

**APPENDIX 9**

**Addendum Landscape and Visual Impact Assessment**



# Proposed Tallawang Solar Farm

**Addendum**

**LANDSCAPE and VISUAL IMPACT ASSESSMENT**

Prepared for Umwelt Pty Limited  
2024

envisage

# Proposed Tallawang Solar Farm

## Addendum

### LANDSCAPE AND VISUAL IMPACT ASSESSMENT

**PREPARED FOR:** Umwelt (Australia) Pty Limited on behalf of RES Australia Pty Ltd (RES)

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Hunter/Central Coast + Mid-North Coast + Sydney (assoc)

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## 1.1 Purpose of this addendum

This report is an addendum to the landscape and visual impact assessment (LVIA<sup>1</sup>) prepared to assess a proposed Solar Farm at Tallawang, near Gulgong (the EIS Project). The LVIA informed the Environmental Impact Statement (EIS) and development application for the EIS Project, submitted to the Department of Planning and Environment (DPE) (now the Department of Planning, Housing and Infrastructure (DPHI)) for exhibition in 2022.

Following the exhibition of the EIS Project, amendments have been proposed by the proponent, RES Australia Pty Ltd (RES) in response to agency and community submissions received during the exhibition phase and through further consultation with key stakeholders and government agencies (referred to as the 'Amended Project'). Amendments are described in [Section 2](#) and include:

- An on-site temporary workers accommodation (TWA) facility.
- Updated design for the intersection upgrade on the Castlereagh Highway.
- Removal of a formerly proposed northern substation option.
- Removal of formerly proposed grid connection infrastructure, connecting the Project substation to the Central West Orana Renewable Energy Zone (CWO REZ). Grid connection infrastructure, would still be required, however, would be installed as part of the NSW Government's Electricity Infrastructure Roadmap.
- An increase in BESS capacity (from 200 MW to 500 MW) with a decreased BESS footprint.
- Modifications to the solar layout (including improving east-west wildlife connectivity through the Project Area).

The addendum describes and assesses the potential impact to landscape character and views that may result from the Amended Project. The addendum also addresses a Mid-Western Regional Council request for further cumulative visual impact information:

*Of particular concern, Flirtation Hill a core component of the Gulgong Heritage Conservation Area is to be impacted by several other renewable projects within the LGA. Council request that the proponent provide further assessment of the perceived impact to visual amenity considering the cumulative impacts of the proposed development combines with all other renewable energy projects within the locality.<sup>2</sup>*

The addendum is set out in the following sections:

- [Section 2](#) Describes the proposed amendments.
- [Section 3](#) Assesses potential change to landscape character impact (compared to the EIS Project).
- [Section 4](#) Assesses potential change to views (visual impact) (compared to the EIS Project).
- [Section 5](#) Reviews and updates Project mitigation measures.
- [Section 6](#) Addresses potential change to lighting impact (compared to the EIS Project).
- [Section 7](#) Addresses potential change to cumulative impact (including concerns raised by Mid-Western Regional Council) (compared to the EIS Project).

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<sup>1</sup> Envisage Consulting, July 2022, *Proposed Tallawang Solar Farm, Visual Impact Assessment*. The LVIA described and assessed the EIS Project scope.

<sup>2</sup> Letter, Mid-Western Regional Council to NSW Department of Planning, Industry and Environment, 24 November 2022, Subject: Tallawang Solar Farm (SSD-23700028)

## 1.2 Methodology

The applied methodology is consistent with that applied in the LVIA and follows well-regarded Australian and international visual impact assessment guidelines<sup>3</sup>. In summary, the rating of visual impact is determined by combining the sensitivity (of the existing landscape character, or view) to change, and the assessed magnitude of change that would result from the EIS Project. The possible level of impact ranges from 'high' to 'negligible', as shown in Table 1-1.

Table 1-1: Matrix of impact<sup>4</sup>

	High magnitude	Moderate magnitude	Low magnitude	Negligible magnitude
High sensitivity	High	High-Moderate	Moderate	Negligible
Moderate sensitivity	High-Moderate	Moderate	Low-moderate	Negligible
Low sensitivity	Moderate	Low-moderate	Low	Negligible
Negligible sensitivity	Negligible	Negligible	Negligible	Negligible

The LVIA was completed and lodged with the EIS prior to the introduction of the NSW Government's *Large-Scale Solar Guideline* (August 2022), which prescribes a different methodology for visual impact assessment of solar farms than that used in the LVIA. The *Large-Scale Solar Guideline*, is therefore, not applicable to either the LVIA or this subsequent addendum.

<sup>3</sup> Including: *Guideline for Landscape Character and Visual Impact Assessment - Environmental Impact Assessment Guidance Note EIA-N04* Transport for NSW, 2020; *Guidance Note for Landscape and Visual Assessment*, Australian Institute of Landscape Architects, 2018; *Guidelines for Landscape and Visual Impact Assessment*, the United Kingdom's Landscape Institute and Institute of Environmental Management and Assessment, 2013; and *The Renewable Energy Landscape, Preserving scenic values in our sustainable future*, Apostle, Palmer, Pasqualetti, Smardon and Sullivan, 2017.

<sup>4</sup> Source: Figure 7, *Guideline for Landscape Character and Visual Impact Assessment - Environmental Impact Assessment Guidance Note EIA-N04* Transport for NSW, 2020. Table colour added by Envisage.

Proposed amendments to the EIS Project and the main **visible** changes are described in Table 2-1. The Amended Project layout is shown Figure 2-1 and the proposed temporary accommodation area (TWA) is shown in Figure 2-2 compares the EIS Project layout to the Amended Project layout.

Table 2-1: Comparison of visible changes between EIS Project and Amended Project<sup>5</sup>

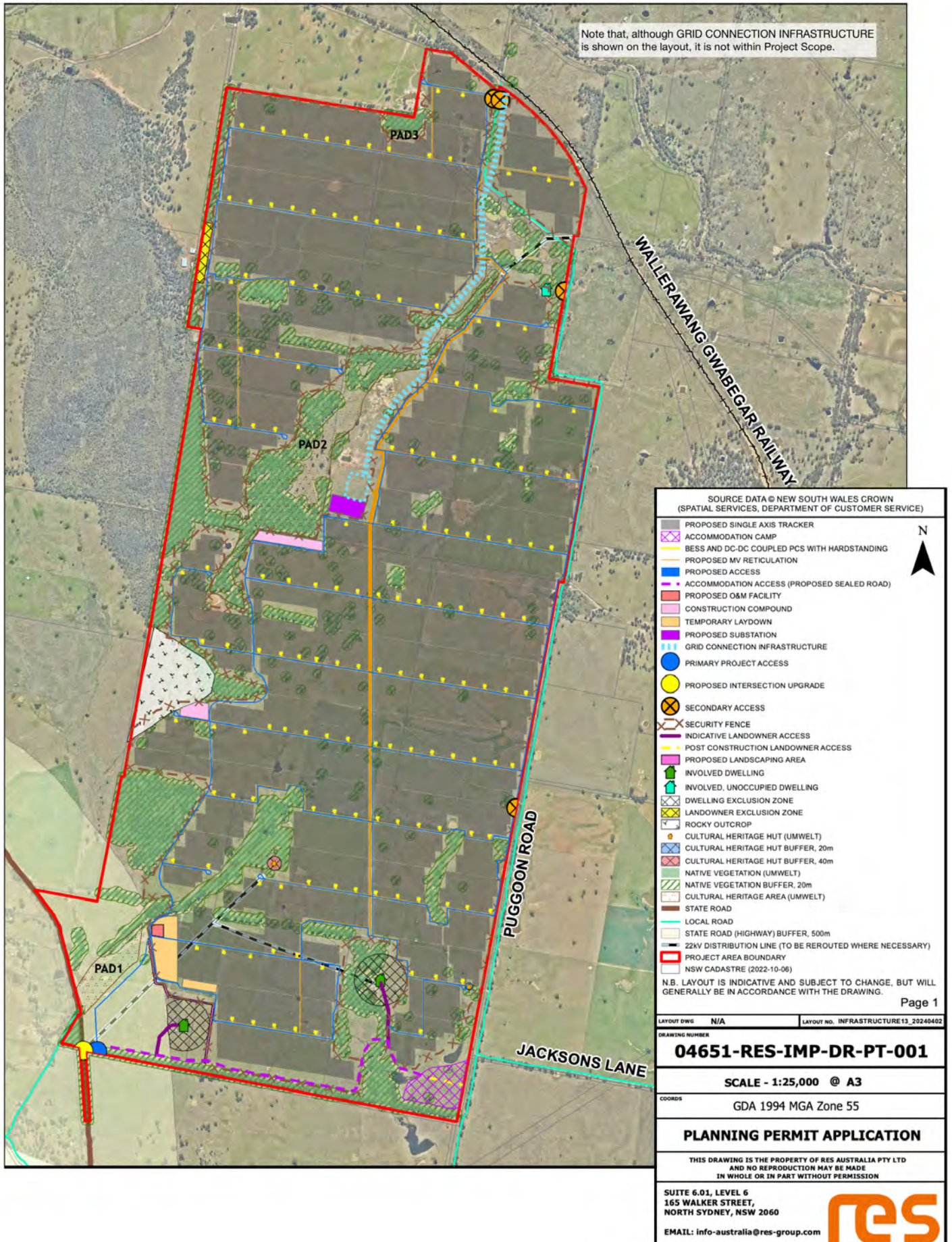
Project element	EIS Project	Amended Project	Description of main visual change
Project Area	Approximately 1,370 ha	Approximately 1,300 ha, reducing the Project Area by 70 ha.	No discernible visual change.
Development footprint (layout modifications / refinements)	Approximately 866 ha. Included intermittent perimeter landscaping within the Project Area adjacent to Puggoon Road, and a 500 m infrastructure set back from the Castlereagh Highway.	Approximately 1,016 ha, increasing the development footprint by 150 ha.	The most visible change would be: <ul style="list-style-type: none"> <li>- Proposed infrastructure would occupy previously unoccupied locations within the Project area adjacent to Puggoon Road, and therefore reducing space for landscape screening along the eastern Project perimeter.</li> <li>- Infrastructure would be set back further from: <ul style="list-style-type: none"> <li>• the Castlereagh Highway, increasing the distance of Project infrastructure to the highway from 500 m (approximately) to 600 m (approximately), and</li> <li>• an existing residence within the Project Area (closest to the Castlereagh Highway).</li> </ul> </li> <li>- Infrastructure, including the site security fence, has been removed from an east-west corridor centrally located within the Project Area for wildlife connectivity, and therefore, retaining a larger area of existing vegetation centrally within the Project Area.</li> </ul>
Schedule of lands	The EIS Project would comprise (wholly or partly) 35 cadastral lots	The Amended Project would comprise (wholly or partly) 19 freehold lots, two parcels of Crown Land, a Council road and a small section of the Castlereagh Highway road reserve, reducing the number of lots occupied.	No discernible visible change
Intersection upgrade	A short Channelised Right turn (CHR) and an Auxiliary Left turn (AUL) treatment on the Castlereagh Highway.	A standard (full sized) CHR and AUL treatments on the Castlereagh Highway (in response to Transport for NSW submission on the EIS Project).	More extensive intersection treatment and larger intersection footprint, which would comprise 3.5 m wide through lanes, 3.5 m wide turning lanes, 2 m shoulders (1 m sealed plus 1 m unsealed), 1 m verge and 1V:4H batters.
Targeted BESS capacity	200 MW / 400 MW-h (DC) air-cooled batteries.	500 MW / 1000 MW-h liquid-cooled batteries (which occupy a smaller battery footprint).	The change in type of batteries used results in a slightly decreased BESS footprint. The BESS would be light coloured and distributed throughout the development footprint, adjacent to the inverters.
Grid connection	The EIS Project included a 13 km long, 330 kV overhead electricity transmission line (ETL), including installation of up to 32 transmission towers (around 35 m high). The ETL was proposed to connect the EIS Project to the	The Amended Project's grid connection would be via the proposed CWO REZ Transmission Project being developed by the Energy Corporation of NSW (EnergyCo).	Although the formerly proposed grid connection is no longer proposed as part of the Amended Project scope, grid connection infrastructure would still be required, and is being developed and assessed as a separate planning application by Energy Co (CWO REZ grid connection infrastructure) (application submitted). The EIS was placed on public exhibition in 2023 and an amendment

<sup>5</sup> Project changes sourced from Umwelt Description of Amendments, 4 March 2024

Project element	EIS Project	Amended Project	Description of main visual change
	proposed CWO-REZ Transmission Line via the NSW Government's proposed switching station to be located on the adjacent Barneys Reef Wind Farm project.		report has been lodged which addresses submissions received and describes and assesses project changes.
Substation	One onsite 330 kV substation and switchyard proposed at two possible locations (i.e. a northern and central location). The northern substation was proposed to be located near the Puggoon Road / Wallerawang-to-Gwabegar railway crossing.	One onsite 330 kV substation and switchyard proposed at a central location. Removal of a formerly proposed option for a northern substation (that would have been located near the Puggoon Road / Wallerawang-to-Gwabegar railway crossing).	The formerly proposed option for a northern substation is not included in the Amended Project. The location of the formerly proposed substation is now proposed to be occupied by solar panels. There is only one substation within the Amended Project, at the proposed central location. The central substation footprint has also reduced from approximately 3 ha to 2 ha and includes tall components up to 14 m high.
Workforce	Approximately 270 direct full time equivalent (FTE) and 430 indirect FTE jobs. At the Project's peak construction (for up to 6 months) this is expected to increase to about 580 direct FTE jobs.	Approximately 380 FTE jobs, with up to 420 workers on site during peak construction, reducing the number of jobs during peak construction.	No discernible visual change.
Construction period	Up to 34 months.	Up to 36 months.	Construction would be visible for a slightly longer period.
Construction timing	Commence Q2 2024.	Commence Q2 2026.	Later commencement of construction. No visual change.
TWA facility (temporary workers accommodation) and access track	Dispersed across nearby towns and villages within the Mid-Western and Warrumbungle LGAs.	<p>Provision of a 400-person onsite TWA facility, occupying around 5 ha in the south-east of the Project Area, adjacent Puggoon Road. The TWA facility would comprise multiple single storey prefabricated demountable units (approximately 14 m long, 3.2 m wide and 3.2 m high), including a dining area, gym, administration offices and security. A car and bus parking area would be located adjacent to the TWA facility.</p> <p>Access to the TWA facility would be via a proposed 2.25 km long, 8 m wide, sealed road from the Castlereagh Highway). The access would traverse through the Project Area and be designed to accommodate B-triple vehicles with a minimum curve radius of 15 m and include culvert installations at three waterway crossings. The construction disturbance footprint would be 16 m wide (8 m on each side of the access centreline). Minimal tree removal would be required for construction of the TWA access. Trees and vegetation identified to be retained would be protected.</p> <p>Minor earthworks would be required to prepare the TWA site. Prefabricated TWA facility components would be delivered via heavy vehicles and assembled on-site using large forklifts.</p> <p>Following the construction of the solar farm, the TWA facility may be maintained for use by the construction workforce associated with other CWO REZ projects in the region (such as the nearby Barneys Reef Wind Farm), if this is approved as part of the other projects' development applications. Alternatively, the TWA facility would be decommissioned.</p>	<p>The most visible change would be:</p> <ul style="list-style-type: none"> <li>- Multiple demountable buildings in the south-east of the Project Area near Puggoon Road, operating 24/7 for the duration of the construction period (approximately 3 years) or possibly longer (if approved for use with other CWO REZ projects in the region). An image of the TWA site layout and its approximate location near Puggoon Road is shown in <a href="#">Figure 2-3</a>. Typical TWA facility demountable buildings are also shown in <a href="#">Figure 2-3</a>.</li> <li>- Lighting associated with the TWA (lighting impacts are discussed in <a href="#">Section 6</a>).</li> <li>- A new, temporary, car park north of the TWA facility, and vehicle movements to/from the TWA via an internal access track.</li> <li>- Additional construction activities in the south-eastern corner of the Project Area, associated with construction of the TWA.</li> <li>- Once the TWA facility is no longer required, the TWA site would be cleared of any temporary infrastructure and equipment and rehabilitated to its previous condition.</li> </ul>

Figure 2-1  
Amended Project layout

TALLAWANG SOLAR FARM - ADDENDUM VISUAL IMPACT ASSESSMENT



Note that, although GRID CONNECTION INFRASTRUCTURE is shown on the layout, it is not within Project Scope.

WALLERAWANG GWABEGAR RAILWAY

PUGGOON ROAD

JACKSONS LANE

PAD1

PAD2

PAD3

SOURCE DATA © NEW SOUTH WALES CROWN (SPATIAL SERVICES, DEPARTMENT OF CUSTOMER SERVICE)

- PROPOSED SINGLE AXIS TRACKER
- ACCOMMODATION CAMP
- BESS AND DC-DC COUPLED PCS WITH HARDSTANDING
- PROPOSED MV RETICULATION
- PROPOSED ACCESS
- ACCOMMODATION ACCESS (PROPOSED SEALED ROAD)
- PROPOSED O&M FACILITY
- CONSTRUCTION COMPOUND
- TEMPORARY LAYDOWN
- PROPOSED SUBSTATION
- GRID CONNECTION INFRASTRUCTURE
- PRIMARY PROJECT ACCESS
- PROPOSED INTERSECTION UPGRADE
- SECONDARY ACCESS
- SECURITY FENCE
- INDICATIVE LANDOWNER ACCESS
- POST CONSTRUCTION LANDOWNER ACCESS
- PROPOSED LANDSCAPING AREA
- INVOLVED DWELLING
- INVOLVED, UNOCCUPIED DWELLING
- DWELLING EXCLUSION ZONE
- LANDOWNER EXCLUSION ZONE
- ROCKY OUTCROP
- CULTURAL HERITAGE HUT (UMWELT)
- CULTURAL HERITAGE HUT BUFFER, 20m
- CULTURAL HERITAGE HUT BUFFER, 40m
- NATIVE VEGETATION (UMWELT)
- NATIVE VEGETATION BUFFER, 20m
- CULTURAL HERITAGE AREA (UMWELT)
- STATE ROAD
- LOCAL ROAD
- STATE ROAD (HIGHWAY) BUFFER, 500m
- 22kV DISTRIBUTION LINE (TO BE REROUTED WHERE NECESSARY)
- PROJECT AREA BOUNDARY
- NSW CADASTRE (2022-10-06)

N.B. LAYOUT IS INDICATIVE AND SUBJECT TO CHANGE, BUT WILL GENERALLY BE IN ACCORDANCE WITH THE DRAWING.

