

**Bendemeer**  
Renewable Energy Hub



# **Bendemeer Solar Farm**

EIS Summary

Updated March 2024



# Solar farm

# Bendemeer Solar

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# Introduction

The Bendemeer Solar Farm (the Project) will involve the construction, operation and decommissioning of a PV solar facility, with a targeted electricity generating capacity of approximately 257 megawatts (MW) Direct Current, a Battery Energy Storage System (BESS) with a capacity of approximately 150 MW / 300 MW hour (MWh), and associated infrastructure. The Project will supply electricity to the national electricity grid via the existing electricity transmission network and participate in the National Electricity Market (NEM).

The Project is proposed to be located 1.8 kilometres (km) east of the Bendemeer village centre, represented by the Bendemeer Hotel, and is located 46 km (by road) north-east of the Tamworth Post Office to the Project access. The Project is entirely located within the Tamworth Regional Local Government Area (LGA), on land that is predominately used for agricultural activities.

The Project is being developed by Athena Energy Australia (Holdings) Pty Ltd (Athena). Athena was founded in Australia in 2019 and is a subsidiary of Athena Energy Holdings Pte Ltd, wholly owned by Metis Energy Limited (Metis). Metis develops, finances, constructs, owns and operates its projects as a fully integrated renewable energy company,

with a genuine long-term approach. Metis currently has more than 2 GW in renewable projects under development or operational in the Asia-Pacific region, and aims to be a central participant in Australia's energy transition, whilst contributing to a global net zero future and greener society.

The Project Area extends across approximately 350 hectares (ha), over three freehold land parcels, with a Disturbance Footprint of 389 ha.

The Project is declared State Significant Development (SSD) under State Environmental Planning Policy (Planning Systems) 2021 and therefore requires development consent under the Environmental Planning and Assessment Act 1979.



The key components of the Project are:

- Solar Arrays with a capacity of approximately 257 MW DC;
- BESS with a capacity of approximately 150 MW / 300 MWh;
- Approximately 60 Power Conversion Units (PCU);
- One 33/330 kV collector substation and associated structures;
- A switching station;
- Electrical reticulation infrastructure, including internal underground high-voltage (HV) cables between solar arrays, BESS and transformers and overhead 330 kV conductors;
- On-site Permanent Supporting Infrastructure, including:

- Site access road and entry;
- Operations and Maintenance (O&M) Facility containing a control room, meeting facilities, storage facilities, SCADA facilities, workshop, parking, ablutions buildings, septic, static water supply, waste management facilities, lighting and maintenance facility, fencing and asset protection zones;

Off-site Supporting Infrastructure, including:

- Waste disposal facilities;
- Existing public road and communications network; and
- Minor external road upgrades.

The Project layout is provided in **Figure 1**.



# Justification and Evaluation

The Project will contribute to the energy sector-wide transition from traditional fossil fuel energy generation to wholesale renewable energy generation. In doing so the Project will contribute to the NSW and Commonwealth Government commitments to greenhouse gas emissions reduction. Further, the Project aligns with government objectives for energy security and reliability, and will contribute to the continued growth of renewable energy generation and storage capacity in Australia.

The Project is located within the New England Renewable Energy Zone (REZ). The New England region has been identified as one of five REZs to be created in NSW, with the aim to combine wind, solar, hydroelectric and energy storage, together with high-voltage transmission lines, to generate and deliver clean, renewable energy. The location of the Project with respect to Bendemeer area is shown in **Figure 2** and aligns with the strategic objectives of the New England REZ.

The Project:

- Will deliver renewable, low-cost energy to the national grid and contribute to the NSW and Commonwealth Government's net zero emissions targets, providing new generation capacity that is required to replace coal-fired power station retirements planned over the next decade. Contributions of the Project include:
  - Estimated electricity generation of **577,000 MWh per year**;
  - Equivalent to powering **74,000 NSW homes** per annum; and
  - Significant reduction of greenhouse gas emissions by avoiding **420,000 tonnes CO<sub>2</sub> annually**;
- Will provide benefits to the local community through the establishment of a 'Community Benefit Fund' (CBF), which will see **\$50,000 per annum** committed to directly contribute to the growth and improvement of local community, infrastructure, projects and events;
- Will primarily be developed on agricultural land which has been previously disturbed and/or historically cleared. Solar farms are compatible with existing farming operations as landowners can **continue normal grazing beneath** or cropping activities surrounding solar arrays;
- Provides a diversified income stream for rural landholders through payments to associated landholders;
- Layout has been designed to maximise the use of existing disturbed areas and refined to avoid or minimise environmental and social impacts, particularly those relating to biodiversity and Aboriginal cultural heritage values, in line with the avoid-minimise-mitigate-offset design hierarchy;
- Will generate material employment of up to **307 Full Time Equivalent (FTE) jobs** through the construction period, and up to **15 FTE jobs** during operations (across general site labour, trades, professional, scientific and technical industry sector);
- Is an excellent opportunity for **local businesses and contractors to provide services** to the project during construction and operations through the establishment of a Local Employment Plan; and
- Will deliver economic benefits to regional economies of Tamworth, Armidale, Uralla and Walcha including (approximately):



- During construction, is expected to benefit the regional economy by introducing:
  - \$162 million (M) in annual direct and indirect output (total value of goods and services);
  - \$60M in annual direct and indirect value added (a measure of profitability);
  - \$33M in annual direct and indirect household income; and
  - 444 direct and indirect jobs (direct means jobs on or associated with the Project, and indirect means jobs that are created due to the increased economic activity);
- During operations, is expected to benefit the regional economy by introducing:
  - \$32M in annual direct and indirect output;
  - \$21M in annual direct and indirect value added;
  - \$3M in annual direct and indirect household income; and
  - 35 direct and indirect jobs.

Metis will plan and manage construction to minimise disturbance and impacts through:

- Regular and ongoing communication with the community;

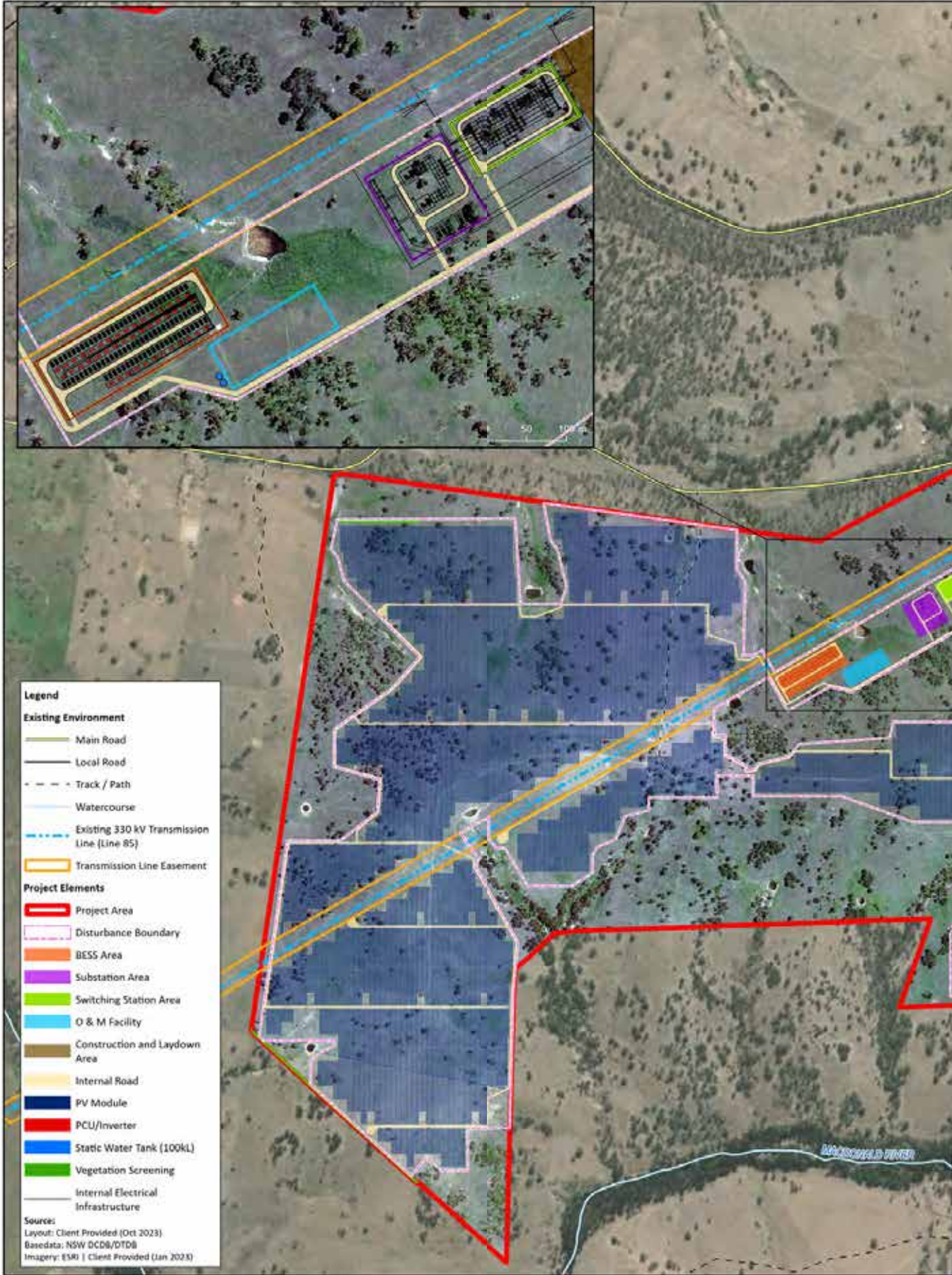
- Working during standard construction hours as much as possible;
- Communicating with affected stakeholders where it may be necessary to work outside standard hours, or where work is expected to be disruptive;
- A rigorous safety culture; and
- Conducting environmental monitoring.

