction area.</p>		<p>planting is expected to substantially reduce views into the Site</p>			
<p>VP7</p> <p>582 Suntop Road, (Lot 50 DP 753238)</p>	<p>MODERATE</p> <p>Approximately 950m north of the Site</p> <p>over a kilometre from the nearest panels and inverters</p> <p>It is a private residence in an elevated position, however direct views to the Site from the house are not possible</p> <p>The solar farm site would be seen from the paddock west of the residence</p>	<p>MODERATE</p> <p>A moderate proportion of the Site potentially seen</p> <p>The substation would not be seen</p>	MODERATE	MODERATE	<p>MODERATE</p> <p>No change.</p> <p>Was unlikely to see the approved substation location</p> <p>Remains unlikely to see the proposed modified substation</p>	MODERATE	MODERATE
<p>VP Group A</p> <p>VP13, VP15 and VP16</p>	<p>LOW</p> <p>This group of viewpoints is within 2.5km of the Site boundary (approximately)</p> <p>From the residence at VP13, views of the proposed Suntop solar farm are screened by existing, dense vegetation.</p>	<p>LOW</p> <p>Small to moderate proportion of the Site potentially visible</p> <p>Substation unlikely to be seen</p>	LOW	LOW	<p>VP13: LOW</p> <p>In the original assessment, VP 13 was unlikely to see the approved substation location</p> <p>The proposed modified substation location, however, now results in the substation being in view.</p> <p>The substation would be seen behind the existing site homestead, and</p>	VP13: LOW	LOW

	Approximately 250m south of the residence, away from the trees, wide views of the Suntop solar farm site are possible.				<p>above and between trees along the western property boundary.</p> <p>The substation would be a moderate distance from VP13. The substation is approximately 1.8km from the VP13 property boundary, and approximately 2.4km from the viewing location south of the residence.</p> <p>At this distance, the substation would not be prominent. Therefore, there is no change to the magnitude of change rating.</p>		
					<p>VP15 and VP16: LOW</p> <p>No change. Was unlikely to see the approved substation location. Remains unlikely to see the proposed modified substation.</p>	<p>VP15 and VP16: LOW</p> <p>No change to impact level</p>	<p>LOW</p> <p>No change to post-mitigation impact level</p>
VP Group B VP28³, VP32 and VP38	<p>LOW</p> <p>More distant from Site boundary (2.5 to 5km)</p> <p>Located west of the Site</p> <p>Existing vegetation likely to reduce potential viewing area</p>	<p>LOW</p> <p>Large extent of Site potentially visible although Site unlikely to be prominent in the view</p> <p>Potential views of the panels would have minimal visibility</p>	LOW	NEGLIGIBLE	<p>VP38: LOW</p> <p>In the original assessment, VP 38 was unlikely to see the approved substation location</p> <p>The proposed modified substation location, however, now results in part of the substation being in view.</p>	<p>VP38: LOW</p> <p>No change to impact level</p>	<p>NEGLIGIBLE</p> <p>No change to post-mitigation impact level</p>

³ VP28 was originally thought to be a residence, however, it has been since the original assessment was done, it was confirmed as a shed. It has been included in the table for consistency and to allow a direct comparison of results