Page 1

LAYOUT DWG: N/A      LAYOUT NO.: INFRASTRUCTURE13\_20240402

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Figure 2-2  
Visible changes - Amended Project layout compared to EIS Project

TALLAWANG SOLAR FARM - ADDENDUM VISUAL IMPACT ASSESSMENT

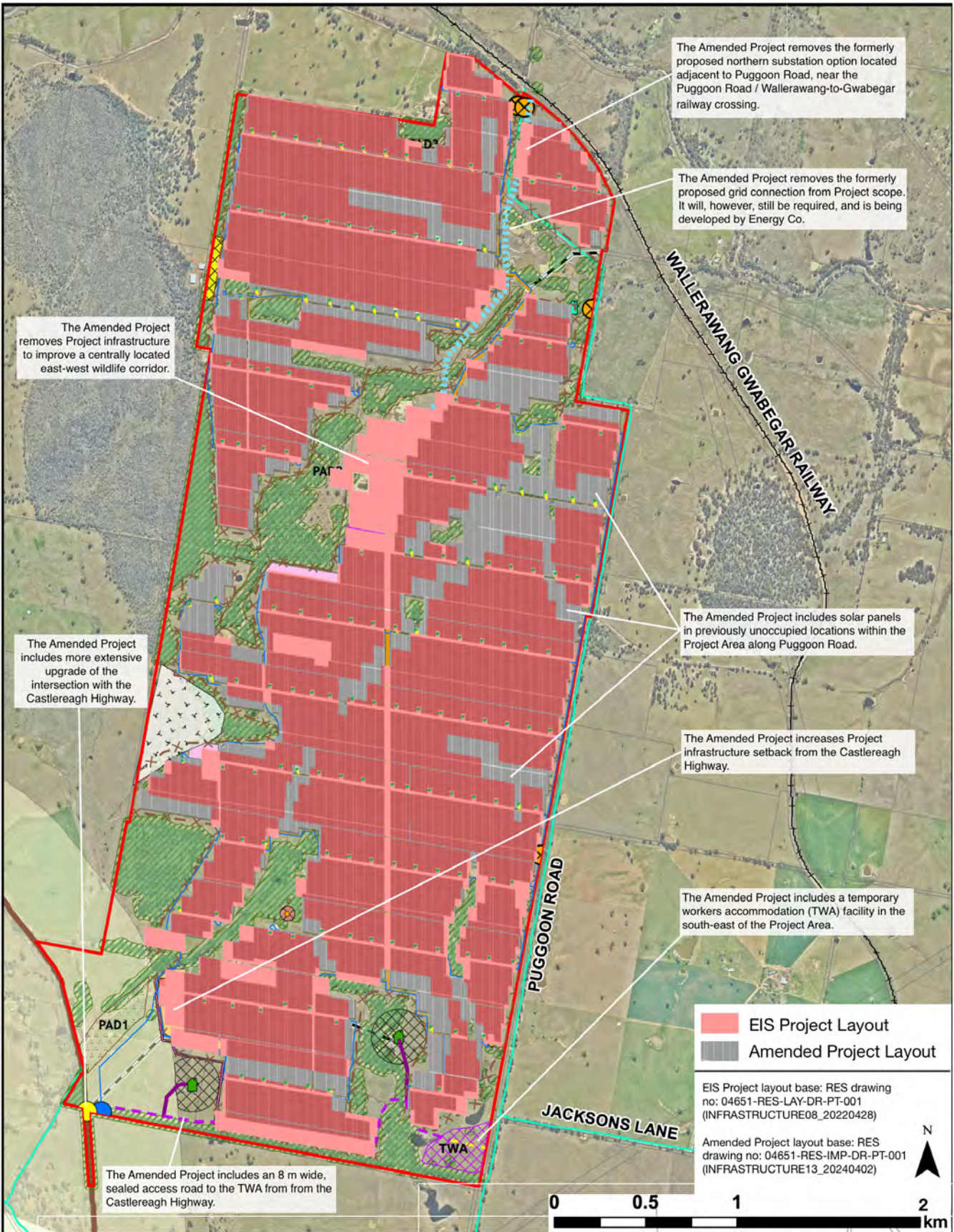
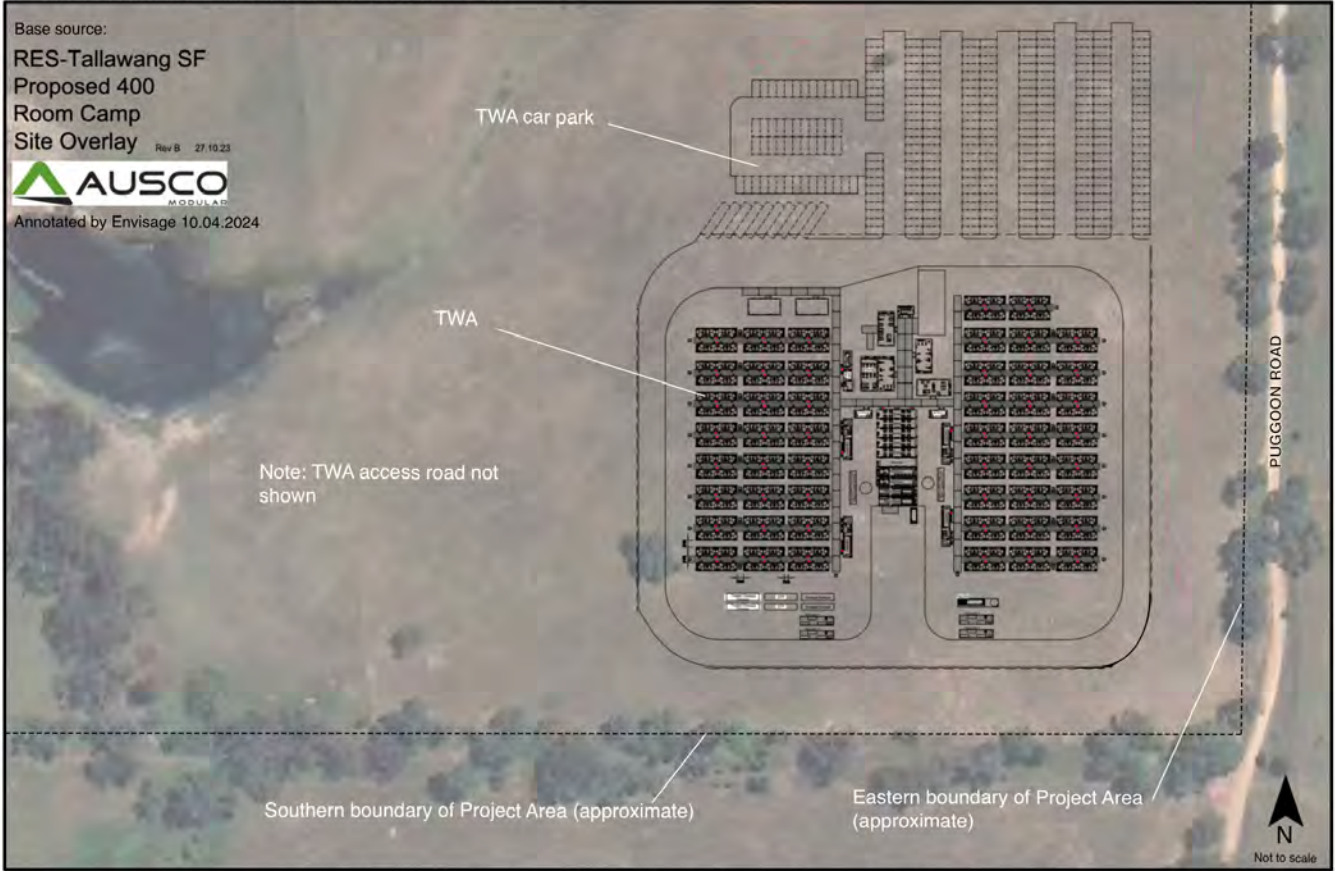


Figure 2-3  
Amended Project TWA (temporary workers accommodation)

TALLAWANG SOLAR FARM - ADDENDUM VISUAL IMPACT ASSESSMENT



Approximate location and layout of proposed 400 room TWA and car park



A comparison of impact to landscape character between the EIS Project and Amended Project is shown in Table 3-1. With the Amended Project, there would be **reduced impacts** to landscape character via removal of the formerly proposed northern substation option, increased setback from the Castlereagh Highway, and retention of existing vegetation centrally within the Project Area. There would also be some (temporary) **increased impacts** to landscape character via the inclusion of the TWA facility adjacent to Puggoon Road. On balance, however, there is no change in the rating of impact to landscape character with the Amended Project.

In summary:

- **Sensitivity** (presented in Column A, Table 3-1):
  - The LVIA determined existing landscape sensitivity as *low-moderate*.
  - There is **no change** to the sensitivity of the existing landscape with the Amended Project.
- **Magnitude** (presented in Column B, Table 3-1):
  - The LVIA had determined the magnitude of change to landscape character as *low-moderate*.
  - There is **no change** to the magnitude rating of *low-moderate* with the Amended Project.
- **Landscape character impact** (presented in Column C, Table 3-1):
  - The LVIA had determined the overall impact to landscape character as *low-moderate*.
  - There is **no change** to the overall *low-moderate* rating of impact to landscape character with the Amended Project.

Table 3-1: Assessment of landscape character impacts

Column A Sensitivity of existing landscape character to the Project		Column B Magnitude of change to landscape character		Column C Landscape Character Impact	
LVIA (EIS Project)	Amended Project	LVIA (EIS Project)	Amended Project	LVIA (EIS Project)	Amended Project
Low-moderate (as determined in the LVIA)	Low-moderate (no change)	Low-moderate (as determined in the LVIA)	Low-moderate <ul style="list-style-type: none"> <li>▪ The formerly proposed northern substation would have been relatively conspicuous and uncharacteristic of the rural landscape (in size, form and character). Removing the substation from the Amended Project reduces the magnitude of change on landscape character at the northern end of Puggoon Road. The former substation location would now be occupied with Project infrastructure, and set back further from Puggoon Road (compared to the formerly proposed substation).</li> <li>▪ The increase in Project infrastructure setback from the Castlereagh Highway reduces perception of the Project in the landscape.</li> <li>▪ Increased retention of existing vegetation centrally within the Project Area (for wildlife connectivity), retains a key landscape characteristic (dense stands of tall trees).</li> <li>▪ The removal of the formerly proposed grid connection from the Amended Project does not alter the magnitude of change on landscape character, as grid connection would eventually be installed (by Energy Co – CWO REZ grid connection infrastructure).</li> <li>▪ The TWA facility introduces a relatively large number of buildings and a large car park into the landscape and increase the magnitude of change on landscape character. While individual sheds, farm buildings and vehicles are not uncommon within the local area, the scale of the TWA facility would be uncharacteristic of the rural landscape and would</li> </ul>	Low-moderate (as determined in the LVIA)	Low-moderate (no change)

Column A Sensitivity of existing landscape character to the Project		Column B Magnitude of change to landscape character		Column C Landscape Character Impact	
LVIA (EIS Project)	Amended Project	LVIA (EIS Project)	Amended Project	LVIA (EIS Project)	Amended Project
			<p>temporarily dominate the experience of the landscape in the immediate vicinity.</p> <ul style="list-style-type: none"> <li>▪ The TWA access would be similar to other proposed access roads within the Project Area and would not increase magnitude of change to character. Two trees may potentially be removed at a creek crossing within the Project Area during construction of the TWA access, however, the location is relatively visually discrete, and the potential tree removal would not increase prominence of solar infrastructure in the landscape.</li> <li>▪ The Amended Project would occupy a similar land area with similar solar module infrastructure, with the same (or similar) characteristics (size, colour, contrast etc.) as the EIS Project.</li> </ul>		

#### 4.1 Theoretical visibility of Amended Project

The LVIA included a zone of theoretical visibility (ZTV), projected to 8 km<sup>6</sup> from the proposed solar farm and 3 km from the formerly proposed grid connection infrastructure, to determine locations with potential views of the EIS Project. As grid connection infrastructure is no longer proposed (as part of the Amended Project), and the solar farm development footprint has increased slightly, the ZTV has been updated to identify locations with potential views of the Amended Project, as shown in Figure 4-1.

#### 4.2 Assessment viewpoints

The LVIA identified 43 viewpoints<sup>7</sup> with potential views of the EIS Project. The Amended Project reduces the number of potential viewpoints to 32<sup>8</sup>, due to the formerly proposed grid connection infrastructure no longer being part of the Project. Eleven<sup>9</sup> formerly identified viewpoints had views of the formerly proposed grid connection infrastructure without seeing the proposed solar farm, and therefore, would not view the Amended Project.

The 32 remaining viewpoints with potential views of the Amended Project are listed in Table 4-1 and shown in Figure 4-1. Table 4-1 shows that two public viewpoints (Puggoon Road and Jacksons Lane) would have views of the TWA facility, one residential viewpoint (VP213) could potentially view the TWA access, and no assessed viewpoints would likely see the onsite substation.

Table 4-1: Amended Project viewpoints and Project element in view (by proximity to the Amended Project and viewpoint type)

Distance	Viewpoint type	Viewpoint (VP)	Amended Project - element potentially in view			
			Solar farm	Solar farm entrance	Substation	TWA facility
Very close foreground views (within 1 km)	Public	VP232: Puggoon Road	✓			✓
		VP233: Jacksons Lane	✓			✓
		VP236: Castlereagh Highway (closest public viewpoint)	✓	✓		
	Private residence	VP18: 800 Puggoon Road	✓			
		VP24: 980 Puggoon Road	✓			
		VP202: 975 Castlereagh Highway	✓			
		VP203: 955 Castlereagh Highway	✓			
		VP204: 937 Castlereagh Highway	✓			
		VP205: 22 Jenkins Lane	✓			
Close mid-ground views (within 1-2 km)	Private residence	VP1: 340 Jacksons Lane	✓			
		VP213: 727 Castlereagh Highway	✓	✓		✓ TWA access track (not TWA facility)
		Three lower lying Laheys Creek Road residences: - VP198: 320 Laheys Creek Road - VP201: 234 Laheys Creek Road - VP207: 242 Laheys Creek Road	✓			
		Four elevated Laheys Creek Road residences: - VP199: 172 Laheys Creek Road - VP206: 186 Laheys Creek Road - VP208: 162 Laheys Creek Road - VP209: 128 Laheys Creek Road	✓			

<sup>6</sup> To include the town of Gulgong.

<sup>7</sup> Eight public viewpoints, 31 private residences and four representative residential viewpoints.

<sup>8</sup> Seven public viewpoints, 21 private residences and four representative residential viewpoints.

<sup>9</sup> Residences on Whiston Lane (VP51, VP60, VP222); Castlereagh Highway residences (VP71, VP76, VP224, VP247, VP93, VP98 and VP100); and a public view from Castlereagh Highway north of the EIS Project (VP239).

Distance	Viewpoint type	Viewpoint (VP)	Amended Project - element potentially in view			
			Solar farm	Solar farm entrance	Substation	TWA facility
		VP220: 1018 Castlereagh Highway	✓			
Mid-ground views (2-5 km away)	Public	VP237: Castlereagh Highway (elevated public viewpoint travelling south)	✓			
		VP40: 1716 Castlereagh Highway	✓			
	Private residence	VP210: 146 Puggoon Road	✓			
		Two Trilby Lane residences: - VP211: 187 Trilby Lane - VP212: 190 Trilby Lane	✓			
Distant views (over 5 km away)	Public	VP238: Castlereagh Highway (elevated public viewpoint travelling north)	✓			
		VP245: Peoples Park, Gulgong	✓			
		VP246: Flirtation Hill Lookout, Gulgong	✓			
	Private Residence	VP223: 312 Castlereagh Highway, Gulgong	✓			
	Representative viewpoint – cluster of residences	VP241: Representative viewpoint - Barneys Reef Road vicinity residences	✓			
		VP242: Representative viewpoint - Old Mill Road vicinity residences	✓			
		VP243: Representative viewpoint - Beryl Road vicinity residences	✓			
		VP244: Representative viewpoint - Gulgong's elevated residences	✓			

### 4.3 Assessment of impact

The assessment of visual impact to the 32 viewpoints is presented in [Appendix A](#). A summary of the findings is shown in [Table 4-2](#). The assessment determined:

- **Sensitivity** (presented in [Column A, Table 4-2](#)):
  - There is no change to the rating of sensitivity determined in the LVIA for any viewpoint.
- **Magnitude** (presented in [Column B, Table 4-2](#)):
  - There is no change to the LVIA magnitude rating for most viewpoints, as the Amended Project changes (compared to the EIS Project) would be either barely discernible, minor or temporary; and not exacerbate the magnitude effect of the EIS Project.
  - There is a reduction in magnitude rating for one residential viewpoint (VP24) from *moderate* to *low-moderate*, as a large shed and communications pole associated with the formerly proposed northern substation would no longer be in view from the residence. However, access to VP24 (via Puggoon Road) would still be visually impacted - by solar panels (as was the case with the EIS Project), and the TWA facility (as proposed in the Amended Project).
  - There is a change to the view for one residential (VP213) and two public viewpoints (Puggoon Road and Jacksons Lane), however, no change to the magnitude rating:
    - VP213 magnitude rating remains at *moderate*, however: there would be a reduced area of solar panels in view (due to an increased setback from the Castlereagh Highway (from 500 m to 600 m) and around an existing residence within the Project Area); the O&M building and communications monopole would be seen (whereas previously they were not); and the TWA access as well as (intermittent) vehicle movements and headlights to/from the TWA facility, may be visible
    - Puggoon Road (VP232) magnitude rating remains at *high*, however: the formerly proposed northern substation would no longer be visible; solar panels and infrastructure now proposed to occupy the location of the former substation would be setback further from the road; there would be a more extensive view of solar panels along the central section of Puggoon Road (with fewer breaks for landscape

screening); and close views of the TWA facility and car park (visible for a distance of around 1 km or so while travelling south, and around 250 m or so while travelling north) for a time period of around 3 years (or potentially longer if approved for use by associated CWO REZ projects).

- Jacksons Lane (VP233) magnitude rating remains at *moderate*, however: the TWA facility and car park would be visible (temporarily, for around 3 years - or potentially longer if approved for use by associated CWO REZ projects).
- Visual impact (presented in [Column C, Table 4-2](#)):
  - There is no change to the LVIA rating of visual impact for most viewpoints.
  - There is a reduction in visual impact for one viewpoint (VP24) from *moderate* to *low-moderate* primarily due to the formerly proposed northern substation option no longer being in view.

### Residual visual impact

Residual visual impact is the remaining impact of the Project (4-6 years post-construction of the solar farm) following the implementation of recommended mitigation measures to reduce visual impact, including landscape screening.

A concept landscape plan including perimeter landscape screening was prepared for the EIS Project to reduce visual impact over time. The concept landscape plan has been updated for the Amended Project (discussed in [Section 6](#)). Changes to the concept landscape plan include:

- perimeter landscape screening along the southern Project Area boundary to reduce views of the Project (overtime) for VP213, and
- removal of intermittent perimeter landscape screening along Puggoon Road (modification to the solar layout has reduced space for planting).

For some resident viewpoints (VP1, VP24), the most effective location for screen planting remains within their private property close to their residence, and could reduce visual impact overtime. Discussions between these landowners and the Proponent are ongoing.

Residual visual impact ratings are presented in [Column D, Table 4-2](#). In summary:

- There is a reduction in residual impact for one viewpoint (VP24) from *moderate* to *low-moderate* due to reduced infrastructure in view.
- There is potential further reduction in residual visual impact for VP24 (from *low-moderate* to *low*) with landscape screening close to the residence, and potential reduction in residual visual impact for VP1 (from *moderate* to *low-moderate*) (discussions are ongoing).
- There is no change to the LVIA rating of residual impact for all other viewpoints, including the one residential viewpoint (VP213) and two public viewpoints (Puggoon Road and Jacksons Lane), where there is a change to the view:
  - VP213 remains at *moderate*. Existing trees along the southern boundary would partially screen the Project, and landscape screening within the Project is proposed to increase screening overtime, however, it may take longer than 4-6 years to provide an effective screen from the elevated viewpoint. Longer term, the residual impact could reduce to *low-moderate*.
  - Puggoon Road (VP232) remains at *moderate*. The TWA facility and associated car park would be dismantled following the anticipated 3-year construction of the solar farm (or potentially longer if approved for use in other CWO REZ projects) and not be a permanent feature of the landscape, however, the proposed solar panels would remain in view adjacent Puggoon Road for over 6 km.
  - Jacksons Lane (VP233) remains at *low*. The TWA facility and associated car park would be dismantled following the anticipated 3-year construction of the Project (or potentially longer if approved for use in other CWO REZ projects).

In summary, the changes associated with the Amended Project have reduced visual impact to one residential viewpoint (VP24) and changed the view (although not the assessed visual impact) for one residential viewpoint (VP213) and two public viewpoints (VP232 Puggoon Road and VP233 Jacksons Lane).

Table 4-2: Summary of visual impact assessment – EIS Project compared to Amended Project

Viewpoint (listed by viewpoint type and VP number)	Column A Sensitivity as per the LVIA (EIS Project)	Column B Assessed magnitude of change to the view		Column C Assessed visual impact		Column D Residual impact (4-6years following construction)	
		LVIA (EIS Project )	Amended Project	LVIA (EIS Project)	Amended Project	LVIA (EIS Project)	Amended Project
VP1: 340 Jacksons Lane	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate. However, potential screening within the private property could reduce residual impact to <i>low-moderate</i> overtime.	Moderate. However, potential screening within the private property could reduce residual impact to <i>low-moderate</i> overtime.
VP18: 800 Puggoon Road	Moderate	Low	Low	Low-moderate	Low-moderate	Low	Low
VP24: 980 Puggoon Road	Moderate	Moderate	Low-moderate	Moderate	Low-moderate	Moderate. However, potential screening within the private property would reduce residual impact to <i>low-moderate</i> overtime.	Low-moderate. However, potential screening within the private property would reduce residual impact to <i>low</i> overtime.
VP40: 1716 Castlereagh Highway	Low	Low	Low	Low	Low	Low	Low
Three lower-lying Laheys Creek Road residences: - VP198: 320 Laheys Creek Rd - VP201: 234 Laheys Creek Rd - VP207: 242 Laheys Creek Rd	Low	Low	Low	Low	Low	Low	Low
Four elevated Laheys Creek Road Residences: - VP199: 172 Laheys Creek Rd - VP206: 186 Laheys Creek Rd - VP208: 162 Laheys Creek Rd - VP209: 128 Laheys Creek Rd	Moderate	Low	Low	Low-moderate	Low-moderate	Low	Low
VP202: 975 Castlereagh Highway	Moderate	Low	Low	Low-moderate	Low-moderate	Low	Low
VP203: 955 Castlereagh Highway	Moderate	Low	Low	Low-moderate	Low-moderate	Low	Low
VP204: 937 Castlereagh Highway	Moderate	Low	Low	Low-moderate	Low-moderate	Low	Low
VP205: 22 Jenkins Lane	Moderate	Low	Low	Low-moderate	Low-moderate	Low	Low
VP210: 146 Puggoon Road	Low	Low	Low	Low	Low	Low	Low
Two Trilby Lane Residences - VP211: 187 Trilby Lane - VP212: 190 Trilby Lane	Low	Low	Low	Low	Low	Low	Low
VP213: 727 Castlereagh Highway	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate. Landscape screening is proposed along the southern boundary to reduce the extent of the Project in view overtime, however, may take longer than 4-6 years to provide an effective screen. Longer term, the residual impact could reduce to <i>low- moderate</i> .
VP220: 1018 Castlereagh Highway	Low	Low	Low	Low	Low	Low	Low
VP223: 312 Castlereagh Highway, Gulgong	Low	Low	Low	Low	Low	Low	Low

Private residence

Viewpoint (listed by viewpoint type and VP number)		Column A Sensitivity as per the LVIA (EIS Project)	Column B Assessed magnitude of change to the view		Column C Assessed visual impact		Column D Residual impact (4-6years following construction)	
			LVIA (EIS Project )	Amended Project	LVIA (EIS Project)	Amended Project	LVIA (EIS Project)	Amended Project
Representative viewpoints	VP241: Barneys Reef Road vicinity residences	Low	Low	Low	Low	Low	Low	Low
	VP242: Old Mill Road residences	Low	Low	Low	Low	Low	Low	Low
	VP243 Beryl Road vicinity residences	Low	Low	Low	Low	Low	Low	Low
	VP244: Gulgong (elevated residences)	Low	Low	Low	Low	Low	Low	Low
Public	VP232: Puggoon Road	Low	High	Moderate	Moderate	Moderate	Moderate	Moderate
	VP233: Jacksons Lane	Low	Moderate	Moderate	Low-moderate	Low-moderate	Low	Low
	VP236: Castlereagh Highway (closest public viewpoint)	Moderate	Low	Low	Low-moderate	Low-moderate	Low	Low
	VP237: Castlereagh Highway (travelling south)	Low	Negligible	Negligible	Negligible	Negligible	Negligible	Negligible
	VP238: Castlereagh Highway (travelling north)	Low	Low	Low	Low	Low	Low	Low
	VP245: Peoples Park, Gulgong	Low	Low	Low	Low	Low	Low	Low
	VP246: Flirtation Hill (lookout)	Moderate	Low	Low	Low-moderate	Low-moderate	Low-moderate	Low-moderate

#### 4.4 Photomontages

Photomontages of the EIS Project were included in the LVIA and have been updated (by Cambium Group) to illustrate the Amended Project from the following viewpoints which have been affected by the changes (there was not a discernible change to the view from all viewpoints):

- Residences: VP1, VP24, VP213, and
- Public viewpoints:
  - VP232 (Puggoon Road)
  - VP233 (Jackson Lane)
  - VP236 (Castlereagh Highway – closest public viewpoint).

