



**NGH**



# AMENDMENT REPORT

## Tilbuster Solar Farm

August 2021

Project Number: 20-729





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## Acronyms and Abbreviations

ACHA	Aboriginal Cultural Heritage Assessment
ACHCRP	Aboriginal cultural heritage consultation requirements for proponents
ASL	Above sea level
AV	Articulated Vehicle
BCD	Biodiversity Conservation Division
BDAR	Biodiversity Development Assessment Report
BESS	Battery Energy Storage System
BGW	Box Gum Woodland
BSAL	Biophysical strategic agricultural land
DP	Deposited Plans
DPIE	Department of Planning Industry and Environment
EIS	Environmental Impact Statement
EMFs	Electromagnetic fields
EP&A Act	<i>Environmental Planning and Assessment Act 1979 (NSW)</i>
EPA	Environment Protection Authority (NSW)
GDE	Groundwater Dependent Ecosystems
ha	hectares
ICNIRP	International Commission on Non-Ionizing Radiation Protection
km	Kilometres
kV	kilovolts
LGA	Local Government Area
m	metres
ML	Megalitres
MW	Megawatt
MWh	Megawatt hours

NSW	New South Wales
NRAR	Natural Resource Access Regulator
PCT	Plant community Type
PV	Photovoltaic
RAPs	Registered Aboriginal Parties
SEARs	Secretary's Environmental Assessment Requirements
SSD	State Significant Development
SAII	Serious and Irreversible Impact
Tec	Threatened Ecological Community
TfNSW	Transport for NSW
TIA	Traffic Impact Assessment

# 1 Introduction

## 1.1 Background

The Tilbuster Solar Farm proposal (the Proposal) includes the construction, operation and decommissioning of a photovoltaic (PV) solar farm including Battery Energy Storage System (BESS). Enerparc Australia Pty Ltd (Enerparc) is the proponent for The Proposal. Enerparc was founded in 2008 in Germany to design, build, and operate large PV systems in Europe. Since then, Enerparc has become one of the top global solar developers and has installed more than 2,200 MW of solar power in 20 countries. At the end of 2017, Enerparc Australia Pty Ltd was founded with an office in Sydney.

The Development Site is located on the western side of New England Highway, within the locality of Tilbuster (Figure 1-1) in the Armidale Regional Council Local Government Area (LGA). Armidale is approximately 17 km to the south of the Development Site and is the closest regional centre. The Development Site is within the proposed New England Renewable Energy Zone.

The proposal requires development consent under Part 4 of the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act). It is considered State Significant Development (SSD) as it is development for the purpose of electricity generating works with a capital cost of greater than \$30 million (clause 20, Schedule 1 of the *State Environmental Planning Policy (State and Regional Development) 2011*).

An Environmental Impact Statement (EIS) was prepared by NGH Pty Ltd (NGH, 2020) on behalf of Enerparc and was submitted to NSW Department of Planning, Industry and Environment (DPIE). The EIS was placed on public exhibition from 21 October 2020 to 18 November 2020. During this period, submissions were invited from the local community, government agencies, interested parties and other stakeholders. A Submissions Report has been prepared to address all issues raised during the public exhibition; submitted concurrent with this Amendment Report.

## 1.2 Purpose of this Amendment Report

Since the EIS was exhibited, several changes have been made to the proposal. On 17 February 2021 the Department of Planning, Industries and Environment (DPIE) requested that an Amendment Report be provided to describe and assess changes made to the proposal since the public exhibition of the EIS.

This application is made under Clause 55 of the *Environmental Planning and Assessment Regulation 2000* which states:

*If an amendment or variation results in a change to the proposed development, the application to amend or vary the development application must include particulars sufficient to indicate the nature of the changed development.*

## 1.3 Terms used in this report

The following terms are used in this document:

- **Subject Land:** Any and all lots to be directly impacted, in whole or part, by the Proposal.
- **Development Site:** The area of land that is subject to the Proposal.

- **Development Footprint:** The area of land that would be directly impacted by the Proposal, including perimeter fence, access roads, transmission line footprint and stockpile areas.

## 1.4 Related Reports: Submissions Report

Concurrent with this report, an Submissions Report has been prepared. The Submissions Report responds to all issues raised in the submissions period, during public exhibition of the EIS.

The Submissions Report details:

- Summary of the submissions received.
- Responses to the public submissions. As submissions raised several issues, some of which are repeated in other submissions, each issue raised is addressed, rather than each submission.
- Responses to each government agency submission.

The details of the Submissions Report are not duplicated in this report.

## 1.5 Overview of amendments

A high-level summary of the changes and their associated environmental impacts is outlined below. Changes to the proposal are detailed in Section 4. Consultation is detailed in Section 2. Updated to the impact assessment that arose from changes to the Proposal and consultation are detailed in Section 5. A justification for each change is provided in Section 3. The changes are generally made to reduce biodiversity impacts (and provide certainty over areas that will be avoided and protected in construction and operation), improve traffic safety outcomes and provide more certainty regarding the operational requirements of the project.

Additionally, further visual assessment has been undertaken in response to DPIE and community consultation and is included in this report.

Table 1-1 Proposal changes and their associated environmental impacts

Proposal changes	Environmental impacts
<b>Reduction of the Development Footprint from 178 hectares (ha) to 169.7 ha (Section 4.1). this reduction in Development Footprint, would marginally reduce the generation capacity of the Proposal from about 152 to 150 megawatts (MW). Final generation capacity would be confirmed at the detailed design stage.</b>	<ul style="list-style-type: none"> <li>• An overall decrease in Development Footprint will result.</li> <li>• Reduced native vegetation clearing will result.</li> <li>• Reduced biodiversity credit obligations will result (updated Biodiversity Development Assessment Report (BDAR) summarised in Section 5.1 and attached as Appendix C).</li> <li>• The change in footprint necessitates: <ul style="list-style-type: none"> <li>○ Updated BDAR summarised in Section 5.1 and attached as Appendix B</li> <li>○ Updated Aboriginal Cultural Heritage Assessment (ACHA) summarised in Section and attached as E.</li> </ul> </li> </ul>

Proposal changes	Environmental impacts
<p><b>Amendments to the intersection treatment, access road upgrade and further clarification of the over size, over mass vehicle configuration (Section 4.2). Slight increase of the Development Site and Development Footprint accommodate the updated intersection design.</b></p>	<ul style="list-style-type: none"> <li>• Improved safety of site access.</li> <li>• Improved clarity in terms of oversize and overmass (OSOM) vehicle requirements.</li> <li>• Marginal increase to the Development Footprint and Development Site of the intersection upgrade; however, the overall Development Footprint would be reduced (see amendment above).</li> </ul>
<p><b>Revision of BESS capacity from 40 megawatt-hours (MWh) to 30 MWh (Section 4.3).</b></p>	<ul style="list-style-type: none"> <li>• Reduced impacts will result. No additional assessment is warranted.</li> </ul>
<p><b>Other minor amendments:</b></p> <ul style="list-style-type: none"> <li>• <b>Addition of a water tank for firefighting</b></li> <li>• <b>Avoidance of low voltage powerlines</b></li> <li>• <b>Updated mitigation measures with regard to land use compatibility and visual impact mitigation.</b></li> <li>• <b>Update safeguards for stream crossings</b></li> <li>• <b>Updates to safeguards for weed and pest management, and fencing arrangements</b></li> <li>• <b>Changes to wording related to internal access roads</b></li> </ul>	<ul style="list-style-type: none"> <li>• Negligible or reduced impacts.</li> </ul>



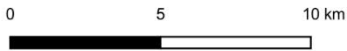
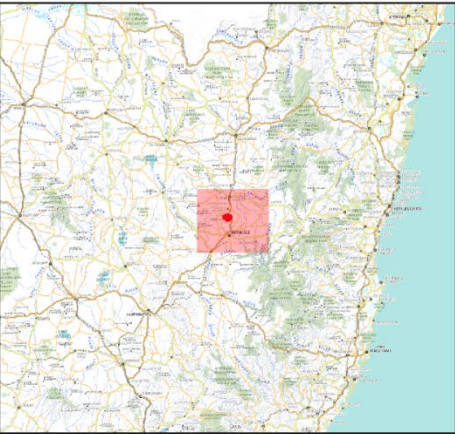


Location of the Proposal Site

Tilbuster Solar Farm EIS

Legend

- Proposal Site
- Cadastre
- Highway
- Local Road
- NPWS Estate
- State Forest
- Existing Armidale Substation
- Existing Transmission Lines
  - 330 kV Transmission Line
  - 132 kV Transmission Line
  - 66 kV Transmission Line
- Nearby Solar Farms
  - Metz Solar Farm
  - New England Solar Farm
  - Proposed Oxley Solar Farm



Data Attribution  
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Ref: 18-645 Tilbuster Solar Farm EIS  
Author: Vitaly.K  
Date created: 07.10.2020  
Datum: GDA94 / MGA zone 56



Figure 1-1 Locality map



## **2 Consultation**

### **2.1 Department of Planning Industry and Environment (DPIE)**

Ongoing consultation with DPIE has been completed between 23 December 2020 and the lodgement of this report. In this time, NGH, Enerpac and DPIE have met and discussed the Proposal and assessment requirements on several occasions. DPIE has requested further information and/or requested amendment to assessments on 12 occasions. The requests have been addressed in full in this report and its accompanying appendices. DPIE requested responses to several specific questions be answered in this Amendment Report. The responses are provided in Appendix B. Key issues raised by DPIE include:

- Clarification of specific project details, addressed in Section 4.
- Undertaking further visual impact and noise assessment, addressed in Section 5.2, 5.6, 5.6 and Appendix I.
- Undertaking further consultation with the local community, addressed in Section 2.5
- Biodiversity impacts, explained further in Section 2.2 and addressed in Section 5.1 and Appendix C. This included providing further assessment of the viability of establishing a Biodiversity Stewardship Site within the Subject Land. A Biodiversity Offset Strategy has been prepared and is presented in Appendix D.
- Traffic impacts, addressed in Section 5.3 and Appendix G.

### **2.2 Biodiversity Conservation Division**

Following the public exhibition of the EIS, targeted consultation was conducted with BCD to discuss the Development Footprint and identify further opportunities to avoid and minimise impacts on Box Gum Woodland (BGW) Threatened Ecological Community (TEC), a Serious and Irreversible Impact (SAIL) candidate, under the Biodiversity Conservation Act.

Several teleconferences and a site visit were held between representatives of NGH, Enerpac, DPIE and BCD to discuss biodiversity constraints and avoidance / minimisation strategies in relation to this issue. Consultation between the three parties included:

1. 3 March 2021 Teleconference. An initial discussion of areas for avoidance was had and important habitat linkages were identified.
2. 12 March 2021 Teleconference. Further refinement of the Development Footprint was discussed. It was noted that given the other (non-ecological) onsite constraints, the layout of the Proposal would become highly fragmented in a full BGW SAIL avoidance scenario.
3. 8 April 2021 Teleconference. Further analysis of onsite constraints was completed and the possibility of reducing stream buffers was raised. This would allow further avoidance of BGW SAIL, without fragmenting the layout of the Proposal to the extent it was unfeasible.
4. 27 April 2021 Site visit. A joint field visit to the Development Site by representatives of NGH, Enerpac, DPIE and BCD was conducted on 27 April 2021 to review and discuss BCD's flagged areas of concern on-the-ground. Additionally, the PCTs and condition states were verified. As a result of the site visit, the Development Footprint was reduced by about 8 ha, and

the impacts to the BGW SAIL was reduced from 23.2 ha to 9.2 ha. The comparison in impact areas is presented in Section 5.128.

5. 24 June Teleconference. In response to BCD's concerns and the outcomes of the field visit, the Development Footprint was further refined to avoid and minimise BGW SAIL. BCD expressed that their concerns regarding SAIL have been adequately reflected in the updated layout.

It is noted that the updated Development Footprint has been redefined in consideration of all disturbance required to construct the Proposal. i.e. the installation of all environmental controls and plant movements. The Development Footprint for which consent is sought has rationalised 'slivers' of vegetation that could not be adequately protected from impacts. These are now included in the updated Development Footprint. This change provides.

- Certainty regarding areas that will be protected from impact (all areas outside the Development Footprint).
- Flexibility to the proponent during detailed design of the layout and construction program. The Development Footprint is considered a 'worst case' upper limit impact but will allow final infrastructure layout and construction program required flexibility.

## **2.3 Armidale Regional Council**

Following public exhibition, consultation with Armidale Regional Council (Council) was undertaken in relation to the possibility of entering into a Voluntary Planning Agreement (VPA). The Proponent and Armidale Regional Council have agreed that due to the planned construction program timing, a VPA would be an inefficient mechanism to contribute to the local community. However, the Proponent would contribute to Armidale Regional Council, in accordance with Council's s7.12 Contribution scheme. The Proponent believes this contribution would benefit the local community more than a VPA that could be prepared on short notice.

Following a submission from Council, a section of the access road was identified as under Council control. The Proponent has discussed the road upgrade for the portion of the Council controlled road between the New England Highway and the Development Site. The Proponent has agreed to construct the road upgrade in accordance with the Council Road specifications for "Rural Access Minor" roads.

Following completion of the redesign of the intersection upgrade between the New England Highway and the unnamed road (refer to Section 4.2.1), Council raised the possibility that land acquisition to the south of the intersection may be required to construct the intersection. Further discussions with Amber (the traffic consultant) have identified that land acquisition is not required in this area. This information has been passed on to Council.

## **2.4 Transport for NSW**

Transport for NSW (TfNSW) was engaged initially in relation to the issues raised in the TfNSW submission. Following this consultation, a draft Traffic Impact Assessment was prepared and provided to TfNSW for comment. A number of additional issues were raised, relating to:

- Providing further clarity about the source and analysis methods of traffic data
- Providing further clarity regarding mitigation measures
- Discussion of the design of the amended intersection design.

A teleconference was held between TfNSW, Amber, NGH and Enerparc. Several updates to the report were agreed upon, which now form the amended Traffic Impact Assessment, Section 5.3 and Appendix G. Several items were agreed to be deferred to the post approval stage of the Proposal. In particular it was noted that prior to construction of the intersection upgrade, a Works Authorisation Deed (WAD) would be prepared. As part of this process, TfNSW would have further opportunities to refine and endorse the intersection design.

The WAD process was identified as a safeguard in the EIS, and remains a commitment of the Proposal.

## 2.5 Local community

Following the public exhibition of the EIS, further consultation was undertaken between Enerparc and five nearby landowners in relation to specific impacts raised in EIS submissions. This consultation process initially involved sending letters, phoning and organising video-conferences with landowners. Some landowners requested further information and raised issues additional matters with Enerparc directly. In these cases, further engagement, including site visits to neighbouring properties was undertaken. The consultation process was carried out from May to July 2021.

At the conclusion of this process, two landowners were either supportive of the proposal or were satisfied with the existing level of assessment and had no further concerns. Three landowners continued to raise concerns regarding the Proposal:

- One landowner raised issues regarding potential visual and property devaluation impacts. A land loss assessment report was prepared (though not placed on public display for privacy reasons) regarding this specific property which found the proposal would not devalue the land. Enerparc offered to provide additional vegetative screening for this landowner on their property which was refused.
- The other two landowners raised several issues, largely relating to visual impact. These landowners prepared supplementary submissions that were responded to in conjunction with the original submissions they raised in the Submissions Report (NGH, 2021).

Additional visual impact mitigation measures have been developed in response to consultation with the community and the additional visual impact assessment.

## 2.6 Other stakeholders

Consultation with other stakeholders (direct phone calls and emails) was undertaken either to address submissions raised during the public exhibition period, or regarding proposed amendments to the Proposal. Consultation was undertaken between 1 February 2021 and 20 July 2021. The outcomes of this consultation are provided in Table 2-1 below, outcomes from the community mail drop are also included below.

Table 2-1 Other stakeholders consultation summary

Impact/Issue	Stakeholder group	Engagement activity	Outcome/s and/or where addressed in this amendment report
<b>Crown lands</b>	Crown Lands	Phone calls and emails	Confirmation a section of the access road, originally thought to be entirely under Crown

Impact/Issue	Stakeholder group	Engagement activity	Outcome/s and/or where addressed in this amendment report
			control, was under Council control. Further discussed in Section 5.3.
<b>Low voltage powerline crossing the proposal</b>	Essential Energy	Email	A low voltage powerline that was originally thought to be a private line was identified under Essential Energy control. Essential Energy were contacted, and submitted a formal submission, detailed in the Submissions Report.
<b>Hydrology</b>	Natural Resource Access Regulator (NRAR)	Emails, phone calls.	NRAR was consulted regarding opportunities to undertake reduction and removal of stream buffers. Their advice was provided as a formal Agency Advice, which is addressed in the Submissions Report.  The advice from NRAR has been incorporated to the hydrological assessment, summarised in Section 5.4 and provided in Appendix H.
<b>Mining tenement</b>	<b>Kooky Resources Pty Ltd</b>		Several attempts have been made to contact Kooky Resources Pty Ltd in relation to a mining exploration tenement they hold over the western portion of the Development Site, as recommended by Mining, Exploration and Geoscience. Kooky Resources Pty Ltd has not provided any additional feedback in relation to this proposal.

## **3 Justification for proposed amendments**

### **3.1.1 Development Footprint and generation capacity**

The Development Footprint of the proposal has been refined, from the footprint identified in the EIS. This refinement involves a net reduction in impact area from 178 ha to 169.7 ha. The reasons for the change are:

1. To reduce the impact to the Box Gum Woodland Serious and Irreversible Impact candidate (BGW SAIL; vegetation Zones 1 and 5 in the BDAR). The changes made to the Development Footprint in consultation with BCD reduce the overall impact on this vegetation from 23.2 ha to 9.2 ha and improve connectivity between remnants that will be retained and protected from impacts.
2. To reduce the fragmentation of the layout in certain areas, where further environmental studies have identified areas of low risk. Primarily, this involved ground validating certain stream buffers that had previously been avoided. Where it could be demonstrated that the buffers were not warranted for hydrological or other reasons, the Development Footprint was expanded. This approach has been supported by the updated Hydrological study (presented in Section 5.4 and Appendix H).

As a result in the changes to the Development Footprint, the generation capacity of the Proposal has been reduced from 152 MW AC to, up to approximately 150 MW AC. The exact generation capacity of the development would be subject to detailed design.