Through the implementation of best practice management, the potential environmental impacts associated with the Project can be appropriately managed, which will also address the community concerns and associated social impacts identified during the stakeholder engagement process.

Given the net benefit and commitment from Metis to appropriately manage the potential environmental impacts associated with the Project, it is considered the Project will result in a net benefit to the Bendemeer village, New England Region, and broader NSW community and as such is open to a positive determination by the NSW Minister for Planning and Public Spaces.

# Figure 1 Project layout

Amended layout as presented in Response to Submissions








OXLEY HIGHWAY

Coordinate System:  
GDA 1994 MGA Zone 56  
Date: 24/01/2024  
Created By: MB  
Drawing Size: A3

0 250 500m



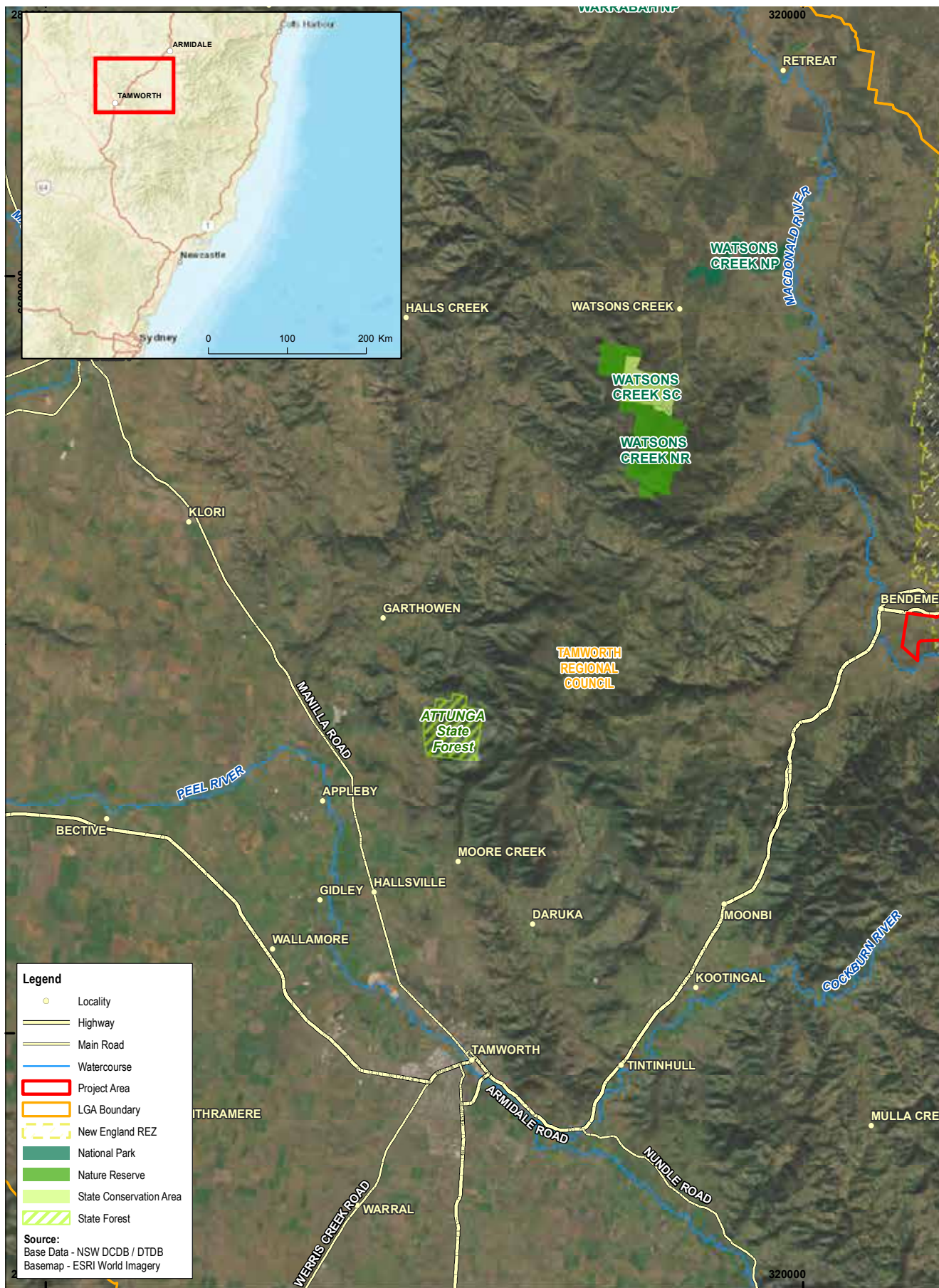
1:15,000

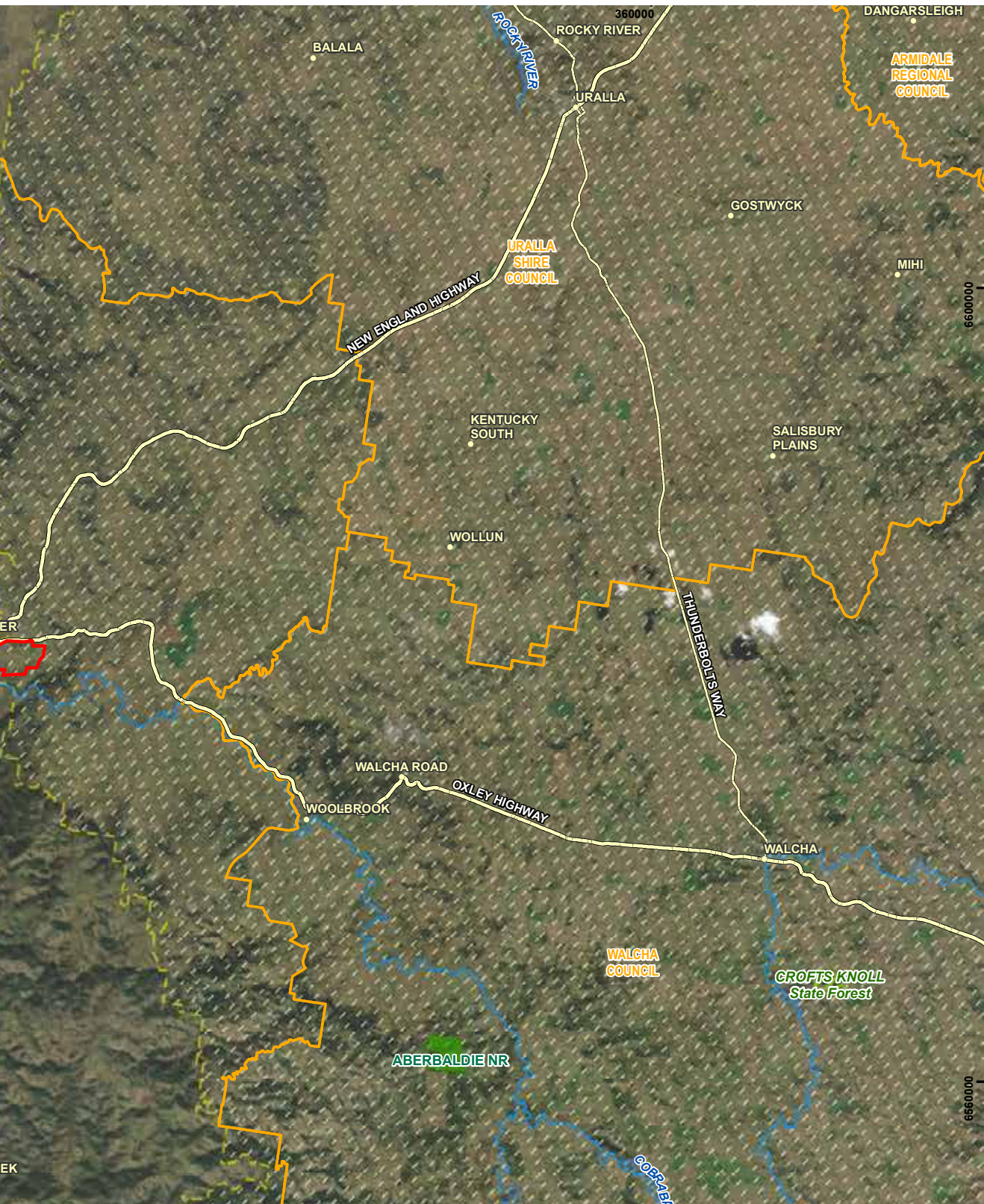
**Bendemeer Solar Farm Amended Project Layout**