The Amended Project photomontages are presented at [Appendix B](#). Note that the photograph location from VP24 is taken around 12 m south of the residence; the photograph from VP213 was taken around 40 m north of the residence; and the photograph from VP1 was taken from the residence back veranda.

The illustrations for each viewpoint include:

- The existing view toward the Amended Project.
- An analytical view showing:
  - the location of the Amended Project indicated in pink, and
  - the location of the EIS Project indicated in white (to illustrate the difference in magnitude between the EIS Project and the Amended Project).
- A photomontage (modelled view) of the EIS Project following construction.
- A photomontage (modelled view) of the Amended Project following construction.

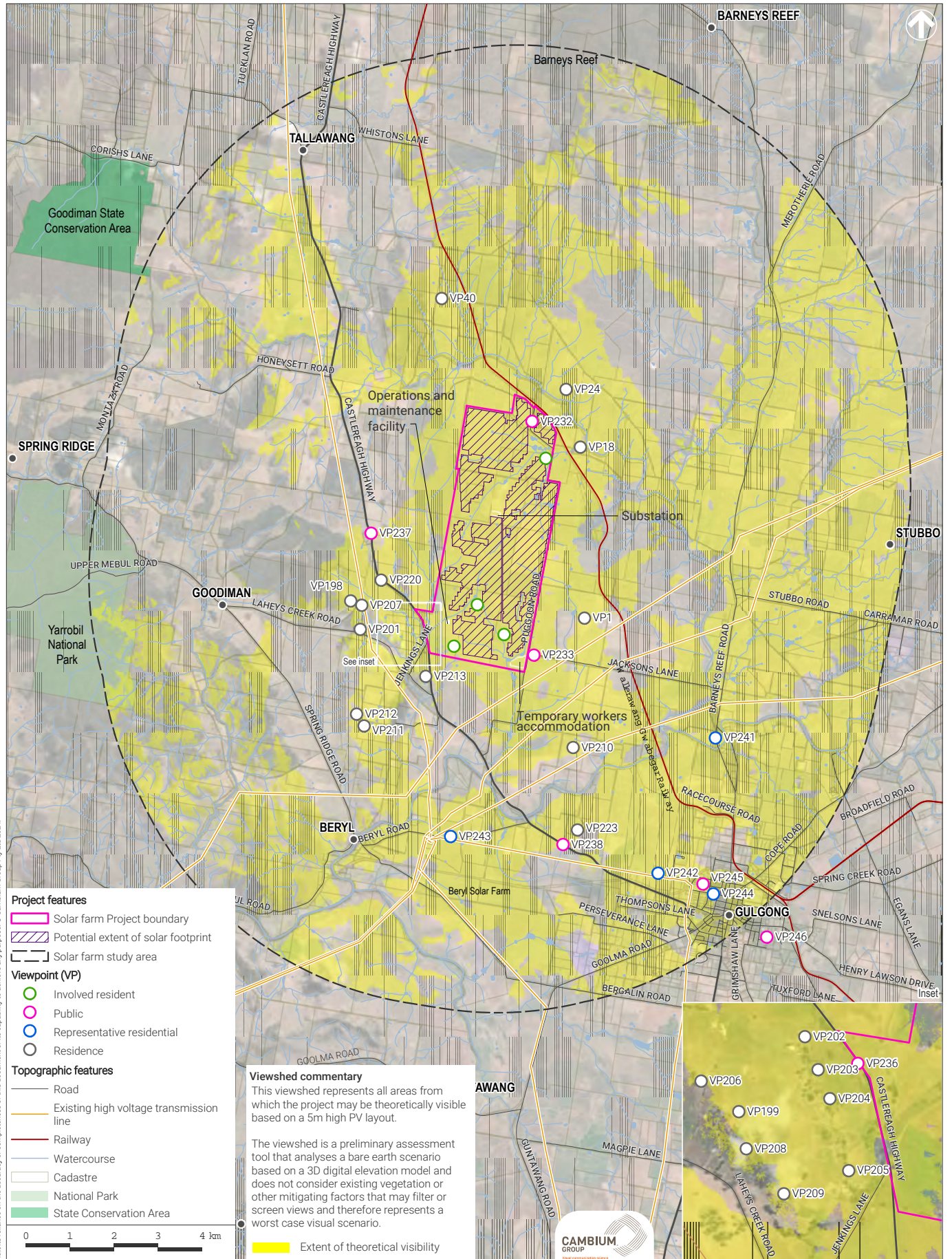
In addition:

- For VP213 and VP236, a photomontage is included to illustrate mitigation landscape planting 4-6 years following construction.

To view the photomontage images correctly, each photomontage should be viewed at a size of an A3 sheet at a comfortable arm's length. To minimise the risk of images being viewed incorrectly on screen, enlarge the image on the screen to full A3 size height (if possible), and view the screen from a comfortable arm's distance away.

Figure 4-1  
Amended Project zone of theoretical visibility

TALLAWANG SOLAR FARM | LANDSCAPE AND VISUAL IMPACT ASSESSMENT - ADDENDUM REPORT



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Source: LPI (2021), ELVIS (2021), RES (2023), Esri GeoEye (2023), Envisage (2024), Cambium Group (2024).

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### 5.1 Updated mitigation measures

Mitigation measures for the EIS Project were included in the LVIA. However, some of the measures related to aspects of the EIS Project no longer proposed (such as the formerly proposed grid connection infrastructure and formerly proposed northern substation option), and new mitigation measures have been added to address visual impacts associated with the Amended Project. Therefore, the mitigation measures have been updated, and are shown in [Table 5-1](#).

### 5.2 Concept landscape plan

A concept landscape plan was included in the LVIA. The concept landscape plan has been updated to address the Amended Project layout, which has more panels closer to Puggoon Road and reduced number of panels near the Castlereagh Highway (therefore, less landscape screening is proposed in this location). It also addresses feedback from Dunedoo Coolah Landcare regarding plant species and spacing.

The updated concept landscape plan is shown in [Figure 5-1](#), and includes:

- only native vegetation, common to the area (which have either been sourced from Watershed Landcare Incorporated's *Native Species Revegetation – A guide for the Mid Western Regional Council area* or recommended by Dunedoo Coolah Landcare),
- a multi-level screening strategy (with grasses, shrubs and trees), and
- a draft guide for planting and maintenance to ensure plant survival and reasonable growth (which is to be developed when the detailed landscape plan is prepared prior to construction).

As per the LVIA, a detailed landscape plan would be prepared in a later detailed design stage when more key stakeholder engagement has been done and the Engineering Procurement and Construction contractor is finalising the layout of the Project. The detailed landscape plan would be prepared prior to landscape implementation which would refine the concept landscape plan.

Table 5-1: Amended Project – Mitigation measures

Intent	Mitigation measure
Minimise impact through the use of siting and design features	<p>Design:</p> <ul style="list-style-type: none"> <li>- Retain rural fencing along the Castlereagh Highway.</li> <li>- Subsequent to project approval, and when the Project layout is finalised, update the concept landscape plan (refer to concept landscape plan, <a href="#">Figure 5-1</a>).</li> <li>- Discuss potential screening options with individually affected residents to reduce their direct views of the Project during ongoing community engagement.</li> <li>- Detail and finalise the landscape plan incorporating feedback from affected landowners, Dunedoo Coolah Landcare and Mid-Western Regional Council.</li> <li>- Plan as early as possible to source and grow-on plants for landscaping.</li> <li>- In conjunction with the detailed landscape plan, prepare a maintenance plan for proposed landscaping that includes: <ul style="list-style-type: none"> <li>o A defined initial establishment period (minimum of 12 months)</li> <li>o A schedule for monitoring planting areas and watering during the establishment period</li> <li>o Ongoing maintenance practices during and post establishment (such as a weeding/mulching regime)</li> <li>o Guidance for replacement planting (for plants that fail to thrive).</li> </ul> </li> </ul> <p>Construction:</p> <ul style="list-style-type: none"> <li>- Protect existing trees to be retained from damage during the construction phase.</li> <li>- Keep site tidy and neat.</li> <li>- Implement the detailed landscape plan.</li> <li>- Progressively stabilise surfaces as construction is completed.</li> </ul> <p>Operation:</p> <ul style="list-style-type: none"> <li>- Do not install commercial messages or large-scale signage. Signage (if required) should be of sufficient size to contain only information sufficient for the basic facility and company identification, for safety, navigation, and delivery purposes.</li> </ul>

Intent	Mitigation measure
	<ul style="list-style-type: none"> <li>- Implement the landscape maintenance plan (to be developed in conjunction with the detailed landscape plan)</li> </ul>
Minimise and repair ground disturbance	<p>Construction:</p> <ul style="list-style-type: none"> <li>- If soils are disturbed (e.g., during the construction of internal roads or due to wear and tear of surfaces from vehicle movement), introduce wind erosion controls to reduce the potential for dust:               <ul style="list-style-type: none"> <li>o bring water cart to site and water exposed surfaces</li> <li>o avoid (if possible) ground disturbance on high wind days</li> <li>o cover stockpiles of loose materials (if any).</li> </ul> </li> </ul>
Avoid night sky impacts	<p>Design:</p> <ul style="list-style-type: none"> <li>- While maintaining safety, reduce the number of, and height of, permanent outdoor lights along pathways and external common areas associated with the TWA facility, as far as possible.</li> <li>- Do not install tall-mounted flood lights.</li> <li>- Design and install lighting in accordance with <i>AS4228-1997 - Control of Obtrusive Effects of Outdoor Lighting</i>.</li> <li>- Design and install lighting to follow best practice lighting principles identified within the <i>Dark Sky Planning Guidelines</i><sup>10</sup>:               <ol style="list-style-type: none"> <li>1. Eliminate upward spill light</li> <li>2. Direct light downwards, not upwards</li> <li>3. Use shielded fittings</li> <li>4. Avoid 'over' lighting</li> <li>5. Switch lights off when not required</li> <li>6. Use energy efficient bulbs</li> <li>7. Use asymmetric beams, where floodlights are used</li> <li>8. Ensure lights are not directed towards reflective surfaces</li> <li>9. Use warm white colours</li> </ol> </li> </ul> <p>Construction:</p> <ul style="list-style-type: none"> <li>- Ensure all lights are turned off before vacating the construction site at the end of the day.</li> </ul> <p>Operation:</p> <ul style="list-style-type: none"> <li>- Switch lights off when not required</li> </ul>
Site facilities in already disturbed landscapes or clearings	<p>Design:</p> <ul style="list-style-type: none"> <li>- Design the TWA access to minimise tree removal.</li> <li>- Design the TWA facility, to avoid root zones of existing trees that are to be retained.</li> <li>- Ensure all large trees or stands of trees to be retained are accurately surveyed so that the design maximises tree retention where feasible.</li> </ul> <p>Construction:</p> <ul style="list-style-type: none"> <li>- Protect existing trees (that are to be retained) during construction activities.</li> </ul>
Use colour to reduce contrast	<p>Design:</p> <ul style="list-style-type: none"> <li>- Where possible, select darker colours for the TWA facility (and associated components), and office/storage containers, so they are less prominent in the landscape.</li> <li>- Do not leave components white or light-coloured if alternative options are available.</li> <li>- Fences surrounding the solar farm should have a dulled, darkened finish to reduce contrast. Black or dark grey is generally a suitable colour.</li> </ul> <p>Operation:</p> <ul style="list-style-type: none"> <li>- Keep non-reflective finishes and colour-treated coatings in good repair. Reapply if the surface is subject to fading or flaking.</li> </ul>
Monitor visual impact	<p>Construction:</p> <ul style="list-style-type: none"> <li>- Implement correctional measures if erosion occurs or dust is an issue.</li> <li>- Monitor exposed ground surfaces to ensure stabilisation.</li> </ul> <p>Operation:</p> <ul style="list-style-type: none"> <li>- Six months following construction, contact the nearest residents (with their agreement) to determine if visual issues (including glint or glare) are being experienced.</li> <li>- If visual issues are experienced, discuss possible remedies (such as planting within private property close to residences).</li> <li>- Monitor disturbed trees that have been impacted within their root zone for stability and longevity.</li> <li>- Monitor landscaping as per the maintenance plan (developed in conjunction with the detailed landscape plan)</li> <li>- Replace planting as per the maintenance plan to achieve an effective visual screen.</li> <li>- Keep records of landscape maintenance practices, including listing species that have failed and any substituted plant species.</li> </ul>

<sup>10</sup> Australian Government, Department of the Environment and Energy, *National Light Pollution Guidelines for Wildlife*, January 2023 and New South Wales Department of Planning & Environment, *The Dark Sky Planning Guideline*, June 2023.

Figure 5-1

# Amended Project concept landscape plan

TALLAWANG SOLAR FARM | LANDSCAPE AND VISUAL IMPACT ASSESSMENT - AMENDMENT REPORT

## TALLAWANG SOLAR FARM LANDSCAPE STRATEGY

The aim of proposed landscaping is to provide a quick growing, dense screen that would reduce views of the solar panels from public view, as well as providing additional ecological benefits. Plant species have been selected that:

- provide effective visual screening
- are locally native
- provide ecological benefit to the site (such as a food source for birds, habitat etc)
- are suitable for the site conditions (are hardy)
- include quick growing as well as longer-longevity species.

The concept landscape plan indicates general locations for screen planting on-site, and aims to screen, or to reduce, views of:

- solar panels from the Castlereagh Highway
- solar panels in direct line-of-sight of Puggoon Road users
- solar panels in view from higher elevated residents.

Subsequent to project approval, a detailed landscape plan would be prepared which would refine the concepts presented in this concept. It is recommended that the detailed landscape plan be prepared with input from Dunedoo Landcare and Mid Western Regional Council (if possible). Final species selection, ratio/rate of planting, and the planting guide may vary depending on future advice, the Project construction program and plant availability at the time.

## DRAFT PLANTING GUIDE

Source plants from a local native nursery using seed collected close to the Project site (if possible). Plant as early as feasible. Plant pot sizes for all plants to be 75 mm tubestock.

1. Planting areas to be 5 m wide (with planting to occur within the central 3 m, i.e. with a 1 m buffer along each side).
2. Eradicate existing weed and pasture grass species within planting areas (at least one month before planting, with spot removal/treatment prior to planting if required). Carefully apply weed control when in the vicinity of existing trees to be retained.
3. Cultivate and incorporate soil improver and/or organic fertiliser (if appropriate) following soil testing in a number of locations to determine the appropriate soil conditioning. Do not cultivate near trees to be retained.
4. Avoid planting during harsh weather conditions (i.e. mid-summer and mid-winter, with preferred times ideally discussed with Landcare)
5. Plant shrubs, grasses and ground covers in the outside row of the planting bed. Select shrub and grass species (from the draft planting schedule) in random order to ensure an even mix of species and plant at densities of one plant per m<sup>2</sup>, which equates to 30 plants for every 10 lineal metres of planting bed.
6. Plant trees in the middle of the planting bed. Select tree species (from the draft planting schedule) in random order to ensure an even mix of species. Plant trees at a density of around 1 per 5 – 8 m to reduce competition and encourage canopy spread.
7. Water plants well at the time of planting.
8. Mulch (to a minimum depth of 75 mm) the full width of the planting areas.
9. Protect plants by installing and securing biodegradable plant guards around each plant (suitable to protect against rabbits if applicable) and stock fencing where necessary.

The detailed landscape plan would also include a maintenance plan that would continue throughout the operational period of the Project, to ensure proposed landscaping achieves, and continues to achieve, intended outcomes. The maintenance plan should include:

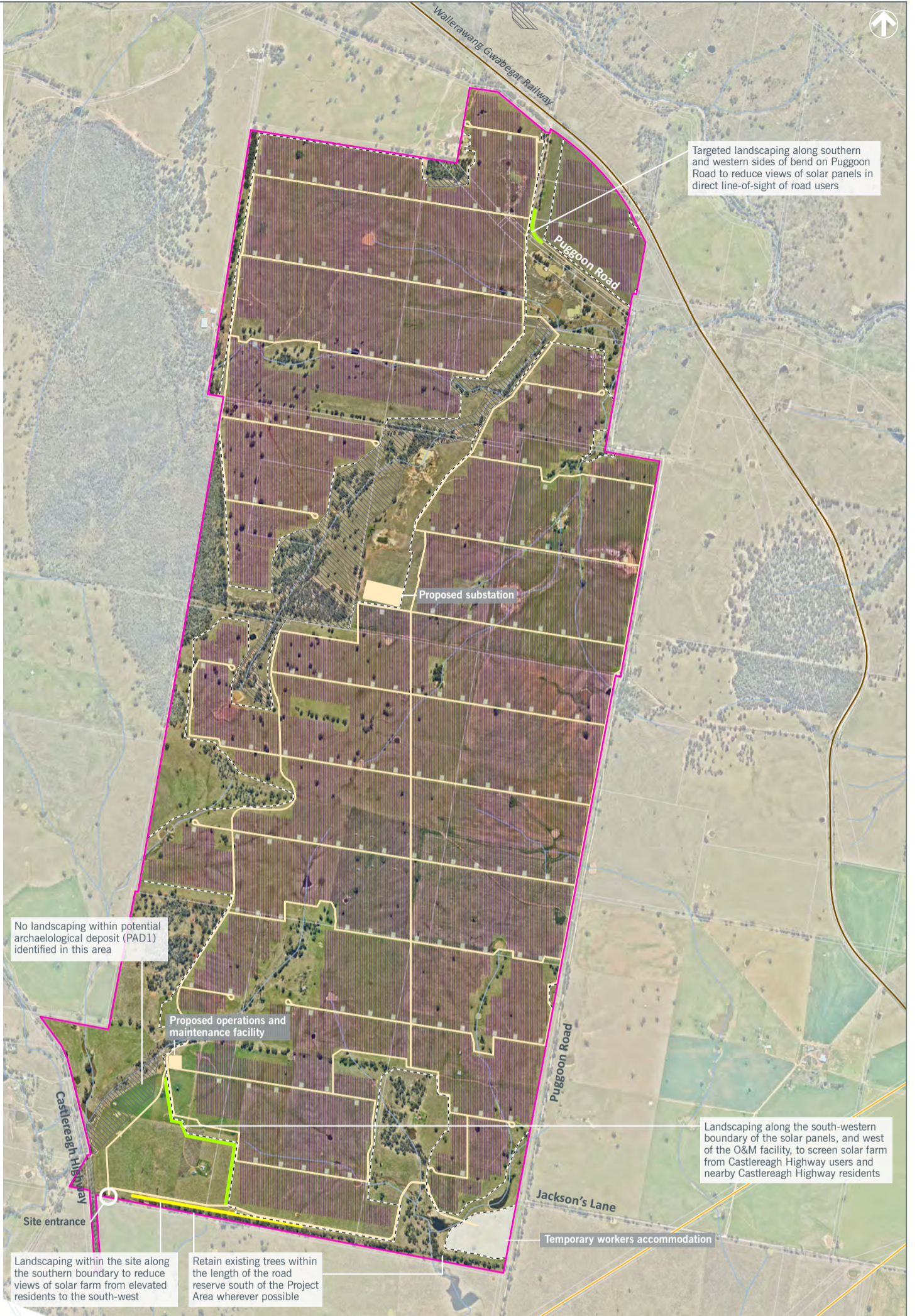
- A defined initial establishment period of a minimum of 12 months
- A schedule for monitoring planting areas and watering during the establishment period
- Ongoing maintenance practices during and post establishment (such as a weeding/mulching regime)
- Guidance for replacement planting (for plants that fail to thrive).
- Records to keep of maintenance practices, including listing species that have failed and any substituted plant species.

### Landscape planting areas

- Tall and medium trees, shrubs and grasses/groundcovers
- Medium trees, shrubs and tall grasses/groundcovers

### Project features

- Project boundary
- Indicative PV layout footprint
- Distributed battery energy storage system
- Access roads
- Security fence
- ▨ Cultural heritage areas



## DRAFT PLANTING SCHEDULE

This draft plant schedule provides an indicative range of site-appropriate species for future use in landscaping the site. The selection of species would be further refined during preparation of the detailed landscape plan.