### **3.1.2 Intersection and access road upgrade**

TfNSW are the road authority for the New England Highway and the unnamed road proposed for use as the sole access to the Proposal during construction and operation. In response to the submission from TfNSW:

1. The New England Highway intersection proposed in the EIS will be improved to better facilitate construction traffic. The intersection treatment now proposed has been upgraded to allow for a larger turn radius for heavy vehicles. This will improve traffic safety throughout construction period. The small area of additional impact for this upgrade is assessed in Section 5.1 (Biodiversity) and 5.5 (Aboriginal heritage).
2. Submissions received from Council identify that a section of the unnamed access road is under Council control. This is shown in Figure 4-1. The Proposal will commit to constructing the unnamed access road in accordance with the relevant Council engineering codes. Complying with these engineering codes would not require a change in the Development Footprint of the Proposal, and will improve safety and compliance with relevant guidelines during construction of the Proposal.

Both TfNSW and Armidale Regional Council's submissions, and the Proponent's responses, are presented in full in the Submissions Report.

### **3.1.3 Updated BESS capacity**

The BESS described in the EIS had a maximum capacity of up to 40MWh, but included a statement that left the value open to a lower capacity. In further consideration of the project's

generation capacity, the BESS requirement is now confirmed to be no higher than 30MWh with a peak output of 15 MW.

This change is justified in that DPIE has advised that a BESS with capacity higher than 30MWh must be accompanied by a Preliminary Hazard Assessment. In committing to a reduced capacity, this requirement is removed.

The battery storage facility will still occupy the same footprint as shown in the EIS and there are no additional mitigation measures or safeguards relevant to this change.

#### **3.1.4 Other minor amendments**

Several minor amendments have been proposed, in response to submissions raised during the exhibition period. In general, these relate to minimising land use conflicts (fencing and pest management), updated stream crossing safeguards, changes to wording relating to internal access roads, and minor changes to firefighting arrangements. The changes are justified in that they reduce or further mitigate impacts for land use compatibility and stream crossings, and provide certainty for firefighting arrangements, as requested by the Rural Fire Service.

## **4 Proposed amendments**

The Tilbuster Solar Farm proposal remains generally as detailed in Section 4 of the EIS (NGH, 2020). However, three changes are now proposed and are detailed in this section.

The proponent has made the following changes to the proposal:

- a) Changes to the Development Footprint and generation capacity (Section 4.1).
- b) Updates to the intersection upgrade design, and access road changes (Section 4.2).
- c) Revision of BESS capacity from 40 MWh to 30MWh (i.e. 30 MW power output for one hour) (Section 4.3).
- d) Minor additional amendments (Section 4.1).

Additional assessment has been undertaken to support these changes including;

- Updated Biodiversity Development Assessment Report (BDAR), summarised in Section 5.1 and attached as Appendix C.
- Updated Traffic Assessment and consultation with roads authorities, summarised in Section 5.3 and attached as Appendix G.
- Updated Hydrological study (presented in Section 5.4 and Appendix H).

Further visual and noise assessment has been undertaken in response to DPIE and community consultation and is also included in this report:

- Updated Visual assessment, summarised in Section 5.2 and attached as Appendix F.
- Updated Noise assessment, summarised in Section 5.6 and attached as Appendix I.

### **4.1 Development Footprint and generation capacity**

The EIS proposed a Development Footprint with an area of 178 ha. Enerparc is proposing an amended Development Footprint considering the comments raised during the submissions phase of the project. This consultation is presented in the Submissions Report, and in Section 2 of this report. The new layout avoids a larger area of BGW SAI and provides additional space to construct the intersection upgrade. To achieve reduction in BGW SAI, stream buffers that were previously avoided, were utilised within the Development Footprint. As a result of this footprint change the total area of development has reduce from 178 ha to 169.7 ha.

The amended Development Footprint is shown in Figure 4-1. An updated constraints figure showing the amended Development Footprint and key environmental constraints is shown in Figure 4-2. A figure showing where the Development Footprint has been increased and decreased, is shown in Figure 4-3.

As a result of this reduction in layout area, the Proposal would generate up to approximately 150 MW AC electricity, a reduction when compared to 152 MW stated in the EIS. The final generation capacity would depend on the technology selected for the development, and is subject to detailed design, post approval.



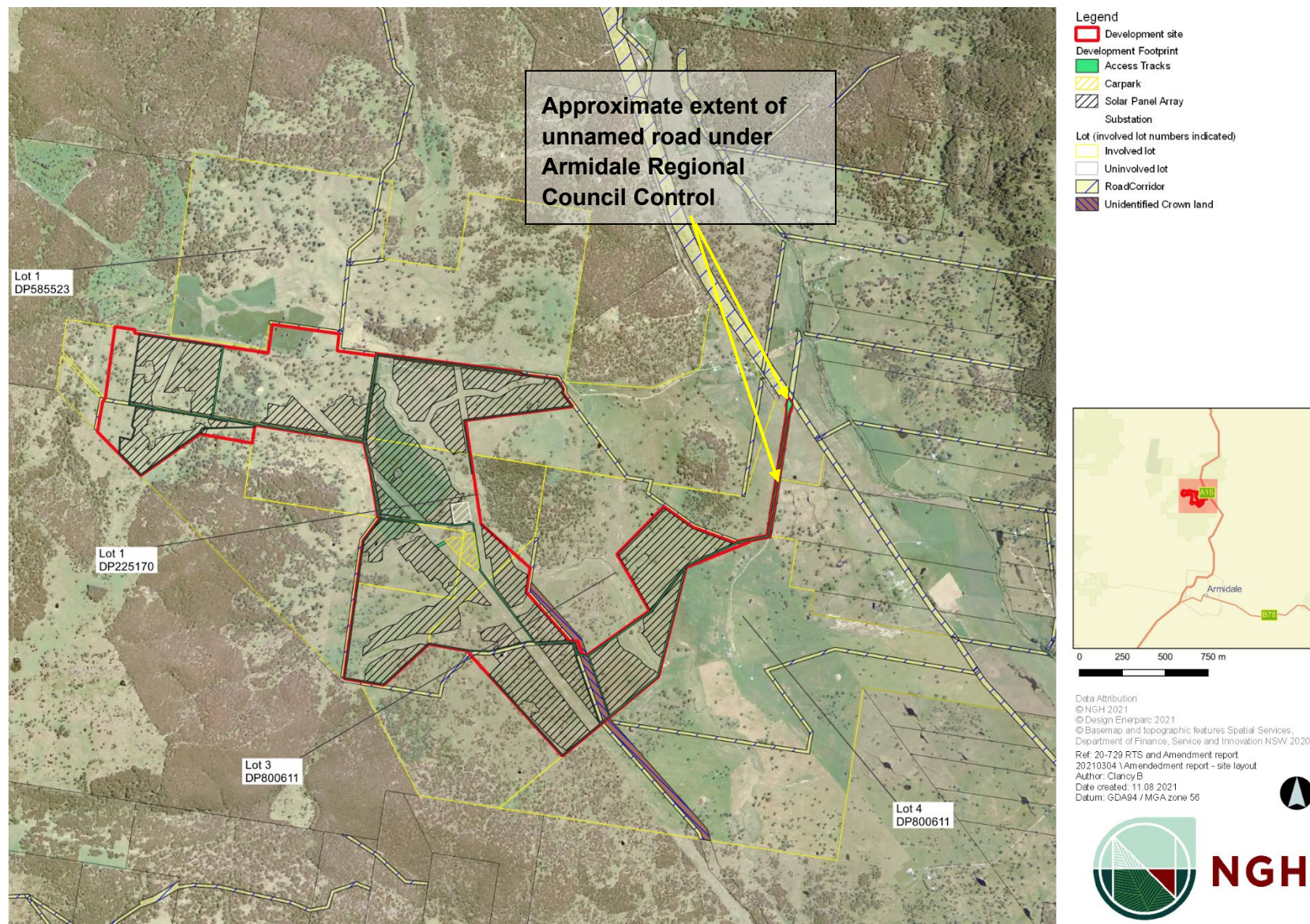


Figure 4-1 Amended infrastructure layout



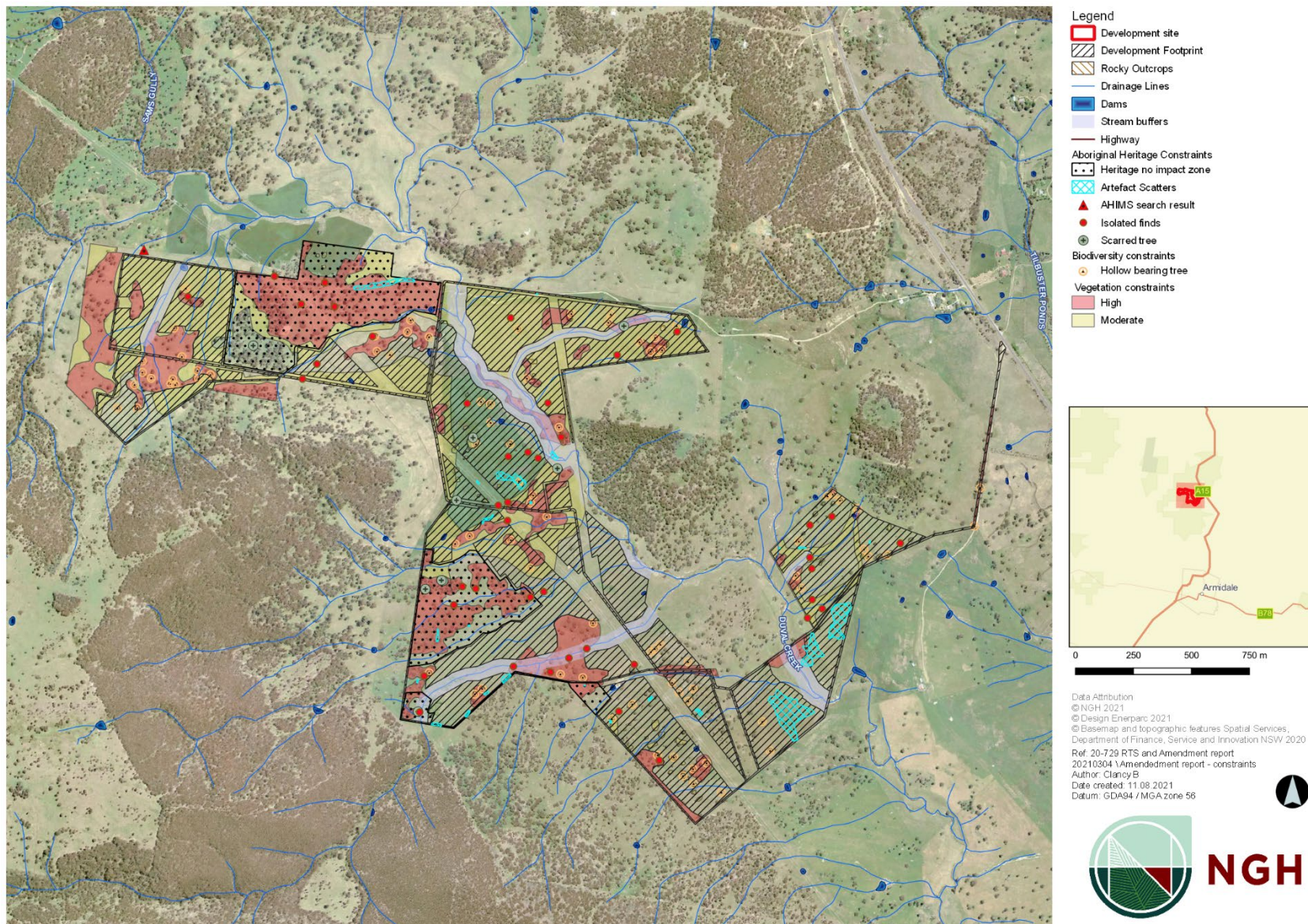


Figure 4-2 Amended Development Footprint, showing onsite constraints



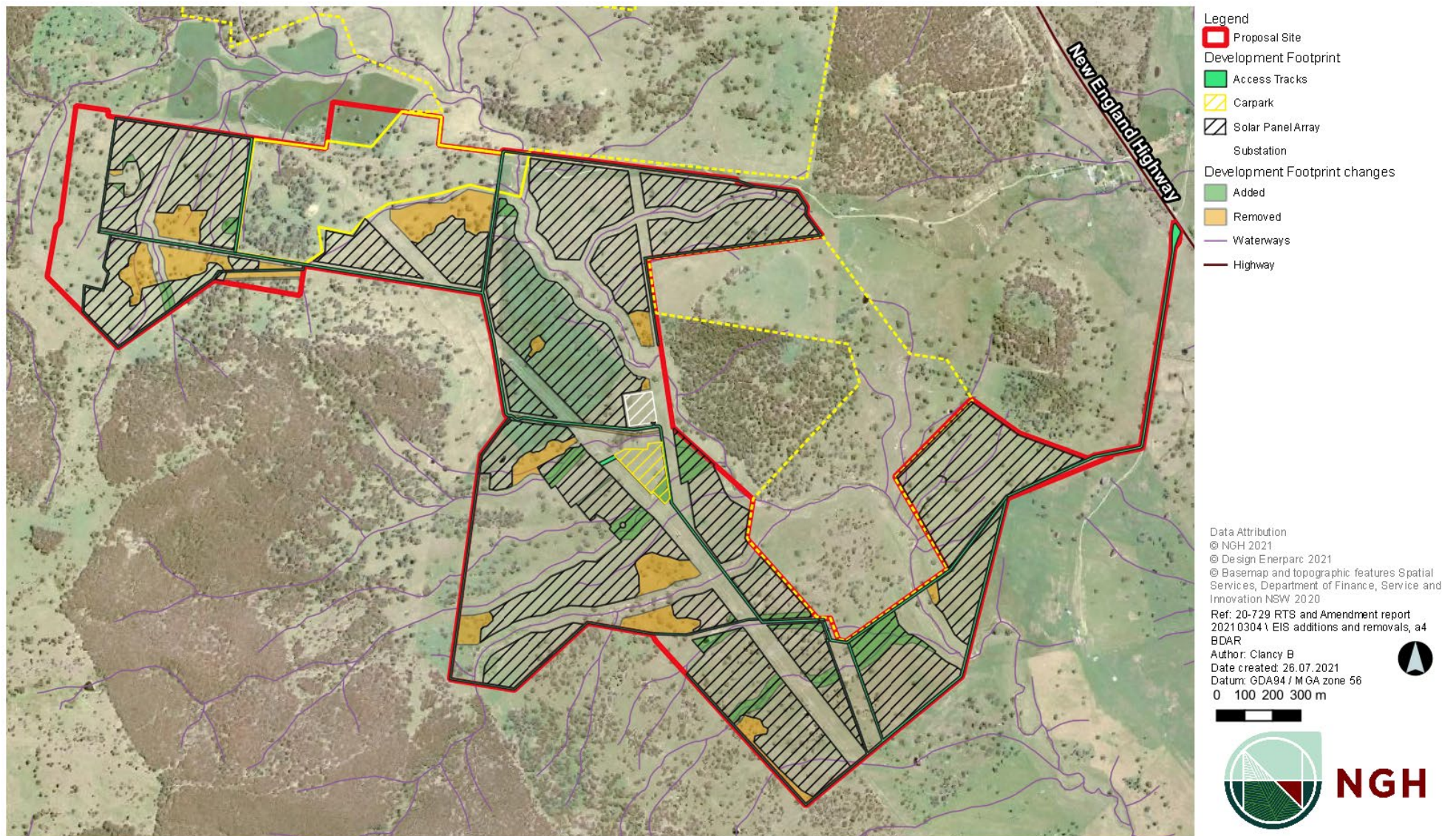


Figure 4-3 Amended Development Footprint in comparison to the EIS Development Footprint, showing additions and subtractions.

## **4.2 Traffic Amendments**

### **4.2.1 Intersection upgrade design**

In response to comments from TfNSW, an amended intersection upgrade design at the unnamed Council road/New England Highway intersection has been developed. As part of the design process, a swept path analysis of B-doubles entering and exiting the Development Site was completed, to ensure the intersection would be safe and efficient for the proposed construction delivery vehicles. The changes to the intersection involve increasing the width of the paved area to allow more space for concurrent access and egress of B-Double vehicles. The amended intersection, including Basic Left Turn (BAL) and a Basic Right Turn (BAR) treatments, meet the requirements of the *Austroads Guide to Traffic Management Part 6: Intersections, Interchanges, and Crossings* (Austroads, 2017). The amended intersection upgrade concept design is shown in Figure 4-4. In accordance with these changes, an updated concept design has been prepared and is shown in Figure 4-4. Figure 4-5 shows the swept path analysis for a B-Double vehicle.

It should be noted that the swept path analysis has also been completed for the single OSOM vehicle. The swept path analysis for the single OSOM vehicle has been completed and is presented in Appendix G. The intersection design would require that specific traffic controls would be implemented for access and egress of the OSOM vehicle. This design approach has been adopted as there would be only one OSOM vehicle movement.

An amended Traffic Impact Assessment (TIA) has been completed, and is available in Appendix G and summarised in Section 5.3.

The Development Site would be increased by 0.14 ha, to a total of 310.02 ha. The Development Footprint would be increased by 0.10 ha, but would still be overall reduced as described in Section 4.