		Views of the substation unlikely			Although partially visible, the viewpoint is more than approximately 4.3km from the substation, so views are distant, and the substation would not be prominent		
					<p>VP28 and VP32: LOW</p> <p>No change.</p> <p>Was unlikely to see the approved substation location</p> <p>Remains unlikely to see the proposed modified substation</p>	VP28 and VP32: LOW	<p>NEGLECTIBLE</p> <p>No change to post-mitigation impact level</p>
<p>VP Group C</p> <p>VP20, VP30, VP31, VP34, VP35, VP55, VP56</p>	<p>LOW</p> <p>More distant from the Site boundary (5km or more), located north-east to north-west of the Site,</p>	<p>NEGLECTIBLE</p> <p>only small proportion of the Site potentially seen</p> <p>Substation would not be seen</p>	NEGLECTIBLE	NEGLECTIBLE	<p>NEGLECTIBLE</p> <p>No change.</p> <p>Due to the distance from the proposal site, and the moderately low profile of the substation, the proposed modified substation remains unlikely to be discernible</p>	NEGLECTIBLE	NEGLECTIBLE
<p>VP Group D</p> <p>VP40 and VP41</p>	<p>LOW</p> <p>Over 5km from the Site</p> <p>Located west of the Site</p> <p>Views likely to be obscured by trees</p>	<p>LOW</p> <p>A moderate proportion of the Site possibly seen</p> <p>Substation unlikely to be seen</p> <p>Solar farm unlikely to be prominent in the view</p>	LOW	NEGLECTIBLE	<p>LOW</p> <p>No change.</p> <p>Due to the distance from the proposal site, and the moderately low profile of the substation, the proposed modified substation remains unlikely to be discernible</p>	<p>LOW</p> <p>No change to impact level</p>	NEGLECTIBLE
VP Group E	LOW	NEGLECTIBLE	NEGLECTIBLE	NEGLECTIBLE	<p>NEGLECTIBLE</p> <p>No change.</p>	NEGLECTIBLE	NEGLECTIBLE

VP26, VP42, VP50, VP52	<p>Distant from the Site (over 5km)</p> <p>Located south of the Site</p>	<p>Moderate proportion of the Site seen</p> <p>Substation would not be seen</p> <p>Solar farm unlikely to be prominent in the view</p>			<p>Due to the distance from the proposal site, and the moderately low profile of the substation, the proposed modified substation remains unlikely to be discernible</p>	<p>No change to impact level</p>	
VP Suntop Road	<p>MODERATE</p> <p>Travellers using Suntop Road pass immediately to the north of the Site</p> <p>The road is in close proximity to the Site, however, the distance to the proposed panels and inverters ranges from 75m to 200m or more as the viewer travels along the road</p>	<p>MODERATE</p> <p>The PV modules would be in rows perpendicular to the road. Therefore, when travelling past the solar farm, the viewer is likely to see the colour of the panels change rapidly from black to various shades from blue to white, lightening in appearance as the viewer position changes. This visual change would be seen if looking directly down the rows when travelling past at speed, and would be momentary</p> <p>Views are temporary</p> <p>Substation would not be seen</p> <p>A relatively small proportion of the Site seen</p>	MODERATE	MODERATE-LOW	<p>MODERATE</p> <p>In the original assessment, VP Suntop Road was unlikely to see the approved substation location</p> <p>The proposed modified substation location, however, now results in the substation being in view along a short section of Suntop Road.</p> <p>When driving west along Suntop Road, views of the proposed modified substation would be prevented by a ridge within Suntop 1 between the substation and Suntop Road (around 11m higher in elevation compared to Suntop Road)</p> <p>When driving east along Suntop Road, views of the proposed modified substation are limited by vegetation within the adjacent property and along the entrance driveway to the Suntop solar farm</p> <p>There is a short section of Suntop Road (approximately 500m long)</p>	MODERATE	MODERATE-LOW

				<p>in the vicinity of the Suntop 1 entrance driveway where views of the substation would be possible</p> <p>These limited viewing locations are over a kilometre from the substation, and only the very top (1-2m) of the substation would be visible due to the location of the Substation on lower-lying land and the more-elevated land between the viewer (on Suntop Road) and the substation</p> <p>This small increase in the proposal seen from this distance (over 1km) from the substation, does not impact the rating previously determined.</p>		
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6. Summary

A comparison of ratings (prior to implementation of recommended mitigation measures) for viewpoints assessed in the original proposal, and assessed for the proposed modified substation location, are summarised in **TABLE 3**.