Plant type	Species <sup>1</sup>		Approximate height in 4-6 years (m)	Approximate mature height (m)
	Scientific name	Common Name		
Tall trees	<i>Eucalyptus microcarpa</i> *	Western Grey Box	5 - 7	25
	<i>Eucalyptus melliodora</i> +	Yellow Box	5 - 7	30
	<i>Eucalyptus albens</i> +	White Box	5 - 7	25
Medium trees	<i>Brachychiton populneus</i> +	Kurrajong	4 - 5	15
	<i>Eucalyptus dealbata</i> *	Tumble-down Red Gum	5 - 7	15
	<i>Casuarina cristata</i> +	Belah	5 - 10	15
	<i>Hakea tephrosperma</i> +	Striped Hakea	3 - 6	12
	<i>Geijera parviflora</i> +	Wilga	4 - 5	8
	<i>Acacia deanei</i> +	Deane's Wattle	2 - 7	7
Shrubs	<i>Acacia decora</i>	Western Silver Wattle	1 - 4	4
	<i>Acacia buxifolia</i>	Box-leaf Wattle	1 - 3	3
	<i>Senna artemisioides</i> +	Silver cassia	1 - 3	3
	<i>Dodonea viscosa</i> +	Sticky Hop Bush	1 - 3	3
	<i>Acacia hakeoides</i> +	Hakea-leaf Wattle	3 - 5	3
Grasses / Groundcovers	<i>Lomandra longifolia</i>	Lomandra or Spiny-headed Mat-rush	1	1
	<i>Themeda australis</i> +	Kangaroo Grass	1	1
	<i>Themeda avenacea</i> +	Native Oat Grass	1 - 2	1 - 2
	<i>Dianella revoluta var. revoluta</i>	Black-anthered Flax-lily	1	1
	<i>Eremophila debilis</i> +	Winter apple	0.5	0.5

<sup>1</sup> Originally sourced from Mcrae, C. and Howard, V. Watershed Landcare Incorporated. *Native species revegetation: a guide for the Mid Western Regional Council Area*

+ Species suggested by Dunedoo Coolah Landcare (feedback on draft landscape plan for RES Tallawang Solar Farm 29/7/2022)

\* Species has been identified at the Project site during the ecological survey



This concept landscape plan has been prepared by registered landscape architect (Stacey Brodbeck) RLA #719 (Australian Institute of Landscape Architects). The intent is to achieve most of the mitigation screening within 4-6 years following completion of on-site planting, assuming optimal growing conditions (e.g. free of extended drought conditions and mass pest invasion). A detailed landscape plan is required once the project is approved, to fully document and confirm planting locations and plant species.



### 6.1 Construction

The Amended Project increases the construction zone and extent of activities to be undertaken prior to commencement of the solar farm construction (including installation of the TWA facility, construction of the TWA access (between the Castlereagh Highway and the TWA facility), and upgrade of the Castlereagh Highway intersection. Construction associated with these Amended Project elements would occur during standard daytime construction hours consistent with the *Interim Construction Noise Guideline* (Department of Environment and Climate Change 2009 - ICNG) as follows:

- 7am to 6pm Monday to Friday
- 8am to 1pm on Saturdays
- No works on Sunday or public holidays.

Night construction works are not anticipated, however, there may be exceptions to ICNG hours for emergency works or where required for deliveries or dispatches due to safety reasons.

#### TWA facility

The Amended Project TWA facility would be installed on-site over an 8-week period (approximately). Once construction is complete, the facility could accommodate up to 400 people, 24/7, for approximately 3 years (the anticipated period of solar farm construction, or possibly longer if approved for use with other CWO REZ projects). The proposed TWA facility includes lighting of:

- Internal access tracks and car parking areas
- Pathways (a mixture of overhead lights and low-level bollards)
- External, mounted lights attached to the buildings
- Internal lights within the buildings.

The selection of light type would be designed to avoid excessive light spillage onto the accommodation rooms and surrounding areas.

Lighting associated with the TWA site would be designed to be consistent with lighting mitigation measures (included in the LVIA) to reduce the impact of light. The measures were based on technical information within the *NSW Dark Sky Planning Guidelines* (Department of Planning and Environment, 2023), including principles for good lighting design, use of shielded, downward facing and site appropriate lighting.

#### Access road

The TWA facility would be fully serviced to reduce the need for workers to travel to/from the facility, including the daily provision of meals for breakfast, lunch and dinner, and provision of alcohol in a dedicated and licensed recreation area. Regardless, there may be intermittent vehicle movements as workers travel to and from the facility at night (and therefore, use of headlights at night). Vehicles would travel via the Castlereagh Highway, along the new TWA access near the southern boundary of the Project, to the TWA facility.

#### Castlereagh Highway intersection

The Castlereagh Highway intersection upgrade increases the construction footprint, and potential duration of road works (compared to the EIS Project), however, there is no change to lighting requirements for intersection road works during construction.

### 6.2 Operation

The EIS Project included very few lights that would only be used during an emergency. There is no change to operational lighting associated with the Amended Project.

## 6.3 Impact

### Construction

Temporary night lighting associated with the Amended Project has increased (compared to the EIS Project) due to the inclusion of the TWA facility. However, night-time lighting impacts from the TWA facility on residential viewpoints are unlikely, as:

- The TWA facility is not in direct line-of-sight of surrounding residential viewpoints, therefore, lights would not be directly visible.
- The TWA site is located on lower-lying land, with higher landform to the west and north-west, and tall trees to the east (along Puggoon Road), limiting light glow (indirect light effects).
- Most external lighting would be under cover, shielded by overhead awnings, or solar panels mounted above the light source, thereby limiting light glow (indirect light effects).

With the inclusion of the lighting mitigation measures recommended in Table 5-1, night-time lighting impacts from the TWA facility is anticipated to be contained to the immediate area.

The appearance of headlights along the TWA access may be noticed (particularly initially) by residents with a direct view (VP213), however, headlights are a common, intermittent feature of rural roads. The adjoining Castlereagh Highway, which is also in view (for those seeing the TWA access), is a well-trafficked night-time route.

### Operation

There is no change to permanent lighting associated with the Amended Project (compared to the EIS Project). There would be no change to the LVIA assessed impact of lighting during operation.

### 7.1 Surrounding proposed development

Although the Amended Project would not notably exacerbate the visual impact of the Project area (previously identified in the LVIA), there have been changes to other planned renewable energy developments in the surrounding area (since lodgement of the EIS Project), which affect the cumulative visual impact of the Project. A summary of the changes to those developments, and newly proposed large-scale projects, are listed in [Table 7-1](#).

Table 7-1: Summary of other renewable energy developments within 35 km of the Amended Project

	Other renewable energy development identified	Change since EIS lodgement
Developments previously identified in the LVIA (EIS Project) <sup>11</sup> :	Beryl Solar Farm (5 km south).	Existing - no change.
	Stubbo Solar Farm (7 km east)	Construction has commenced.
	Dunedoo Solar Farm (30 km north)	No change. Approved, construction not commenced.
	Birriwa Solar Farm (15 km north-east)	Under assessment. Panel height slightly increased to 4.7 m.
	Bellambi Heights Solar farm, now called Bellambi Heights BESS (adjoining south)	Now proposed as BESS and switching station.
	Barneys Reef Windfarm (adjoining north)	No change. Application not lodged.
New developments identified (since lodgement of the EIS Project):	Mayfair Solar Farm (2 km east)	Proposal for 60 MW solar farm, 60 MW BESS and substation. Scoping Report lodged.
	Beryl BESS (3.5 km south)	Proposal for 100 MW BESS. Scoping Report lodged.
	Cobborra Solar Farm (30 km north-west)	Proposal for 700 MW solar farm. Scoping Report lodged.
	Narragamba Solar Farm (35 km east)	Proposal for 320 MW solar farm. Scoping Report lodged.
	Dapper Solar Farm (35 km north-west)	Proposal for 300 MW solar farm. Scoping Report lodged.
	Mavis Solar Farm (adjoining south-east)	Proposal for solar farm. Scoping Report lodged.
	CWO REZ grid connection infrastructure	Previously part of the EIS Project, now proposed by EnergyCo. The EIS was placed on public exhibition in 2023. An amendment report has been lodged which addresses submissions received and describes and assesses project changes.

Note that the formerly proposed grid connection infrastructure (which was within the scope of the EIS Project) is now included as a new development in [Table 7-1](#) (CWO REZ grid connection infrastructure proposed by EnergyCo.).

Details regarding the other developments are provided in [Appendix C](#). The locations of other developments in the vicinity of the Amended Project are shown in [Figure 7-1](#). The most significant of the other developments proposed, due to proximity, is Mavis and Mayfair solar farm.

### 7.2 Cumulative impact to landscape character

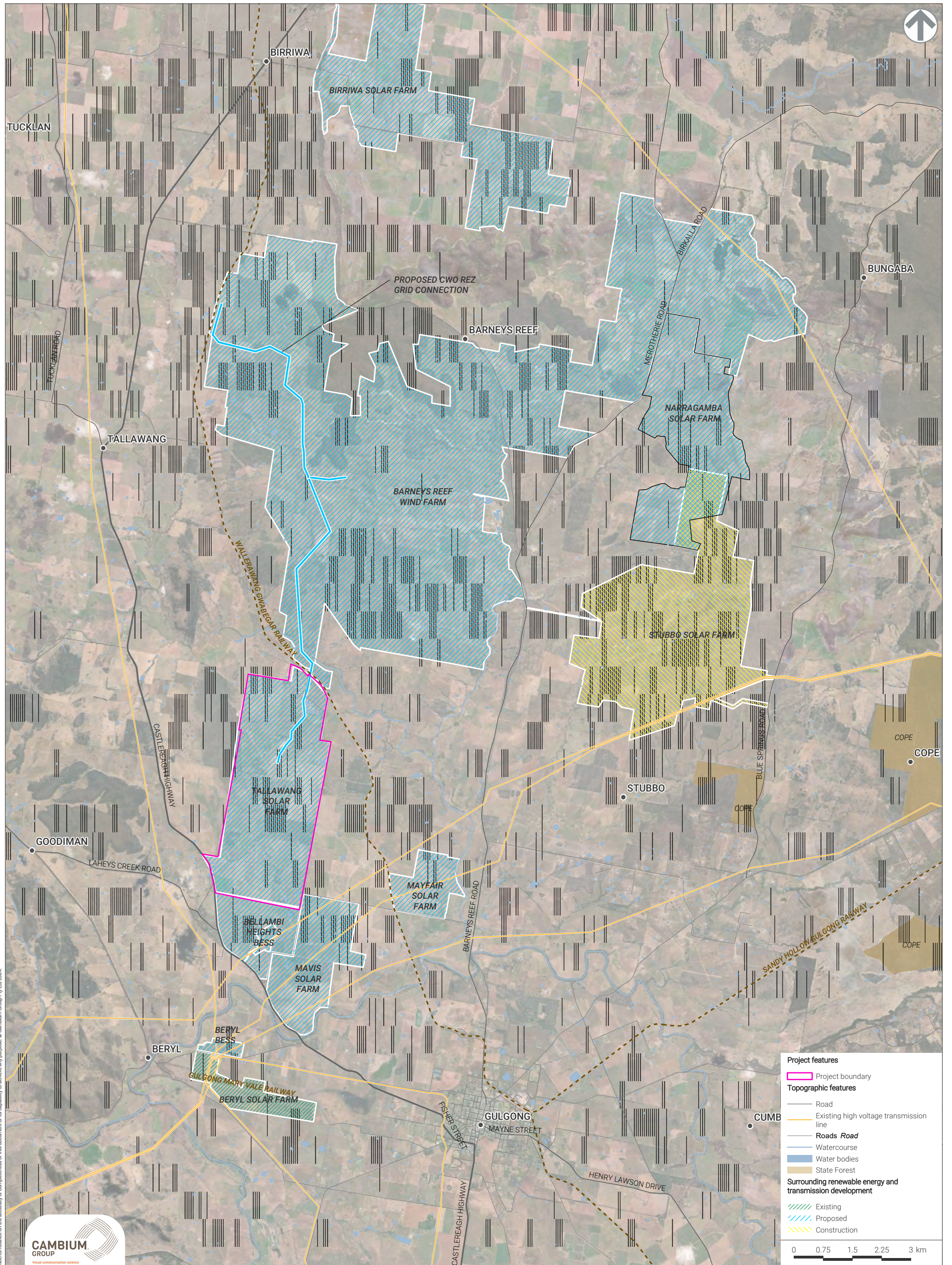
As stated in the LVIA:

Designation of the area as a renewable energy zone will promote the ongoing establishment of energy facilities in the vicinity. With increasing use of land for wind turbines, solar farms, and other associated infrastructure, renewable energy facilities may begin to dominate the scenic rural character. Residents who regularly travel through the landscape, and view the newly introduced renewable energy facilities, may be concerned about the ongoing alteration to the scenic rural landscape character and the perceived rapid occurrence of change.

<sup>11</sup> The LVIA considered renewable energy developments and large-scale projects within 35 km of the Project as wind farms can be visible for a distance of up to 35 km.

Figure 7-1  
Amended Project and other renewable energy developments in the vicinity

TALLAWANG SOLAR FARM | LANDSCAPE AND VISUAL IMPACT ASSESSMENT - AMENDMENT REPORT



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Increasing development exacerbates the extent of likely visual change to the rural landscape. To illustrate the visual impact of existing solar energy development within the local landscape, two photographs of the existing Beryl Solar Farm are included (Figure 7-2 and Figure 7-3).



Figure 7-2: Photograph of Beryl Solar Farm, from Beryl Road (from around 1.2 km north of the solar farm)



Figure 7-3: Photograph of Beryl Solar Farm, taken from Beryl Road (immediately adjacent the solar farm)

Figure 7-2 (taken from around 2.1 km away), shows its low-profile components and relatively low impact on landscape character (minimal change to landform or vegetation, or disturbance to background landscape setting (ridges/skyline)). When in close proximity (Figure 7-3), however, the solar farm has a greater impact on landscape character. Its components (security fencing, solar panels and substation) are conspicuous and quite dominant, and change the experience of the local landscape.

The primary route through the landscape in the vicinity of the Project, via which the largest number of tourists and residents experience a sense of local landscape character, and experience rural views of the landscape, is the Castlereagh Highway. Changes to views of the landscape experienced by travellers using the highway is discussed in Section 0.

### 7.3 Cumulative impact to views

#### Viewpoints

The LVIA identified the following viewpoints that would potentially view multiple renewable energy developments:

- four public viewpoints (the Castlereagh Highway, VP232 Puggoon Road, VP233 Jacksons Lane and VP246 Flirtation Hill lookout),
- eight private residences (VP199, VP206, VP208, VP209, VP211, VP212 and VP223) and
- one representative residential viewpoint (Beryl Road vicinity residences).

Since lodgement of the EIS, two additional residential viewpoints (VP1 and VP210) and one additional representative viewpoint (Barneys Reef Road vicinity residences) have been identified that would potentially view multiple renewable energy development, and the number of developments potentially in view for has increased.

Viewpoints<sup>12</sup> which could potentially see Tallawang solar farm and other renewable energy developments are detailed in Appendix C. A summary of viewpoints affected by cumulative developments is provided in Table 7-2.

Table 7-2: Summary of viewpoints affected by cumulative development

Other renewable energy development		Potentially affected viewpoints identified in the LVIA (EIS Project)	Additional affected viewpoints identified since EIS lodgement
Developments previously identified in the LVIA (EIS Project) <sup>13</sup> :	Beryl Solar Farm	VP199, VP206, VP208, VP209, VP213, VP243, VP246 and the Castlereagh Highway.	<u>No change</u>
	Stubbo Solar Farm	VP199, VP206, VP208, VP209, VP223, VP246.	<u>No change</u>
	Dunedoo Solar Farm	None identified	<u>No change</u>
	Birriwa Solar Farm	None identified	The Castlereagh Highway <sup>14</sup>
	Bellambi Heights BESS	VP211, VP212 and VP213.	VP1, VP199, VP206, VP208, VP209, VP210, VP223, VP232, VP233, VP243, VP246 and the Castlereagh Highway <sup>15</sup>
	Barneys Reef Windfarm	Most viewpoints	<u>No change</u>
New developments identified (since	Mayfair Solar Farm	-	VP210, VP223, VP241, VP246 and the Castlereagh Highway <sup>16</sup>

<sup>12</sup> Viewpoints for other renewable energy developments were identified from Preliminary Visual Impact Assessments publicly available on the NSW Planning Major Projects website.

<sup>13</sup> The LVIA assessment of cumulative impacts considered renewable energy developments and large-scale projects within 35 km of the Project. A distance of 35 km from the Project was selected as the study area as wind farms can be visible for a distance of up to 35 km.

<sup>14</sup> Based on description and images in EMM, 2022, *Birriwa Solar and Battery Project, Visual Impact Assessment*.

<sup>15</sup> Based on description and images in Iris, 2023, *Bellambi Heights Battery Energy Storage System, Landscape Character and Visual Impact Assessment*

<sup>16</sup> Based on description and images in Envisage Consulting, 2023, *Proposed Mayfair Solar Farm, Landscape and Visual Impact Assessment, Preliminary Assessment Stage*.

Other renewable energy development		Potentially affected viewpoints identified in the LVIA (EIS Project)	Additional affected viewpoints identified since EIS lodgement
lodgement of the EIS Project):	Beryl BESS	-	VP223, VP243 and the Castlereagh Highway <sup>17</sup> .
	Cobbora Solar Farm	-	None identified
	Narragamba Solar Farm	-	None identified
	Dapper Solar Farm	-	None identified
	Mavis Solar Farm	-	VP1, VP210, VP199, VP206, VP208, VP209, VP223, VP232, VP233, VP241, VP246 and the Castlereagh Highway (VPs for Mavis Solar Farm are assumed as the preliminary visual assessment has yet to be lodged).
	CWO REZ grid connection infrastructure	VP24, VP40, VP232 and the Castlereagh Highway (previously identified when the ETL was within the EIS Project scope).	<u>No change</u>

### Summary of cumulative impact to views

The anticipated cumulative visual impact to Amended Project viewpoints is described in [Appendix D](#). The Amended Project would be the primary contributor to cumulative impact in some views, and a minor contributor to cumulative impact in other views. In summary:

- Most Amended Project viewpoints would also be affected by Barneys Reef Windfarm, which would be seen over significantly greater distances compared to the proposed solar farms and proposed BESS, due to the anticipated 280 m height of the turbines.
- Four Amended Project residential viewpoints are anticipated to experience the most cumulative visual impact from the solar and BESS developments (VP1, VP24, VP210 and VP223). Views from these residences would be impacted by seeing two or more proposed developments, some in close proximity, from a single viewpoint, increasing the extent of infrastructure permanently visible from the residence. The cumulative visual impact to each is summarised as:
  - VP1: Jacksons Lane      The main developments in view would be the Amended Project (viewed to the west) and Mavis Solar Farm (possibly be in view to the south). The two solar farms would be around 1 km from VP1, and potentially affect a relatively large proportion of the view available from the residence. Bellambi Heights BESS may also be glimpsed on higher ground between the solar farms (to the south-west).
  - VP24: 980 Puggoon Road      The extent of energy infrastructure visible from the residence would slightly increase with Energy Co.'s proposed CWO REZ grid connection infrastructure in view, as well as the Amended Project.
  - VP210: 146 Puggoon Road      The main development in view is likely to be Mavis Solar Farm (which would be within several hundred metres of the residence). It could potentially be viewed from close proximity and affect a wide viewing area from the residence. Bellambi Heights BESS and the Amended Project may be partially visible beyond Mavis Solar Farm.
  - VP223: 312 Castlereagh Highway.      Mavis Solar Farm would be around 1 km from the residence, and possibly seen in views from the west through to the north (almost 90 degrees). In addition, Mayfair Solar Farm

<sup>17</sup> Jacobs, 2023, *Beryl BESS Scoping Report*.

(almost 4 km to the north-east), the Amended Project (over 6 km away), and Bellambi Heights BESS may potentially be partially visible.

- Three public viewpoints are anticipated to experience the most cumulative visual impact from the solar and BESS developments, summarised as:
  - Puggoon Road (linear viewpoint including VP232) Although very few people travel along the full length of the Puggoon Road, it would be the most affected public viewpoint. Mavis Solar Farm and the Amended Project would be in sight, and close to the viewer, for around 9 km. At the northern end of Puggoon Road, the proposed CWO REZ grid connection infrastructure would also be visible, and at the southern end of Puggoon Road, Bellambi Heights BESS would be seen opposite Mavis Solar Farm.
  - Castlereagh Highway (linear viewpoint including VP236, VP237 and VP238) From the Castlereagh Highway, multiple developments (Beryl Solar Farm, Mayfair Solar Farm, Mavis Solar Farm, Bellambi Heights BESS, the Amended Project, Birriwa Solar Farm and CWO REZ grid infrastructure connection) would be seen along a journey (around 32 km long) from Gulgong to Birriwa (while travelling up to 100 km/h). However, most would be seen very briefly (if at all), in different directions, and sequentially along the route (rather than multiple at one time). The view would be intermittent and temporary. The proposed setback of most developments from the Highway reduces their potential visible impact.
  - Flirtation Hill (VP246) Two solar farms (Beryl Solar Farm and Stubbo Solar Farm) are already seen from Flirtation Hill (viewed from different locations and in different viewing directions). Four further developments are likely to be visible from the lookout (Mavis Solar Farm, Mayfair Solar Farm, Bellambi Heights BESS, and the Amended Project). They would potentially appear in the same view looking west (a different viewing location to Beryl Solar Farm and Stubbo Solar Farm). The dark solar panel colour, relative low height and distance of the solar farms from the viewer would reduce their potential visibility, and they would generally 'fit' within the landscape (by not having high contrast in form and colour) when viewed from the elevated vantage point of Flirtation Hill. The lighter coloured Bellambi Heights BESS may be slightly more visible against the darker background of trees.