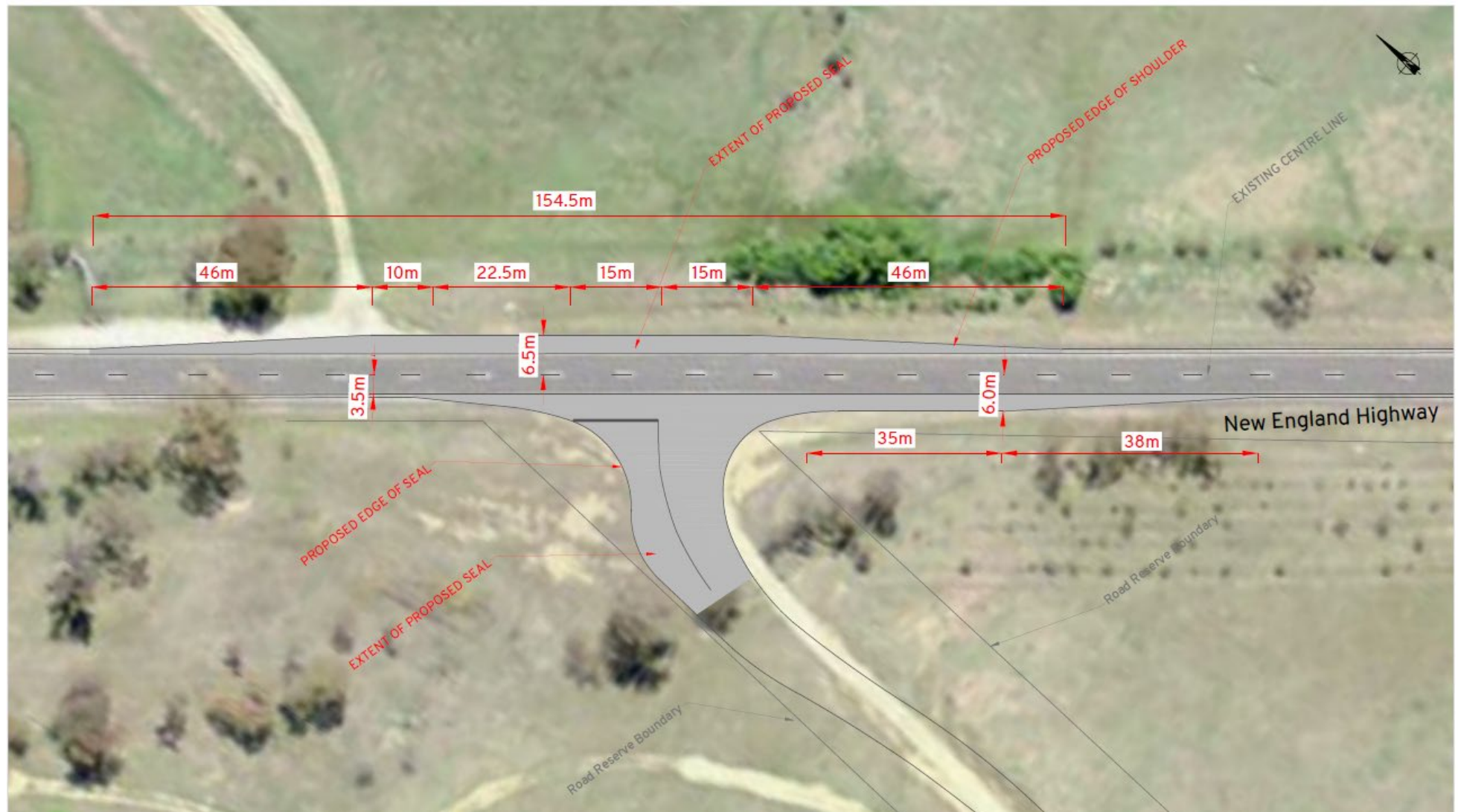


Figure 4-4 New England Highway / unnamed Council access road intersection concept design



Figure 4-5 Amended intersection showing B-double engagement

#### **4.2.2 Access road upgrade**

The key access to the Development Site remains, as described in the EIS, from the New England Highway, then via an existing unnamed Council road, then via a Crown managed road reserve. The approximate extent of the unnamed Council road is shown in Figure 4-1. The precise extent of the extent of the road controlled by Council is not currently known, due to mapping inaccuracies present in historic parish maps. However, a survey of the site would be completed as part of the detailed design process and the extent of the road would be confirmed then.

The unnamed Council road is unsealed gravel and currently provides access to a farm shed on the adjacent property. The site access would be used during construction and operation and in the EIS it was proposed that it would be subject to limited upgrading and maintenance to support delivery vehicles during the construction phase.

In response to comments from Armidale Regional Council, this unnamed Council road will be upgraded in accordance with Armidale Regional Council design guidelines; specifically, the Rural Access Minor design specification. The key changes, that now form commitments of the project, include:

- The unnamed Council road between the New England Highway and the Development Site would be upgraded in accordance with the design requirements of a 'Rural Access Minor' road as provided by Armidale Regional Council.

Further details are appended to the Traffic Impact Assessment, available as Appendix G.

#### **4.2.3 Oversize and overmass (OSOM) vehicle arrangement**

In response to consultation with DPIE, further consideration has been given to the OSOM vehicle arrangement. The EIS identified that a single OSOM vehicle would travel to the site to deliver a substation unit. However, the arrangement of that vehicle wasn't defined in the EIS. Based on early construction planning, it is anticipated that a vehicle similar to the one shown in Figure 4-6. The final vehicle selected would depend on the detailed design and procurement arrangements. This would be confirmed post approval. None the less, the vehicle shown below is considered representative of the vehicle that is likely to be used.



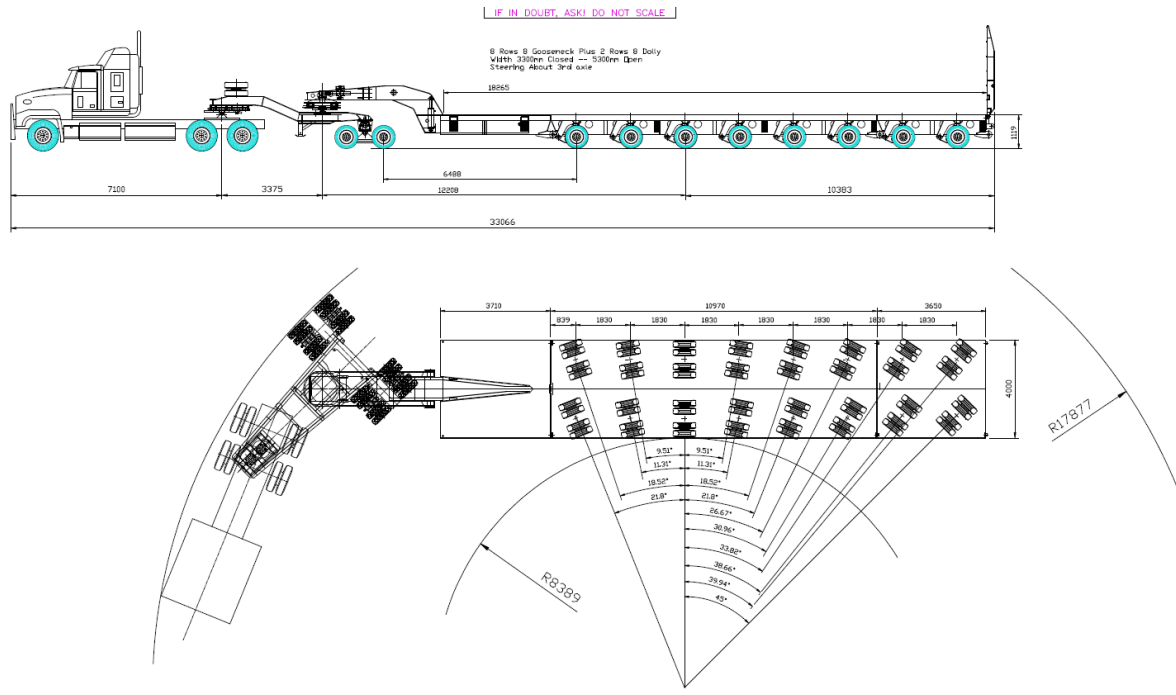


Figure 4-6 Indicative oversized overmass vehicle arrangement

### 4.3 BESS capacity

The EIS described the inclusion of an energy storage facility located within the Development Footprint and likely to be lithium-ion technology. Storage requirements were previously stated to be for 40MWh or less.

The amended energy storage facility has now been revised to a maximum capacity of up to 30MWh. The energy storage system would consist of approximately 20 containers each 40ft in length and would occupy an area of approximately 0.13 ha. The physical size of the BESS would be similar to the EIS and would be confirmed at the detailed design stage of the project. The energy storage infrastructure would be installed during the operation phase of the project (as described in the EIS). As the BESS will not exceed 30MW, DPIE have confirmed a Preliminary Hazard Analysis (PHA) is not required.

## 4.4 Other amendments

Several other minor amendments have been made to the proposal and are summarised in Table 4-1. A complete set of mitigation measures is presented in Section 6.2.

### Table 4-1 Minor amendments

Amendment description	Discussion of impact
<b>A 20,000 litre water supply (tank) fitted with a 65mm storz fitting shall be located adjoining the internal property access road within the required APZ.</b>	<p>The water tank will be placed within the existing Development Footprint. The final location will be confirmed at the detailed design stage.</p> <p>The water tank would have no additional environmental impacts than were described, either in the EIS or this report. No further assessment is required.</p>



Amendment description	Discussion of impact
<b>Construction of waterway crossings or services through waterways would be designed and constructed in accordance with DPI Fisheries Policy &amp; Guideline document: Policy and Guidelines for Fish Habitat Conservation and Management (Update 2013)</b>	The amendment would not increase the build area of the Proposal, and would reduce impacts to aquatic ecology by ensuring best practice crossings are implemented.
<b>Avoidance of low voltage powerline</b>	An additional safeguard has been identified that requires avoidance of the Essential Energy powerlines. This amendment would involve reconfiguring the panel arrays. However, due to the likely disturbance beneath these powerlines, the Development Footprint has not been amended.
<b>Updated mitigation measures with regard to land use compatibility and visual impact mitigation.</b>	In response to submissions received during the public exhibition of the EIS, several safeguards have been added to the commitment of the Proposal. Submissions are detailed in the Submissions Report. these additional safeguards would either reduce or not change the impacts of the Proposal.
<b>Change of wording of bushfire safeguard 4, which previously referenced a 'gravel road' this would be changed to 'unsealed road'</b>	<p>This amendment has been identified to allow greater flexibility for the construction of internal access roads. For example to allow roads to be constructed with road base, in-situ material (where appropriate) or other suitable material.</p> <p>This amendment would not increase any impacts of the proposal and may reduce resource demand and haulage requirements for the Proposal. All erosion mitigation measures would still apply.</p>

## **5 Additional assessments to support the amended proposal**

The changes detailed in Section 4 of this Amendment Report would have similar types and similar magnitude of impacts as those previously presented in the EIS. In many cases, the impacts will be reduced. However, due to the incorporation of some new areas into the Development Footprint, the following specialist reports have been provided as appendices and summarised in this Section of the report:

- Biodiversity Development Assessment Report v1.4 (BDAR) (Appendix C) (NGH, 2021). The BDAR was amended, updating the assessment to include the further Development Footprint refinement identified to reduce biodiversity impacts. The updated report is summarised in Section 5.1.
- The Aboriginal Cultural Heritage Assessment v3.1 (ACHA) (Appendix E) (NGH, 2021). The ACHA was amended, updating the assessment to include the further Development Footprint refinement identified to reduce biodiversity impacts. The updated report is summarised in Section 5.4.
- Traffic Impact Assessment (TIA) (Appendix G) (Amber, 2021). The TIA was amended, to respond to comments from Armidale Regional Council and Transport for NSW. The updated report is summarised in Section 5.3.
- Hydrological and Hydraulic Analysis report v3 ("Hydrology Report") (Appendix H) (Footprint Engineering, 2021). The Hydrology Report was amended, updating the assessment to include the further Development Footprint refinement identified to reduce biodiversity impacts. The updated report is summarised in Section 5.4.

Additionally, further visual and noise assessments have been undertaken in response to DPIE and community consultation and is included in this report.

- Moir Landscape Architecture (Moir Landscape Architecture , 2021) in collaboration with NGH have completed an amended Visual Impact Assessment. This assessment includes assessment of additional receivers, updates to assessments of previously identified receivers and consideration of the amendments identified in this report. This information is provided in Section 5.2, and further assessment information is shown in Appendix F.
- The Noise and Vibration Assessment (Technical memo) (Renzo Tonin & Associates, 2021) was considered. Additional assessment was undertaken with Renzo Tonin and Associates to review additional sensitive receivers. No additional impacts or safeguards were identified relative to the 2020 EIS. Noise and vibration are addressed in Section 5.6.

Consultation with DPIE identified that demonstrating that establishing a Biodiversity Stewardship Site (sometimes known as an offset site), to retire the biodiversity offset credits generated by the Proposal, would be beneficial for the assessment of the Proposal. To demonstrate that onsite offsetting is likely to be possible.

- A Biodiversity Offset Strategy has been prepared and is summarised in Section 5.1 and presented in Appendix D.

Summaries of the additional assessments/review of impacts are provided below. These are considered the key environmental aspects affected by the change. Assessments of the proposed changes for all other relevant environmental aspects are provided in Section 5.7.

## **5.1 Biodiversity**

### **5.1.1 Approach**

An amended BDAR (version 1.4) has been prepared by NGH on behalf of Enerparc and is attached as Appendix C of this report. The purpose of the updated BDAR was to:

- a) Characterise changes to the Proposal's impacts on biodiversity values as a result of the amended proposal.
- b) Document efforts to further address 'avoid and minimise' actions that have resulted since public exhibition of the Tilbuster Solar Farm EIS and accompanying BDAR (version 1.1). Extensive consultation with the Biodiversity Conservation Division was undertaken this has been summarized in Section 2.2.
- c) Address agency comments from BCD in relation to the application of the Biodiversity Assessment Method. These are detailed in Submissions Report (NGH 2021) and updated as required in the BDAR v1.4.

### **5.1.2 Avoid and minimise impacts**

The highest ecological value vegetation zones to be impacted by the proposal are zones 1 and 5. These zones conform to the Critically Endangered Box Gum Woodland (BGW) ecological communities, when in moderate condition or better. Further, where the Vegetation integrity score is over 30 (i.e. in low to moderate condition), BCD have confirmed the BGW would be considered a Serious and Irreversible Impact (SAIL) candidate.

Previously, the EIS Development Footprint would have involved clearing 32.6% (or 23.2 ha) of these zones within the Development Site. Now, the amended Development Footprint would involve clearing 12.95% (or 9.2 ha) of these zones within the Development Site. This equates to an 19.65% (14.0 ha) reduction in impact. The offset obligation for this vegetation is also reduced (discussed below).

In addition, the amended Development Footprint would now impact almost 3 ha more of Category 1 land, compared to the EIS Development Footprint. Category 1 land is considered a low constraint to development as it has been extensively modified by legal agricultural practices and is exempt from most aspects of the Biodiversity Assessment Method (BAM). These changes represent a significant reduction to the potential for the Proposal to cause Serious and Irreversible Impacts. The change to the Development Footprint resulting from the expansion of the intersection with the New England Highway, would result in an additional impact of 0.10 ha of vegetation Zone 6. A comparison of the EIS footprint versus the amended footprint, including the clearing areas of each vegetation zone for both, is presented in Table 5-1.

As identified in Section 2.2 of this report, BCD have expressed that are satisfied with the refined Development Footprint presented in this Amendment report and that their concerns regarding SAIL have been adequately reflected in the updated layout.



## Amendment Report Tilbuster Solar Farm

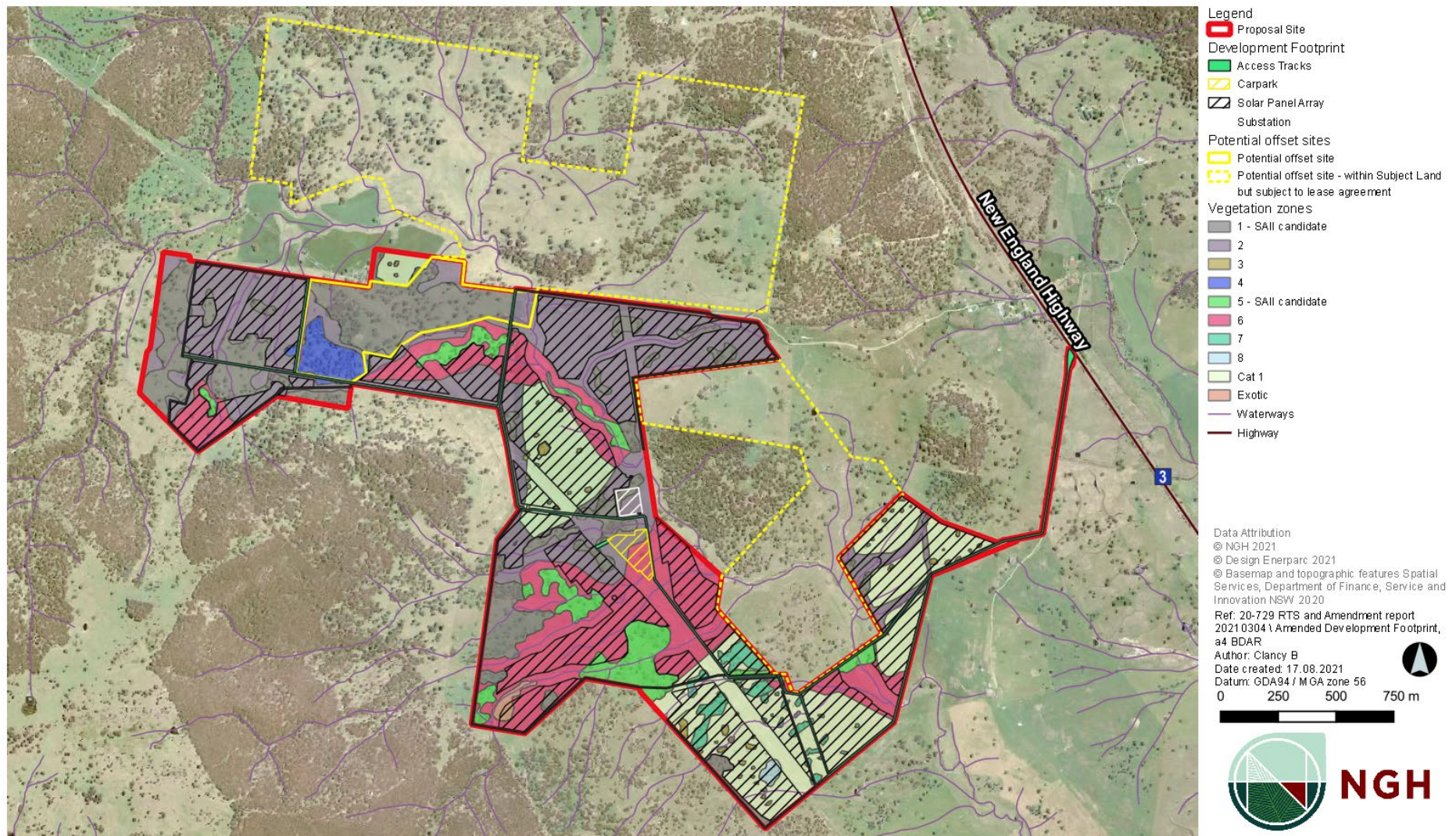


Figure 5-1 Biodiversity constraints, potential offset sites and the updated amended Development Footprint following BCD consultation

Table 5-1 Vegetation zone impacts, comparing EIS footprint to amended footprint

Vegetation zone	PCT	Vegetation integrity score (0 is low, 100 is high)	EIS Development Footprint			Amended Development Footprint		
			Veg. Area impacted (ha)	% of total veg. area across Development Site	Total veg area across Development Site (ha)	Veg. Area impacted (ha)	% of total veg. area across Development Site	Total veg area across Development Site (ha)
<b>1 – Serious and Irreversible Impact candidate</b>	567 Woodland. Broad-leaved Stringybark - Yellow Box shrub/grass open forest of the New England Tableland Bioregion.	54.4	14.9	28.05%	53.2	7.3	13.69%	53
<b>2</b>	567 Grassland. Broad-leaved Stringybark - Yellow Box shrub/grass open forest of the New England Tableland Bioregion.	0.4	61.4	67.69%	90.7	60.7	66.78%	90.9
<b>3</b>	567 Scattered trees. Broad-leaved Stringybark - Yellow Box shrub/grass open forest of the New England Tableland Bioregion.	18.2	1.7	84.83%	2	1.6	79.73%	2