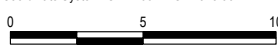
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**Bendemeer Solar Farm**  
Athena Energy Australia (Holdings) Pty Ltd

# Figure 2 Project Locality





<b>Regional Locality</b>		<b>F1-1</b>
Drawing No: 0657132m_EIS_G002_R03.mxd	Bendemeer Solar Farm	
Date: 09/06/2023	EIS	
Drawn By: MB	Client: Athena Energy Australia (Holdings) Pty Ltd	
Reviewed By: TP		
Coordinate System: GDA 1994 MGA Zone 56		<small>This figure may be based on third party data or data which has not been verified by ERM and it may not be to scale. Unless expressly agreed otherwise, this figure is intended as a guide only and ERM does not warrant its accuracy.</small>
		



# Stakeholder Engagement

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Metis has been actively engaging with the community and stakeholders to inform the design of the Project and ensure that environmental and social impacts were minimised, and benefits to the community and stakeholders were maximised. Metis is committed to effective and genuine engagement with stakeholders and the local community in order to seek feedback on and to help inform the Project. Engagement and consultation will continue through subsequent phases of the Project. The range of stakeholders that have been, and will continue to be engaged is extensive, include various NSW and Commonwealth Government agencies, local council, neighbouring landholders, local community, community groups, Aboriginal parties, and infrastructure owners.

Several tools were used to engage with and seek feedback from stakeholders including community pop-up sessions, face-to-face and virtual meetings, phone and email interactions, community events, a community survey, Project website, briefings, factsheets, newsletters, media releases, social media and site visits.

Overall, engagement demonstrated that the Project is well supported by a significant number of people in the local community in Bendemeer and surrounds, who have recognised the benefits of the Project as a source of employment opportunities, generation of clean energy and wider economic benefits to the local area. Stakeholders were interested in understanding how local business could be involved with the Project and how the benefits could be shared within the community.

Local contract and employment opportunities will be available to local businesses and contractors. Metis is committed to establishing a Local Employment Plan to maximise benefits to the region.

Metis has proposed a Community Benefit Fund (CBF) which would provide \$250 per MW per annum of approved and commissioned capacity, equating to

\$50,000 per annum for the life of the Project based on a 200 MW AC development. The CBF is proposed to be administered by a Bendemeer Community Benefit Fund Committee and forms part of the Voluntary Planning Agreement (VPA) proposal, which is currently with Tamworth Regional Council (TRC) for consideration. Detailed comments are expected from TRC following the public exhibition period. The CBF will provide ongoing benefit-sharing with the community during the life of the Project to support local and meaningful community development and/or other neighbourhood-level initiatives with strong community support.

Figure 3 provides a visual representation of the key constraints relative to the Project elements.



# Economic

An Economic Assessment was completed for the Project to assess the potential economic impacts of the construction and operation of Project on the regional and NSW economy. The regional economy was considered to encompass the combined LGAs of Tamworth Regional, Armidale Regional, Uralla Shire and Walcha Council.

Average annual direct construction employment (full time equivalent) from the Project is estimated at 260 workers for 12 months (with a peak construction force of 307 workers). The average construction impacts of the Project on the regional economy for 12 months are estimated at up to:

- \$162M in annual direct and indirect output (total value of goods and services);
- \$60M in annual direct and indirect value-added (a measure of profitability);
- \$33M in annual direct and indirect household income; and
- 444 direct and indirect jobs (direct means jobs on or associated with the Project and indirect means jobs that are created due to the increased economic activity).

The average annual construction impacts of the Project on the NSW economy are estimated at up to:

- \$290M in annual direct and indirect output;
- \$126M in annual direct and indirect value added;
- \$80M in annual direct and indirect household income; and
- 880 direct and indirect jobs.

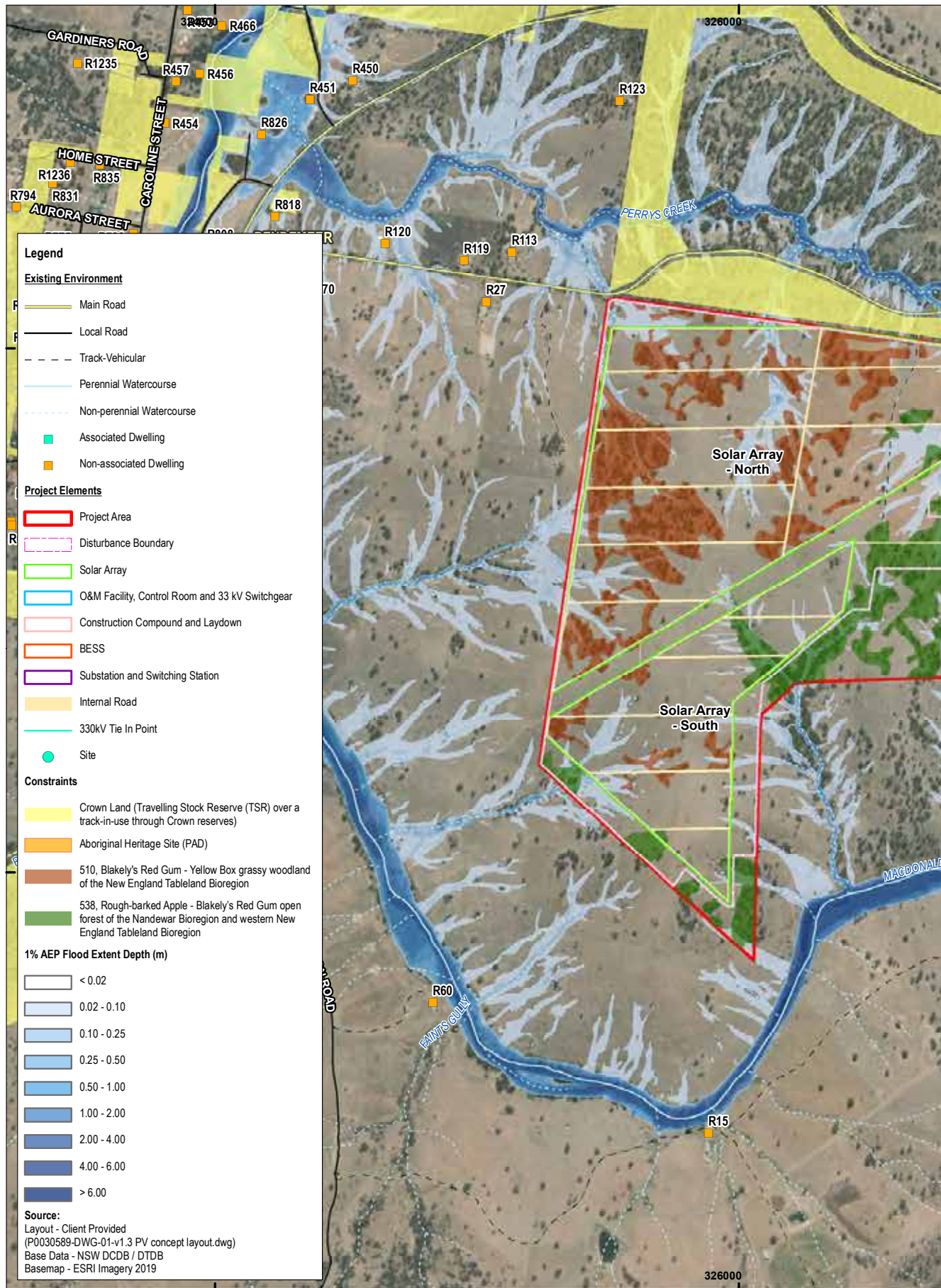
The Project is estimated to make the following maximum total annual contribution to the regional economy during operation:

- \$32M in annual direct and indirect regional output;
- \$21M in annual direct and indirect regional value added;
- \$3M in annual direct and indirect household income; and
- 35 direct and indirect jobs.

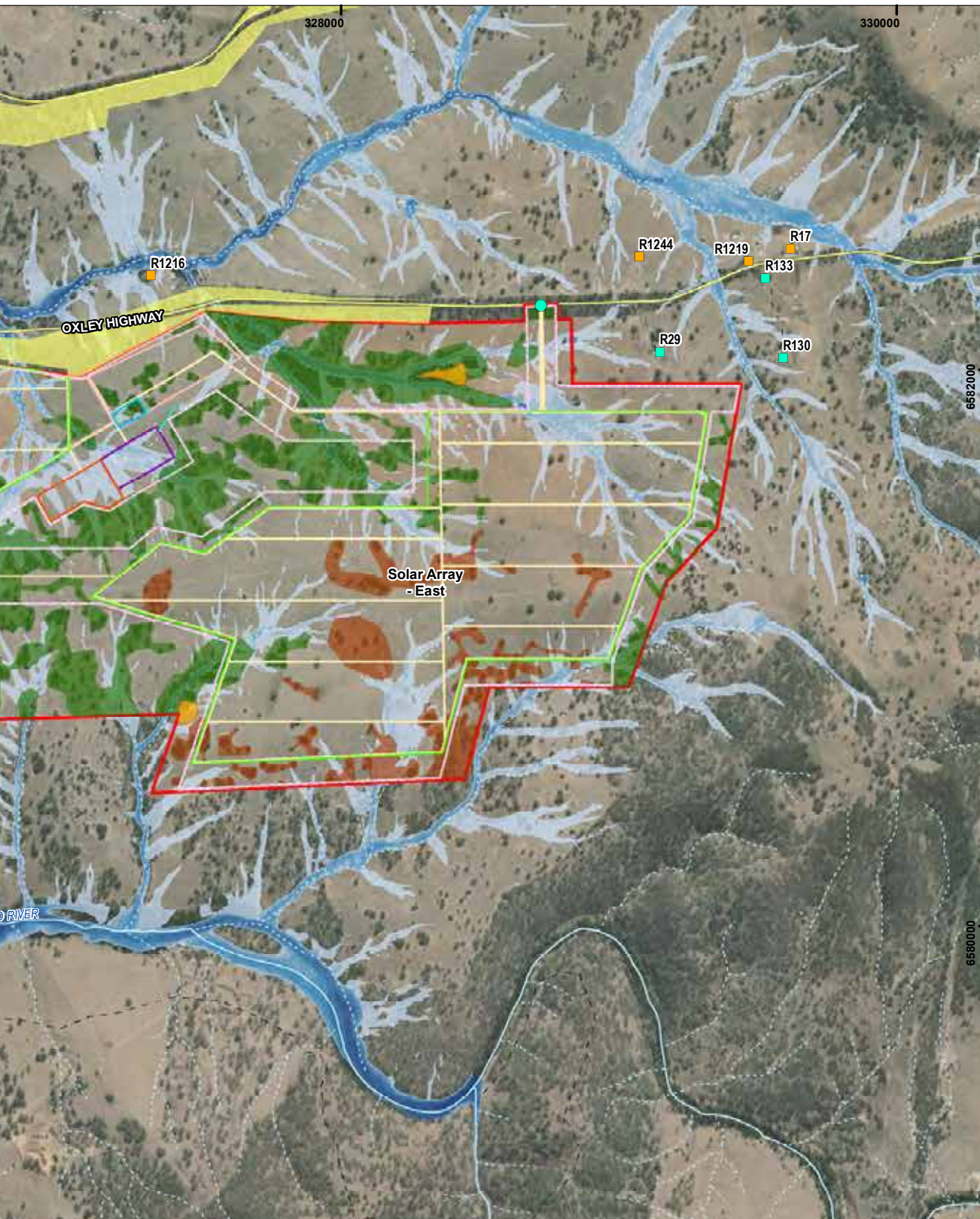
The Project operation is estimated to make the following maximum total annual contribution to the NSW economy:



- \$44M in annual direct and indirect output;
- \$27M in annual direct and indirect value-added;
- \$7M in annual direct and indirect household income; and
- 71 direct and indirect jobs.

Figure 3 **Key constraints relative to**



# o the project



Key Constraints Relative to the Project		S-2
Drawing No: 0657132m_EIS_G017_R01.mxd	Bendemeer Solar Farm	
Date: 08/06/2023	EIS	
Drawn By: MB	Reviewed By: TP	
Coordinate System: GDA 1994 MGA Zone 56	Client: Athena Energy Australia (Holdings) Pty Ltd	
0 250 500m 		<small>This figure may be based on third party data or data which has not been verified by ERM and it may not be to scale. Unless expressly agreed otherwise, this figure is intended as a guide only and ERM does not warrant its accuracy.</small>



# Social

Social Impact Assessment (SIA) focused stakeholder engagement interviews were undertaken in February 2023, with a targeted sample group including the associated landowner, neighbouring landowners, community groups, Registered Aboriginal Parties (RAPs), emergency services and local government.

These engagements indicated that community values most strongly resonated with environment (flora and fauna), farming, community and family. Respondents particularly noted the value of the natural landscape, rolling hills and Macdonald River.

The key drivers of social change that may affect communities in proximity to the Project were found to include:

- Increased economic activity for local businesses and employment opportunities for the local workforce;
- Opportunities for diversification of income streams for host landholders;

- Disruptions due to construction related activities (noise, dust, transportation of materials and workers);
- Accommodation arrangements for construction workforce; and
- Visual amenity and other land use changes due to altered landscapes.

Among the range of mitigation and management measures proposed, Metis commits to developing and implementing a Local Employment Plan and Community Benefit Fund to maximise local and regional benefits from the Project.







# Biodiversity

A Biodiversity Development Assessment Report (BDAR) was prepared to identify the potential impacts of the Project on biodiversity. The assessment included vegetation and habitat mapping and flora and fauna surveys.

The Subject Land assessed by the BDAR contains two NSW Plant Community Types (PCTs):

- PCT 538 Rough-barked Apple – Blakely's Red Gum open forest of the Nandewar Bioregion and western New England Tableland Bioregion; and
- PCT 510 Blakely's Red Gum – Yellow Box grassy woodland of the New England Tablelands Bioregion.

Both PCTs have been confirmed to meet the definition of White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland, commonly known as Box Gum Woodland.

Field surveys were undertaken throughout 2021, 2022 and 2023 to assess habitat suitability and to carry out targeted surveys for threatened species.

No threatened flora species were recorded within the Subject Land and no Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) listed threatened flora species were determined to have potential habitat within the Subject Land.