#### 7.4 Mitigation to reduce cumulative visual impact

As the Castlereagh Highway provides a primary means by which people view and gain 'a sense of' the local landscape, a recommendation of this addendum (for DPHI consideration) is for proposed renewable energy developments within the REZ to be set back from the Castlereagh Highway at least 500 m, to maintain rural landscape characteristics along the route. The Amended Project is set back 600 m from the Castlereagh Highway. The recommendation could potentially be applied to other projects not already incorporating sufficient setback.

#### 7.5 Photomontages

Two photomontages from public viewpoints have been prepared (by Cambium Group) to illustrate cumulative visual impact, and are provided in [Appendix E](#).

The first (VP233) is from the southern end of Puggoon Road, at the intersection of Puggoon Road and Jacksons Lane (looking south). It shows two proposed developments: the Amended Project

and (an analytical view of) Bellambi Heights BESS. A view from the northern end of Puggoon Road (including CWO REZ grid connection infrastructure) was included in the LVIA.

The second photomontage is a view from VP246 (Flirtation Hill, Gulgong) and shows four proposed developments in view: the Amended Project and (an analytical view of) Mavis Solar Farm, Mayfair Solar Farm, and Bellambi Heights BESS.

To view the photomontage images correctly, each photomontage should be viewed at a size of an A3 sheet at a comfortable arm's length. To minimise the risk of images being viewed incorrectly on screen, enlarge the image on the screen to full A3 size height (if possible), and view the screen from a comfortable arm's distance away.

### 8.1 Summary of visual changes to the Project

The Amended Project (compared to the EIS Project assessed in the LVIA) has:

- A new TWA facility and associated car park (with an approximate 3-year duration unless approved for use by other CWO REZ projects) within the south-eastern corner of the Project, on Puggoon Road.
- A new TWA access providing access from the Castlereagh Highway to the TWA facility (located in the vicinity of the southern boundary of the Project).
- Layout refinements, including:
  - A slightly larger (134-hectare increase) development footprint
  - Increased solar panels along the eastern Project boundary (and therefore less space for landscape screening adjacent to Puggoon Road).
  - Removed solar panels from within an east-west corridor centrally within the Project Area for improved wildlife connectivity (and therefore increased retention of existing vegetation).
  - A central substation, with removal of the formerly proposed option for a northern substation (near the Puggoon Road / Wallerawang-to-Gwabegar railway crossing in the EIS Project).
- Removal of the formerly proposed grid connection infrastructure (connecting the Project substation to the CWO REZ). Grid connection infrastructure would still be required, however, would be installed by EnergyCo (CWO REZ grid connection infrastructure).

### 8.2 Changes to landscape character impact with the Amended Project

The Amended Project (compared to the EIS Project) has some characteristics that change the Project's impact to landscape character. With the Amended Project, there would be **reduced impacts** to landscape character via removal of the formerly proposed northern substation option, increased setback from the Castlereagh Highway, and retention of existing vegetation centrally within the Project Area. There would also be some (temporary) **increased impacts** to landscape character via the inclusion of the 5 ha TWA facility adjacent to Puggoon Road. On balance, however, this addendum has found a relatively comparable level of development overall, and therefore maintained the same *low-moderate* rating of impact to landscape character previously determined in the LVIA.

### 8.3 Change to visual impact with Amended Project

The Amended Project (compared to the EIS Project) reduces the number of potential viewpoints from 43<sup>18</sup> to 32<sup>19</sup>, primarily as the formerly proposed grid connection infrastructure is no longer within the Amended Project scope. The assessment of visual impact to the 32 viewpoints determined there would be:

- no change to the LVIA rating of visual impact for most viewpoints.
- a reduction in visual impact for one viewpoint VP24 (a private residence) from *moderate* to *low-moderate* primarily due to the formerly proposed northern substation no longer being in view.

The Amended Project has also changed the view (although not the assessed visual impact) for one residential viewpoint (VP213) and two public viewpoints (VP232 Puggoon Road and VP233 Jacksons Lane):

<sup>18</sup> The LVIA identified eight public viewpoints, 31 private residences and four representative residential viewpoints.

<sup>19</sup> The addendum has identified seven public viewpoints, 21 private residences and four representative residential viewpoints.

- The rating of visual impact to VP213 remains at *moderate*, however: there would be a reduced area of solar panels in view; the O&M building and communications monopole would be seen (whereas previously they were not); and intermittent, temporary (for the longevity of the TWA facility) vehicle movement on the TWA access may be seen.
- The rating of visual impact to Puggoon Road (VP232) remains at *moderate*, however: the formerly proposed northern substation would no longer be visible; solar panels and the security fence now proposed to occupy the location of the former substation would be setback further from the road; there would be an extensive view of solar panels along around 6 km of Puggoon Road (with fewer breaks for landscape screening); and close views of the TWA facility and car park (temporarily for around 3 years unless approved for use with other CWO REZ projects).
- Jacksons Lane (VP233) visual impact rating remains at *low-moderate*, however, the TWA facility and car park would be visible (for around 3 years unless approved for use with other CWO REZ projects).

#### 8.4 Mitigation measures

Mitigation measures included in the LVIA have been updated for the Amended Project. The LVIA concept landscape plan (shown in [Figure 5-1](#)) has also been updated to address the Amended Project layout.

#### 8.5 Change to lighting impact

During construction, there would be an increase in potential lighting impacts, as new lighting would be installed at the proposed TWA facility, and there could be night-time vehicle access to, and from, the TWA facility. Mitigation measures have been included to reduce potential temporary night-time lighting impacts.

During operation there would be no change to the LVIA assessed impact of lighting for the Amended Project (compared to the EIS Project).

#### 8.6 Change to cumulative impact

Since lodgement of the EIS Project, six additional renewable energy developments have been proposed within 35 km. The cumulative visual impact of the Amended Project, together with the now 13 other existing or proposed renewable energy developments, was assessed, and found:

- No change to the LVIA finding that most viewpoints would see part of Barneys Reef Windfarm at a distance.
- Four residential viewpoints (VP1, VP24, VP210 and VP223) would experience the most significant cumulative visual impact. Their existing view would be affected by seeing one or more solar farms, together with BESS units or CWO REZ grid connection infrastructure, sometimes in close proximity, and in the same viewing direction. The multiple developments would increase the proportion of their view adversely affected by infrastructure.
- Three public viewpoints would experience the most significant cumulative visual impact:
  - Puggoon Road would provide views of multiple developments in close proximity, (however, would be accessed by very few people).
  - Castlereagh Highway would provide intermittent, relatively brief, sequential views of multiple developments (rather than multiple seen at one time) along the route around 32 km long between Gulgong to Birriwa.
  - Flirtation Hill would provide views of four new developments within the same view. The solar farms would be relatively inconspicuous given their dark colour, relative low height, distance (over 5 km), surrounding landscape of vegetation and background ridges). An analytical photomontage of the cumulative view is included in [Appendix E](#).

- To maintain a scenic rural experience for Castlereagh Highway travellers, and reduce potential cumulative visual impact, a 500 m (minimum) setback from the Castlereagh Highway (similar to the Amended Project setback) has been recommended in this addendum for DPHI consideration in other proposed renewable energy developments within the region.

- Apostle, Palmer, Pasqualetti, Smardon and Sullivan, 2017, *The Renewable Energy Landscape, Preserving scenic values in our sustainable future.*
- Australian Government, Department of Climate Change, Energy, the Environment and Water, 2023, *National Light Pollution Guidelines for Wildlife.*
- Australian Institute of Landscape Architects, 2018, *Guidance Note for Landscape and Visual Assessment.*
- EMM, 2022, *Birriwa Solar and Battery Project, Visual Impact Assessment.*
- EnergyCo, 2023, *Central-West Orana Renewable Energy Zone Transmission project.*
- Envisage Consulting, July 2022, *Proposed Tallawang Solar Farm Visual Impact Assessment.*
- Envisage Consulting, 2023, *Proposed Mayfair Solar Farm, Landscape and Visual Impact Assessment, Preliminary Assessment Stage.*
- Iris, 2023, *Bellambi Heights Battery Energy Storage System, Landscape Character and Visual Impact Assessment.*
- Jacobs, 2023, *Beryl BESS Scoping Report.*
- Landscape Institute and Institute of Environmental Management and Assessment, 2013 (3<sup>rd</sup> Edition). '*Guidelines for Landscape and Visual Impact Assessment*'. Routledge, United Kingdom.
- McCrae, C., Howard, V., and O'Brien, M. (date not specified). Watershed Landcare Incorporated: *Native Species Revegetation – A guide for the Mid Western Regional Council area*
- New South Wales Department of Planning and Environment, August 2022, *Large-Scale Solar Guideline.*
- New South Wales Department of Planning and Environment, August 2022, *Technical Supplement – Landscape and Visual Impact Assessment. Large-Scale Solar Energy Guideline.*
- New South Wales Department of Planning and Environment, October 2022, *Cumulative Impact Assessment Guidelines for State Significant Projects.*
- New South Wales Department of Planning and Environment, 2023, *The Dark Sky Planning Guideline.*
- Pitt&Sherry, 2023, *Scoping Report, Mayfair Solar Farm.*
- Ramboll Australia, 2020, *Stubbo Solar Farm, Environmental Impact Statement.*
- Transport for NSW, 2020, *Guideline for Landscape Character and Visual Impact Assessment - Environmental Impact Assessment Guidance Note EIA-N04.*
- Urban Perspectives Environmental Solutions, 2023, *Mavis Solar Farm Scoping Report.*

# Appendix A: Updated assessment of visual impact – EIS Project compared to Amended Project

Viewpoint (by viewpoint type and VP number)	Column A Sensitivity (as per the VIA)	Column B Assessed magnitude of change to the view		Column C Assessed visual impact		Column D Residual impact (5-7 years following construction)		
		VIA (EIS Project)	Amended Project	VIA (EIS Project)	Amended Project	VIA (EIS Project)	Amended Project	
Private residence	VP1: 340 Jacksons Lane Photomontages of the existing and predicted view, including amendments, are provided at <a href="#">Appendix B</a> .	Moderate	Moderate	Moderate: <ul style="list-style-type: none"> <li>There would be very little change compared to the view of the EIS Project from the residence. The extent of solar panels in view would be similar. The smaller footprint, light-coloured, distributed BESS units would be visible intermittently throughout the solar farm.</li> </ul>	Moderate	Moderate (no change)	Moderate*	Moderate* (no change)
	VP18: 800 Puggoon Road	Moderate	Low	Low: <ul style="list-style-type: none"> <li>From the residence, there would be no visible change compared to the EIS Project (it is unlikely solar panels would be visible).</li> <li>Access to VP18 would be affected by newly proposed changes along Puggoon Road (refer to VP232).</li> </ul>	Low-moderate	Low-moderate (no change). There would be no change to the view from the residence, however, changes along Puggoon Road would affect views to/from the property,	Low	Low (no change)
	VP24: 980 Puggoon Road Photomontages of the existing and predicted view, including amendments, are provided at <a href="#">Appendix B</a> .	Moderate	Moderate	Low-moderate: <ul style="list-style-type: none"> <li>From the residence, the extent of the EIS Project seen would reduce as infrastructure associated with the formerly proposed northern substation option (a large shed and communications pole), would no longer be in view.</li> <li>The formerly proposed grid connection infrastructure would no longer be seen from the residence as part of this Project (however, would be installed later by EnergyCo (CWO REZ grid connection infrastructure).</li> <li>Access to VP24 would be affected by newly proposed changes along Puggoon Road (refer to VP232).</li> </ul>	Moderate	Reduces to Low-moderate The reduced rating reflects the change to views from the residence, with less Project infrastructure seen. Changes along Puggoon Road would affect views when travelling to/from the property.	Moderate*	Reduces to Low-moderate Tree growth overtime, would reduce the extent of panels in view.
	VP40: 1716 Castlereagh Highway	Low	Low	Low: There would be no discernible change in the view compared to the EIS Project.	Low	Low (no change)	Low	Low (no change)

Viewpoint (by viewpoint type and VP number)	Column A Sensitivity (as per the VIA)	Column B Assessed magnitude of change to the view		Column C Assessed visual impact		Column D Residual impact (5-7 years following construction)	
		VIA (EIS Project)	Amended Project	VIA (EIS Project)	Amended Project	VIA (EIS Project)	Amended Project
Three lower-lying Laheys Creek Road residences: - VP198: 320 Laheys Creek Rd - VP201: 234 Laheys Creek Rd - VP207: 242 Laheys Creek Rd	Low	Low	Low: There would be no discernible change in the view compared to the EIS Project.	Low	Low (no change)	Low	Low (no change)
Four elevated Laheys Creek Road Residences: - VP199: 172 Laheys Creek Rd - VP206: 186 Laheys Creek Rd - VP208: 162 Laheys Creek Rd - VP209: 128 Laheys Creek Rd	Moderate	Low	Low: There would be no discernible change in the view compared to the EIS Project.	Low-moderate	Low-moderate (no change)	Low	Low (no change)
VP202: 975 Castlereagh Highway	Moderate	Low	Low: There would be no discernible change in the view compared to the EIS Project.	Low-moderate	Low-moderate (no change)	Low	Low (no change)
VP203: 955 Castlereagh Highway	Moderate	Low	Low: There would be no discernible change in the view compared to the EIS Project.	Low-moderate	Low-moderate (no change)	Low	Low (no change)
VP204: 937 Castlereagh Highway	Moderate	Low	Low: There would be no discernible change in the view compared to the EIS Project.	Low-moderate	Low-moderate (no change)	Low	Low (no change)
VP205: 22 Jenkins Lane	Moderate	Low	Low: There would be no discernible change in the view compared to the EIS Project.	Low-moderate	Low-moderate (no change)	Low	Low (no change)
VP210: 146 Puggoon Road	Low	Low	Low: There would be no discernible change in the view compared to the EIS Project.	Low	Low (no change)	Low	Low (no change)
Two Trilby Lane Residences - VP211: 187 Trilby Lane - VP212: 190 Trilby Lane	Low	Low	Low: There would be no discernible change in the view compared to the EIS Project.	Low	Low (no change)	Low	Low (no change)
VP213: 727 Castlereagh Highway Photomontages of the existing and predicted view, including amendments, are provided at <a href="#">Appendix B</a> .	Moderate	Moderate	Moderate: <ul style="list-style-type: none"> <li>There would be a reduced area of solar panels in view (due to an increased setback from the Castlereagh Highway from 500 m to 600 m, and increased setback around an existing residence within the Project Area).</li> <li>The O&amp;M building and communications monopole would be seen (whereas previously they were not). However, the O&amp;M building would be screened, overtime, via proposed landscaping, and the height of the</li> </ul>	Moderate	Moderate (view has changed, however, rating remains the same)	Moderate**	Moderate** (no change) Landscape screening (recommended in mitigation measures) would reduce the extent of the Project in view

Viewpoint (by viewpoint type and VP number)		Column A Sensitivity (as per the VIA)	Column B Assessed magnitude of change to the view		Column C Assessed visual impact		Column D Residual impact (5-7 years following construction)	
			VIA (EIS Project)	Amended Project	VIA (EIS Project)	Amended Project	VIA (EIS Project)	Amended Project
				<p>communications monopole would not extend above the background ridge.</p> <ul style="list-style-type: none"> <li>The smaller footprint, light-coloured, distributed BESS units would be visible intermittently throughout the solar array.</li> <li>Construction associated with the larger footprint of the Castlereagh Highway / site entrance intersection would be in view temporarily. On completion of construction, there would be a wider sealed intersection and lane markings - an expected feature of a highway.</li> <li>Construction of the proposed TWA access and its use during the operation of the TWA facility may be visible. However, use of the TWA access would be intermittent, temporary (for around 3 years unless the TWA facility is approved for use with another CWO REZ project), and minor compared to the adjacent Castlereagh Highway.</li> </ul>				overtime, however, may take longer than 4-6 years to provide an effective screen.
	VP220: 1018 Castlereagh Highway	Low	Low	Low: There would be no discernible change in the view compared to the EIS Project.	Low	Low (no change)	Low	Low (no change)
	VP223: 312 Castlereagh Highway, Gulgong	Low	Low	Low: There would be no discernible change in the view compared to the EIS Project.	Low	Low (no change)	Low	Low (no change)
Representative viewpoints	VP241: Barneys Reef Road vicinity residences	Low	Low	Low: There would be no discernible change in the view compared to the EIS Project.	Low	Low (no change)	Low	Low (no change)
	VP242: Old Mill Road residences	Low	Low	Low: There would be no discernible change in the view compared to the EIS Project.	Low	Low (no change)	Low	Low (no change)
	VP243 Beryl Road vicinity residences	Low	Low	Low: There would be no discernible change in the view compared to the EIS Project.	Low	Low (no change)	Low	Low (no change)
	VP244: Gulgong (elevated residences)	Low	Low	Low: There would be no discernible change in the view compared to the EIS Project.	Low	Low (no change)	Low	Low (no change)
Public	VP232: Puggoon Road Photomontages of the existing and predicted view, including amendments, are provided at <a href="#">Appendix B</a> .	Low	High	<p>High:</p> <ul style="list-style-type: none"> <li>The formerly proposed grid connection infrastructure would no longer be seen as part of this Project (however, would be installed later by EnergyCo (CWO REZ grid connection infrastructure)).</li> <li>The formerly proposed northern substation would no longer be seen in close proximity at the northern end of Puggoon Road. The solar panels</li> </ul>	Moderate	Moderate (view has changed, however, rating remains the same)	Moderate	Moderate (no change)

Viewpoint (by viewpoint type and VP number)	Column A Sensitivity (as per the VIA)	Column B Assessed magnitude of change to the view		Column C Assessed visual impact		Column D Residual impact (5-7 years following construction)	
		VIA (EIS Project)	Amended Project	VIA (EIS Project)	Amended Project	VIA (EIS Project)	Amended Project
			<p>and infrastructure that would occupy the location of the former substation would be setback further from the road.</p> <ul style="list-style-type: none"> <li>There would be a more extensive view of solar panels (along the central section of Puggoon Road), as there would be fewer breaks between the solar panels (breaks were formerly provided for creek lines/vegetation habitat), reducing the extent of trees/grassed paddocks that would have been in view, and reducing the area of open space that would have been available for landscape screening along Puggoon Road.</li> <li>The newly proposed TWA facility, and vehicles associated with the TWA car park, would be located around 50 m from Puggoon Road, and visible for around 1 km or so while travelling south, and around 250 m or so while travelling north.</li> <li>The TWA site is temporary and would be dismantled following the anticipated 3-year construction of the Project (or potentially longer if approved for use in another CWO REZ project).</li> <li>Although over 1.2 km from Puggoon Road, taller elements of the central substation (which has components up to 14 m high) could be intermittently visible between gaps in intervening foreground trees.</li> </ul>				
VP233: Jacksons Lane Photomontages of the existing and predicted view, including amendments, are provided at <a href="#">Appendix B</a> .	Low	Moderate	<p>Moderate:</p> <ul style="list-style-type: none"> <li>The newly proposed TWA facility and vehicles associated with the TWA car park would be visible, for around 1 km when travelling west on Jacksons Lane.</li> <li>The TWA site would be dismantled following the anticipated 3-year construction of the Project (or potentially longer if approved for use in another CWO REZ project).</li> <li>There would be no discernible change to the view of the solar panels compared to the EIS Project.</li> </ul>	Low-moderate	Low-moderate (view has changed, however, rating remains the same)	Low	Low (no change)
VP236: Castlereagh Highway (closest public viewpoint) Photomontages of the existing and predicted view, including amendments, are provided at <a href="#">Appendix B</a>	Moderate	Low	<p>Low:</p> <ul style="list-style-type: none"> <li>Solar panels (currently setback 500 m) would be setback further from the Castlereagh Highway (to 600 m).</li> <li>A communications monopole (and some of the O&amp;M building) would be seen (whereas previously they were not).</li> <li>Construction associated with the larger footprint of the Castlereagh Highway / site entrance intersection would be in view temporarily. On completion of construction, there would be a wider sealed intersection and lane markings, an expected feature of a highway.</li> </ul>	Low-moderate	Low-moderate (no change)	Low	Low (no change)
VP237: Castlereagh Highway (elevated public viewpoint travelling south)	Low	Negligible	<p>Negligible:</p> <p>There would be no discernible change in the view compared to the EIS Project.</p>	Negligible	Negligible (no change)	Negligible	Negligible (no change)

Viewpoint (by viewpoint type and VP number)	Column A Sensitivity (as per the VIA)	Column B Assessed magnitude of change to the view		Column C Assessed visual impact		Column D Residual impact (5-7 years following construction)	
		VIA (EIS Project)	Amended Project	VIA (EIS Project)	Amended Project	VIA (EIS Project)	Amended Project
VP238: Castlereagh Highway (elevated public viewpoint travelling north)	Low	Low	Low: There would be no discernible change in the view compared to the EIS Project.	Low	Low (no change)	Low	Low (no change)
VP245: Peoples Park, Gulgong	Low	Low	Low: There would be no discernible change in the view compared to the EIS Project.	Low	Low (no change)	Low	Low (no change)
VP246: Flirtation Hill (lookout) Photomontages of the existing and predicted view, including amendments, are provided at <a href="#">Appendix B</a> . A photomontage of the view showing cumulative impact (with four proposed projects) is provided at <a href="#">Appendix E</a> .	Moderate	Low	Low: There would be no discernible change in the view of the Amended Project compared to the EIS Project.	Low-moderate	Low-moderate (no change)	Low- moderate	Low-moderate (no change)

\* Potential screening within the private property would reduce residual impact overtime. Consultation with the landowner is ongoing.