Vegetation zone	PCT	Vegetation integrity score (0 is low, 100 is high)	EIS Development Footprint			Amended Development Footprint		
			Veg. Area impacted (ha)	% of total veg. area across Development Site	Total veg area across Development Site (ha)	Veg. Area impacted (ha)	% of total veg. area across Development Site	Total veg area across Development Site (ha)
<b>4</b>	575 Forest. Broad-leaved Stringybark - Yellow Box shrub/grass open forest of the New England Tableland Bioregion.	-	0.2	4.56%	5.3	0.4	7.52%	5.3
<b>5 – Serious and Irreversible Impact candidate</b>	704 Woodland. Blakely's Red Gum - Yellow Box grassy open forest or woodland of the New England Tableland Bioregion.	33.7	8.3	46.13%	17.9	1.9	10.78%	17.9
<b>6</b>	704 Grassland. Blakely's Red Gum - Yellow Box grassy open forest or woodland of the New England Tableland Bioregion.	0.5	35.9	54.57%	65.8	38.5	58.12%	65.9
<b>7</b>	704 Scattered. Blakely's Red Gum	21.4	4.3	77.66%	5.5	4.6	84.14%	5.5

Vegetation zone	PCT	Vegetation integrity score (0 is low, 100 is high)	EIS Development Footprint			Amended Development Footprint		
			Veg. Area impacted (ha)	% of total veg. area across Development Site	Total veg area across Development Site (ha)	Veg. Area impacted (ha)	% of total veg. area across Development Site	Total veg area across Development Site (ha)
	- Yellow Box grassy open forest or woodland of the New England Tableland Bioregion.							
<b>8</b>	575 Scattered trees. Tenterfield Woollybutt - Silvertop Stringybark open forest of the New England Tableland Bioregion.	-	0.7	92.22%	0.7	0.7	92.42%	0.7
<b>Cat 1</b>	-	-	50.8	75.29%	67.5	53.7	79.62%	67.5
<b>Exotic</b>	-	-	0.3	28.53%	1.2	0.3	28.61%	1.2
<b>Grand total</b>	-	-	<b>178.5</b>	-	<b>309.8</b>	<b>169.7</b>	-	<b>309.9</b>
<b>SAIL (Zone 1 and 5 combined) – Serious and Irreversible Impact candidates</b>		>30	23.2	32.60%	71.1	9.2	12.95%	70.9



### 5.1.3 Additional impacts and additional assessment

The amended Development Footprint involved reducing the Proposal's total impact on biodiversity values across the Development Site. As such, no additional surveys were required.

As requested in the submissions from BCD, Greater Glider has been entered into the Biodiversity Assessment Method Calculator (BAM-C). The assessment of impacts to Koala Habitat has also been updated. These changes to the assessment have generated additional offset liabilities, detailed in Section 5.1.4, but are a result of changes to the assessment method, not a result of changes to the project.

### 5.1.4 Offset requirements

The offset obligations for the Proponent incurred by the amended Development Footprint are summarised in Table 5-2 below, with reference to the offset obligations of the indicative EIS Development Footprint placed on public exhibition.

The Plant Community Types (PCT) 567 and 704 correspond to the Critically Endangered Ecological Community, Box Gum Grass Woodland. While the PCT 575 does not conform to a threatened ecological community.

The amendments identified in this report would overall reduce the offset liabilities for this the Proposal.

As identified in Section 5.1.3, and detailed in Appendix C, some changes to the calculation of Koala and Greater Glider species credits were incorporated into the assessment. As a result of this change, the offset requirements for these Species Credits has increased. This doesn't reflect a change to the Proposal or increased impacts, rather it is a change in the assessment methodology.

Table 5-2 Offset obligations (in credits), comparing the EIS footprint to the amended footprint

	EIS Development Footprint		Amended Development Footprint	
	Impact area	Credit requirements	Impact area	Credit requirements
<b>Ecosystem credits</b>				
<b>PCT 567</b>	78ha	422 credits	25.6ha	269 credits
<b>PCT 575</b>	0.9ha	14 credits	1.1ha	18 credits
<b>PCT 704</b>	48.5	185 credits	6.5ha	103 credits
<b>Ecosystem credits – total</b>	-	621 Credits	-	390 credits
<b>Species credits</b>				
<b>Pale-headed Snake</b>	12.6ha	185 credits	6.6ha habitat	83 credits
<b>Koala</b>	12.6ha breeding habitat	185 credits	15.9 ha breeding habitat	299 credits



	EIS Development Footprint		Amended Development Footprint	
	Impact area	Credit requirements	Impact area	Credit requirements
<b>Southern Myotis</b>	57.2ha habitat	228 credits	53.3ha habitat	123 credits
<b>Greater Glider</b>	-	-	3.3ha of habitat	55 credits
<b>Bluegrass</b>	120.1ha	564 credits	-	-
<b>Species credit – total</b>	-	1162 credits	--	560 credits

The proposal would affect a Serious and Irreversible Impact (SAII) candidate under the Biodiversity Conservation Act; Box Gum Woodland (BGW) Threatened Ecological Community (TEC). For this reason, a preliminary offset strategy has been prepared for the Proposal to address the Proponent's offset obligations and demonstrate the feasibility to offset the residual impacts on this entity that could not be sufficiently avoided. This strategy is presented in Appendix D.

### 5.1.5 Safeguards and mitigation measures

The amended Biodiversity Development Assessment Report identifies one mitigation measure to be amended, as shown below.

The complete set of updated mitigation measures are presented in Appendix A. New measures from this Amendment Report are in **Bold**, removed measures are ~~struck out~~.

PC: Pre-construction, C: Construction, PO: Pre-operation, O: Operation, D: Decommissioning

ID	Safeguards and Mitigation Measures	C	O	D
11	<p>Preparation of a Construction Flora and Fauna Management Plan that would include protocols for:</p> <ul style="list-style-type: none"> <li>• Protection of native vegetation to be retained</li> <li>• Best practice removal and disposal of vegetation</li> <li>• Staged removal of hollow-bearing trees and other habitat features such as fallen logs with attendance by an ecologist</li> <li>• <b>Avoiding the removal of hollow-bearing trees during spring, where practicable, to avoid the main breeding period for hollow-dependent fauna</b></li> <li>• <b>Rehabilitation of disturbed areas with flora species that are characteristic of the PCTs that would be impacted (PCTs 567 and 704)</b></li> <li>• <b>Installation of nest boxes or hollow augmentation at a 2:1 ratio to mitigate removal of HBTs that are potential Greater Glider den sites</b></li> <li>• <del>Weed management</del></li> <li>• Controlling weeds, feral pests and pathogens.</li> <li>• <del>Unexpected threatened species finds</del></li> <li>• <del>Rehabilitation of disturbed areas</del></li> <li>• Active management of retained vegetation to substantially improve its condition, connectivity and ecological function (see below).</li> </ul>	C		

## 5.2 Visual Amenity

### 5.2.1 Approach

In their response to the EIS, and as documented in the Submissions Report (NGH, 2021), DPIE requested additional information for visual impact. Two receivers originally considered by the EIS are included. Nine additional receivers not considered by the EIS have had additional assessment completed. Of these, six are located within 2 km of the proposal and three are further than 2km. The assessment of these 11 receivers forms the scope of this updated assessment. These receivers are presented in Table 5-3, and their locations are shown in Figure 5-2.

Moir Landscape Architects and NGH completed the assessment using a range of tools. The assessment is supported by onsite validation and consultation completed by Enerparc, for some of the new receivers. A visual impact rating is provided for each receiver, in consideration of the proximity to the site, nearest infrastructure.

To contextualise the amended assessment, all receivers identified in the EIS have been tabulated and mapped in the results section, however only those receivers requested by DPIE (shown in the table below) have received updated assessments.

Table 5-3 Tools used to investigate visual impacts

Receiver	New or existing receiver	Viewshed modelling reviewed	Wire frame completed	“Reverse” viewshed modelling	Site inspection	Direct consultation
<b>R1</b>	Receiver identified in EIS	Yes	Yes	Yes	Yes	Yes
<b>R14</b>	Additional receiver	Yes				
<b>R15</b>	Receiver identified in EIS	Yes		Yes	Yes	Yes
<b>R16</b>	Additional receiver	Yes	Yes	Yes		
<b>R17</b>	Additional receiver	Yes				Yes
<b>R18</b>	Additional receiver	Yes				
<b>R19</b>	Additional receiver	Yes	Yes	Yes	Yes	Yes
<b>R20</b>	Additional receiver	Yes				
<b>R21</b>	Additional receiver	Yes				
<b>R22</b>	Additional receiver	Yes				
<b>R23</b>	Additional receiver	Yes				

It is noted that since EIS exhibition, the proposed Tilbuster Solar Farm development footprint has been reduced by approximately 5% (9 ha), as described in Section 3.1.1. It is this reduced layout that is assessed in the following updated visual impact assessment. For all other receivers in the EIS, the visual impact assessment provides an accurate or slight overestimate of the visual impact.

### Impact assessment methodology

For the 9 additional receivers, and where the assessment has been updated, Moir Landscape Architecture completed the following steps:

1. The distance to the Development Site and nearest proposed infrastructure and orientation was considered.

2. Existing mitigating factors including topography, existing buildings and existing vegetation within the Development Site (onsite) and outside the Development Site (offsite) and the effectiveness of these mitigating factors. Aerial imagery was used as part of this assessment. The location of receivers and topographic features including vegetation is shown in Figure 5-2.
3. The proposed mitigation measures (where proposed) were assessed for their effectiveness. This assessment considered the time taken for vegetation screens to grow and that vegetation screening does not always reduce visual impacts to 'no impact'. Based on this assessment, an updated visual impact rating from nil to high was assigned.

### **Viewshed modelling methodology**

A viewshed model shows the proportion of the Proposal that would be visible from the land surrounding the Proposal, based on topography. It also shows the 'zone of visual influence' of the proposal, this is the area of land that would have any view at all of the Proposal. Viewshed modelling was completed as described in the EIS, and the assessment remains unchanged. This model has been referenced to describe the level of screening provided by topography throughout this section of the report. The viewshed model is presented in Figure 5-2.

### **Wireframe diagram methodology**

A wireframe is a diagram developed from three-dimensional model of the ground surface and the proposed infrastructure. The diagram shows a predicted outlook from a receiver towards the development. It does not consider vegetation or built structures and is therefore a conservative visual assessment tool, showing a worst-case scenario. While wireframes do not show a photo-realistic impression of a development, they are useful in understanding the scale of the impact and degree to which topography shields a receiver from views of the proposal. These are attached for R1, R16 and R19 in Appendix A.

### **Reverse viewshed modelling methodology**

"Reverse viewshed" is a term used to differentiate this assessment from the viewshed described above. It has been completed to assess the total area of land that is visible for a particular receiver. This can then be used to indicate the proportion of the view from a receiver's site that would be impacted by the development. Reverse viewsheds for certain receivers are presented in Appendix F.

### **Site inspection, direct consultation and onsite photographs**

Enerparc completed site inspections of some receivers to validate the findings of the Visual Impact Assessment and consult with landowners to determine if mitigation measures would be effective.

Photographs were taken from some of the receivers, which have been used to assess the effectiveness of screening vegetation, both onsite and offsite to the Proposal.

## **5.2.2 Impacts requiring assessment**

### **Changes to the Development Footprint**

#### **Solar farm site**

The proposed amendments involve either reductions in built area or size, or changes in built area not extending beyond the projects parmentier as described in the EIS. The proposed additional avoidance of certain high-value native vegetation and selection of smaller BESS would result in an overall smaller physical footprint and greater retention of native vegetation, therefore reducing the potential for visual impacts. The proposed increases of the Development Footprint over lesser waterways would remove some of the separations between previously proposed infrastructure. Any newly proposed infrastructure would be screened from view by previously proposed infrastructure. As such, these extensions would not allow the development to be visible to new receivers and would not materially increase the level of impact to previously identified receivers.

#### **Intersection and access road**

The proposed traffic changes would marginally increase the physical size of the development at the intersection upgrade, but not to the extent there would be a material change to the visual impact of the Proposal.

#### **Other minor amendments**

The other minor amendment would not change the physical size of the Proposal and would not change the visual impacts.

### **Changes to infrastructure proposed: BESS**

The BESS would be amended to reduce the capacity from 40 MWH to 30 MWH. The physical size of the BESS would be either the same size as described in the EIS, or smaller. Therefore, no additional visual impacts would occur.

### **Glint and glare**

Panels would track the sun, with each panel aligned approximately perpendicular to the solar zenith. Some potential for glint and glare exists east and west of the Development Site, where the sun crosses the horizon, and to the north of the Development Site, during the middle of the day. Receivers that would be most affected by this impact include R1 and R19. However, the existing vegetation screening (further discussed in Table 5-5) and distance between receivers and Development Site, mean this is considered a low risk

### **Views of solar farm site infrastructure**

The updated assessment, which considered each receiver specifically, is tabulated below and the results summarised in Section 5.2.3.



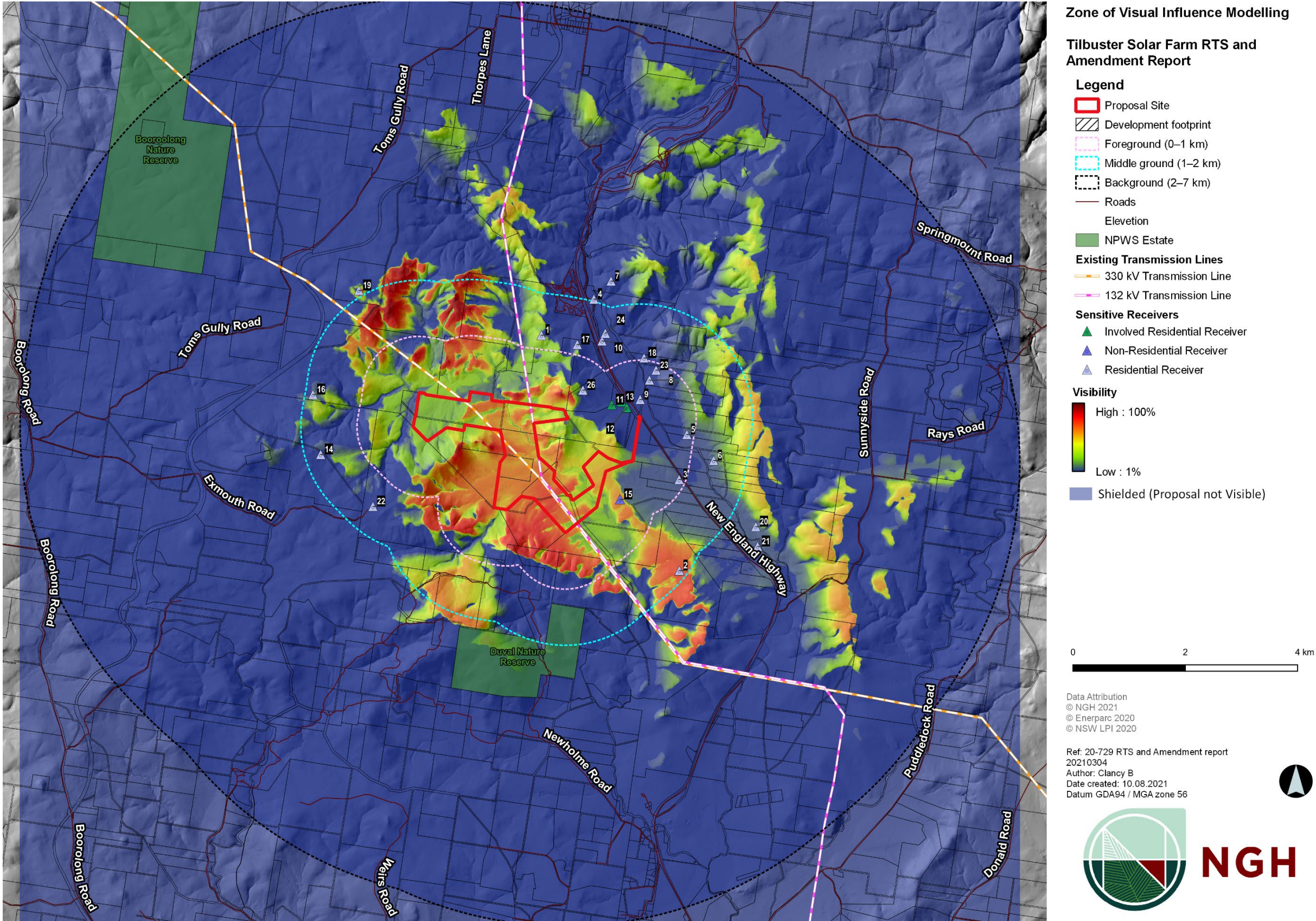


Figure 5-2 Viewshed model, zone of visual influence and location of sensitive receivers