The proposed modification to the substation location would result in two private viewpoints (VP13 and VP38) seeing the substation whereas previously they had no view of the approved substation. However, both viewpoints are distant (over approximately 2.5km away), and the substation is still on lower-lying land with trees in the foreground along the property boundary. At this distance the substation would be barely perceptible from other solar farm infrastructure and would not be prominent in the view, and therefore, the original rating given for these viewpoints has not changed.

From the public viewpoint (VP Suntop Road) there would also be views of the substation whereas previously there was no view. However, locations from Suntop Road with views to the substation are very limited, and only the top few metres of the substation would be seen. Therefore, the original rating given for this viewpoint has not changed.

The only other viewpoint that would see the proposed modified substation is VP1, which already viewed the approved substation. Overall the revised proposal does not represent a substantial change to the approved proposal when viewed from this residence, and therefore, the original rating has not changed. To further mitigate the visual impact to VP1 in the longer term, additional landscaping has been proposed along the western boundary closest to the substation in consultation with this landholder. Over time this landscape planting would break-up views of the substation in addition to the screening originally proposed, however, the taller elements of the substation would remain visible.

TABLE 3: SUMMARY OF RATINGS

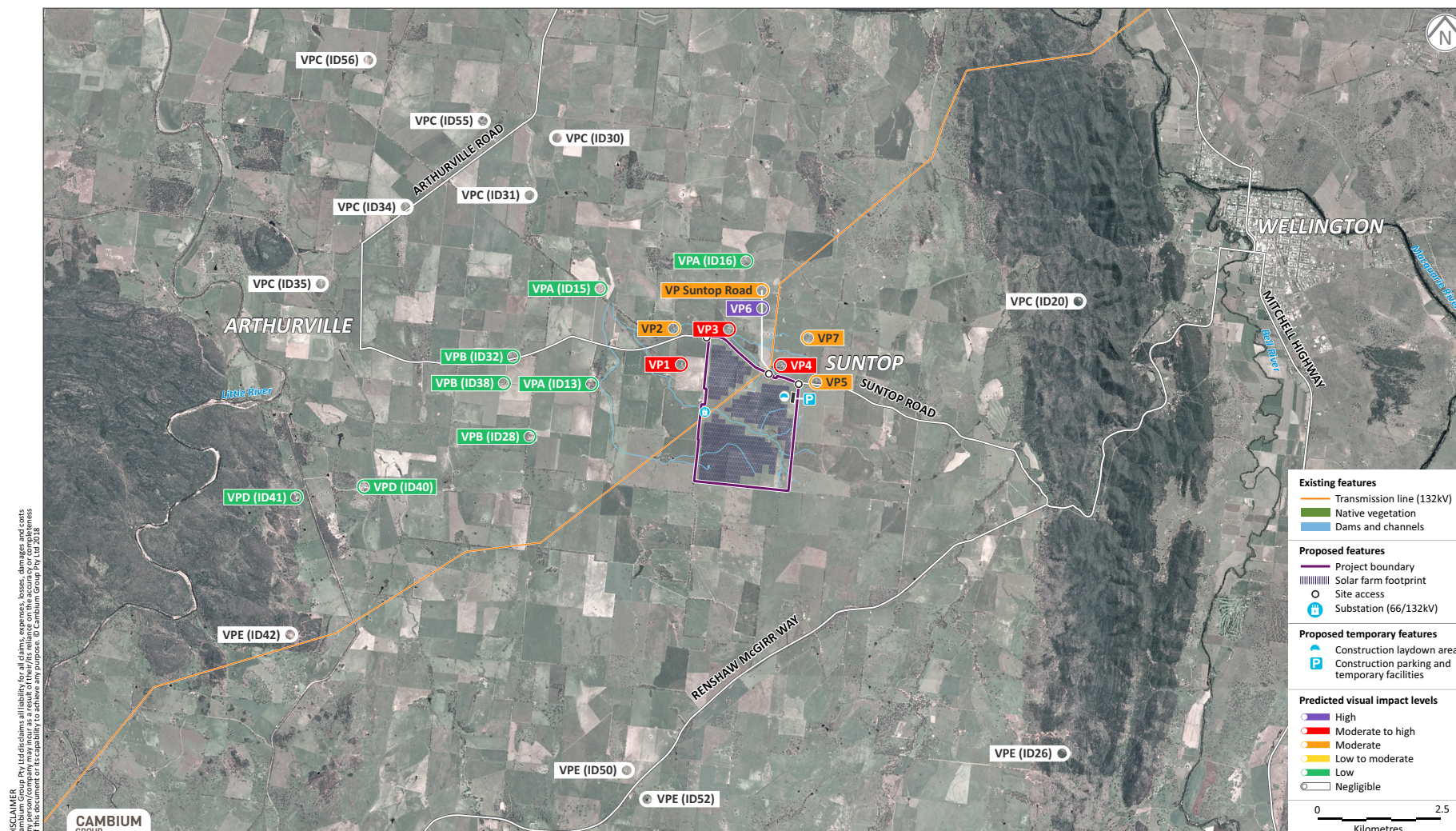
Rating	Approved Project	Proposed Modification
High	<ul style="list-style-type: none"> 1 private viewpoint with a high impact (VP6) 	<ul style="list-style-type: none"> 1 private viewpoint with a high impact (VP6)
Moderate-high	<ul style="list-style-type: none"> 3 private viewpoints (VP1, VP3 and VP4) <p>A photomontage of the approved project from VP1 is shown at Figure 6, Appendix C.</p>	<ul style="list-style-type: none"> 2 private viewpoints with a moderate-high impact (VP1 and VP4) <p>VP1 would see proposed substation. VP1 also had views of the approved substation. There is no change to impact level.</p> <p>A photomontage of the proposed modification project from VP1 is shown at Figure 8, Appendix C.</p> <p>VP3 is now an 'associated resident', therefore impact has decreased.</p>
Moderate	<ul style="list-style-type: none"> 3 private viewpoints with a moderate impact (VP2, VP5, VP7) 1 public viewpoint with a moderate impact (VP Suntop Road) <p>A photomontage of the approved project from VP7 is shown at Figure 11, Appendix C.</p>	<ul style="list-style-type: none"> 2 private viewpoints with a moderate impact (VP5, VP7) 1 public viewpoint with a moderate impact (VP Suntop Road) <p>VP Suntop Road would see proposed substation (whereas it did not see the original substation), however, there is no change to impact level</p>