\*\*Overtime, as proposed tree planting along the southern Project Area boundary increases in height, the view of the EIS Project following construction, and longer-term residual impact would reduce.

# Appendix B: Amended Project photomontages

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The following images illustrate the Amended Project compared to the EIS Project for the following viewpoints:

- Residences: VP1, VP24, VP213, and
- Public viewpoints: VP232 (Puggoon Road); VP233 (Jackson Lane), and VP236 (Castlereagh Highway).

Each viewpoint includes:

- the existing view toward the Amended Project
- an analytical view showing:
  - the location of the Amended Project indicated in pink, and
  - the location of the EIS Project indicated in white (to illustrate the difference in magnitude between the original EIS Project and the Amended Project)
- a photomontage of the Amended Project following construction,
- and, for VP213 and VP236, a photomontage illustrating mitigation landscape planting 3-5 years following construction.

To view the photomontage images correctly, each photomontage should be viewed at a size of an A3 sheet at a comfortable arm's length. To minimise the risk of images being viewed incorrectly on screen, enlarge the image on the screen to full A3 size height (if possible), and view the screen from a comfortable arm's distance away.



# Tallawang Solar Farm

## Addendum visual impact assessment | Amended Project photomontages

Geospatial + 3D visualisation

**Cambium Group**  
Derek Mascarenhas  
Dr Emilie Mascarenhas

Visual impact + photography

**Envisage Consulting**

Client

**Umwelt  
RES**

Date

19 April 2024

Version

07



**CAMBIUM  
GROUP**  
Visual communication science



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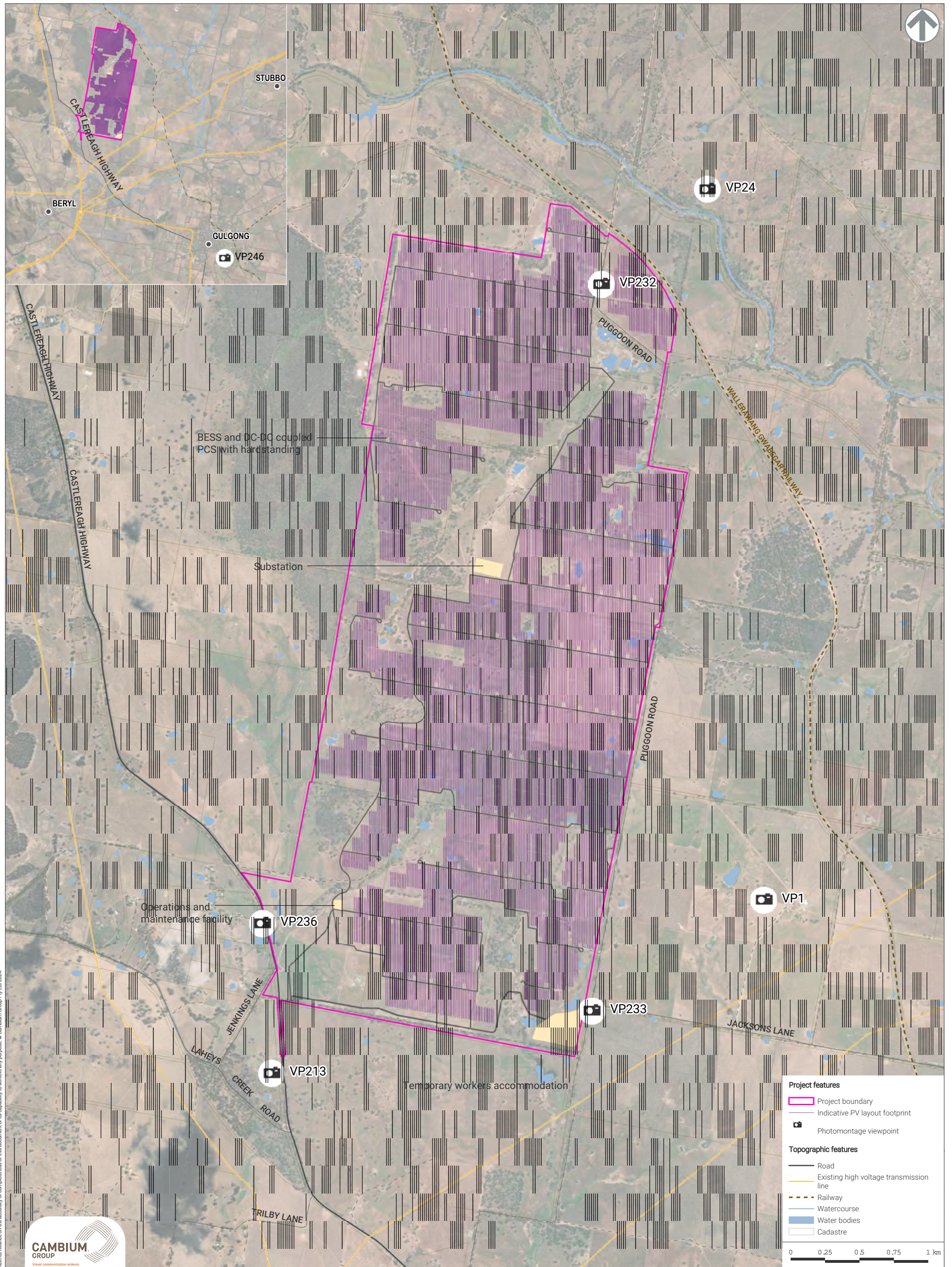
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-

Figure B-1  
Photomontage locations

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# Figure B-2

## VP1 - Existing view

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### Commentary

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This specification is regarded as providing a depth of field that is closest to human eyesight, albeit that we typically have wider peripheral vision.

Accurate representation of this photograph or photomontage is achieved when printed at A3 size or by viewing at 100% zoom on a 20 inch monitor at a distance of approximately 400mm.

\* Due to page frame constraints, the top of this photograph has been cropped by 2° resulting in a residual 39.6° HFOV and a 25° VFOV.



Date	05/08/21
Time	12:01
Camera level	457.15 mAHD
Camera coordinates	735106m E, 6423289m N
Camera	Canon EOS 6D Mark II (full frame DSLR)
Panorama type	50mm FL landscape
Camera bearing	306°
Vertical field of view	27° (cropped to 25°)
Horizontal field of view	39.6°
Projected coordinate system	GDA1994 MGA Zone 55
Photography	Envisage Consulting

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031289\_TWG\_SF\_DB\_LVIA-AR\_Photomontages\_240418\_v04

# Figure B-3 VP1 - Analytical view showing Amended Project (compared with EIS Project)

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# Figure B-4 VP1 - Photomontage of EIS Project

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Vertical field of view	27° (cropped to 25°)
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Projected coordinate system	GDA1994 MGA Zone 55
Photography	Envisage Consulting

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# Figure B-5 VP1 - Photomontage of Amended Project

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# Figure B-6

## VP24 - Existing view

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### Commentary

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Date	04/08/21
Time	11:17
Camera level	455.65 mAHD
Camera coordinates	734698m E, 6428460m N
Camera	Canon EOS 6D Mark II (full frame DSLR)
Panorama type	50mm FL landscape
Camera bearing	222°
Vertical field of view	27° (cropped to 25°)
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# Figure B-7 VP24 - Analytical view showing Amended Project (compared with EIS Project)

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# Figure B-8 VP24 - Photomontage of EIS Project

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# Figure B-9 VP24 - Photomontage of Amended Project

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# Figure B-10

## VP213 - Existing view

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Panorama type	50mm FL landscape
Camera bearing	24°
Vertical field of view	27° (cropped to 25°)
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# Figure B-11

## VP213 - Analytical view showing Amended Project (compared with EIS Project)

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Vertical field of view	27° (cropped to 25°)
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Projected coordinate system	GDA1994 MGA Zone 55
Photography	Envisage Consulting

Difference between EIS Project and Amended Project  
 Amended Project

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# Figure B-12 VP213 - Photomontage of EIS Project

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Photography	Envisage Consulting

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# Figure B-13 VP213 - Photomontage of Amended Project

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**Commentary**

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# Figure B-14 VP213 - Photomontage of Amended Project (mitigation at 4 to 6 years)

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# Figure B-15

## VP232 - Existing view

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Accurate representation of this photograph or photomontage is achieved when printed at A3 size or by viewing at 100% zoom on a 20 inch monitor at a distance of approximately 400mm.

\* Due to page frame constraints, the top of this photograph has been cropped by 2° resulting in a residual 39.6° HfOV and a 25° VfOV.



Puggoon Road

Date	04/08/21
Time	12:14
Camera level	454.65 mAHD
Camera coordinates	733926m E, 6427769m N
Camera	Canon EOS 6D Mark II (full frame DSLR)
Panorama type	50mm FL landscape
Camera bearing	191°
Vertical field of view	27° (cropped to 25°)
Horizontal field of view	39.6°
Projected coordinate system	GDA1994 MGA Zone 55
Photography	Envisage Consulting

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Figure B-16  
 VP232 - Analytical view showing Amended Project (compared with EIS Project)

**Commentary**  
 This photograph was captured on a full frame Digital single-lens reflex (DSLR) camera using a 50mm focal length representing a 39.6° horizontal field of view (HfOV) and a 27° vertical field of view (VfOV).  
 This specification is regarded as providing a depth of field that is closest to human eyesight, albeit that we typically have wider peripheral vision.  
 Accurate representation of this photograph or photomontage is achieved when printed at A3 size or by viewing at 100% zoom on a 20 inch monitor at a distance of approximately 400mm.  
 \* Due to page frame constraints, the top of this photograph has been cropped by 2° resulting in a residual 39.6° HfOV and a 25° VfOV.



Puggoon Road

Date	04/08/21
Time	12:14
Camera level	454.65 mAHD
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Camera	Canon EOS 6D Mark II (full frame DSLR)
Panorama type	50mm FL landscape
Camera bearing	191°
Vertical field of view	27° (cropped to 25°)
Horizontal field of view	39.6°
Projected coordinate system	GDA1994 MGA Zone 55
Photography	Envisage Consulting

Difference between EIS Project and Amended Project  
 Amended Project

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# Figure B-17

## VP232- Photomontage of EIS Project

TALLAWANG SOLAR FARM | LANDSCAPE AND VISUAL IMPACT ASSESSMENT - AMENDMENT REPORT

**Commentary**

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\* Due to page frame constraints, the top of this photograph has been cropped by 2° resulting in a residual 39.6° HFOV and a 25° VFOV.



Date	04/08/21
Time	12:14
Camera level	454.65 mAHD
Camera coordinates	733926m E, 6427769m N
Camera	Canon EOS 6D Mark II (full frame DSLR)
Panorama type	50mm FL landscape
Camera bearing	191°
Vertical field of view	27° (cropped to 25°)
Horizontal field of view	39.6°
Projected coordinate system	GDA1994 MGA Zone 55
Photography	Envisage Consulting

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# Figure B-18

## VP232- Photomontage of Amended Project

TALLAWANG SOLAR FARM | LANDSCAPE AND VISUAL IMPACT ASSESSMENT - AMENDMENT REPORT

**Commentary**  
 This photograph was captured on a full frame Digital single-lens reflex (DSLR) camera using a 50mm focal length representing a 39.6° horizontal field of view (HFOV) and a 27° vertical field of view (VFOV).  
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 Accurate representation of this photograph or photomontage is achieved when printed at A3 size or by viewing at 100% zoom on a 20 inch monitor at a distance of approximately 400mm.  
 \* Due to page frame constraints, the top of this photograph has been cropped by 2° resulting in a residual 39.6° HFOV and a 25° VFOV.



Date	04/08/21
Time	12:14
Camera level	454.65 mAHD
Camera coordinates	733926m E, 6427769m N
Camera	Canon EOS 6D Mark II (full frame DSLR)
Panorama type	50mm FL landscape
Camera bearing	191°
Vertical field of view	27° (cropped to 25°)
Horizontal field of view	39.6°
Projected coordinate system	GDA1994 MGA Zone 55
Photography	Envisage Consulting

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# Figure B-19

## VP233 - Existing view

TALLAWANG SOLAR FARM | LANDSCAPE AND VISUAL IMPACT ASSESSMENT - AMENDMENT REPORT

### Commentary

This photograph was captured on a full frame Digital single-lens reflex (DSLR) camera using a 50mm focal length representing a 39.6° horizontal field of view (HFOV) and a 27° vertical field of view (VFOV).

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\* Due to page frame constraints, the top of this photograph has been cropped by 2° resulting in a residual 39.6° HFOV and a 25° VFOV.



Puggoon Road

Date	05/08/21
Time	12:10
Camera level	443.13 mAHD
Camera coordinates	733859m E, 6422484m N
Camera	Canon EOS 6D Mark II (full frame DSLR)
Panorama type	50mm FL landscape
Camera bearing	219°
Vertical field of view	27° (cropped to 25°)
Horizontal field of view	39.6°
Projected coordinate system	GDA1994 MGA Zone 55
Photography	Envisage Consulting

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# Figure B-20

## VP233 - Analytical view showing Amended Project

TALLAWANG SOLAR FARM | LANDSCAPE AND VISUAL IMPACT ASSESSMENT - AMENDMENT REPORT

### Commentary

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\* Due to page frame constraints, the top of this photograph has been cropped by 2° resulting in a residual 39.6° HFOV and a 25° VFOV.



Date	05/08/21
Time	12:10
Camera level	443.13 mAHD
Camera coordinates	733859m E, 6422484m N
Camera	Canon EOS 6D Mark II (full frame DSLR)
Panorama type	50mm FL landscape
Camera bearing	219°
Vertical field of view	27° (cropped to 25°)
Horizontal field of view	39.6°
Projected coordinate system	GDA1994 MGA Zone 55
Photography	Envisage Consulting

Amended Project

# Figure B-21 VP233 - Photomontage of Amended Project

TALLAWANG SOLAR FARM | LANDSCAPE AND VISUAL IMPACT ASSESSMENT - AMENDMENT REPORT

### Commentary

This photograph was captured on a full frame Digital single-lens reflex (DSLR) camera using a 50mm focal length representing a 39.6° horizontal field of view (HfOV) and a 27° vertical field of view (VfOV).

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\* Due to page frame constraints, the top of this photograph has been cropped by 2° resulting in a residual 39.6° HfOV and a 25° VfOV.



Date	05/08/21
Time	12:10
Camera level	443.13 mAHD
Camera coordinates	733859m E, 6422484m N
Camera	Canon EOS 6D Mark II (full frame DSLR)
Panorama type	50mm FL landscape
Camera bearing	219°
Vertical field of view	27° (cropped to 25°)
Horizontal field of view	39.6°
Projected coordinate system	GDA1994 MGA Zone 55
Photography	Envisage Consulting

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# Figure B-22

## VP236 - Existing view

TALLAWANG SOLAR FARM | LANDSCAPE AND VISUAL IMPACT ASSESSMENT - AMENDMENT REPORT

### Commentary

This photograph was captured on a full frame Digital single-lens reflex (DSLR) camera using a 50mm focal length representing a 39.6° horizontal field of view (HFOV) and a 27° vertical field of view (VFOV).

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\* Due to page frame constraints, the top of this photograph has been cropped by 2° resulting in a residual 39.6° HFOV and a 25° VFOV.



Date	05/08/21
Time	10:19
Camera level	444.15 mAHD
Camera coordinates	731461m E, 6423120m N
Camera	Canon EOS 6D Mark II (full frame DSLR)
Panorama type	50mm FL landscape
Camera bearing	97°
Vertical field of view	27° (cropped to 25°)
Horizontal field of view	68.7°
Projected coordinate system	GDA1994 MGA Zone 55
Photography	Envisage Consulting

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# Figure B-23 VP236 - Analytical view showing Amended Project (compared with EIS Project)

TALLAWANG SOLAR FARM | LANDSCAPE AND VISUAL IMPACT ASSESSMENT - AMENDMENT REPORT

**Commentary**

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Date	05/08/21
Time	10:19
Camera level	444.15 mAHD
Camera coordinates	731461m E, 6423120m N
Camera	Canon EOS 6D Mark II (full frame DSLR)
Panorama type	50mm FL landscape
Camera bearing	97°
Vertical field of view	27° (cropped to 25°)
Horizontal field of view	68.7°
Projected coordinate system	GDA1994 MGA Zone 55
Photography	Envisage Consulting

Difference between EIS Project and Amended Project  
 Amended Project

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# Figure B-24

## VP236 - Photomontage of EIS Project

TALLAWANG SOLAR FARM | LANDSCAPE AND VISUAL IMPACT ASSESSMENT - AMENDMENT REPORT

**Commentary**

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\* Due to page frame constraints, the top of this photograph has been cropped by 2° resulting in a residual 39.6° HFOV and a 25° VFOV.



Tallawang solar farm

Date	05/08/21
Time	10:19
Camera level	444.15 mAHD
Camera coordinates	731461m E, 6423120m N
Camera	Canon EOS 6D Mark II (full frame DSLR)
Panorama type	50mm FL landscape
Camera bearing	97°
Vertical field of view	27° (cropped to 25°)
Horizontal field of view	68.7°
Projected coordinate system	GDA1994 MGA Zone 55
Photography	Envisage Consulting

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# Figure B-25

## VP236 - Photomontage of Amended Project

TALLAWANG SOLAR FARM | LANDSCAPE AND VISUAL IMPACT ASSESSMENT - AMENDMENT REPORT

**Commentary**

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\* Due to page frame constraints, the top of this photograph has been cropped by 2° resulting in a residual 39.6° HFOV and a 25° VFOV.



Date	05/08/21
Time	10:19
Camera level	444.15 mAHD
Camera coordinates	731461m E, 6423120m N
Camera	Canon EOS 6D Mark II (full frame DSLR)
Panorama type	50mm FL landscape
Camera bearing	97°
Vertical field of view	27° (cropped to 25°)
Horizontal field of view	68.7°
Projected coordinate system	GDA1994 MGA Zone 55
Photography	Envisage Consulting

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Source: Esri, Maxar, Geoeye (2023), NSW Government Spatial Services (2021), Elvis Elevation and Depth - Foundation Spatial Data (2021), K.F. Williams & Associates - Survey (2019), Aerometrex (2023), RES (2023), Umwelt (2023), Envisage Consulting (2024), Cambium Group (2024).

# Figure B-26

## VP236 - Photomontage of Amended Project (mitigation at 4 to 6 years)

TALLAWANG SOLAR FARM | LANDSCAPE AND VISUAL IMPACT ASSESSMENT - AMENDMENT REPORT

**Commentary**

This photograph was captured on a full frame Digital single-lens reflex (DSLR) camera using a 50mm focal length representing a 39.6° horizontal field of view (HFOV) and a 27° vertical field of view (VFOV).

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\* Due to page frame constraints, the top of this photograph has been cropped by 2° resulting in a residual 39.6° HFOV and a 25° VFOV.



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Time	10:19
Camera level	444.15 mAHD
Camera coordinates	731461m E, 6423120m N
Camera	Canon EOS 6D Mark II (full frame DSLR)
Panorama type	50mm FL landscape
Camera bearing	97°
Vertical field of view	27° (cropped to 25°)
Horizontal field of view	68.7°
Projected coordinate system	GDA1994 MGA Zone 55
Photography	Envisage Consulting

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Source: Esri, Maxar, Geoeye (2023), NSW Government Spatial Services (2021), Elvis Elevation and Depth - Foundation Spatial Data (2021), K.F. Williams & Associates - Survey (2019), Aerometrex (2023), RES (2023), Umwelt (2023), Envisage Consulting (2024), Cambium Group (2024).

# Figure B-27

## VP246 - Existing view

TALLAWANG SOLAR FARM | LANDSCAPE AND VISUAL IMPACT ASSESSMENT - AMENDMENT REPORT

### Commentary

This photograph was captured on a full frame Digital single-lens reflex (DSLR) camera using a 50mm focal length representing a 39.6° horizontal field of view (HFOV) and a 27° vertical field of view (VFOV).

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\* Due to page frame constraints, the top of this photograph has been cropped by 2° resulting in a residual 39.6° HFOV and a 25° VFOV.



Date	05/08/21
Time	12:56
Camera level	513.65 mAHD
Camera coordinates	739244m E, 6416087m N
Camera	Canon EOS 6D Mark II (full frame DSLR)
Panorama type	50mm FL landscape
Camera bearing	327°
Vertical field of view	27° (cropped to 25°)
Horizontal field of view	39.6°
Projected coordinate system	GDA1994 MGA Zone 55
Photography	Envisage Consulting

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Figure B-28  
 VP246 - Analytical view showing Amended Project (compared with EIS Project)

**Commentary**

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Camera level	513.65 mAHD
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Camera	Canon EOS 6D Mark II (full frame DSLR)
Panorama type	50mm FL landscape
Camera bearing	327°
Vertical field of view	27° (cropped to 25°)
Horizontal field of view	39.6°
Projected coordinate system	GDA1994 MGA Zone 55
Photography	Envisage Consulting

Difference between EIS Project and Amended Project  
 Amended Project

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# Figure B-29 VP246 - Photomontage of EIS Project

TALLAWANG SOLAR FARM | LANDSCAPE AND VISUAL IMPACT ASSESSMENT - AMENDMENT REPORT

**Commentary**

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Time	12:56
Camera level	513.65 mAHD
Camera coordinates	739244m E, 6416087m N
Camera	Canon EOS 6D Mark II (full frame DSLR)
Panorama type	50mm FL landscape
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Horizontal field of view	39.6°
Projected coordinate system	GDA1994 MGA Zone 55
Photography	Envisage Consulting

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# Figure B-30 VP246 - Photomontage of Amended Project

TALLAWANG SOLAR FARM | LANDSCAPE AND VISUAL IMPACT ASSESSMENT - AMENDMENT REPORT

**Commentary**

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Camera	Canon EOS 6D Mark II (full frame DSLR)
Panorama type	50mm FL landscape
Camera bearing	327°
Vertical field of view	27° (cropped to 25°)
Horizontal field of view	39.6°
Projected coordinate system	GDA1994 MGA Zone 55
Photography	Envisage Consulting

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# Appendix C: Visual characteristics of other renewable energy developments and potential viewpoints

The visual characteristics of the developments are listed in Column A, and VIA viewpoints which are, or would be, within the viewshed of other developments, are listed in Column B.