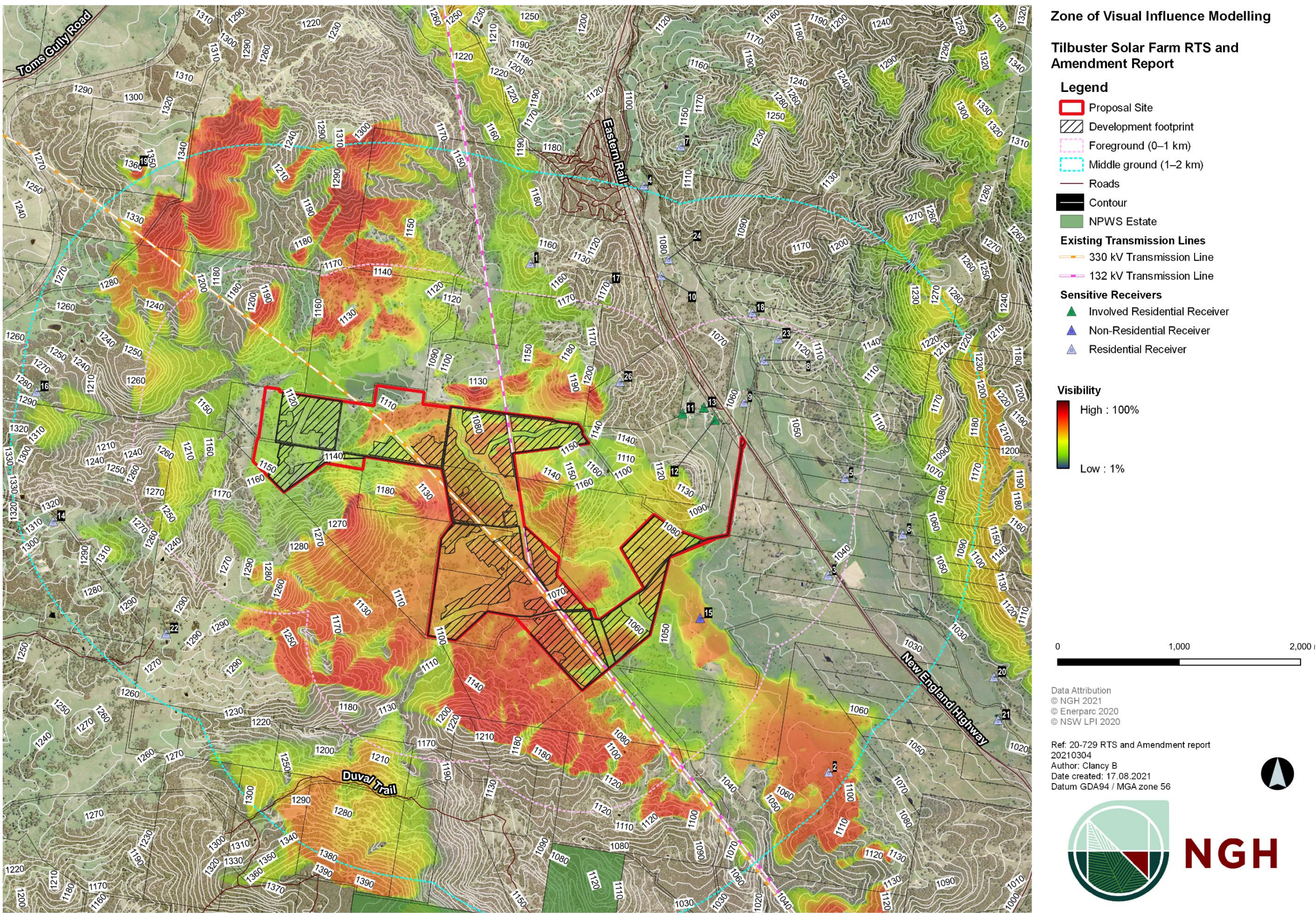


Table 5-4 Viewshed model, zone of visual influence and location of sensitive receivers, closer scale, shown with vegetation



Table 5-5 Visual receivers within 2 km of the proposal, and additional receivers with elevated vantage points

Receiver ID and type	Receiver location parameters	Consideration of existing mitigation	Additional visual impacts	Mitigation Measures	Visual impact rating
<b>R1 – assessment updated</b> <b>Residential receiver</b>	1250m to development site 1249m to nearest infrastructure Proposal located south of receiver 1160m ASL	<p><b>Topography</b></p> <p>View shed modelling (refer to Figure 5-1) of all solar farm infrastructure demonstrates that topography provides a high level of shielding from this location (green shading).</p> <p>The wire frame diagram prepared for R1 (based on topography alone, refer to Figure 5-2) indicates a number of solar arrays would be visible from receiver R1. However, as demonstrated by the reverse viewshed completed (refer to Appendix F) the arrays would occupy a relatively small portion of the overall outlook from the receiver.</p> <p><b>Vegetation</b></p> <p>As shown in aerial imagery, and subsequently verified with site inspections, a band of dense vegetation to the south of the R1 dwelling largely obstructs views to the Project from R1. A photograph taken by Enerparc, is presented in Figure 1-2. At the time the photograph was taken (June 2021) the vegetation had been thinned due to fire damage. Although thinned by the bushfires, the vegetation can be seen to</p>	<p><b>Glint and glare</b></p> <p>This receiver is unlikely to experience glint or glare from any infrastructure due to existing vegetation screening.</p> <p>If tracking panels are selected the potential for glint and glare is negligible to low, even in the absence of screening vegetation. Receiver R1 is located to the north of the Project, while glint and glare impacts are most likely to the east and west.</p> <p>If fixed panels are selected, the panels would be installed in an approximately northerly aspect. In the absence of vegetation, there is some potential for glint and glare to be experienced at R1, during winter low sun angles and during the middle of the day. However, the existing vegetation at the site would screen glint and glare, resulting in a negligible impact.</p> <p>In the event existing vegetation is cleared, there is some potential for glint and glare impacts at receiver R1. However, these impacts would be confined to short periods of the</p>	<p>No mitigation is required, however, Enerparc have reached a funding agreement with this receiver to add additional visual screening on their property, in the event vegetation clearing is undertaken.</p>	<b>LOW</b>



Receiver ID and type	Receiver location parameters	Consideration of existing mitigation	Additional visual impacts	Mitigation Measures	Visual impact rating
		<p>provide near complete screening of the Proposal from R1. This vegetation is located within the land owned by receiver R1. Over time it is anticipated that as the vegetation recovers from the fire damage the screening would be increased. The screening provided by the existing vegetation is considered to almost entirely blocking views to the Project.</p> <p>Additionally, about 1000m of more open woodland is present between the solar farm site and the dwelling. Given the slope down towards the solar farm site however, this is unlikely to provide screening to the residence. The wire frame makes clear that the view to the solar farm is at a height where this vegetation does not assist screening.</p> <p><b>Buildings</b></p> <p>The house curtilage includes a shed between the dwelling and the solar farm site which would screen some views from the dwelling in the direction of the solar farm.</p> <p><b>Conclusion</b></p> <p>In consideration of proximity, orientation, topography, existing vegetation and buildings, the proximity and existing</p>	<p>day (the hours around midday) and only during period of the year with low solar angles. Given these factors, the distance between the receiver and the Project, and the low-reflectance properties of modern solar panels, these impacts are considered low.</p>		

Receiver ID and type	Receiver location parameters	Consideration of existing mitigation	Additional visual impacts	Mitigation Measures	Visual impact rating
		vegetation screening near to R1 provide reliable and effective screening for this receiver.			
<b>R2 – assessment updated</b> <b>Residential receiver</b>	1850m south-east of Development Site boundary  1859 meters to nearest proposed infrastructure  1090m ASL	<p><b>Topography</b></p> <p>View shed modelling (refer to Figure 5-2) of all solar farm infrastructure demonstrates that topography provides a low level of shielding from this location (red shading).</p> <p>The proposal is located 1850 meters from this receiver. Both the receiver, and the proposal are located on flat terrain, both at similar elevations. Because of this topography, receiver R2 would view the Proposal largely in profile. Because of this viewing position, the Proposal would occupy a relatively small proportion of the overall outlook from this position. This is further supported by the reverse viewshed completed (refer to Appendix F), the arrays would occupy a relatively small portion of the overall outlook from the receiver.</p> <p><b>Vegetation</b></p> <p>As shown in aerial imagery, patchy vegetation is present between the receiver and the Development Site.</p>	<p><b>Glint and glare</b></p> <p>Glint and glare from panels and fixed frames are possible for this receiver.</p> <p>If fixed panels are selected, panels would be tilted to the north, as such impacts would be from the fixed frames. Impacts are not considered to be significant given the distance from the proposal.</p> <p>If single axis tracking panels are selected, rows would be configured in a north to south direction and the panels would track sun from the east to west, as such, impacts would be from frames and panels and would be variable depending on the time of day. Impacts are not considered to be significant given the temporary nature of the impact and distance from the proposal.</p>	<p>No mitigation is required.</p> <p>Enerparc offered to provide vegetation screening for this receiver. However this offer was rejected and screening is not proposed at this time.</p>	<b>LOW</b>

Receiver ID and type	Receiver location parameters	Consideration of existing mitigation	Additional visual impacts	Mitigation Measures	Visual impact rating
		<p>A photomontage was prepared as part of the EIS, from the intersection of the driveway to this property and the New England Highway. This representative location was selected as access to the property was not provided to Enerparc at the time of the assessment.</p> <p>The photo montage shows vegetation provides</p> <p><b>Buildings</b></p> <p>Existing 330 kV and 132 kV transmission lines are visible from this receiver. These landscape features would provide minimal screening of the Proposal but reduce the significance of the impact of the proposal, as the proposal would be consistent with this electrical infrastructure.</p> <p><b>Conclusion</b></p> <p>Given that the existing topography causes the Proposal to be visible, although relatively small from this receiver, and given that vegetation would provide moderate levels of screening, the impact to this receiver is considered low.</p>			

Receiver ID and type	Receiver location parameters	Consideration of existing mitigation	Additional visual impacts	Mitigation Measures	Visual impact rating
<b>R3 – existing receiver</b> <b>Residential receiver</b>	900m east of Development Site boundary 1040m ASL	<p><b>Topography</b></p> <p>Existing topography means this receiver will not have a view of solar farm infrastructure.</p> <p><b>Vegetation</b></p> <p>Vegetation is not an influencing factor from this receiver.</p> <p><b>Buildings</b></p> <p>Buildings are not an influencing factor from this receiver.</p> <p><b>Conclusion</b></p> <p>Existing topography would screen this receiver from visual impacts and glint or glare.</p>	None	No mitigation is required.	Nil
<b>R4 – additional receiver</b> <b>Residential receiver</b>	2018m north-east of Development Site boundary 1086m ASL	<p><b>Topography</b></p> <p>Existing topography means this receiver will not have a view of solar farm infrastructure.</p> <p><b>Vegetation</b></p> <p>Vegetation is not an influencing factor from this receiver.</p> <p><b>Buildings</b></p> <p>Buildings are not an influencing factor from this receiver.</p>	None	No mitigation is required.	Nil

Receiver ID and type	Receiver location parameters	Consideration of existing mitigation	Additional visual impacts	Mitigation Measures	Visual impact rating
		<b>Conclusion</b> Existing topography would screen this receiver from visual impacts and glint or glare.			
<b>R5 Residential receiver</b>	875m east of Development Site boundary 1050m ASL	<b>Topography</b> Existing topography means this receiver will not have a view of solar farm infrastructure. <b>Vegetation</b> Vegetation is not an influencing factor from this receiver. <b>Buildings</b> Buildings are not an influencing factor from this receiver. <b>Conclusion</b> Existing topography would screen this receiver from visual impacts and glint or glare.	<b>None</b>	No mitigation is required.	Nil
<b>R6 Residential receiver</b>	1425m east of Development Site boundary 1050m ASL	<b>Topography</b> Existing topography means this receiver will not have a view of solar farm infrastructure. <b>Vegetation</b>	<b>None</b>	No mitigation is required.	Nil



Receiver ID and type	Receiver location parameters	Consideration of existing mitigation	Additional visual impacts	Mitigation Measures	Visual impact rating
		<p>Vegetation is not an influencing factor from this receiver.</p> <p><b>Buildings</b></p> <p>Buildings are not an influencing factor from this receiver.</p> <p><b>Conclusion</b></p> <p>Existing topography would screen this receiver from visual impacts and glint or glare.</p>			
<b>R6a – additional receiver</b> <b>Memorial site</b>	<p>The location of the memorial site is not precisely known; it has been estimated from information provided in an anonymous submission. A review of topography has led to the assumptions the memorial is likely located nearby to receiver R6, approximately 2100 m east of the site boundary</p>	<p><b>Topography</b></p> <p>View shed modelling (refer to Figure 5-2) of all solar farm infrastructure indicates that topography is likely to provide a moderate level of shielding from this location (yellow shading).</p> <p>The location of the Proposal is in the background of the view of this receiver, and therefore the proposal would make up only a small portion of the overall view from this location.</p> <p><b>Vegetation</b></p> <p>Photographs that were received as part of this submission indicated that vegetation would not provide.</p> <p><b>Buildings</b></p>	<p><b>Glint and glare</b></p> <p>Glint and glare from panels and fixed frames are possible for this receiver.</p> <p>If fixed panels are selected, panels would be tilted to the north, as such impacts would be from the fixed frames. Impacts are not considered to be significant given the distance from the proposal.</p> <p>If single axis tracking panels are selected, rows would be configured in a north to south direction and the panels would track sun from the east to west, as such, impacts would be from frames and panels and would be variable depending on the time of day. Impacts are not considered to be significant given the temporary</p>	No mitigation is required.	LOW

Receiver ID and type	Receiver location parameters	Consideration of existing mitigation	Additional visual impacts	Mitigation Measures	Visual impact rating
	Approximately 1140 ASL	<p>Existing 330 kV and 132 kV transmission lines are visible from this receiver. These landscape features would provide minimal screening of the Proposal but reduce the significance of the impact of the proposal, as the proposal would be consistent with this electrical infrastructure.</p> <p><b>Conclusion</b></p> <p>It is determined that the solar farm, although visible and a character element in the view, will not be a defining character element and therefore will not significantly diminish the overall existing character of the view.</p>	nature of the impact and distance from the proposal.		
<b>R8</b> <b>Residential receiver</b> <b>Note: R8 is within the same lot as R23</b>	670m north of Development Site boundary 1060m ASL	<p><b>Topography</b></p> <p>Existing topography means this receiver will not have a view of solar farm infrastructure.</p> <p><b>Vegetation</b></p> <p>Vegetation is not an influencing factor from this receiver.</p> <p><b>Buildings</b></p> <p>Buildings are not an influencing factor from this receiver.</p> <p><b>Conclusion</b></p>	None	No mitigation is required.	Nil

Receiver ID and type	Receiver location parameters	Consideration of existing mitigation	Additional visual impacts	Mitigation Measures	Visual impact rating
		Existing topography would screen this receiver from visual impacts and glint or glare.			
<b>R9</b> <b>Residential receiver</b>	305m north east of Development Site boundary 1060m ASL	<p><b>Topography</b></p> <p>Existing topography means this receiver will not have a view of solar farm infrastructure.</p> <p><b>Vegetation</b></p> <p>Vegetation is not an influencing factor from this receiver.</p> <p><b>Buildings</b></p> <p>Buildings are not an influencing factor from this receiver.</p> <p><b>Conclusion</b></p> <p>Existing topography would screen this receiver from visual impacts and glint or glare.</p>	<b>None</b>	No mitigation is required.	Nil
<b>R10</b> <b>Residential receiver</b>  <b>Note: R10 is within the same lot as R24</b>	1410m north of Development Site 1090m ASL	<p><b>Topography</b></p> <p>Existing topography means this receiver will not have a view of solar farm infrastructure.</p> <p><b>Vegetation</b></p>	<b>None</b>	No mitigation is required.	Nil

Receiver ID and type	Receiver location parameters	Consideration of existing mitigation	Additional visual impacts	Mitigation Measures	Visual impact rating
		<p>Vegetation is not an influencing factor from this receiver.</p> <p><b>Buildings</b></p> <p>Buildings are not an influencing factor from this receiver.</p> <p><b>Conclusion</b></p> <p>Existing topography would screen this receiver from visual impacts and glint or glare.</p>			
<b>R14 – Additional receiver</b>  <b>Residential receiver</b>	<p>1816 m west of Development Site boundary</p> <p>1310 ASL</p>	<p><b>Topography</b></p> <p>Existing topography means this receiver will not have a view of solar farm infrastructure.</p> <p><b>Vegetation</b></p> <p>Vegetation is not an influencing factor from this receiver.</p> <p><b>Buildings</b></p> <p>Buildings are not an influencing factor from this receiver.</p> <p><b>Conclusion</b></p> <p>Existing topography would screen this receiver from visual impacts and glint or glare.</p>	None	No mitigation is required.	Nil

Receiver ID and type	Receiver location parameters	Consideration of existing mitigation	Additional visual impacts	Mitigation Measures	Visual impact rating
<b>R15 – assessment updated</b>  <b>Non-residential receiver, shearing shed and vehicle storage shed</b>	370 m to the development site,  369 m to the nearest infrastructure  Development Site is north west of receiver.  1070m ASL	<p><b>Background information</b></p> <p>The occupier of the land at R15 has provided Enerparc and DPIE with a formal letter of support for the project. While dwelling entitlement may exist for this parcel of land, a formal dwelling hasn't been constructed.</p> <p><b>Topography</b></p> <p>View shed modelling (refer to Figure 5-2) of all solar farm infrastructure demonstrates that topography provides a medium to low level of shielding from this location (yellow to red shading).</p> <p>This receiver is located on a slightly elevated position relative to the proposal and would therefore have a greater view of the proposed infrastructure.</p> <p>The reverse viewshed completed (refer to Appendix F) shows that while the majority of the Proposal would be visible from this location, significant areas of the outlook from R15 would not be impacted by this Proposal.</p> <p><b>Vegetation</b></p> <p>Existing vegetation would provide a negligible to low level of screening from R15.</p>	<p><b>Glint and glare</b></p> <p>Glint and glare from panels and fixed frames are possible for this receiver.</p> <p>If fixed panels are selected, panels would be tilted to the north, as such impacts would be from the fixed frames. Impacts are not considered to be significant given the nature of the receiver (i.e. no dwelling).</p> <p>If single axis tracking panels are selected, rows would be configured in a north to south direction and the panels would track sun from the east to west, as such, impacts would be from frames and panels and would be variable depending on the time of day. Impacts are not considered to be significant given the temporary nature of the impact and distance from the proposal.</p>	<p>In consultation with the landowner, no further mitigation is proposed. The moderate impact rating is considered acceptable in this case.</p> <p>In the next 3-5 years, the vegetative screening this landowner has planted will further reduce the impact rating.</p>	<b>Moderate</b>



Receiver ID and type	Receiver location parameters	Consideration of existing mitigation	Additional visual impacts	Mitigation Measures	Visual impact rating
		<p>The owner of the land at R15 has commenced planting vegetation screening along the northern boundary of their lot. This is expected to begin providing screening to the proposal in the next 3 to 5 years. A representative outlook from receiver R15, including showing the vegetation screening is shown in Figure 5-4.</p> <p><b>Buildings</b></p> <p>The buildings at R15 (which are non residential) have only one small (30 cm square approximately) window facing towards the Development Site, therefore, the Proposal would me largely screened from views from indoors.</p> <p>Existing 330 kV and 132 kV transmission lines are visible from this receiver. These landscape features would provide minimal screening of the Proposal but reduce the significance of the impact of the proposal, as the proposal would be consistent with this electrical infrastructure.</p> <p><b>Conclusion</b></p> <p>Due to the low sensitivity of the building types at this receiver location, being agricultural sheds, and the high level of visibility of the proposal from this</p>			