No threatened fauna species were recorded within the Subject Land; however, following a review of habitat suitability and survey effort, a precautionary approach has been applied based on potential habitat that was mapped and is associated with the following threatened fauna species:

- Squirrel Glider listed as vulnerable under the Biodiversity Conservation Act 2016 (BC Act);
- Eastern Pygmy-Possum, listed as vulnerable under the BC Act; and

- Tusked Frog listed as endangered under the BC Act.

Additional targeted surveys will be undertaken to confirm the absence of threatened fauna species.

No EPBC Act threatened fauna species were determined to have potential habitat within the Subject Land.

The Project layout and Disturbance Footprint have undergone substantial refinements due to ongoing community engagement and submissions received during the Public Exhibition phase to significantly reduce potential impacts on biodiversity, including:

- 18% reduction in disturbance footprint of the project, equating to approximately 87 ha.
- 30% reduction to disturbance of native vegetation, equating to approximately 32 ha.
- 40% reduction to disturbance of Commonwealth listed Threatened Ecological Community, equating to approximately 25.0 ha.
- 31.5% reduction to disturbance of NSW State listed Threatened Ecological Community, equating to 32.8 ha;

Mitigation measures will be adopted during construction and operation of the Project to minimise residual biodiversity impacts. These include provisions for biodiversity offsets, monitoring and adaptive management measures.



# Aboriginal Cultural Heritage

An Aboriginal Cultural Heritage Assessment Report (ACHAR) was prepared as part of the EIS in consideration of stakeholder engagement, relevant legislation, and in accordance with government policies.

A search of the Aboriginal Heritage Information Management System database found there were no Aboriginal heritage sites located within the Project Area. A survey was completed with archaeologists accompanied by representatives from Registered Aboriginal Parties.

The results of the survey identified two previously unrecorded potential archaeological deposits (PADs), within the Project Area as shown in **Figure 3**. The Disturbance Footprint was subsequently refined to

avoid both PADs and fencing will be installed around the sites to restrict access throughout the Project construction and operation.

An Aboriginal Cultural Heritage Management Plan will be developed prior to the commencement of construction of the Project and will detail measures to protect Aboriginal heritage sites outside the area of disturbance, as well as developing an unexpected finds procedure and other contingency and reporting procedures.



# Historic Heritage

A Statement of Heritage Impact was completed as part of the EIS. There are no historic heritage items within the Project Area that are listed on the National or Commonwealth Heritage Listings, State Heritage Listings or Tamworth Regional Local Environmental Plan (LEP). However, 16 heritage items listed in the Tamworth LEP are within 5 km of the Project Area

'Bendemeer Station' is the closest heritage listed site to the Project Area, located 760 m to the west. However, given the topographic and natural visual barriers present between the Project Area and 'Bendemeer Station', it is considered unlikely that the Project will indirectly impact the significance of

the item, particularly given its significance is not due to aesthetic values.

No locations within the Project Area were assessed as having potential to contain significant historic subsurface archaeological deposits.



# Noise

A Noise Impact Assessment (NIA) was prepared to assess the potential noise impacts associated with the Project.

## Construction

Construction works will occur during standard hours Monday to Friday (7.00 am to 6.00 pm) and on Saturdays from 8.00 am to 1.00 pm. Construction outside these hours may only be undertaken in accordance with the 'Interim Construction Noise Guideline' (ICNG), or otherwise by approval of the Department of Planning and Environment.

During construction of the Project, compliance with the ICNG Highly Affected Management Levels is expected at all surrounding Sensitive Receivers.

The ICNG Noise Affected Management Levels may be exceeded intermittently at 32 Sensitive Receivers within 1,500 m of the Project Area, under a worst-case construction noise scenario (i.e. numerous machinery operated simultaneously near the boundary of the Project Area). These exceedances will be temporary and will vary as construction progresses. Furthermore, the highest noise producing activities, such as a piling, are only expected to be undertaken for a fraction of the full 18-month construction period. Exceedances are expected to be managed with reasonable and feasible measures, described in a Construction Noise Management Plan, including selection of machinery and scheduling of works to minimise noise levels. Ongoing consultation with neighbouring landholders will also be undertaken to determine other management measures that may be implemented during construction.

## Operation

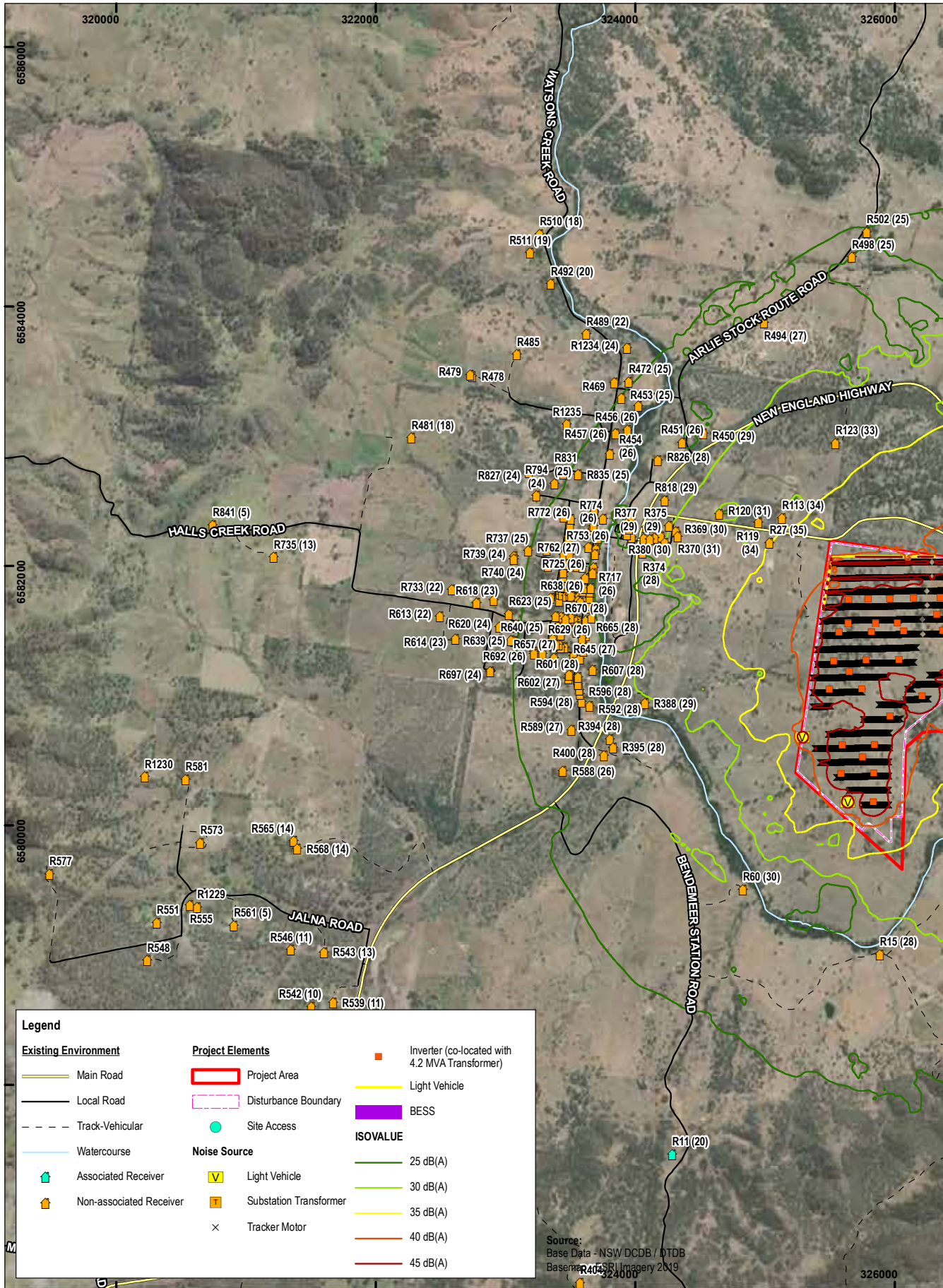
During operation of the Project, no non-associated receivers are predicted to exceed NPI Project Trigger Noise Levels of 35 dBA. This means that noise compliance for the Project has been achieved for all surrounding neighbours. The expected operational noise contours are shown in **Figure 4**.