Development	Column A Characteristics of developments identified			Column B Viewpoints that would see The Amended Project as well as other development	
	Distance from Project	Previously identified in the VIA (EIS Project)	Changes or new developments identified since the VIA (EIS Project)	Viewpoints previously identified in the VIA (EIS Project)	Additional viewpoint/s identified since EIS Project was lodged
Beryl Solar Farm	5 km south	<ul style="list-style-type: none"> <li>- Operational.</li> <li>- 109 MW PV solar farm.</li> <li>- Solar PV panels 2.7 m in height.</li> </ul>	<u>No change</u>	Higher elevated Laheys Creek Road residences (VP199, 206, 208 and 209)	<u>No change</u>
				VP213: 727 Castlereagh Road residence	<u>No change</u>
				VP243: Representative viewpoint - Beryl Road vicinity residences	<u>No change</u>
				VP246: Flirtation Hill	<u>No change</u>
				Castlereagh Highway	<u>No change</u>
Stubbo Solar Farm	7 km east	<ul style="list-style-type: none"> <li>- Approved.</li> <li>- 400 MW PV solar farm.</li> <li>- 200 MW BESS.</li> <li>- On 1,250 ha flat, cleared grazing land.</li> </ul>	<ul style="list-style-type: none"> <li>- Construction has commenced.</li> <li>- <u>No change</u> to scope of project.</li> </ul>	Higher elevated Laheys Creek Road residences (VP199, 206, 208 and 209)	<u>No change</u>
				VP223: 312 Castlereagh Highway	<u>No change</u>
				VP246: Flirtation Hill	<u>No change</u>
Dunedoo Solar Farm	Approximately 30 km north	<ul style="list-style-type: none"> <li>- Approved.</li> <li>- Construction not started.</li> <li>- 55 MW PV solar farm.</li> </ul>	<u>No change</u>	None identified.	<u>No change</u>
Birriwa Solar Farm	15 km north-east	<ul style="list-style-type: none"> <li>- Scoping Report lodged.</li> <li>- Around 600 MW PV solar farm.</li> <li>- BESS of up to 1,000 MW.</li> <li>- Solar PV panels 4.5 m in height.</li> </ul>	<ul style="list-style-type: none"> <li>- EIS exhibited including visual impact assessment<sup>20</sup>.</li> <li>- <u>No change</u> to solar capacity.</li> <li>- <u>Slight decrease</u> in BESS capacity (up to 600 MW).</li> <li>- <u>Slight increase</u> in solar panel height (to 4.7 m).</li> </ul>	No residential viewpoints identified.	Castlereagh Highway
					No residential viewpoints identified.
Bellambi Heights Solar Farm (now Bellambi Heights BESS)	Directly south	<ul style="list-style-type: none"> <li>- Application not lodged.</li> <li>- 200 MW PV solar farm.</li> <li>- 200 MW BESS.</li> </ul>	<ul style="list-style-type: none"> <li>- EIS and visual impact assessment lodged<sup>21</sup>.</li> <li>- Solar farm no longer proposed.</li> <li>- <u>Increased BESS capacity</u> to 408 MW.</li> </ul>	Trilby Lane residences (VP211 and 212)	VP1: Jacksons Lane residence Higher elevated Laheys Creek Road residences (VP199, 206, 208 and 209)
				VP213: 727 Castlereagh Road residence	VP210: 146 Puggoon Road VP223: 312 Castlereagh Highway

<sup>20</sup> EMM, 2022, *Birriwa Solar and Battery Project, Visual Impact Assessment*

<sup>21</sup> Iris, 2023, *Bellambi Heights Battery Energy Storage System, Landscape Character and Visual Impact Assessment*.

Development	Column A Characteristics of developments identified			Column B Viewpoints that would see The Amended Project as well as other development	
	Distance from Project	Previously identified in the VIA (EIS Project)	Changes or new developments identified since the VIA (EIS Project)	Viewpoints previously identified in the VIA (EIS Project)	Additional viewpoint/s identified since EIS Project was lodged
			<ul style="list-style-type: none"> <li>- Includes switching station.</li> <li>- Development footprint would cover approximately 25 ha.</li> </ul>	VP232: Puggoon Road	VP233: Jacksons Lane VP243: Representative viewpoint - Beryl Road residences VP246: Flirtation Hill Castlereagh Highway
Barneys Reef Windfarm	Adjacent to the north	<ul style="list-style-type: none"> <li>- Application not yet lodged.</li> <li>- Includes the proposed Barneys Reef substation.</li> <li>- Up to 63 wind turbines</li> <li>- Up to 280 m (to blade tip) in height above ground level</li> </ul>	<u>No change</u>	Most viewpoints identified for the VIA	<u>No change</u>
Mayfair Solar Farm	2 km east	Not previously assessed.	<ul style="list-style-type: none"> <li>- New proposal</li> <li>- Scoping report lodged<sup>22</sup></li> <li>- Occupying around 140 ha</li> <li>- 60 MW solar farm</li> <li>- 60 MW BESS</li> <li>- substation</li> </ul>	-	VP210: 146 Puggoon Road VP223: 312 Castlereagh Highway VP241: Representative viewpoint – Barneys Reef Road vicinity residences VP246: Flirtation Hill Castlereagh Highway
Beryl BESS	3.5 km south	Not previously assessed.	<ul style="list-style-type: none"> <li>- New proposal</li> <li>- Scoping report lodged<sup>23</sup></li> <li>- 100 MW BESS</li> </ul>	-	VP223: 312 Castlereagh Highway VP243: Representative viewpoint – Beryl Road vicinity residences Castlereagh Highway
Cobbora Solar Farm	30 km north-west	Not previously assessed.	<ul style="list-style-type: none"> <li>- New proposal</li> <li>- Scoping report lodged</li> <li>- 700 MW Solar Farm</li> </ul>	-	No residential viewpoints identified. Solar panels would be beyond visibility of The Amended Project viewpoints.
Narragamba Solar Farm	35 km east	Not previously assessed.	<ul style="list-style-type: none"> <li>- New proposal</li> <li>- Scoping report lodged</li> <li>- 320 MW Solar Farm</li> </ul>	-	No residential viewpoints identified. Solar panels would be beyond visibility of The Amended Project viewpoints.
Dapper Solar Farm	35 km north-west	Not previously assessed.	<ul style="list-style-type: none"> <li>- New proposal</li> <li>- Scoping report lodged</li> <li>- 300 MW Solar Farm.</li> </ul>	-	No residential viewpoints identified. Solar panels would be beyond visibility of the Amended Project viewpoints.
Mavis Solar Farm	Adjacent to the south-east	Not previously assessed.	<ul style="list-style-type: none"> <li>- New proposal</li> <li>- Scoping report lodged<sup>24</sup></li> <li>- Preliminary visual assessment not lodged</li> </ul>	-	As a preliminary visual assessment has not yet been lodged, this Addendum has assumed that the following viewpoints would see the proposed Mavis Solar Farm: VP1: Jacksons Lane

<sup>22</sup> Pitt&Sherry, 2023, *Scoping Report, Mayfair Solar Farm*.

<sup>23</sup> Jacobs, 2023, *Beryl BESS Scoping Report*.

<sup>24</sup> Urban Perspectives Environmental Solutions, 2023, *Mavis Solar Farm Scoping Report*.

Development	Column A Characteristics of developments identified			Column B Viewpoints that would see The Amended Project as well as other development	
	Distance from Project	Previously identified in the VIA (EIS Project)	Changes or new developments identified since the VIA (EIS Project)	Viewpoints previously identified in the VIA (EIS Project)	Additional viewpoint/s identified since EIS Project was lodged
			<ul style="list-style-type: none"> <li>- 250 MW solar farm</li> <li>- 100 MW BESS</li> </ul>		VP210: 146 Puggoon Road Higher elevated Laheys Creek Road residences (VP199, 206, 208 and 209) VP223: 312 Castlereagh Highway VP232: Puggoon Road VP233: Jacksons Lane VP241: Representative viewpoint - Barneys Reef Road vicinity residences VP246: Flirtation Hill Castlereagh Highway
CWO REZ grid connection infrastructure	Directly north	<ul style="list-style-type: none"> <li>- 13 km long (approximately) overhead grid connection infrastructure</li> <li>- Including towers around 35 m high</li> <li>- Substation</li> </ul>	<ul style="list-style-type: none"> <li>- Was formerly part of the EIS Project, now proposed by EnergyCo</li> <li>- EIS on exhibition<sup>25</sup></li> <li>- Includes multiple switching stations and over 200 km of overhead grid connection infrastructure.</li> </ul>	VP24: 980 Puggoon Road residence VP40: 1716 Castlereagh Highway VP232: Puggoon Road Castlereagh Highway	<u>No change.</u> <u>No change</u> <u>No change</u> <u>No change</u>

<sup>25</sup> EnergyCo, 2023, *Central-West Orana Renewable Energy Zone Transmission project*

# Appendix D: Description of cumulative visual impacts to viewpoints

VIA viewpoint		Developments visible or potentially visible	Description of developments in view (identified in this addendum)	Cumulative visual impact
Public and private	Most viewpoints identified in the VIA	<ul style="list-style-type: none"> <li>- The Amended Project</li> <li>- Barneys Reef Windfarm</li> </ul>	<ul style="list-style-type: none"> <li>▪ Barneys Reef turbines would be seen from greater distances compared to the Amended Project. Views with both the Amended Project and Barneys Reef Wind Farm would include: <ul style="list-style-type: none"> <li>- A relatively small proportion of the middle ground occupied by solar panels, generally recessive against vegetated backgrounds, and generally fitting within the open spaces of the landscape without significant change to landform, and</li> <li>- A larger proportion of the background view occupied by wind turbines, elevated up to 280 m above ground level (visible above close ridgelines and existing vegetation), and containing moving parts.</li> </ul> </li> </ul>	The extent of energy infrastructure visible from most residential and public viewpoints identified in the Amended Project VIA <u>would increase</u> .
	VP1: Jacksons Lane residence	<ul style="list-style-type: none"> <li>- the Amended Project</li> <li>- Bellambi Heights BESS</li> <li>- Mavis Solar Farm</li> </ul>	<ul style="list-style-type: none"> <li>▪ The Bellambi Heights BESS visual impact assessment<sup>26</sup> showed that the BESS would be over 1 km away from VP1, and, if visible, would be glimpsed in the background.</li> <li>▪ The proposed Mavis Solar Farm would be adjacent to VP1, however, a preliminary visual assessment has not yet been lodged. It has been assumed in this Addendum, that solar panels would be visible from the residence at around 1 km away.</li> <li>▪ Although Mayfair Solar Farm is relatively close to VP1, the viewshed shown in the preliminary visual assessment<sup>27</sup> shows it would not be visible from the residence.</li> </ul>	If all projects proceed, the most significant impact to views would be the Amended Project (viewed to the west) and Mavis Solar Farm (viewed to the south). The solar farms would be a similar distance from VP1, and likely occupy a similar proportion of the view, potentially affecting a relatively large proportion of the view available from the residence. The Bellambi Heights BESS, if visible, would be seen on higher ground beyond both solar farms, and, although smaller, could be more conspicuous, with its lighter colouring. The extent of energy infrastructure in view would increase.
Private residence	VP24: 980 Puggoon Road	<ul style="list-style-type: none"> <li>- the Amended Project</li> <li>- CWO REZ grid connection infrastructure</li> </ul>	<ul style="list-style-type: none"> <li>▪ From the residence, the top of several CWO REZ grid connection towers would likely be visible between, or above, existing trees. From more elevated parts of the property, there would possibly be around 9-10 towers in view. Furthermore, the resident would need to travel via Puggoon Road, adjacent to CWO REZ grid connection infrastructure, to access their property.</li> <li>▪ If both projects proceed, the view from the residence would include a slightly greater extent of infrastructure, however, occupy a small part of the view available. The most significant visual impact, however, would be to the elevated parts of VP24 property, and to the journey to, and from, the property, rather than from the residence.</li> </ul>	The extent of energy infrastructure visible from the residence would slightly increase at the residence. The increase would be more significant elsewhere on the property.

<sup>26</sup> Iris, 2023, *Bellambi Heights Battery Energy Storage System, Landscape Character and Visual Impact Assessment*.

<sup>27</sup> Envisage Consulting, 2023, *Proposed Mayfair Solar Farm, Landscape and Visual Impact Assessment, Preliminary Assessment Stage*.

VIA viewpoint	Developments visible or potentially visible	Description of developments in view (identified in this addendum)	Cumulative visual impact
VP40: 1716 Castlereagh Highway	<ul style="list-style-type: none"> <li>- the Amended Project</li> <li>- CWO REZ grid connection infrastructure</li> </ul>	<ul style="list-style-type: none"> <li>▪ CWO REZ grid connection towers would be partially visible toward the south-east and east when viewed from VP40. At 35 m high, they would be taller than surrounding trees, however, would have a dark, vegetated background, and be mostly inconspicuous against the darker, vegetated background.</li> </ul>	There would be minimal cumulative visible impact to VP40.
Higher elevated Laheys Creek Road residences (VP199, 206, 208 and 209)	<ul style="list-style-type: none"> <li>- the Amended Project</li> <li>- Beryl Solar Farm (existing)</li> <li>- Stubbo Solar Farm (under construction)</li> <li>- Bellambi Heights BESS</li> <li>- Mavis Solar Farm</li> </ul>	<ul style="list-style-type: none"> <li>▪ Existing Beryl Solar Farm, if visible, would occupy a very small part of the view. It is relatively small, located around 10 km away on lower-lying land. Similarly, Stubbo Solar Farm is unlikely to be visible. It is located at least 10 km to the east, on lower-lying land, with large areas of existing vegetation in the vicinity.</li> <li>▪ The Bellambi Heights BESS visual impact assessment<sup>28</sup> determined the BESS would be over 1 km from these viewpoints and unlikely to be visible due to intervening landform and trees.</li> <li>▪ A preliminary visual assessment has not yet been lodged for the proposed Mavis Solar Farm. However, as the development is located east of Bellambi Heights BESS development, and further from Laheys Creek Road viewpoints, it is assumed in this Addendum that it would occupy very little of the view, if visible.</li> </ul>	As the two existing solar farms (Beryl and Stubbo) have very little visual impact, and Bellambi Heights BESS and Mavis Solar Farm are unlikely to be visible, the most significant (although relatively modest) visual impact would remain the Amended Project. Cumulative visual impact as a result of all five developments would be minor.
VP210: 146 Puggoon Road	<ul style="list-style-type: none"> <li>- the Amended Project</li> <li>- Mayfair Solar Farm</li> <li>- Bellambi Heights BESS</li> <li>- Mavis Solar Farm</li> </ul>	<ul style="list-style-type: none"> <li>▪ Mayfair Solar Farm would be around 2 km to the east of VP210. Mayfair preliminary visual assessment<sup>29</sup> determined that views from VP210 to the proposed Mayfair Solar Farm did not meet the minimum criteria for detailed visual assessment.</li> <li>▪ VP210 dwelling is not identified in Bellambi Heights BESS visual impact assessment, however, it is possible it is located within the development's viewshed<sup>30</sup>.</li> <li>▪ A preliminary visual assessment has not yet been lodged for the proposed Mavis Solar Farm. It has been assumed in this Addendum, that solar panels would be visible from VP210, as it is the closest residence (within several hundred metres of the development).</li> </ul>	If all projects proceed, the primary visual impact would be Mavis Solar Farm, which would be viewed from close proximity, and affect a wide viewing area from the residence. Bellambi Heights BESS and the Amended Project may be partially visible beyond Mavis Solar Farm. In addition, there would be views of the developments while travelling to and from VP210 via the Castlereagh Highway and Puggoon Road (past Mavis Solar Farm and Bellambi Heights BESS). The extent of energy infrastructure potentially in view could increase substantially.
Trilby Lane and residences (VP211 and 212)	<ul style="list-style-type: none"> <li>- the Amended Project</li> <li>- Bellambi Heights BESS</li> </ul>	<ul style="list-style-type: none"> <li>▪ The Bellambi Heights BESS visual impact assessment determined the BESS would be visible from Trilby Lane, in the background. A photomontage was included in the visual impact assessment<sup>31</sup> which shows the proposed substation would be in view, and the visual impact was assessed as low.</li> </ul>	As the Amended Project has a low likelihood of visibility from these viewpoints, if both projects were to proceed, there would be minimal cumulative visual impact.
VP213: 727 Castlereagh Road	<ul style="list-style-type: none"> <li>- the Amended Project</li> </ul>	<ul style="list-style-type: none"> <li>▪ Beryl Solar Farm is visible from VP213, however, it is not prominent, nor adversely affects the view south, which is dominated by a ridgeline in the background.</li> </ul>	If all three projects were to proceed, the Amended Project would be the closest, and most visible development. There would be minimal cumulative visual impact.

<sup>28</sup> Iris, 2023, *Bellambi Heights Battery Energy Storage System, Landscape Character and Visual Impact Assessment*.

<sup>29</sup> Envisage Consulting, 2023, *Proposed Mayfair Solar Farm, Landscape and Visual Impact Assessment, Preliminary Assessment Stage*.

<sup>30</sup> Page 19. Iris, 2023, *Bellambi Heights Battery Energy Storage System, Landscape Character and Visual Impact Assessment*.

<sup>31</sup> Page 27. Iris, 2023, *Bellambi Heights Battery Energy Storage System, Landscape Character and Visual Impact Assessment*.

VIA viewpoint		Developments visible or potentially visible	Description of developments in view (identified in this addendum)	Cumulative visual impact
		<ul style="list-style-type: none"> <li>- Beryl Solar Farm (existing)</li> <li>- Bellambi Heights BESS</li> </ul>	<ul style="list-style-type: none"> <li>▪ VP213 has been identified in Bellambi Heights BESS visual impact assessment (as dwelling 2) and a photomontage of the view shows that visibility of the development would be very limited<sup>32</sup>.</li> </ul>	
	VP223: 312 Castlereagh Highway	<ul style="list-style-type: none"> <li>- the Amended Project</li> <li>- Mayfair Solar Farm</li> <li>- Mavis Solar Farm</li> <li>- Bellambi Heights BESS</li> <li>- Stubbo Solar Farm (under construction)</li> </ul>	<ul style="list-style-type: none"> <li>▪ The existing Beryl Solar Farm and adjoining proposed Beryl BESS are both within 3 km of VP223, however, are (or would be) largely screened by landform.</li> <li>▪ Proposed Mavis Solar Farm would be around 1 km from VP223. Although a preliminary visual assessment has not yet been lodged for the proposed Mavis Solar Farm, it has been assumed in this Addendum that solar panels could be visible from the west through to the north (almost 90 degrees), affecting a large proportion of the view.</li> <li>▪ Proposed Mayfair Solar Farm is almost 4 km to the north-east of VP223 and identified as R55 in the preliminary visual assessment<sup>33</sup>. It may be partially visible.</li> <li>▪ VP223 is identified as dwelling 62 in Bellambi Heights BESS visual impact assessment<sup>34</sup>. The impact to dwelling 62 is not discussed. It is assumed in this Addendum that the lighter coloured BESS storage units could be visible.</li> <li>▪ Stubbo Solar Farm is over 10 km to the north-east. It is on lower lying land and surrounded by vegetation. It would be unlikely to be visible, or if visible, would occupy a minor proportion of the view.</li> </ul>	If all projects were to proceed, there would be significant cumulative impact to VP223. Solar panels could be visible in the close mid-ground (Mavis Solar Farm), slightly further away (the Amended Project and Mayfair Solar Farm), and possibly in the distance (Stubbo Solar Farm), and the lighter-coloured BESS proposed at Bellambi Heights. Together, the developments would occupy, and adversely affect, a relatively large proportion of the view.
Representative residential viewpoints	VP241: Representative viewpoint - Barneys Reef Road vicinity residences	<ul style="list-style-type: none"> <li>- the Amended Project</li> <li>- Mayfair Solar Farm</li> <li>- Mavis Solar Farm</li> </ul>	<ul style="list-style-type: none"> <li>▪ Mayfair Solar Farm preliminary visual assessment<sup>35</sup> determined that views of the proposed solar farm would be possible along Barney Reef Road, and that two residences in the vicinity required detailed assessment.</li> <li>▪ Although the preliminary visual assessment has not been lodged for Mavis Solar Farm, it is assumed in this Addendum that there may be views of the development which is within 3 km of Barneys Reef Road.</li> </ul>	If all three developments proceed, there would be cumulative visual impacts. Mayfair Solar Farm would be the closer, more visible project and have the more significant visual impact to residents. Mavis Solar Farm (and to a lesser extent the Amended Project) would be partially viewed in the background.
	VP243: Representative viewpoint - Beryl Road and vicinity residences.	<ul style="list-style-type: none"> <li>- the Amended Project</li> <li>- Beryl Solar Farm (existing)</li> <li>- Beryl BESS</li> </ul>	<ul style="list-style-type: none"> <li>▪ Beryl Road users and nearby residences have very close views of Beryl Solar Farm. They would also have close views of the proposed Beryl BESS. As detailed in Beryl BESS Scoping Report<sup>36</sup>, the BESS would be visible from properties to the north, west and east as well as from Beryl Road.</li> </ul>	The primary visual impact to Beryl Road residents would be from the existing Beryl Solar Farm and proposed Beryl BESS. There would be minimal cumulative impact from the Amended Project or Bellambi Heights BESS.