Receiver ID and type	Receiver location parameters	Consideration of existing mitigation	Additional visual impacts	Mitigation Measures	Visual impact rating
		location, the impact to this receiver is considered moderate.			
<b>R16 – Additional receiver</b>  <b>Residential receiver</b>	1816 west of Development Site boundary  1280 m ASL	<p><b>Topography</b></p> <p>View shed modelling (refer to Figure 5-2) of all solar farm infrastructure demonstrates that topography provides a very high level of shielding from this location (blue-green shading).</p> <p>The wire frame diagram prepared for R16 (based on topography alone, refer to Appendix A) indicates a small number of solar arrays would be visible from receiver R16. The reverse viewshed (refer to Appendix F) demonstrate the arrays would occupy a relatively small portion of the overall outlook from the receiver.</p> <p><b>Vegetation</b></p> <p>A review of aerial imagery shows that vegetation screening located within the property of receiver R19 is likely to screen the outlook towards the Development Site.</p> <p><b>Buildings</b></p> <p>Buildings are not an influencing factor from this receiver.</p>	<p><b>Solar farm infrastructure</b></p> <p>A review of aerial imagery shows that vegetation screening located within the property of receiver R19 is likely to screen the outlook towards the Development Site. This receiver will have a negligible visual from the proposal.</p> <p>Variations in vegetation foliage density (for example, through seasons) may allow some visibility of the solar infrastructure. A wireframe analysis has been undertaken and is presented in Appendix F. The wireframe analysis shows that in the absence of vegetation, the solar development is almost indiscernible from R16.</p> <p><b>Glint and glare</b></p> <p>This receiver would not experience glint or glare from any infrastructure due to existing vegetation screening.</p>	No mitigation is required.	LOW

Receiver ID and type	Receiver location parameters	Consideration of existing mitigation	Additional visual impacts	Mitigation Measures	Visual impact rating
		<b>Conclusion</b> In consideration of proximity, orientation, topography, existing vegetation and buildings, the proximity and existing vegetation screening near to R1 provide reliable and effective screening for this receiver.			
<b>R17 - Additional receiver</b>  <b>Residential receiver</b>	1190 m north of Development Site boundary  1160 m ASL	<b>Topography</b> Existing topography means this receiver will not have a view of solar farm infrastructure.  <b>Vegetation</b> Vegetation is not an influencing factor from this receiver.  <b>Buildings</b> Buildings are not an influencing factor from this receiver.  <b>Conclusion</b> Existing topography would screen this receiver from visual impacts and glint or glare.	None	No mitigation is required.	Nil
<b>R18 - Additional receiver</b>	1730 m north east of Development Site boundary  1080 ASL	<b>Topography</b> Existing topography means this receiver will not have a view of solar farm infrastructure.	None	No mitigation is required.	Nil

Receiver ID and type	Receiver location parameters	Consideration of existing mitigation	Additional visual impacts	Mitigation Measures	Visual impact rating
<b>Residential receiver</b>		<p><b>Vegetation</b></p> <p>Vegetation is not an influencing factor from this receiver.</p> <p><b>Buildings</b></p> <p>Buildings are not an influencing factor from this receiver.</p> <p><b>Conclusion</b></p> <p>Existing topography would screen this receiver from visual impacts and glint or glare.</p>			
<b>R19 - Additional receiver</b>  <b>Residential receiver</b>	2220 north west of Development Site boundary  1370 ASL	<p><b>Topography</b></p> <p>View shed modelling (refer to Figure 5-2) of all solar farm infrastructure demonstrates that topography provides a moderate level of shielding from this location (yellow shading).</p> <p>The wire frame diagram prepared for R19 (based on topography alone, refer to Appendix A) indicates a small number of solar arrays would be visible from receiver R19. The reverse viewshed (refer to Appendix F) demonstrate the arrays would occupy a relatively small portion of the overall outlook from the receiver.</p> <p><b>Vegetation</b></p>	<p><b>Glint and glare</b></p> <p>This receiver would not experience glint or glare from any infrastructure due to existing vegetation screening.</p>	No mitigation is required.	LOW



Receiver ID and type	Receiver location parameters	Consideration of existing mitigation	Additional visual impacts	Mitigation Measures	Visual impact rating
		<p>A review of aerial imagery shows that vegetation screening located within the property of receiver R19 is likely to screen the outlook towards the Development Site.</p> <p><b>Buildings</b></p> <p>Buildings are not an influencing factor from this receiver.</p> <p><b>Conclusion</b></p> <p>In consideration of proximity, orientation, topography, existing vegetation and buildings, the proximity and existing vegetation screening near to R1 provide reliable and effective screening for this receiver.</p>			
<b>R20 - Additional receiver</b>  <b>Residential receiver</b>	2650 south west of Development Site boundary  1020m ASL	<p><b>Topography</b></p> <p>Existing topography means this receiver will not have a view of solar farm infrastructure.</p> <p><b>Vegetation</b></p> <p>Vegetation is not an influencing factor from this receiver.</p> <p><b>Buildings</b></p> <p>Buildings are not an influencing factor from this receiver.</p>	None	No mitigation is required.	Nil

Receiver ID and type	Receiver location parameters	Consideration of existing mitigation	Additional visual impacts	Mitigation Measures	Visual impact rating
		<b>Conclusion</b> Existing topography would screen this receiver from visual impacts and glint or glare.			
<b>R21 – Additional receiver</b>  <b>Residential receiver</b>	2840 south west of Development Site boundary  1020m ASL	<b>Topography</b> Existing topography means this receiver will not have a view of solar farm infrastructure.  <b>Vegetation</b> Vegetation is not an influencing factor from this receiver.  <b>Buildings</b> Buildings are not an influencing factor from this receiver.  <b>Conclusion</b> Existing topography would screen this receiver from visual impacts and glint or glare.	None	No mitigation is required.	Nil
<b>R22 - Additional receiver</b>  <b>Residential receiver</b>	1520 m south west of Development Site boundary  1280m ASL	<b>Topography</b> Existing topography means this receiver will not have a view of solar farm infrastructure.  <b>Vegetation</b>	None	No mitigation is required.	Nil

Receiver ID and type	Receiver location parameters	Consideration of existing mitigation	Additional visual impacts	Mitigation Measures	Visual impact rating
		<p>Vegetation is not an influencing factor from this receiver.</p> <p><b>Buildings</b></p> <p>Buildings are not an influencing factor from this receiver.</p> <p><b>Conclusion</b></p> <p>Existing topography would screen this receiver from visual impacts and glint or glare.</p>			
<p><b>R23</b></p> <p><b>Note: R23 is within the same lot as R8</b></p>	<p>670m north of Development Site boundary</p> <p>1060m ASL</p>	<p><b>Topography</b></p> <p>Existing topography means this receiver will not have a view of solar farm infrastructure.</p> <p><b>Vegetation</b></p> <p>Vegetation is not an influencing factor from this receiver.</p> <p><b>Buildings</b></p> <p>Buildings are not an influencing factor from this receiver.</p> <p><b>Conclusion</b></p> <p>Existing topography would screen this receiver from visual impacts and glint or glare.</p>	None	No mitigation is required.	Nil

Receiver ID and type	Receiver location parameters	Consideration of existing mitigation	Additional visual impacts	Mitigation Measures	Visual impact rating
<b>R24</b> <b>Residential receiver</b> <b>Note: R10 is within the same lot as R24</b>	1410m north of Development Site 1090m ASL	<p><b>Topography</b></p> <p>Existing topography means this receiver will not have a view of solar farm infrastructure.</p> <p><b>Vegetation</b></p> <p>Vegetation is not an influencing factor from this receiver.</p> <p><b>Buildings</b></p> <p>Buildings are not an influencing factor from this receiver.</p> <p><b>Conclusion</b></p> <p>Existing topography would screen this receiver from visual impacts and glint or glare.</p>	None	No mitigation is required.	Nil
<b>R26 – existing receiver</b> <b>Residential receiver</b>	411m north of the Development Site boundary 1070m ASL	<p><b>Topography</b></p> <p>Existing topography means this receiver will not have a view of solar farm infrastructure.</p> <p><b>Vegetation</b></p> <p>Vegetation is not an influencing factor from this receiver.</p> <p><b>Buildings</b></p> <p>Buildings are not an influencing factor from this receiver.</p>	None	No mitigation is required.	Nil



Receiver ID and type	Receiver location parameters	Consideration of existing mitigation	Additional visual impacts	Mitigation Measures	Visual impact rating
		<b>Conclusion</b> Existing topography would screen this receiver from visual impacts and glint or glare.			
<b>Involved receivers</b>					
<b>R11</b> <b>Involved residential receivers</b>	540m north of the Development Site boundary 1085m ASL	<b>Topography</b> Existing topography means this receiver will not have a view of solar farm infrastructure. <b>Vegetation</b> Vegetation is not an influencing factor from this receiver. <b>Buildings</b> Buildings are not an influencing factor from this receiver. <b>Conclusion</b> Existing topography would screen this receiver from visual impacts and glint or glare.	<b>None</b>	No mitigation is required.	Nil
<b>R12</b> <b>Involved residential receivers</b>	280m north of the Development Site boundary 1065m	<b>Topography</b> Existing topography means this receiver will not have a view of solar farm infrastructure.	<b>None</b>	No mitigation is required.	Nil

Receiver ID and type	Receiver location parameters	Consideration of existing mitigation	Additional visual impacts	Mitigation Measures	Visual impact rating
		<p><b>Vegetation</b></p> <p>Vegetation is not an influencing factor from this receiver.</p> <p><b>Buildings</b></p> <p>Buildings are not an influencing factor from this receiver.</p> <p><b>Conclusion</b></p> <p>Existing topography would screen this receiver from visual impacts and glint or glare.</p>			
<b>R13</b> <b>Involved residential receivers</b>	280m north of the Development Site boundary 1065m	<p><b>Topography</b></p> <p>Existing topography means this receiver will not have a view of solar farm infrastructure.</p> <p><b>Vegetation</b></p> <p>Vegetation is not an influencing factor from this receiver.</p> <p><b>Buildings</b></p> <p>Buildings are not an influencing factor from this receiver.</p> <p><b>Conclusion</b></p> <p>Existing topography would screen this receiver from visual impacts and glint or glare.</p>	<b>None</b>	No mitigation is required.	Nil





Figure 5-3 Photograph taken from receiver R1



Figure 5-4 Representative view from receiver R15. Note vegetation screening is shown in the foreground.



### 5.2.3 Visual impact summary

In total, 25 receivers were identified with potential to be impacted by the Proposal. 22 of those were within 2 km of the Development Site, and the remainder were located on surrounding high elevation locations, or were identified as requiring assessment during consultation with DPIE.

Based on the updated visual assessment:

- The visual impact rating of two receivers considered in the EIS was reviewed and no impact ratings changed were changed. The highest impact rating was moderate (R15).
- The visual impact rating of six additional receivers nominated by DPIE were assessed (refer to Table 5-3). None were found to have more than a low level of potential visual impact.

R15 is considered to have a moderate visual impact. This building with the moderate rating is an agricultural shed. No residential house is currently approved in this location but consultation with the landowner suggests this is something that may be sought in future. The landowner has commenced vegetation screening along the site boundary and in consultation with the landowner, no further mitigation is proposed as part of the Tilbuster Solar Farm proposal. This mitigation approach has been discussed with the landowner, and further mitigation has been requested by the landowner. This now forms a commitment of the project.

As a result of the direct consultation undertaken, Enerparc have also committed to providing funding towards for planting a vegetation screen nearby to the dwelling at R1. Vegetation screening may be beneficial at receiver R1 if fire impacted native vegetation is cleared by the landowner, in areas that are located between the dwelling and the Project.

Five receivers (R1, R2, R6b, R16, and R19) are considered to have a low to negligible visual impacts. Of these, four, receivers R2, R6b, R16 and R19, are all greater than 1.5 km from the Development Site. Receivers R1, R2, R16, and R19 all have considerable existing vegetation within their land that would provide an effective level of visual screening towards the Proposal.

As a result of this updated visual impact assessment, one additional safeguard has been identified and now forms a commitment of the Proposal. The amended assessment has not identified any material changes to the impact assessment presented in the EIS. The amendments presented in this report would not change the visual impacts of the proposal.

### 5.2.4 Safeguards and mitigation measures

The amended Visual Impact Assessment identifies one mitigation measure to be added, as shown below.

The complete set of updated mitigation measures are presented in Appendix A. New measures from this Amendment Report are in **Bold**, removed measures are ~~struck out~~.

PC: Pre-construction, C: Construction, PO: Pre-operation, O: Operation, D: Decommissioning

ID	Safeguards and Mitigation Measures	C	O	D
5	<b>The proponent has committed to provide funding towards vegetation screening for Lot 4 DP876537, in the event existing vegetation within this property dies or is cleared.</b>	C	O	



## **5.3 Traffic and transport**

### **5.3.1 Approach**

The Traffic Impact Assessment (v2) (TIA) (Amber, 2021) for the Proposal, prepared by Amber, has been updated based on submissions received from the local community, Armidale Regional Council and Transport for NSW during the public exhibition period. The updates to the TIA have been informed by consultation with Crown Lands regarding the status of part of the access road as a Council controlled road. These submissions are presented in the Submissions Report (NGH, 2021) and where relevant, they have been addressed in the updated TIA (in particular, correcting an error regarding traffic data sources and providing updated traffic volume data, updated traffic management commitments and road standard upgrades).

The updated TIA addresses the changes proposed in this Amendment Report; specifically, the intersection treatment, amending errors identified in the traffic volume data, access road upgrade and management status, and further clarification of the over size, over mass vehicle configuration (detailed in Section 4 of this report). It includes consideration the construction and operation phases of the proposal in accordance with the SEARs. The updated TIA is provided in Appendix G and is summarised below, specific to the changes now proposed.

### **5.3.2 Existing environment**

#### **Existing road network characteristics**

##### **Road conditions**

Based on submissions received during the Public Exhibition of the EIS, it was identified that a portion of the access road between the New England Highway and the Proposal was under Council control. Because of that, some minor updates to the summary of the existing environment have been undertaken, as follows.

The Development Site would be accessed via the New England Highway, then an unnamed Council Road. The New England Highway is a State Road under the care and management of Transport for New South Wales (TfNSW).

Within the vicinity of the site, the New England Highway has a sealed carriageway width of approximately 12 metres accommodating one lane of traffic in each direction and sealed shoulders on both sides of the road, and has a speed limit of 100km/hr.

The unnamed road connecting the Development Site to the New England Highway is under the care and management of Armidale Regional Council. The road has a gravel surface which has a varying width of between 4.0-6.5 metres. The road extends south from New England Highway for approximately 300 metres where it continues south into a Crown Road reserve then freehold land.

New England Highway is rated to accommodate B-Double movements which is indicated on the TfNSW Restricted Access Vehicle Map, whilst the unnamed road is located in an approved area with travel restrictions.

The intersection of the unnamed road with New England Highway is priority controlled and has currently has no turn facilities, with vehicles exiting the unnamed road required to give way.

## **Traffic volumes**

Following consultation with TfNSW, the background traffic volumes have been updated to include the latest data. While these traffic volumes have been updated relative to the volumes presented in the EIS, the changes in traffic volumes make no material changes to the impact assessment. updated traffic volumes are as follows.

Traffic volume data for New England Highway was obtained from the TfNSW traffic volume viewer. The closest available data was located south of Blanches Road (Station ID: 92065). The most recent available data was from 2011.

In 2011, the traffic station recorded an average of 2,143 vehicles per day, with an average am peak of 174 vehicles per hour and an average pm peak of 174 vehicles per hour. As a conservative approach, a 1.5% per annum growth factor has been applied to convert these numbers reflect likely traffic volumes in 202. It is assumed that there are 2,487 vehicle movements per day and an AM and PM peak of 202 vehicles per hours, currently using the New England Highway. This is a small increase from the 2,298 vehicle movements per day assumed in the EIS.

There is no traffic data for the unnamed road, however, this road is used by two neighbouring properties for local access and experiences negligible traffic volumes.

### **5.3.3 Traffic generation**

Traffic generated during construction, operation and decommissioning of the Proposal would be as described in the EIS. The proposed amendments reduce the built area of the Proposal and would therefore require marginally less materials to construct. Therefore, the proposed amendments would not alter the traffic generation of the proposal.

### **5.3.4 Potential construction impacts**

#### **Site access**

As described in the EIS, Port Botany has been identified as the preferred port where the solar farm plant will be imported. The proposed construction traffic access route from Port Botany to the site is proposed as follows; Friendship Road, Bumborah Point Road, Beauchamp Road, Denison Street, Wentworth Avenue, M1, Hunter Expressway, New England Highway, and the unnamed Road.

The access route utilises roads that are designated for B-Double vehicles as outlined within the TfNSW Restricted Access Vehicle Map excluding the unnamed road. Accordingly, the access route is generally able to accommodate the loads and type of vehicle movement to be generated during construction of the solar farm. An application will be lodged with the National Heavy Vehicle Regulator for the temporary use of the unnamed road by heavy vehicles during construction. This application will be assessed by Armidale Regional Council (as the relevant Roads Authority), who have indicated support for this proposal.

It is noted that one OSOM vehicle may be required to deliver a substation to the Development Site. OSOM vehicles are subject to specific road permits that will be applied for by the contractor once the dimensions of the load and the specific delivery vehicle are known. An example of the type of vehicle that may be used is presented in the Traffic Impact assessment in Appendix G.

The *Unsealed Roads Manual: Guidelines to Good Practice* (ARRB Transport Research, 2009), notes that the average traffic for gravel roads usually varies between 20 and 200 vehicles per day.

The unnamed road currently accommodates a negligible level of traffic and is expected to increase to 101 vehicle movements per day during peak construction periods and 46 vehicle movements per day during typical construction periods. While this level of traffic would comply with the *Unsealed Roads Manual*, a review of the local road conditions and consultation with Armidale Regional Council has identified the existing road would not be suitable to accommodate construction traffic. Therefore, this road would be upgraded in accordance with Armidale Regional Councils design specifications for 'Rural Access Minor'. These design specifications are appended to the Traffic Impact Assessment available in Appendix G.

### **Intersection between New England Highway and the unnamed Council road**

*Austroads Guide to Traffic Management Part 6: Intersections, Interchanges, and Crossings* (Austroads, 2017) specifies the turning treatments required at intersections. The intersection design has been updated from the design presented in the EIS, in accordance with this guide, and consultation with TfNSW.

The peak hour turning volumes will predominantly be generated by staff accessing the site in the morning which occurs from 6:00am to 7:00am. Based on the expected traffic origins, this will lead to about 31 left turn movements from the south and 7 right turn movements from the north during peak construction times. Based on these traffic volumes, Austroads identifies a Basic Left Turn (BAL) and a Basic Right Turn (BAR) would be required to accommodate construction traffic volumes. No turn facilities are currently provided at the intersection and as such, it is proposed to provide both the basic left and right turn treatments in accordance with the Austroads Guideline.