Initial noise modelling undertaken for the Project has informed the Project layout refinement, which included BESS relocation and capacity reduction from 200 MW / 400 MWh to 150 MW / 300 MWh. Noise mitigation measures have been incorporated into the Project design to enable NPI PTNL compliance to be achieved at non-associated receivers, which include:

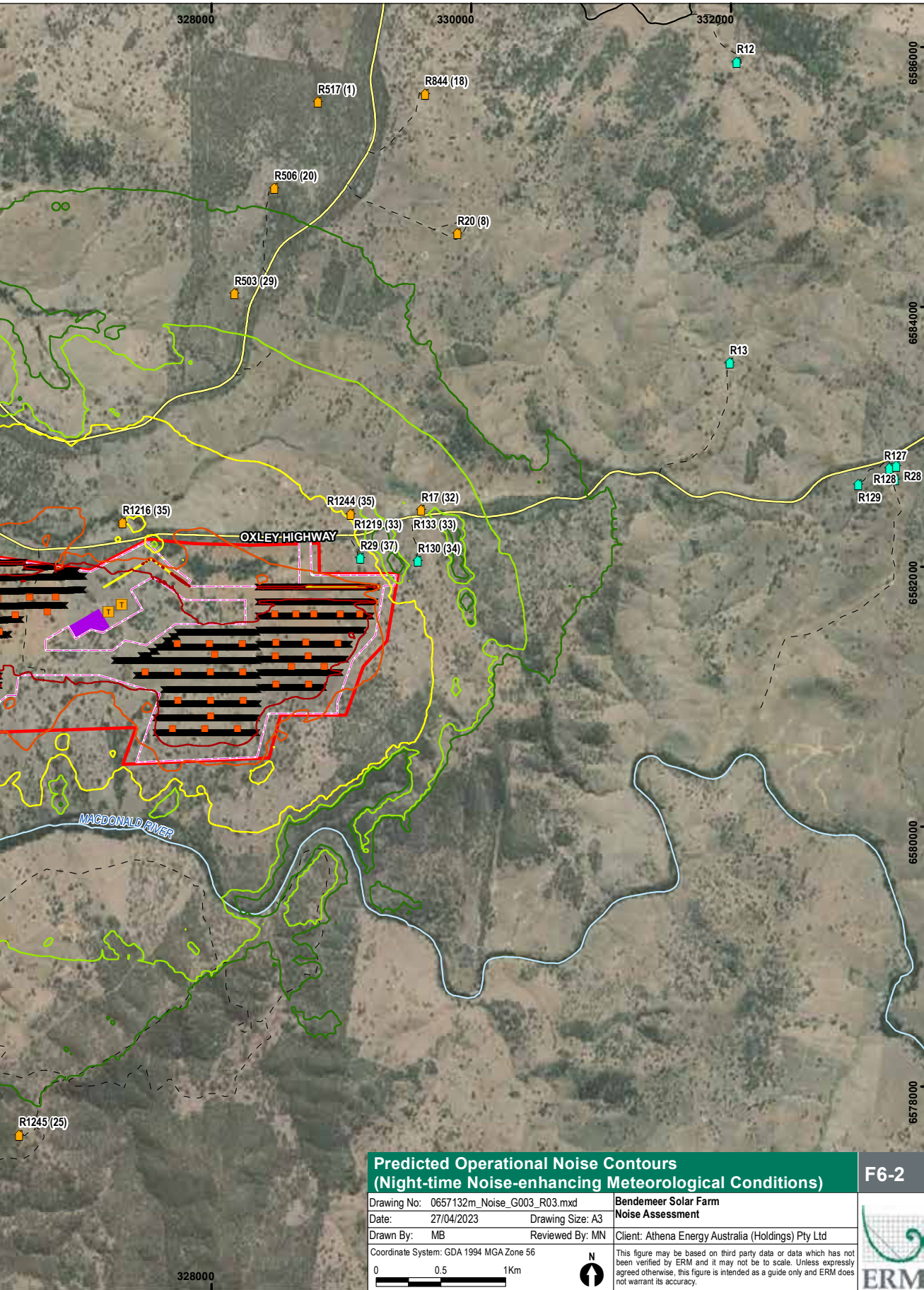
- Construction of noise walls within the BESS compound area; and
- Construction of noise barriers next to 14 inverters

A construction noise management plan containing noise mitigation and management measures will be prepared and implemented for the construction phase of the Project.

Figure 4 Predicted operational noise



# noise contours



## Predicted Operational Noise Contours (Night-time Noise-enhancing Meteorological Conditions)

F6-2

Drawing No: 0657132m\_Noise\_G003\_R03.mxd  
 Date: 27/04/2023 Drawing Size: A3  
 Drawn By: MB Reviewed By: MN

**Bendemeer Solar Farm  
 Noise Assessment**  
 Client: Athena Energy Australia (Holdings) Pty Ltd

Coordinate System: GDA 1994 MGA Zone 56  
 0 0.5 1Km

This figure may be based on third party data or data which has not been verified by ERM and it may not be to scale. Unless expressly agreed otherwise, this figure is intended as a guide only and ERM does not warrant its accuracy.





# Visual

A Landscape and Visual Impact Assessment (LVIA) included an assessment of the likely impacts of the Project on the existing visual amenity and landscape character, as well as viewpoints within the private and public domain.

A preliminary assessment tool was applied to the Project layout which identified 90 non-associated dwellings within 4 km of the Project Area and 9 viewpoints from public roads within 2.5 km that required assessment. A total of 12 representative dwellings were selected for detailed analysis and an additional 14 isolated non-associated dwellings in proximity to the Project were assessed to evaluate potential visual impact. The dwellings selected for assessment can be seen in **Figure 5**.

A Wireframe Analysis (which presents a worst-case scenario as it does not consider any intervening vegetation) was prepared for these 26 dwellings. The wireframe analysis and the application of the Visual Magnitude Tool, along with the support of photomontages where required, identified all dwellings as having a 'low' visual impact rating. All public viewpoints were identified as having a 'very low' visual impact rating. Example photomontages from public viewpoints are provided in **Figure 6** to **Figure 9**.

Given the 'low' and 'very low' visual impacts ratings, no mitigation is required according to the NSW Department of Planning and Environment's 'Technical Supplement - Landscape and Visual Impact Assessment'. However, landscaping is proposed in select areas to further filter views of the project from surrounding areas.

The potential for cumulative impact of the Project and nearby SSDs (proposed and operational) was also assessed and it was determined that, considering the generally low visibility, the proposed Project is unlikely to contribute to cumulative impacts from public viewpoints and private dwellings.

With the changes to the project layout during the Response to Submission phase, amendments were made to further reduce visual impacts, including:

- Reduction of solar array area allowing for the retention and protection of existing screen vegetation throughout the Project Area. This will ensure immediate and long-term screening of Project from receivers to the north, south west and general surrounding area.
- Reduction of solar panel height and PV modules and array height reduced by 1.54 metres, which will provide additional reduction of potential views from a portion of the Oxley Highway to the north of the Project Area and areas to the west, southwest and north of Bendemeer village.
- Elimination of rare glint and glare impacts for all receptors through commitment to an operational control strategy on the PV module tracking system.



# Soil and Agriculture

A Soil and Agricultural Impact Statement (SAIS) and a Land Use Conflict Risk Assessment (LUCRA) were prepared to identify and evaluate the impacts associated with the construction and operation of the Project on land capability, soil erosion, sedimentation, agricultural resources and agricultural production.