Rating	Approved Project	Proposed Modification
		<p>A photomontage of the proposed modification project from VP1 is shown at Figure 13, Appendix C.</p> <p>VP2 is now an 'associated resident', therefore impact has decreased.</p>
Moderate-low	<ul style="list-style-type: none"> No viewpoints with a moderate-low rating 	<ul style="list-style-type: none"> 1 private viewpoint with a moderate-low rating (VP3)
Low	<ul style="list-style-type: none"> 8 private viewpoints with a low impact rating (VP13, VP15, VP16, VP28, VP32, VP38, VP40 and VP41) 	<ul style="list-style-type: none"> 9 private viewpoints with a low impact rating (VP2, VP13, VP15, VP16, VP28, VP32, VP38, VP40 and VP41) <p>VP13 would see the proposed substation (whereas it would not see the approved substation), however, views are quite distant (around 2.4km away), and the substation would not be prominent.</p> <p>VP38 would see part of the substation (whereas it would not see the approved substation), however, the viewpoint is more than approximately 4.3km from the substation, so views are distant, and the substation would not be prominent.</p>
Negligible	<ul style="list-style-type: none"> 11 private viewpoints with a negligible impact rating (VP20, VP30, VP31, VP34, VP35, VP55, VP56, VP26, VP42, VP50 and VP520) 	<ul style="list-style-type: none"> 11 private viewpoints with a negligible impact rating (VP20, VP30, VP31, VP34, VP35, VP55, VP56, VP26, VP42, VP50 and VP520)

7. Recommendations

In addition to the recommendations for the detailed landscape plan provided in the original visual impact assessment, we recommend increasing the width of landscape screening along the western boundary so that it is a minimum width of 5m at the ground surface.