<sup>32</sup> Attachment B, page 2. Iris, 2023, *Bellambi Heights Battery Energy Storage System, Landscape Character and Visual Impact Assessment*.

<sup>33</sup> Envisage Consulting, 2023, *Proposed Mayfair Solar Farm, Landscape and Visual Impact Assessment, Preliminary Assessment Stage*.

<sup>34</sup> Page 19. Iris, 2023, *Bellambi Heights Battery Energy Storage System, Landscape Character and Visual Impact Assessment*.

<sup>35</sup> Envisage Consulting, 2023, *Proposed Mayfair Solar Farm, Landscape and Visual Impact Assessment, Preliminary Assessment Stage*.

<sup>36</sup> Jacobs, 2023, *Beryl BESS Scoping Report*.

VIA viewpoint		Developments visible or potentially visible	Description of developments in view (identified in this addendum)	Cumulative visual impact
		<ul style="list-style-type: none"> <li>- Bellambi Heights BESS</li> </ul>	<ul style="list-style-type: none"> <li>▪ The Bellambi Heights BESS visual impact assessment identified VP243 as dwellings number 21, 24, 26, 31 and 32, and determined that the majority of the development would not be seen, and that there would be no change in amenity<sup>37</sup>.</li> <li>▪ Similarly, these residents would see very little of the Amended Project (just the elevated hilltop which would occupy a very small part of the view, and at a distance of over 5 km).</li> </ul>	
Public	Puggoon Road (including VP232)	<ul style="list-style-type: none"> <li>- the Amended Project</li> <li>- Bellambi Heights Solar Farm</li> <li>- Mavis Solar Farm</li> <li>- CWO REZ grid connection infrastructure</li> </ul>	<ul style="list-style-type: none"> <li>▪ The proposed Mavis Solar Farm would be located on the eastern side of Puggoon Road, and occupy land adjacent the road for around 3 km. Although a preliminary visual assessment has not yet been lodged for the development, it has been assumed in this Addendum, that solar panels could be visible while travelling along this portion of the road.</li> <li>▪ Within this section of Puggoon Road, Bellambi Heights BESS would also be visible on the western side of the road. As identified in Bellambi Heights BESS visual impact assessment, the proposed substation would be set back around 60 m from Puggoon Road and be partially screened by existing trees, while the BESS would be set back around 300 m from Puggoon Road. A photomontage<sup>38</sup> from Puggoon Road, in the preliminary assessment, shows a view of light-coloured BESS units and the substation (which is relatively inconspicuous).</li> <li>▪ Although Bellambi Heights BESS and Mavis Solar Farm could both be visible from the same section of Puggoon Road, they would be viewed in different directions (the BESS when looking west and Mayfair Solar Farm when looking east).</li> <li>▪ The northern portion of Mavis Solar Farm and the southern portion of the Amended Project (TWA facility) would also be visible from a single viewing position on Puggoon Road, although viewed in different directions (Mavis Solar Farm viewed to the east and the Amended Project viewed to the west).</li> <li>▪ Bellambi Heights BESS and the Amended Project would not likely appear in the same view when travelling north on Puggoon Road, however, it may be possible that both developments and Mavis Solar Farm would be visible in the same view when travelling south on Puggoon Road.</li> <li>▪ the Amended Project would remain the only development visible for around 4 km while travelling north along Puggoon Road from Jacksons Lane. However, at the northern-most end of the road, the CWO REZ grid connection infrastructure would be visible, and appear among and adjacent to, the Amended Project panels. There would be close views of</li> </ul>	Overall, the extent of energy infrastructure visible from the local, unsealed Puggoon Road would increase substantially, impacting local road-users (primarily the small number of residents who access their properties from this no-through road). Multiple developments could be visible at the same time, in close proximity, and along the full length of Puggoon Road (increasing the length of road impacted from 6 km – with the Amended Project alone - to over 9 km). The developments would be visible from vehicles during transit (i.e. temporarily), however, would adversely affect the experience of the road, particularly for the limited number of residents living at the northern end of Puggoon Road.

<sup>37</sup> Page 37, Iris, 2023, *Bellambi Heights Battery Energy Storage System, Landscape Character and Visual Impact Assessment*.

<sup>38</sup> Page 31, Iris, 2023, *Bellambi Heights Battery Energy Storage System, Landscape Character and Visual Impact Assessment*.

VIA viewpoint	Developments visible or potentially visible	Description of developments in view (identified in this addendum)	Cumulative visual impact
		the proposed CWO REZ grid connection towers which would be parallel to, and possibly cross, Puggoon Road.	
VP233: Jacksons Lane (public road)  A photomontage showing the cumulative view is provided at <a href="#">Appendix E</a> .	<ul style="list-style-type: none"> <li>- the Amended Project</li> <li>- Mavis Solar Farm</li> <li>- Bellambi Heights BESS</li> </ul>	<ul style="list-style-type: none"> <li>▪ Although a preliminary visual assessment has not yet been lodged for the proposed Mavis Solar Farm, it has been assumed in this Addendum, that solar panels would be visible along Jacksons Lane for around 1.5 km.</li> <li>▪ Both solar farms would be seen while travelling west along the western end of Jacksons Lane, and it is possible that Bellambi Heights BESS would also be visible when looking south-west from the intersection of Puggoon Road and Jackson's Lane. Jacksons Lane is within the viewshed shown in Bellambi Heights BESS visual impact assessment<sup>39</sup>, and the lighter-coloured BESS units would likely appear behind the proposed TWA facility at the Amended Project.</li> </ul>	Cumulative visual impacts would be experienced whilst in transit and temporarily, for around 1.5 km of Jacksons Lane.
VP246: Flirtation Hill  A photomontage showing the cumulative view is provided at <a href="#">Appendix E</a> .	<ul style="list-style-type: none"> <li>- the Amended Project</li> <li>- Beryl Solar Farm</li> <li>- Stubbo Solar Farm</li> <li>- Bellambi Heights BESS</li> <li>- Mayfair Solar Farm</li> <li>- Mavis Solar Farm</li> </ul>	<ul style="list-style-type: none"> <li>▪ Views of the proposed Beryl BESS are not expected from Gulgong or any lookout areas<sup>40</sup>. However, the adjoining, existing Beryl Solar Farm is seen in views to the west from the lookout, and Stubbo Solar farm (under construction) in views to the north. Neither solar farm is seen from the same viewing position as the Amended Project (which is to the north-west). The viewer would need to physically relocate to a different spot at the lookout, to view Stubbo, Tallawang and Beryl Solar Farms in turn.</li> <li>▪ In the same view as the Amended Project, however, would appear the proposed Bellambi Heights BESS, Mayfield Solar Farm, and Mavis Solar Farm. The two solar farms would be visible in the foreground of the Amended Project. Proposed Bellambi Heights BESS would also be in the same view, to the south of the Amended Project. The cumulative view from Flirtation has been illustrated in an updated VIA photomontage shown at <a href="#">Appendix B</a> (photomontage of VP246: Flirtation Hill, Gulgong).</li> </ul>	If all six developments proceed, the extent of renewable energy infrastructure visible from Flirtation Hill would increase, with four developments potentially appearing in the same view. However, when viewed from the distant, elevated vantage point of Flirtation Hill the dark solar panel colour would be recessive and relatively inconspicuous within the surrounding landscape (of darker vegetation and background ridges), and not dominant in the view. Bellambi Heights BESS, however, may be more visible due to the lighter colour of the BESS units contrasting against the darker vegetated background.
Castlereagh Highway (including VP236, 237 and 238)	<ul style="list-style-type: none"> <li>- the Amended Project</li> <li>- Beryl Solar Farm</li> <li>- Beryl BESS</li> <li>- Mayfair Solar Farm</li> <li>- Mavis Solar Farm</li> <li>- Bellambi Heights Solar Farm</li> </ul>	<ul style="list-style-type: none"> <li>▪ Beryl Solar Farm is barely visible when travelling south on the Castlereagh Highway, and likely to be missed by the casual observer. Views of the BESS from the Castlereagh Highway are unlikely<sup>41</sup>, although it is shown within the visual catchment presented in the scoping report.</li> <li>▪ Mayfair Solar Farm preliminary visual assessment<sup>42</sup> determined that views of the proposed Mayfair Solar Farm would be visible from a short (1.2 km) section of the Castlereagh Highway and viewed from around 4 km away.</li> <li>▪ The preliminary visual assessment has not been lodged for Mavis Solar Farm; however, this Addendum assumes that there may be close views</li> </ul>	If all developments were to proceed, there would be cumulative visual impacts. Road users would see multiple renewable energy developments from the Highway, although it is unlikely more than one development would be visible at any one time. If two developments were visible at the one time (such as Tallawang and Beryl Solar Farm), they would be viewed in different directions. Most of the proposed developments (Mavis Solar Farm is uncertain), have been set back from the Highway, and the period of visibility is relatively brief. All developments would be seen temporarily, while in transit (travelling up to 100 km/h). Landscaping has been proposed to screen views of solar panels at the Amended Project from the Castlereagh Highway.

<sup>39</sup> Page 19, Iris, 2023, *Bellambi Heights Battery Energy Storage System, Landscape Character and Visual Impact Assessment*.

<sup>40</sup> Jacobs, 2023, *Beryl BESS Scoping Report*.

<sup>41</sup> Jacobs, 2023, *Beryl BESS Scoping Report*.

<sup>42</sup> Envisage Consulting, 2023, *Proposed Mayfair Solar Farm, Landscape and Visual Impact Assessment, Preliminary Assessment Stage*.

VIA viewpoint	Developments visible or potentially visible	Description of developments in view (identified in this addendum)	Cumulative visual impact
	<ul style="list-style-type: none"> <li>- CWO REZ grid connection infrastructure</li> <li>- Birriwa Solar Farm</li> </ul>	<p>of the development, which is to the north of, and adjacent to, the Castlereagh Highway for a length of around 1.6 km.</p> <ul style="list-style-type: none"> <li>▪ The Bellambi Heights BESS visual impact assessment<sup>43</sup> indicates that the proposed substation would be set back around 320 m from the Castlereagh Highway, and visible for around 1 km. A photomontage in the visual impact assessment<sup>44</sup> shows the upper part of the substation infrastructure would be visible from the Castlereagh Highway. The preliminary assessment advises that the upper part of the BESS may also be visible from this location.</li> <li>▪ the Amended Project would be set back around 600 m from the Highway, visible for a brief period (from around 1 km of the Highway), and likely to be missed by the casual observer.</li> <li>▪ Around 12 km north of the Amended Project, the proposed CWO REZ grid connection infrastructure and a switching station associated would be visible when looking west. Then a few kilometres further north, Birriwa Solar Farm would be visible, also to the west, set back around 1.4 km<sup>45</sup> from the Highway.</li> </ul>	<p>It is recommended that other proposed renewable energy projects be set back from the Castlereagh Highway at least 500 m, to maintain rural landscape characteristics along the road.</p>

<sup>43</sup> Page 19. Iris, 2023, *Bellambi Heights Battery Energy Storage System, Landscape Character and Visual Impact Assessment*.

<sup>44</sup> Page 29. Iris, 2023, *Bellambi Heights Battery Energy Storage System, Landscape Character and Visual Impact Assessment*.

<sup>45</sup> EMM, 2022, *Birriwa Solar and Battery Project, Visual Impact Assessment*

# Appendix E: Amended Project cumulative impact photomontages

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The following images illustrate the cumulative impact of the Amended Project and other renewable energy developments, for the following viewpoints:

- VP246 (Flirtation Hill, Gulgong), which illustrates the view of the Amended Project, and shows the proximity and extent of the proposed surrounding renewable energy developments: Bellambi Heights BESS, Mavis Solar Farm and Mayfair Solar Farm.
- VP233 (Jacksons Lane) - illustrates the view of the Amended Project with proposed Bellambi Heights BESS.

Each viewpoint includes:

- the existing view
- and the view with a photomontage of the Amended Project following construction, and analytical view/s of other renewable energy projects.

To view the photomontage images correctly, each photomontage should be viewed at a size of an A3 sheet at a comfortable arm's length. To minimise the risk of images being viewed incorrectly on screen, enlarge the image on the screen to full A3 size height (if possible), and view the screen from a comfortable arm's distance away.

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# Figure E-1

## VP233 - Existing view

TALLAWANG SOLAR FARM | ADDENDUM VISUAL IMPACT ASSESSMENT

### Commentary

This photograph was captured on a full frame Digital single-lens reflex (DSLR) camera using a 50mm focal length representing a 39.6° horizontal field of view (HFOV) and a 27° vertical field of view (VFOV).

This specification is regarded as providing a depth of field that is closest to human eyesight, albeit that we typically have wider peripheral vision.

Accurate representation of this photograph or photomontage is achieved when printed at A3 size or by viewing at 100% zoom on a 20 inch monitor at a distance of approximately 400mm.

\* Due to page frame constraints, the top of this photograph has been cropped by 2° resulting in a residual 39.6° HFOV and a 25° VFOV.



Puggoon Road

Date	05/08/21
Time	12:10
Camera level	443.13 mAHD
Camera coordinates	733859m E, 6422484m N
Camera	Canon EOS 6D Mark II (full frame DSLR)
Panorama type	50mm FL landscape
Camera bearing	219°
Vertical field of view	27° (cropped to 25°)
Horizontal field of view	39.6°
Projected coordinate system	GDA1994 MGA Zone 55
Photography	Envisage Consulting

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# Figure E-2 VP233 - Analytical view showing Amended Project

TALLAWANG SOLAR FARM | ADDENDUM VISUAL IMPACT ASSESSMENT

**Commentary**

This photograph was captured on a full frame Digital single-lens reflex (DSLR) camera using a 50mm focal length representing a 39.6° horizontal field of view (HFOV) and a 27° vertical field of view (VFOV).

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Puggoon Road

Date	05/08/21
Time	12:10
Camera level	443.13 mAHD
Camera coordinates	733859m E, 6422484m N
Camera	Canon EOS 6D Mark II (full frame DSLR)
Panorama type	50mm FL landscape
Camera bearing	219°
Vertical field of view	27° (cropped to 25°)
Horizontal field of view	39.6°
Projected coordinate system	GDA1994 MGA Zone 55
Photography	Envisage Consulting

 Amended Project

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Source: Esri, Maxar, Geoeye (2023), NSW Government Spatial Services (2021), Elvis Elevation and Depth - Foundation Spatial Data (2021), K.F. Williams & Associates - Survey (2019), Aerometrex (2023), RES (2023), Umwelt (2023), Envisage Consulting (2024), Cambium Group (2024).

031289\_TWG\_SF\_DB\_LVIA-AR\_Photomontages\_240418\_v04

# Figure E-3 VP233 - Photomontage of Amended Project

TALLAWANG SOLAR FARM | ADDENDUM VISUAL IMPACT ASSESSMENT

**Commentary**

This photograph was captured on a full frame Digital single-lens reflex (DSLR) camera using a 50mm focal length representing a 39.6° horizontal field of view (HFOV) and a 27° vertical field of view (VFOV).

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\* Due to page frame constraints, the top of this photograph has been cropped by 2° resulting in a residual 39.6° HFOV and a 25° VFOV.



Security fencing

Temporary workers accommodation

Mobile camp

Covered decking area

Car park

Bus park

Puggoon Road

Date	05/08/21
Time	12:10
Camera level	443.13 mAHD
Camera coordinates	733859m E, 6422484m N
Camera	Canon EOS 6D Mark II (full frame DSLR)
Panorama type	50mm FL landscape
Camera bearing	219°
Vertical field of view	27° (cropped to 25°)
Horizontal field of view	39.6°
Projected coordinate system	GDA1994 MGA Zone 55
Photography	Envisage Consulting

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# Figure E-4 VP233 (Jackson Lane) - Photomontage of Amended Project plus analytical view of Bellambi Heights BESS

TALLAWANG SOLAR FARM | ADDENDUM VISUAL IMPACT ASSESSMENT

**Commentary**

This photograph was captured on a full frame Digital single-lens reflex (DSLR) camera using a 50mm focal length representing a 39.6° horizontal field of view (HfOV) and a 27° vertical field of view (VfOV).

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\* Due to page frame constraints, the top of this photograph has been cropped by 2° resulting in a residual 39.6° HfOV and a 25° VfOV.



Bellambi Heights Battery Energy Storage System  
(Shown in white and without project detail or material finishes, based on 4 m BESS height applied to the project boundary)

Security fencing

Temporary workers accommodation

Mobile camp

Covered decking area

Car park

Bus park

Puggoon Road

Date	05/08/21
Time	12:10
Camera level	443.13 mAHD
Camera coordinates	733859m E, 6422484m N
Camera	Canon EOS 6D Mark II (full frame DSLR)
Panorama type	50mm FL landscape
Camera bearing	219°
Vertical field of view	27° (cropped to 25°)
Horizontal field of view	39.6°
Projected coordinate system	GDA1994 MGA Zone 55
Photography	Envisage Consulting

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Source: Esri, Maxar, Geoeye (2023), NSW Government Spatial Services (2021), Elvis Elevation and Depth - Foundation Spatial Data (2021), K.F. Williams & Associates - Survey (2019), Aerometrex (2023), RES (2023), Umwelt (2023), Envisage Consulting (2024), Cambium Group (2024).

031289\_TWG\_SF\_DB\_LVIA-AR\_Photomontages\_240430\_v05

# Figure E-5 VP246 - Existing view

TALLAWANG SOLAR FARM | ADDENDUM VISUAL IMPACT ASSESSMENT

**Commentary**

This photograph was captured on a full frame Digital single-lens reflex (DSLR) camera using a 50mm focal length representing a 39.6° horizontal field of view (HfOV) and a 27° vertical field of view (VfOV).

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\* Due to page frame constraints, the top of this photograph has been cropped by 2° resulting in a residual 39.6° HfOV and a 25° VfOV.



Date	05/08/21
Time	12:56
Camera level	513.65 mAHD
Camera coordinates	739244m E, 6416087m N
Camera	Canon EOS 6D Mark II (full frame DSLR)
Panorama type	50mm FL landscape
Camera bearing	327°
Vertical field of view	27° (cropped to 25°)
Horizontal field of view	39.6°
Projected coordinate system	GDA1994 MGA Zone 55
Photography	Envisage Consulting

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# Figure E-6 VP246 - Analytical view showing Amended Project

TALLAWANG SOLAR FARM | ADDENDUM VISUAL IMPACT ASSESSMENT

**Commentary**

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Time	12:56
Camera level	513.65 mAHD
Camera coordinates	739244m E, 6416087m N
Camera	Canon EOS 6D Mark II (full frame DSLR)
Panorama type	50mm FL landscape
Camera bearing	327°
Vertical field of view	27° (cropped to 25°)
Horizontal field of view	39.6°
Projected coordinate system	GDA1994 MGA Zone 55
Photography	Envisage Consulting

Amended Project

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# Figure E-7 VP246 - Photomontage of Amended Project

TALLAWANG SOLAR FARM | ADDENDUM VISUAL IMPACT ASSESSMENT

**Commentary**

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Date	05/08/21
Time	12:56
Camera level	513.65 mAHD
Camera coordinates	739244m E, 6416087m N
Camera	Canon EOS 6D Mark II (full frame DSLR)
Panorama type	50mm FL landscape
Camera bearing	327°
Vertical field of view	27° (cropped to 25°)
Horizontal field of view	39.6°
Projected coordinate system	GDA1994 MGA Zone 55
Photography	Envisage Consulting

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# Figure E-8 VP246 (Flirtation Hill) - Photomontage of Amended Project and analytical view of other renewable energy projects

TALLAWANG SOLAR FARM | ADDENDUM VISUAL IMPACT ASSESSMENT

### Commentary

This photograph was captured on a full frame Digital single-lens reflex (DSLR) camera using a 50mm focal length representing a 39.6° horizontal field of view (HFOV) and a 27° vertical field of view (VFOV).

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\* Due to page frame constraints, the top of this photograph has been cropped by 2° resulting in a residual 39.6° HFOV and a 25° VFOV.



Bellambi Heights Battery Energy Storage System  
(Shown in white and without project detail or material finishes, based on 4 m BESS height applied to the project boundary)

Mavis Solar Farm  
(Shown in white and without project detail or material finishes, based on 2.5 m tracker height applied to the project boundary)

Tallawang solar farm

Mayfair Solar Farm  
(Shown in white and without project detail or material finishes, based on 3.5 m tracker height applied to the project boundary)

Date	05/08/21
Time	12:56
Camera level	513.65 mAHD
Camera coordinates	739244m E, 6416087m N
Camera	Canon EOS 6D Mark II (full frame DSLR)
Panorama type	50mm FL landscape
Camera bearing	327°
Vertical field of view	27° (cropped to 25°)
Horizontal field of view	39.6°
Projected coordinate system	GDA1994 MGA Zone 55
Photography	Envisage Consulting

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