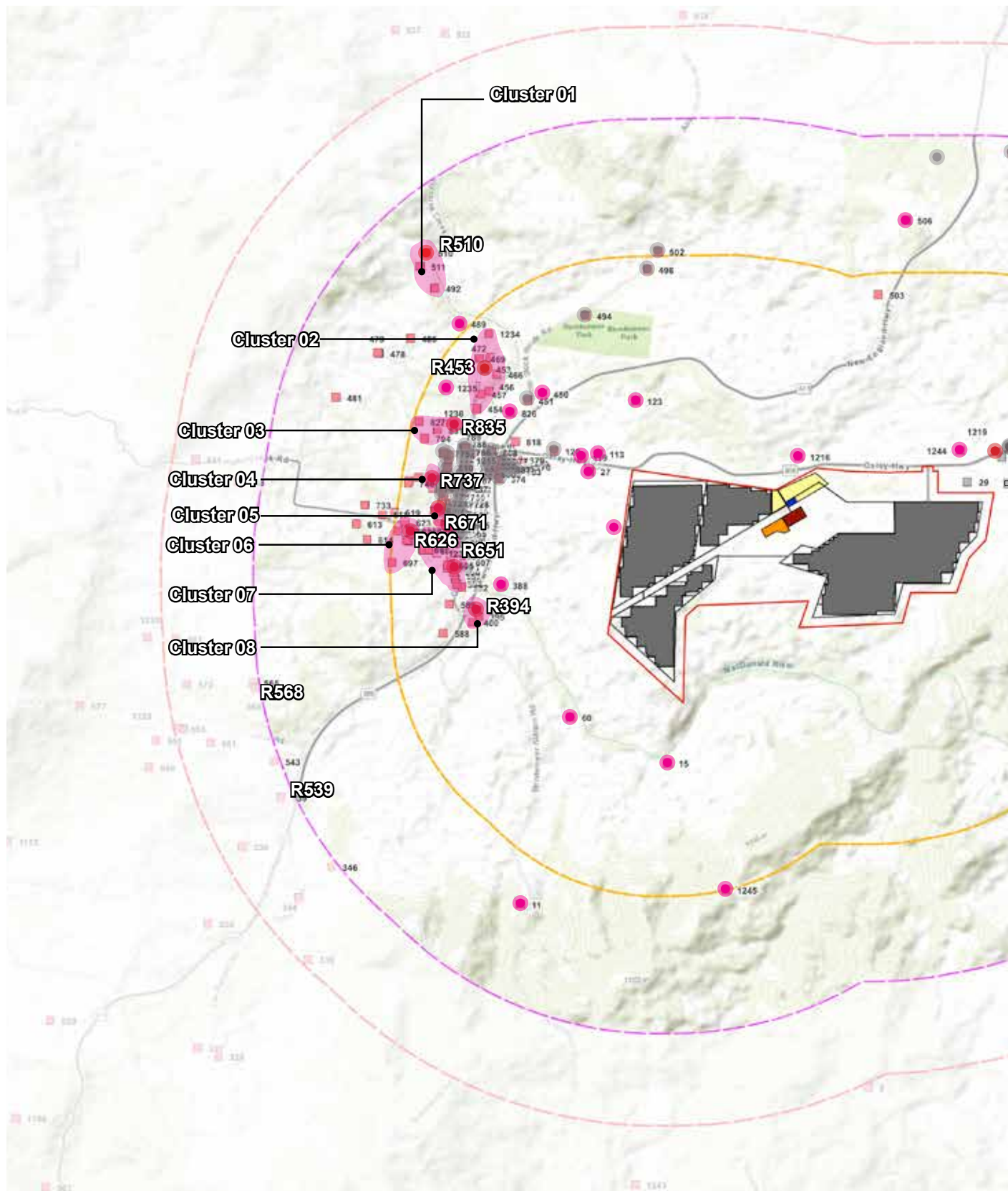
Agricultural activities will be maintained within the Project Area (as much as possible) for the duration of the construction and operational phases of the Project. The SAIS determined that the impacts of the Project on agriculture will be minimal, temporary, and limited to the Project Area. These impacts can be summarised as the following:

- Permanent removal of 14.8 ha of agricultural land within the Project Area to accommodate permanent infrastructure of the Project (e.g., BESS, substation, switching station, O&M facility);
- Temporary removal of potential agricultural primary productivity to the estimated value of up to \$249,861 during the construction phase of one year, and \$53,214 per year of the operational phase; and
- Temporary impacts on soil resources within the Project Area where surface disturbance occurs.

Despite the long-term (estimated minimum 30 years) operating life of the Project, the land zoning will not be modified and agricultural activities can continue following decommissioning. It is anticipated that by adopting the principles of impact avoidance and minimisation during Project construction and operation, and implementing effective decommissioning and rehabilitation at the end of Project life, the Project will have no permanent negative impacts on agricultural resources or enterprises.

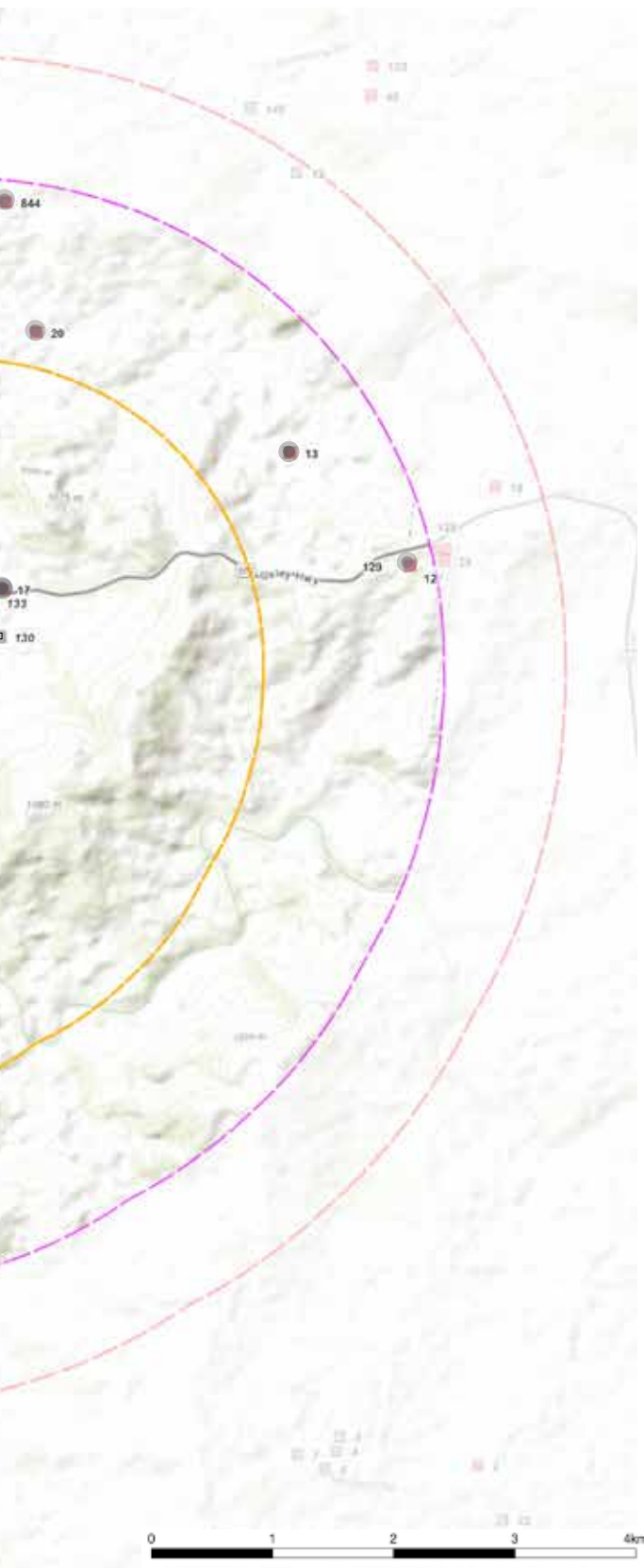


Figure 5 Dwellings selected for detail





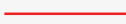

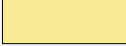







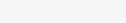





# Cluster analysis



## Cluster Mapping

### Bendemeer Solar Farm

#### LEGEND

-  Project Area
  -  PV Array Area
  -  Construction Compound and Laydown
  -  O&M Facility, Control Room and 33kV Switchgear
  -  Substation and Switching Station
  -  BESS
  -  Non-associated dwellings
  -  Associated dwellings
  -  2.5 km radius from the Project Area
  -  4 km radius from the Project Area
  -  Study Area
  -  Receptors Assessed with potential line of sight to the Project
  -  Receptors with no line of sight to the Project (Confirmed through viewshed mapping)
  -  Representative Dwellings assessed within each cluster (Bendemeer Town)
  -  Cluster grouping
- 