APPENDIX A: PREDICTED VISUAL IMPACT LEVELS TO IDENTIFIED VIEWPOINTS⁴



⁴ FIGURE 7-1, Proposed Suntop Solar Photovoltaic (PV) Farm, Visual Impact Assessment, Envisage Consulting, 7 May 2018.

APPENDIX B: METHODOLOGY

The methodology below is an extract of **Section 2.0** of the original VIA for the Project, *Proposed Suntop Solar Photovoltaic (PV) Farm, Visual Impact Assessment*, Envisage Consulting, 7 May 2018. It was used in the original assessment and also in this assessment of the modification to the substation location.

2.1 General

The assessment methodology used in this report is based broadly on the NSW Road and Maritime Services' (Roads and Maritime, 2013) Environmental Impact Assessment Practice Note: Guideline for Landscape Character and Visual Impact Assessment EIA-N04, March 2013.

Under the guideline, two main types of visual effects (or impacts) are assessed:

- effect on the landscape character
- effect on key viewpoints (visual impact).

The guidelines describe these impacts as follows:

"Landscape character and visual assessment are equally important. Landscape character assessment helps determine the overall impact of a project on an area's character and sense of place. Visual impact assessment helps define the day to day visual effects of a project on people's views."

2.2 Detailed assessment methodology

The determination of the effect on landscape character and viewpoints are based on the combination of two criteria – the sensitivity and the magnitude of change, defined by Roads and Maritime (2013) as:

- *Sensitivity - The sensitivity of a landscape character zone or view and its capacity to absorb change. In the case of visual impact this also relates to the type of viewer and number of viewers.*
- *Magnitude - The measurement of the scale, form and character of a development proposal when compared to the existing condition. In the case of visual assessment this also relates to how far the proposal is from the viewer.*
- For the purposes of this assessment, the criteria developed to determine sensitivity are listed in **Table 2.1**. Criteria used to determine magnitude are listed in **Table 2.2**. These criteria have been defined for sensitivity and magnitude of change for both the assessment of landscape character and the visual impact to viewpoints. The combination of sensitivity and magnitude provide the rating of the level of impact, as shown in **Table 2.3** (as adapted for this type of project from Roads and Maritime, 2013).

Indicative images (photomontages) have been prepared to illustrate the likely visual changes from key viewpoints and are included where relevant.

TABLE 2-1: SENSITIVITY RANKING CRITERIA

Sensitivity	Criteria (general guide only, some or all may apply)
High	<ul style="list-style-type: none"> ▪ Landscape or cultural heritage of high to very high conservation value ▪ Landscape with characteristics that are highly sensitive and highly affected by large-scale development ▪ Public views with a high to very high number of users and/or in close proximity ▪ Private views in close proximity (generally less than 1km) with mostly unimpeded views
Moderate	<ul style="list-style-type: none"> ▪ Landscape or cultural heritage of moderate conservation value ▪ Landscape with characteristics moderately affected by large-scale development ▪ Public views with a moderate to high number of viewers and/or viewers are in close or moderate proximity (generally less than 2.5km away) ▪ Private views in moderate proximity (generally 1-2.5km) with some views, or a further distance (2.5-5km) with mostly unimpeded views
Low	<ul style="list-style-type: none"> ▪ Some landscape or cultural heritage conservation value but of lower visual value ▪ Landscape characteristics not greatly affected by large-scale development ▪ Public views for a small number of users and/or viewers more distant (generally over 2.5km away) ▪ Private views in more distant proximity (generally 5km+) with some unimpeded views
Negligible	<ul style="list-style-type: none"> ▪ Landscape has no or very little cultural heritage, conservation or visual value ▪ Characteristics relatively unaffected by large-scale development ▪ Very few people can view ▪ Viewers are a long distance from site (generally over 5km with no obvious views) ▪ Private views generally not affected.