The *Austroads Guide to Road Design Part 4A: Unsignalised and Signalised Intersections* (Austroads, 2017) specifies the requirements for the design of turn treatments. The proposed design for the intersection is provided within the Traffic Impact Assessment (appendix G) and Section 4.2.1.

Following consultation with TfNSW, a swept path assessment has also been prepared for the OSOM vehicle which shows the vehicle is able to enter and exit the unnamed road, subject to onsite traffic controls. Accordingly, the proposed intersection turning treatment has been appropriately designed and in accordance with the Austroads dimensional requirements.

### **Intersection sight distance assessment**

Consultation with the local community identified concern regarding the line of sight available from the proposed intersection upgrade. There was community concern inadequate visibility was available and this posed a safety risk. To address this concern, a line of sight assessment was undertaken.

*Austroads Guide to Road Design Part 4A: Unsignalised and Signalised Intersections* specifies the Safe Intersection Sight Distance (SISD) as the minimum sight distance which should be provided along the major road at any intersection. Table 3.1 of the guide specifies the SISD required for various design speeds. Given New England Highway has a speed limit of 100km/hr, a design speed of 110km/hr has been adopted, which requires a SISD of 285 metres. The available sight distance at the intersection greatly exceeds the Austroads requirements given its straight and flat alignment.

### 5.3.5 Operational and decommissioning impacts

Operation and decommissioning of the proposal would be as described in the EIS.

During operation of the proposal, there will be a small number (approximately 6 movements per day at peak times) of light vehicle movements. It is anticipated that traffic movement required during maintenance and monitoring of the Proposal would be equivalent to traffic generated because of the existing agricultural land use. Therefore, the road network would continue to operate satisfactorily post-construction, subject to the recommendations outlined in the construction traffic generation assessment being carried out.

Decommissioning of the proposal would involve a similar, but likely smaller, number of traffic movements as required during construction. As assessed for construction impacts, the road network would continue to operate satisfactorily during the decommissioning phase, subject to a future review of decommissioning impacts and implementation of a suitable Decommissioning Traffic Management Plan.

### 5.3.6 Safeguards and mitigation measures

After reviewing the amended Traffic Impact Assessment, additional and amended mitigation measures has been included to account for the intersection treatment required at the construction and operational site access point.

The complete set of updated mitigation measures are presented below. New measures from this Amendment Report are in **Bold**, removed measures are **struck out**.

PC: Pre-construction, C: Construction, PO: Pre-operation, O: Operation, D: Decommissioning

ID.	Mitigation measure	C	O	D
<b>Traffic, transport and safety</b>				
2	<p><b>A Construction Traffic Management Plan (CTMP) will be prepared prior to construction commencing by the appointed contractor. The CTMP will provide additional information regarding the traffic volumes and distribution of construction vehicles that is not available at this time, including:</b></p> <p><b>Road transport volumes, distribution and vehicle types broken down into:</b></p> <ul style="list-style-type: none"> <li><b>Hours and days of construction.</b></li> <li><b>Schedule for phasing/staging of the project.</b></li> </ul> <p><b>The origin, destination and routes for:</b></p> <ul style="list-style-type: none"> <li><b>Employee and contractor light traffic.</b></li> <li><b>Heavy vehicle traffic.</b></li> <li><b>Oversize and overmass traffic.</b></li> </ul> <p>A Traffic Management Plan would be developed and implemented during construction and decommissioning. The plan will be prepared in consultation with the relevant road</p>	C		D

ID.	Mitigation measure	C	O	D
	<p>authority and the appointed transport contractor. The plan would include, but not be limited to:</p> <ul style="list-style-type: none"> <li>• The designated routes and vehicular access of construction traffic (both light and heavy) to the site. This will include the management and coordination of movement of vehicles for construction and worker related access to limit disruptions to other motorists, emergency vehicles, school buses and other public transport.</li> <li>• Procedure for informing the public where any road access will be restricted as a result of the project.</li> <li>• The designated routes of construction traffic to the site.</li> <li>• Carpooling/shuttle bus arrangements to minimise vehicle numbers during construction.</li> <li>• Scheduling of deliveries.</li> <li>• Community consultation regarding traffic impacts for nearby residents. <b>Including, neighbours of the solar farm be notified regarding the timing of major deliveries which may require additional traffic control and disrupt access.</b></li> <li>• Consideration of cumulative impacts.</li> <li>• Traffic controls (speed limits, signage, etc.), and any proposed precautionary measures to warn road users such as motorists about the construction activities for the project, especially at the access site along New England Highway.</li> <li>• Procedure to monitor traffic impacts and adapt controls (where required) to reduce the impacts.</li> <li>• Details of measures to be employed to ensure safety of road users and minimise potential conflict.</li> <li>• A driver Code of Conduct to address such items as appropriate driver behaviour including adherence to all traffic regulations and speed limits, driver fatigue, safe overtaking and maintaining appropriate distances between vehicles, etc. and appropriate penalties for infringements of the Code.</li> <li>• Details of procedures for receiving and addressing complaints from the community concerning traffic issues associated with truck movements to and from the site.</li> <li>• Providing a contact phone number to enable any issues or concerns to be rapidly identified and addressed through appropriate procedures.</li> </ul>			



ID.	Mitigation measure	C	O	D
	<ul style="list-style-type: none"> <li>Water to be used on unsealed roads to minimise dust generation through increased traffic use.</li> <li><b>Loading and unloading is proposed to occur within the Development Site. No street or roads will be used for material storage at any time.</b></li> <li><b>Delivery of larger plant to occur outside of school bus service times to prevent larger vehicles interacting with the school bus.</b></li> <li><b>All vehicles will enter and exit the site in a forward direction.</b></li> <li><b>Management of vehicular access to and from the site is essential in order to maintain the safety of the general public as well as the labour force. The following code is to be implemented as a measure to maintain safety within the site:</b> <ul style="list-style-type: none"> <li><b>Utilisation of only the designated transport routes.</b></li> <li><b>Construction vehicle movements are to abide by finalised schedules as agreed by the relevant authorities.</b></li> </ul> </li> <li><b>All permits for working within the road reserve must be received from the relevant authority prior to works commencing.</b></li> <li><b>A map of the primary haulage routes highlighting critical locations.</b></li> <li><b>An induction process for vehicle operators and regular toolbox meetings.</b></li> <li><b>Local climatic conditions that may impact road safety of employees throughout all project phases (e.g. fog, wet and significant dry, dusty weather).</b></li> <li>Following construction, a post condition survey of the relevant sections of the existing road network to be undertaken to ensure it is of similar condition to that prior to construction.</li> </ul>			
4	<p><del>The proponent would consult with Armidale Regional Council and TfNSW regarding the proposed upgrade of the unnamed road for site access.</del></p> <p><del>The upgrade would be subject to detailed design and would be designed and constructed to the relevant Australian road design standards.</del></p> <p><b>The unnamed Council road between the New England Highway and the Development Site would be upgraded</b></p>	Design		

ID.	Mitigation measure	C	O	D
	accordance with the design requirements of a 'Rural Access Minor' road as provided by Armidale Regional Council.			
9	A heavy vehicle permit would be sought from the National Heavy Vehicle Regulator for use of the unnamed Council road by heavy vehicles during construction.	PC		
10	A Decommissioning Traffic Management Plan would be developed for the decommissioning phase of the Proposal. This plan will be prepared prior to decommissioning and would have the same requirements as the Construction Traffic Management Plan (where relevant).			D

## 5.4 Hydrology and flooding

### 5.4.1 Approach

The specialist Hydrology Report prepared by Footprint Engineering for the EIS has been updated based on amendments to the Development Footprint presented in this Amendment Report (Section 4). The Amended Hydrology Report (v3) (Footprint Engineering, 2021) is presented in Appendix H. Key changes include:

- Assessing the impact of expanding the Development Footprint into 11.1 ha of land originally mapped as 2<sup>nd</sup> and 3<sup>rd</sup> order streams.
- Addressing agency advice provided by the Natural Resource Access Regulator (NRAR) in regard to waterfront land across the Development Site.

This work was undertaken in consultation with NRAR. This updated study is provided in 8Appendix H and summarised here in relation to the amended project.

With consideration to changes to the Development Footprint, updates to the hydrology and flooding study involved:

- Undertaking a ground truthing exercise of the streams within the Development Site to determine if streams exhibited physical characteristic of the a stream under the regulations.
- Preparing an updated hydrological and hydraulic report, including flood mapping, defining the methodology and results of the above investigations, and providing any additional recommendations with respect to floodplain management, based on the amendment to the Development Site and ground truthing.

Most of the findings in the EIS remain unchanged. Only those aspects of the Hydrological Report that have been changed as a result of proposed amendments have been presented within this section of the report.

## Infill over mapped watercourses

The amended development footprint proposes the installation of solar panel infrastructure over areas currently mapped as watercourses as shown on the NSW Hydroline Dataset (DPIE, 2021). Subsequent to the placement of the EIS on public exhibition, additional ground truthing of mapping was undertaken to assess whether the watercourses are considered waterfront land under the *Water Management Act 2000 (WM Act)*. Under the Act 'waterfront land' is defined as:

- a) *the bed of any river, together with any land lying between the bed of the river and a line drawn parallel to, and the prescribed distance inland of, the highest bank of the river, or*
- (a1) *the bed of any lake, together with any land lying between the bed of the lake and a line drawn parallel to, and the prescribed distance inland of, the shore of the lake, or*
- (a2) *the bed of any estuary, together with any land lying between the bed of the estuary and a line drawn parallel to, and the prescribed distance inland of, the mean high water mark of the estuary, or*
- b) *if the regulations so provide, the bed of the coastal waters of the State, and any land lying between the shoreline of the coastal waters and a line drawn parallel to, and the prescribed distance inland of, the mean high water mark of the coastal waters.*

Ground truthing of the watercourses within the proposed area was undertaken by NGH in May 2021 and provided to Footprint in the form of descriptions and photographs for assessment. The location of fieldwork sites are shown in Figure 5-5 and the results of the survey are presented in Table 5-6. The ground truthing locations and representative photographs of the watercourse at each location are provided in Appendix J of the updated hydrology and flooding study (refer 8Appendix H of this report) and a summary of the ground-truthed assessment is provided in Table 5-6 below.

Table 5-6 Summary of ground-truthed assessment for watercourses

Location	Stream order	Watercourse Features Present
1 and 2	2	No
3	2	No
4	2	No
5	2	No
6	2	No
7	2	No
8	2	No
9	2	No
10	2	Yes
11	3	No
12	3	Yes

Location	Stream order	Watercourse Features Present
13	3	No
14	2	No

The ground-truthed assessment identified that all of the areas on which solar panel infrastructure is proposed to be located do not exhibit the typical attributes of a watercourse (i.e. defined bed and banks) and are therefore not considered to be waterfront land for the purposes of the WM Act.

It is acknowledged that development is proposed over some streams currently classified as third order streams. However, neither the subject watercourses, nor any of the watercourses upstream of that point exhibit the typical attributes of a watercourse and the mapping is not an accurate representation of actual conditions and therefore the stream order classification is considered to be overestimated and conservative.

Figure 5-5 identifies the assessment sites and stream locations that under the EIS were assumed to be avoided by the Proposal, but which under the amended Proposal, would be subject to direct impacts.



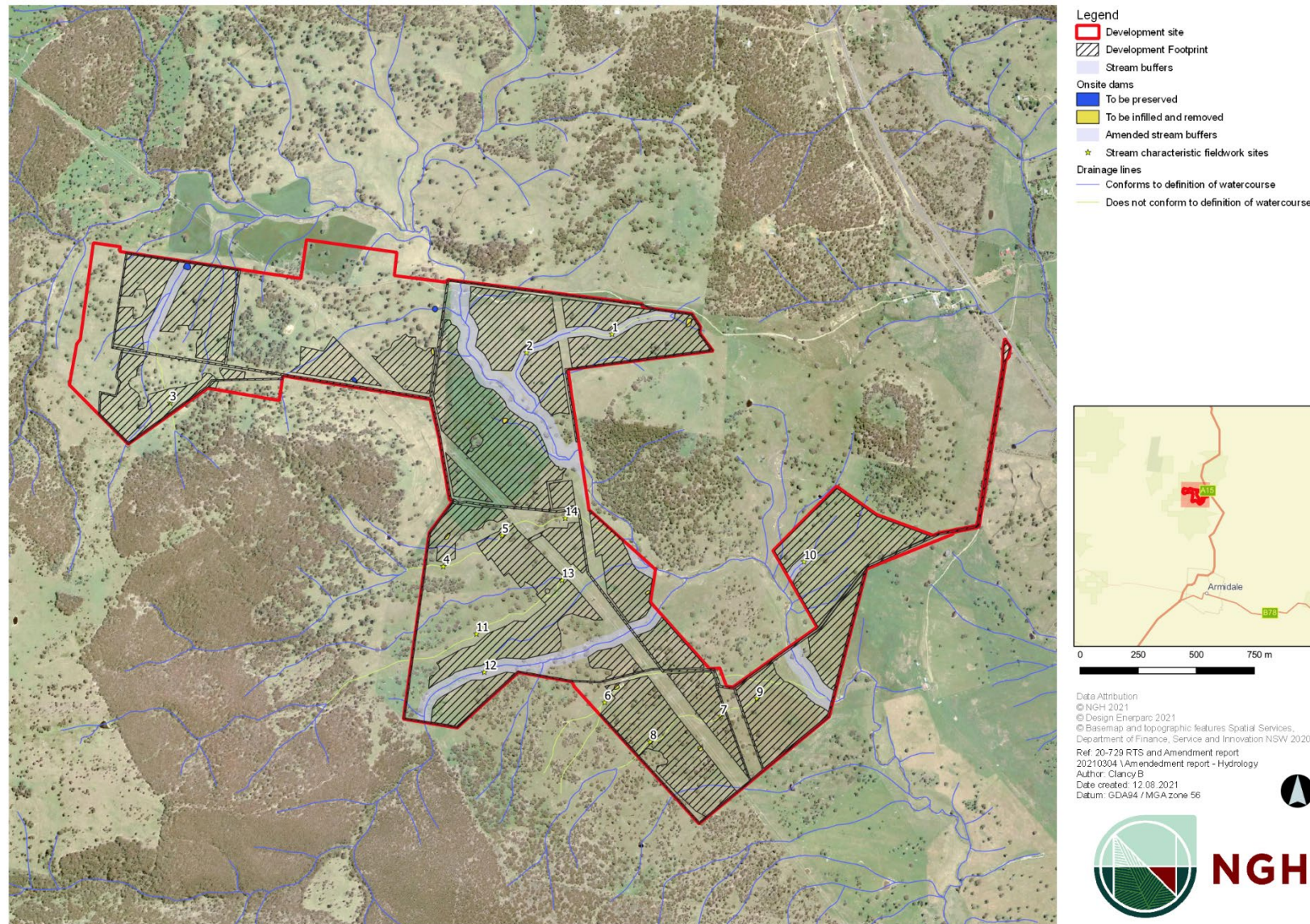


Figure 5-5 Hydrological features surrounding the proposal



### **5.4.2 Potential impacts**

The outcomes of the ground-truthed assessment described previously as well as changes to the Development Footprint would not incur any additional hydrology and flooding impacts beyond those already identified and characterised in the EIS.

### **5.4.3 Safeguards and mitigation measures**

No changes to safeguards or mitigation measures are warranted.

## **5.5 Aboriginal Heritage**

### **5.5.1 Approach**

The Aboriginal Cultural Heritage Assessment (ACHA) for the EIS placed on public exhibition has been updated to assess the proposed amendments to the Development Footprint as described in Section 4. The updated ACHA (v3.1) (NGH, 2021) is provided in Appendix E and summarised below.

The findings of the ACHA presented in the EIS remain largely unchanged. No additional surveys or field work was required to address the changes to the impacts of the amended proposal, as the amended proposal is located entirely within the area surveyed as part of the EIS.

As part of the Development Footprint refinement process, additional avoidance of the highest value sites within the Development Site was undertaken. In total three scar trees were avoided in the amended layout, that weren't avoided under the EIS layout.

As part of the assessment process, a more conservative impact assessment methodology has been adopted. This has meant that heritage sites outside of the Development Footprint, but nearby to it, have been assessed as having potential to be indirectly impacted by the Proposal. Therefore, while the Development Footprint has been reduced, the number of sites potentially impacted by the Proposal has increased. In accordance with the safeguards identified in the EIS, these sites would be salvaged where possible. Therefore, the more conservative assessment process would overall reduce the impacts to Aboriginal cultural heritage of the Proposal.

The mitigation measures within the ACHA have been re-written to improve readability and consistency with other assessments.

### **5.5.2 Aboriginal consultation**

Consultation with Aboriginal stakeholders was undertaken in accordance with clause 60 (formerly 80C) of the *National Parks and Wildlife Amendment (Aboriginal Objects and Aboriginal Places) Regulation 2019* following the consultation steps outlined in the ACHCRP guide, as part of the EIS. A comprehensive account of consultation was provided in the EIS and is provided in the amended ACHA, available in Appendix E.

A copy of the amended draft ACHA was provided to all registered parties on 18 August 2021 and feedback has been sought.

### 5.5.3 Potential impacts

The archaeological context of the site is as described in the EIS. No additional archaeological investigations were completed, and the findings of the EIS investigation remain applicable for the amended Proposal.

The assessment of the amended Development Footprint identified a total of 53 sites within the proposed impact zones of the array and site facilities. These comprise 37 isolated finds and 16 artefact scatters. This represents a total increase of 8 sites from the EIS Development Footprint as summarised in Table 5-7 below. It should be noted that this includes sites that are located immediately adjacent to areas that would be impacted by the proposed solar farm and it is considered likely that there may be incidental or indirect impacts to these locations. This is a change from the method adopted in the EIS (see commentary on this above). Recommendations have been developed to minimise the impacts of the proposed solar farm on the Aboriginal cultural heritage values identified to exist within the Development Site.

Table 5-7 Comparison of sites within the EIS and Amended Development Footprints

	EIS development footprint	Amended development footprint	Difference
<b>Isolated finds</b>	23	37	+ 14
<b>Artefact scatters</b>	18	16	- 2
<b>Scar trees</b>	3	0	-3
<b>Cultural trees</b>	1	0	-1
<b>Total sites</b>	<b>45</b>	<b>53</b>	<b>+8</b>

An analysis of the Tilbuster Solar Farm detailed design as compared with the locations of identified Aboriginal cultural heritage items enabled the impact of the proposed solar farm to be accurately characterised. The sites impacted by the amended Development Footprint are outlined in Figure 7-1 and Table 7-1 of the updated ACHA (attached as 8Appendix D). Demarcated “no impact” zones must be designated and where existing fences must be maintained are described further in 8Appendix D. This information is based on the amended Development Footprint as provided, and the no impact zones are designated within locations where no impacts are proposed. These should be included in the site inductions and any relevant management plans for the site.