# Figure 6 Sensitivity and magnitude of Project from southern end of Caroline Street, Bendemeer

Photomontage 02 - Sensitivity and Magnitude



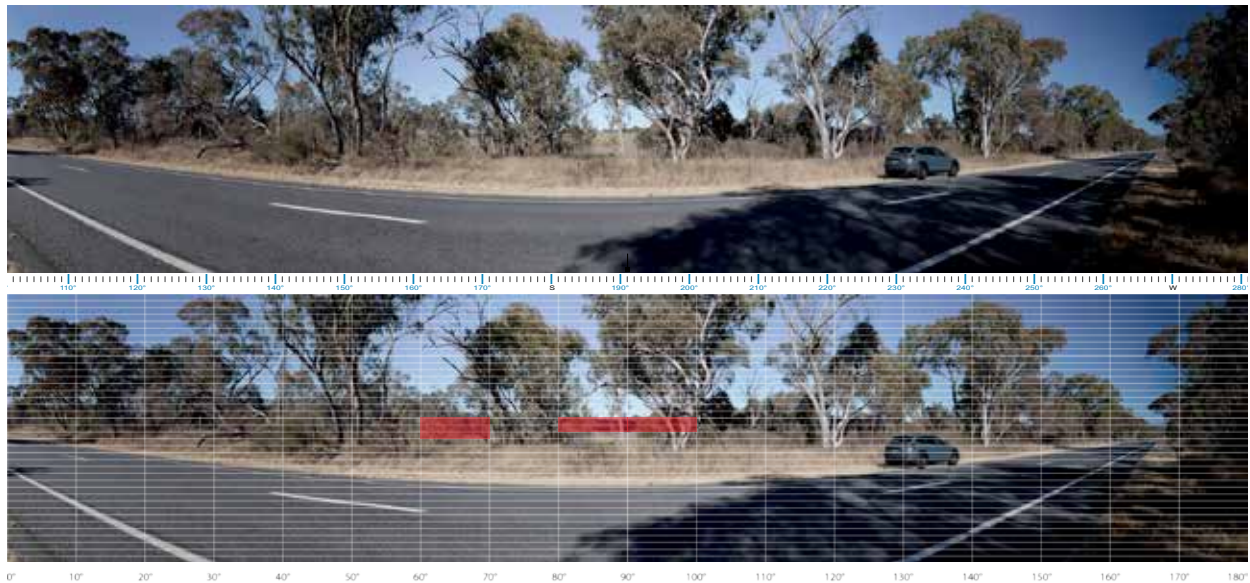
# Figure 7 Photomontage of Project from southern end of Caroline Street, Bendemeer

Photomontage 02 - Visual Impact Rating: Very Low

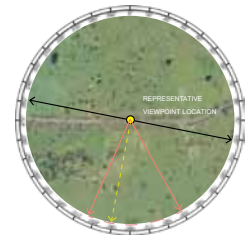


# Figure 8 Sensitivity and Magnitude of Project from Oxley Highway

Photomontage 01 - Sensitivity and Magnitude



PM01 (VP02)								
Coordinates	Distance to development:	Viewpoint Type:	Receptor Sensitivity:	Scenic Quality:	Overall Sensitivity:	Occupied Cells:	Magnitude Rating:	Visual Impact Rating:
30°52'50.76" S 151°12'30.57" E	0.64 km	Representative Viewpoint from Oxley Highway	Very Low	Low	Very Low	7	Low	Very Low



Occupied cell. A cell is deemed to be unoccupied if the Project does not cover more than approximately 25% of a cell (Technical Supplement, DPE 2022)

# Figure 9 Photomontage of Project from Oxley Highway

Photomontage 01 - Visual Impact Rating: Very Low



Inset 1





# Water Resources, Hydrology and Flooding

A Water Resources Assessment, Flooding and Hydrology Assessment and a Conceptual Soil and Water Management Plan (SWMP) have been prepared.

Key potential impacts to water resources due to the Project relate to increased risk of erosion and sedimentation within the Project Area from construction activities. A detailed SWMP will be developed prior to construction to manage potential erosion and sedimentation impacts from the Project. As part of the SWMP, Erosion and Sediment Controls Plans (ESCP) will be developed during construction to adequately manage the risks on an area-by-area basis. The staging of works to minimise areas of disturbance at any one time, and progressive rehabilitation during construction, will further mitigate these impacts.

Impacts to Groundwater Dependent Ecosystems are not anticipated, as the maximum construction depth is not anticipated to intersect groundwater.

A Flood Impact Assessment was carried out to quantify the impact of the proposed development on flood behaviour. The assessment included modelling of 5%, 1%, 0.5%, 0.2% Annual Exceedance Probability and Probable Maximum Flood (including consideration of climate change scenarios) and determined that increase in flood levels and velocities will not be significant (compared to existing flood levels) following Project development.

It was determined that surface water runoff could be mitigated by maintaining ground cover and implementing appropriate erosion and sediment controls, which will be described in the ESCP.



# Bushfire

The Bushfire Assessment Report (BFAR) identified that the Project Area is located on land designated bushfire prone by TRC and the NSW Rural Fire Service (NSW RFS).

As such, a range of bushfire protection measures are required including designation of asset protection zones (APZs) surrounding Project infrastructure, adequate site access and water supply, and the development of a Bushfire Emergency Management and Operations Plan (BFEMOP) to provide an acceptable level of protection.

The BFEMOP will be developed in consultation with the NSW RFS and TRC. With changes to the Project layout in the Response to Submissions phase,

increased fire management initiatives have been put in place.

Static water tank storage has doubled from 1 x 100 kL to 2 x 100 kL, which exceeds NSW Rural Fire Service (RFS) requirements .

Specific Asset Protection Zones (APZ) have also been designed in the southwest portion and adjacent to the BESS to allow for the required minimum APZ.



# Traffic

A Traffic Impact Assessment (TIA) was undertaken to evaluate the potential traffic impacts and access arrangements for the Project.

Access to the Project Area will occur via a new site access on the Oxley Highway. Most of the construction workforce are expected to transit to and from the Project Area from either Tamworth (south) or Armidale (north), with smaller proportions from other localities. Construction plant and equipment are expected to be delivered to the Project Area from the Port of Newcastle and the Port of Brisbane.

The TIA determined the following:

- The Project is expected to generate up to 110 vehicle movements per day during peak construction times, including 62 truck movements;
  - The road network can accommodate the traffic generated by the Project during the construction, operation and decommissioning stages.
- The site access from the Oxley Highway is proposed to be provided with a Basic Right Turn (BAR) treatment to allow vehicles to safely enter and exit the Project Area from the Oxley Highway.
  - The proposed transport route for construction plant and equipment from the Port of Newcastle or the Port of Brisbane to the Project Area is a designated B-Double route and can accommodate the loads and type of vehicle movements to be generated during construction of the Project;

A Traffic Management Plan (TMP) will be prepared prior to construction, which will describe measures to minimise the impact of construction traffic along the road network, including consultation with neighbours and notifying the timing of major deliveries, avoidance of peak school bus times by heavy vehicles, designated routes to be used by all traffic, inductions, and complaint resolution process.



# Waste Management

The waste management assessment confirmed the Project will produce various waste streams during the construction, operation, and decommissioning stages.

A Waste Management Plan (WMP) will be prepared prior to construction, which will describe appropriate measures to be incorporated to avoid potential contamination to land and water, and impacts to human health and wildlife. The Project will separate waste streams to maximise recycling and emphasise

reuse of any excess materials and vegetative matter. A key objective of the WMP will be to work with local waste management facilities to avoid impacts on local businesses and the local community accessing these facilities.



# Preliminary Hazard Analysis

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A Preliminary Hazard Analysis (PHA) was completed to identify the potential hazards and risks associated with the Project's operation and storage of materials.

The expected hazardous materials to be stored or handled on site include batteries, transformer oils, and diesel fuel. Hazards identified in the PHA for the Project include fire impacts, explosion, toxicity, property damage and accidental propagation and societal risk. The review of potential incidents associated with these hazards indicates that offsite impacts is not expected to occur.

Based on the analysis conducted for the lithium-ion batteries proposed to be used as part of the Project (either Lithium-Iron-Phosphate (LFP) or

Nickel-Manganese-Cobalt (NMC) chemistries), it was concluded that the risks at the boundary of the Project Area will not exceed the acceptable risk criteria.

Mitigation measures will be implemented in the final Project layout to include the required separation distances within the BESS area, to minimise hazards and risks associated with the Project.





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