TABLE 2-2: MAGNITUDE OF CHANGE RANKING CRITERIA

Magnitude	Criteria (general guide only, some or all may apply)
High	<ul style="list-style-type: none"> ▪ Significant scale (bulk and height) and extent of area affected ▪ Permanent and irreversible change ▪ The site has a high visual prominence (is a key feature of the view) ▪ The viewer position in relation to the proposal is substantially elevated and from a northern, eastern or western location ▪ The viewer sees a large proportion of the facility (typically more than half (50%)) ▪ The proposal forms a significant and immediately apparent part of the scene, and one that significantly contrasts in scale and character (either existing or planned) and is severely detrimental to the quality of the scene.
Moderate	<ul style="list-style-type: none"> ▪ Moderate scale (bulk and height) and extent of area affected ▪ The site is visually prominent (a recognisable feature of the view) ▪ The viewer position in relation to the proposal is elevated ▪ The viewer sees a moderate proportion of the facility (typically a quarter to a half (25-50%)) ▪ Temporary, or if permanent, effects which may reduce over time

Magnitude	Criteria (general guide only, some or all may apply)
	<ul style="list-style-type: none"> The proposal becomes a noticeably dominant feature of the scene, and one that contrasts in scale and character (either existing or planned), possibly reducing the quality of the scene.
Low	<ul style="list-style-type: none"> Small in scale (bulk and height) and extent of area affected Temporary, or if permanent, visual effects able to be reduced substantially over time The site is less visually prominent The viewer position is usually to the south of the facility The viewer sees a small portion of the facility (typically less than a quarter (25%) and/or from a further distance) The proposal forms a visible and recognisable new element within the overall scene, yet one that is relatively compatible with the surrounding character (either existing or planned) and would not generally reduce the quality of the scene.
Negligible	<ul style="list-style-type: none"> The proposal constitutes only a minor component of the wider view, which might be missed by the casual observer or receptor. Awareness of the proposal would not have a marked effect on the overall quality of the scene.

TABLE 2-3: LEVEL OF IMPACT

Matrix of relationship between sensitivity and magnitude					
		Magnitude			
			HIGH	MODERATE	LOW
Sensitivity	HIGH	High	Moderate - high	Moderate	Negligible
	MODERATE	Moderate - High	Moderate	Moderate -Low	Negligible
	LOW	Moderate	Moderate - Low	Low	Negligible
	NEGLIGIBLE	Negligible	Negligible	Negligible	Negligible

APPENDIX C: PHOTOMONTAGES prepared by Cambium Group)

Viewpoint (VP) locations are shown **Appendix A**.

Photomontages have been prepared for VP1 and VP7. For each viewpoint, the following images are provided:

- The existing view toward the Proposal
- Analytical view of approved project - using the same image as the existing view, the analytical image shows the location of the approved solar farm in pink
- Photomontage of approved project – this image shows the likely view following construction of the approved solar farm
- Analytical view of proposed modified project
- Photomontage of proposed modified project



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FIGURE 4 – VP1 Existing view



Figure 5: VP1 - Analytical view of likely visibility of approved project



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Figure 6: VP1 - Photomontage of likely view of approved project post construction



Figure 7: VP1 – Analytical view of proposed modified project



Figure 8: VP1 – Photomontage of proposed modified project



Figure 9: VP7 – Existing view



Figure 10: VP7 - Analytical view of likely visibility of approved project



Figure 11: VP7 - Photomontage of likely view of approved project post construction



Figure 12: VP7 - Analytical view of likely visibility of proposed modified project



Figure 13: VP7 - Photomontage of likely view of approved project post construction