Detailed comments regarding the cultural significance of the area were provided by Iwatta Aboriginal Corporation, including information about the specific significance of the scarred trees, which form a component of a cultural landscape including women’s and men’s sites, ceremonial routes, and songlines. The cultural significance of the area, in particular scarred trees, is very high. The proposal has significantly reduced the number of scar trees that would be directly impacted as a result of this amendment. Due to the significance of the features, the amendment would reduce the overall impact of the Proposal to Aboriginal cultural heritage.

The impact to the scientific values if the artefacts were to be impacted by the current proposal is considered moderate. This is due to the sheer number of sites that will be subject to direct and indirect impacts as a result of the proposal. While the site integrity of the majority of artefact sites has been significantly compromised by historic land use, compounded by the drought conditions, the quantity of artefacts present within this landscape has significantly increased the recorded data for the Armidale region and provided further insight into the use of raw materials and occupation patterns during the mid-to late Holocene. The intrinsic values of the artefacts themselves may be affected by the development of the Development Site. Any removal of the artefacts or their breakage would reduce the low to moderate scientific value they retain.

The current assessed scientific impact on the scarred trees recorded within the area is nil as the design has been amended to avoid these sites. The current assessed scientific impact on the artifact scatters and isolated finds is considered low as these sites have comparably less sensitivity, and would be salvaged as part of the mitigation measures identified in the EIS.

#### 5.5.4 Safeguards and mitigation measures

The following recommendations have been prepared in consideration of the amended Development Footprint. In addition, the safeguards and mitigation measures have been updated and streamlined. Six safeguards have been removed, one has been updated and 10 have been added.

The complete set of updated mitigation measures are presented in Appendix A. New measures from this Amendment Report are in **Bold**, removed measures are **struck-out**.

PC: Pre-construction, C: Construction, PO: Pre-operation, O: Operation, D: Decommissioning

ID.	Mitigation measure	C	O	D
	<del>A cultural heritage management plan must be prepared for the protection and management of the following sites to be impacted: IF1, 2, 3, 4, 7, 10, 11, 14, 15, 16, 19, 23, 24, 25, 26, 27, 28, 29, 32, 34, 35, 36, 37, 40, 41, 42, 43, 44, 45, 46, 47, 48, 50</del> <del>This should be prepared prior to construction and will be relevant for all phases of the project.</del> <del>Approval to be gained for the surface salvage of the sites. This must occur prior to construction.</del>	C		
	<del>A cultural heritage management plan must be prepared for the protection and management of all IFs outside the impact zone. This should be prepared prior to construction and will be relevant for all phases of the project.</del> <del>The site induction should include information regarding the identified Aboriginal heritage values within the Proposal area outside the development footprint which will be extant during all phases of works and must therefore not be impacted by incidental activity.</del>	C	O	D
	<del>A cultural heritage management plan must be prepared for the protection and management of all artefact scatters to be</del>	C		

ID.	Mitigation measure	C	O	D
	<p>impacted: AS2, 3, 4, 5, 6, 7, 10, 11, 12, 14, 15, part of 16, 17, 20, 21, 22, 23, 24, 25, 27. This should be prepared prior to construction and will be relevant for all phases of the project.</p> <p>Approval to be gained for the surface salvage of the sites. This must occur prior to construction.</p> <p>Monitoring of topsoil removal at sites AS24 and 25 is likely to be requested by RAPs.</p>			
	<p>A cultural heritage management plan must be prepared for the protection and management of all AS outside the impact zone. This should be prepared prior to construction and will be relevant for all phases of the project.</p> <p>The site induction should include information regarding the identified Aboriginal heritage values within the Proposal area outside the development footprint which will be extant during all phases of works and must therefore not be impacted by incidental activity.</p>	C	O	D
	<p>A cultural heritage management plan must be prepared for the protection and management of ST4, 5, 6 and CT2. This should be prepared prior to construction and will be relevant for all phases of the project. It is recommended that the proposed design is modified to exclude any impact to these sites plus a 5m buffer surrounding each of them. However, if this is not possible further negotiation with RAPs is required regarding this issue.</p>	C		
1	<p>A cultural heritage management plan must be prepared for the protection and management of ST1, 2, 3 and CT1, 3. This should be prepared prior to construction and will be relevant for all phases of the project.</p> <p>Fencing to be placed a minimum of five metres from these sites in order to prevent any impacts to the scar or the health/condition of the trees.</p> <p>The site induction should include information regarding the identified Aboriginal heritage values within the Proposal area outside the development footprint which will be extant during all phases of works and must therefore not be impacted by incidental activity.</p> <p><b>The Tilbuster Solar Farm development avoids the six scarred tree sites (Tilbuster Solar Farm ST1, Tilbuster Solar Farm ST 2;Tilbuster Solar Farm ST3; Tilbuster Solar Farm ST4; Tilbuster Solar Farm ST5 and Tilbuster Solar Farm ST6) as well as the cultural trees (Tilbuster Solar Farm CT1, Tilbuster Solar Farm CT2 and Tilbuster Solar</b></p>	C	O	D



ID.	Mitigation measure	C	O	D
	Farm CT3), which are located within the proposed development footprint. A minimum of a five-metre buffer should be established by placing high visibility bunting (or similar) around each of these trees to avoid impacts, with 10 metres preferred where possible. Additionally, some of the locations of the trees have now been designated within a 'No Impact Zone' for further protection measures.			
2	Tilbuster Solar Farm ST4 is located between two areas proposed for solar arrays. It is recommended that a minimum of a five-metre buffer should be established by placing high visibility bunting (or similar) around this tree to avoid impacts.	C	O	D
3	The two No Impact Areas within the Development Site boundary as shown in Figure 7 2, which are based on the areas outside the development footprint, but inside the Development Site, must be fenced or otherwise clearly delineated and included in all onsite inductions and management plans. The development should avoid any direct or indirect impacts to the sites located within these no impact zones, including Tilbuster Solar Farm IF8, IF12, IF13, IF18, IF30, IF31, IF33, IF51, IF52, IF53; Tilbuster Solar Farm AS1, AS8, AS9; Tilbuster Solar Farm ST1, ST2, ST3, CT1 and CT3.	C	O	D
4	The southernmost No Impact Area, immediately to the south of the Development Site boundary must not be subject to any impacts, for the protection of Tilbuster Solar Farm IF9, IF21, IF22, IF39, Tilbuster Solar Farm AS13, part of AS16, AS18, AS19; and Tilbuster Solar Farm ST1. The existing fences must remain in place. Further assessment will be required if any impacts will occur within this area, including the replacement of existing fencing.	C	O	D
5	There are three sites that were recorded during the survey which are located outside the Development Site boundary (and not included within the No Impact Area): Tilbuster Solar Farm IF38, AS26 and AS28. These must not be subject to indirect or direct impacts as a result of activities relating to the construction, operation or decommissioning of the solar farm. It is recommended that fencing be placed between the Development Site and AS26 during construction, operation and decommissioning of the site due to its proximity.	C	O	D

ID.	Mitigation measure	C	O	D
6	With the exception of the access road from the main house along the northern boundary of the Development Site (refer to Figure 1 2), existing farm tracks, not within the development footprint may not be used for the purposes of the solar farm, with specific reference to access by large vehicles or plant. If the use of such tracks is required, these tracks must be assessed including archaeological survey and amendments or addendums to this report.	C	O	D
7	Salvage of the isolated finds and artefact scatters within the development footprint and not within a designated No Impact Zone must be undertaken in the form of surface collection. This would include the collection of the artefacts to be temporarily stored at the NGH office for further analysis, with permanent storage to be at Armidale and Region Aboriginal Cultural Centre & Keeping Place for all artefacts, or where the storage of all artefacts cannot be achieved, formal tools will be stored/displayed at the Cultural Centre, and the remaining artefacts will be buried on site, outside of the development footprint.	C		
8	Monitoring of topsoils stripping by representatives of the RAPs should be undertaken for sites AS4, AS23, AS24 and AS25, with reference to similar programs undertaken at other sites in the region.	C		
9	A minimum five (5) metre buffer should be observed around all sites that are to be avoided and that are not within the designated No Impact Zones. Limited vehicle movement is allowed only within the demonstrated strip adjacent to the west of the middle No Impact Zone and vehicles may not proceed past the the No Impact Zone designated area and fencing.	C	O	D
10	The Proponent should prepare a Cultural Heritage Management Plan (CHMP) to address the potential for finding additional Aboriginal objects during the construction of the solar farm and management of known sites and artefacts. The CHMP should include an unexpected finds procedure to deal with construction activity. The preparation of the CHMP should be completed in consultation with RAPs.	C	O	D
11	In the unlikely event that human remains are discovered during the development works, all work must cease in the immediate vicinity. DPIE, the local police and the RAPs	C	O	D

ID.	Mitigation measure	C	O	D
	<p><b>should be notified. Further assessment would be undertaken to determine if the remains were Aboriginal or non-Aboriginal.</b></p> <p><b>Further archaeological assessment would be required if the proposal activity extends beyond the area of the current investigation. This would include consultation with the registered Aboriginal parties and may include further field surveys and subsurface testing.</b></p>			

## 5.6 Noise and vibration

### 5.6.1 Approach

Renzo Tonin & Associates prepared the Tilbuster Solar Farm – Construction & Operational Noise & Vibration Assessment for the Tilbuster Solar Farm EIS (Renzo Tonin & Associates, 2021) that supported the EIS. A technical memo has since been prepared to address the noise impacts of the Proposal to eight specific receivers that were identified by DPIE (refer section 2.1). These receivers had not been considered in the original Noise and Vibration Assessment (Renzo Tonin & Associates, 2021). The technical memo is provided in full in 8Appendix I, and summarised here.

### 5.6.2 Potential impacts

Subsequent to lodgement of the EIS and placement on public exhibition, further consultation with the local community and DPIE revealed the need to update the noise assessment, to include additional receivers surrounding the Proposal. These receivers are presented in Table 5-8.

Table 5-8 Updated noise assessment, additional receivers

Receiver	Distance to Development Site	Impact rating
<b>R14</b>	1816 m west of Development Site boundary	Complaint with the nominated noise criteria – negligible impact.
<b>R16</b>	1816 west of Development Site boundary	Complaint with the nominated noise criteria – negligible impact.
<b>R17</b>	1190 m north of Development Site boundary	Complaint with the nominated noise criteria – negligible impact.
<b>R18</b>	1730 m north east of Development Site boundary	Complaint with the nominated noise criteria – negligible impact.
<b>R19</b>	2220 north west of Development Site boundary	Complaint with the nominated noise criteria – negligible impact.
<b>R20</b>	2650 south west of Development Site boundary	Complaint with the nominated noise criteria – negligible impact.

Receiver	Distance to Development Site	Impact rating
<b>R21</b>	2840 south west of Development Site boundary	Complaint with the nominated noise criteria – negligible impact.
<b>R23</b>	670m north of Development Site boundary	Complaint with the nominated noise criteria – negligible impact.

The location of receivers is presented in Figure 5-2 of this report. All the additional receivers identified are further from the Development Site than the closest receivers assessed in the EIS. The closest newly identified receiver (R23) is 847 meters from the Development Site. The closest previously identified receiver (R12) is 287 meters from the Development Site. The four receivers nearest to the Development site, R11, R12, R13 and R15, were all assessed as complaint with the nominated noise criteria. Therefore, it is expected that all additional receivers identified will also be compliant with the nominated criteria, as they are further from the Development Site. No additional impacts are anticipated.

### 5.6.3 Safeguards and mitigation measures

No changes to safeguards or mitigation measures are recommended.

## 5.7 Other environmental aspects

To ensure the changes proposed in this Amendment Report have been comprehensively assessed, the following additional environmental aspects were considered. These aspects form part of the original EIS assessment and include:

- Land and soils
- Compatibility within existing land uses
- Water use and water quality
- Historic Heritage
- Social and economic impacts
- Bushfire
- Electric and magnetic fields
- Air quality and climate
- Resource and waste generation
- Hazardous materials and development.

For each aspect, the changes set out in Section 4 were considered. That is:

1. Reduction of the Development Footprint from 178 hectares (ha) to 170 ha
2. Amendments to the intersection treatment, access road upgrade and further clarification of the over size, over mass vehicle configuration changes
3. Revision of BESS capacity from 40 megawatt-hours (MWh) to 30MWh
4. Other minor amendments.

In summary, no aspects have been affected by more than negligible degree by the proposed amendment. In these cases, no additional site work or modelling is warranted, and no additional mitigation is proposed.



Table 5-9 Assessment of the proposed changes.

Environmental factor	Existing environment of areas of proposed changes	Potential impacts	Updated mitigation measures															
Land and soils	<p>The existing environment in the areas of proposed change are contained within the Development Site, and are largely as described in the EIS, in relation to land and soils. However, due to the changed to the Development Footprint, the impact areas by Land and Soil Classes have been updated.</p>	The proposed amendments would not change the findings of the impact assessment in the EIS in relation to land and soils.	No additional mitigation measures are required.															
	<p>The Land and Soil Capability Mapping in NSW shows that the Development Footprint is in LSC Class 3, 4, 5 and 6, with a small amount of BSAL. The following table provides the percentage of classes within the site.</p>																	
	<table><tr><td>Soil class</td><td>Area (Ha)</td><td>% Coverage</td></tr><tr><td>Development footprint</td><td>169.7</td><td>100</td></tr><tr><td>BSAL</td><td>0.2</td><td>0.1%</td></tr><tr><td>Class 3</td><td>0.2</td><td>0.1%</td></tr><tr><td>Class 4</td><td>108.6</td><td>64%</td></tr></table>			Soil class	Area (Ha)	% Coverage	Development footprint	169.7	100	BSAL	0.2	0.1%	Class 3	0.2	0.1%	Class 4	108.6	64%
	Soil class			Area (Ha)	% Coverage													
	Development footprint			169.7	100													
	BSAL			0.2	0.1%													
	Class 3			0.2	0.1%													
Class 4	108.6	64%																

Environmental factor	Existing environment of areas of proposed changes			Potential impacts	Updated mitigation measures
	Class 5	37.7	22%		
	Class 6	23.1	14%		
<b>Compatibility within existing land uses</b>	The existing environment in the areas of proposed change are as described in the EIS, in relation to compatibility with existing land uses.			The proposed amendments would not change the findings of the impact assessment in the EIS in relation to compatibility with existing land uses.	No additional mitigation measures are required.
<b>Water use and water quality</b>	The existing environment in the areas of proposed change are as described in the EIS, in relation to water use and water quality.			<p>The amendment involves the addition of a safeguard to construct water crossings in accordance with the <i>DPI Fisheries Policy &amp; Guideline document: Policy and Guidelines for Fish Habitat Conservation and Management (Update 2013)</i>.</p> <p>No additional water supply is required. The hydrological study confirmed no additional hydrological changes that may impact</p>	One additional mitigation measures has been identified in response to a submission received during the Public Exhibition of the EIS.

Environmental factor	Existing environment of areas of proposed changes	Potential impacts	Updated mitigation measures
		<p>erosion or water quality due to the changes.</p> <p>The proposed amendments would not change the findings of the impact assessment in the EIS in relation to water use and water quality.</p>	
<b>Historic Heritage</b>	The existing environment in the areas of proposed change are as described in the EIS, in relation to historic heritage.	<p>The new areas to be impacted do not contain any additional historic heritage sites. The areas that will now be avoided do not contain any historic heritage sites.</p> <p>The proposed amendments would not change the findings of the impact assessment in the EIS in relation to historic heritage.</p>	<p>No additional mitigation measures are required.</p> <p>The unexpected finds protocol that forms a current commitment is sufficient to manage potential impacts.</p>
<b>Social and economic impacts</b>	The existing environment in the areas of proposed change are as described in the EIS, in relation to social and economic impacts.	The proposed amendments would not change the findings of the impact assessment in the EIS in	No additional mitigation measures are required.

Environmental factor	Existing environment of areas of proposed changes	Potential impacts	Updated mitigation measures
		relation to social and economic impacts.	
<b>Bushfire</b>	the existing environment in the areas of proposed change are as described in the EIS, in relation to bushfire.	The proposed amendments would not change the findings of the impact assessment in the EIS in relation to bushfire.	No additional mitigation measures are required.
<b>Electric and magnetic fields</b>	the existing environment in the areas of proposed change are as described in the EIS, in relation to electric and magnetic fields.	The proposed amendments would not change the findings of the impact assessment in the EIS in relation to electric and magnetic fields.	No additional mitigation measures are required.
<b>Air quality and climate</b>	the existing environment in the areas of proposed change are as described in the EIS, in relation to air quality and climate.	The proposed amendments would not change the findings of the impact assessment in the EIS in relation to air quality and climate.	No additional mitigation measures are required.
<b>Resource and waste generation</b>	the existing environment in the areas of proposed change are as described in the EIS, in relation to resource and waste generation.	The proposed amendments would not change the findings of the impact assessment in the EIS in	No additional mitigation measures are required.



Environmental factor	Existing environment of areas of proposed changes	Potential impacts	Updated mitigation measures
		relation to resource and waste generation.	
<b>Hazardous materials and development</b>	the existing environment in the areas of proposed change are as described in the EIS, in relation to hazardous materials and development.	The proposed amendments would not change the findings of the impact assessment in the EIS in relation to hazardous materials and development.	No additional mitigation measures are required.

## 6 Environmental Management Changes

### 6.1 Summary of Amendments

Table 6-1 Summary of amendments and associated changes to impacts and mitigation measures.

Amendment	Proposed amendment	Impact change?	Additional mitigation measures?
<b>Development Footprint and generation capacity</b>	The Development Footprint will be reduced to 169.7 ha This has been undertaken to avoid 14.0 ha of Critically Endangered Box Gum Woodland, a Serious and Irreversible Impact candidate.	Yes. This will change the biodiversity impact of the proposed development. An updated Biodiversity report and BDAR is included in Section 5.1 and Appendix C. In addition, the Aboriginal cultural heritage assessment has been updated, presented in Section 5.5 and Appendix E.	No additional mitigation measures have been identified, however, some updates to biodiversity mitigation measures are presented in Section 5.1.5. The Aboriginal cultural heritage mitigation measures have been amended and are presented in 5.5.4. the mitigation measures remain largely the same, although have been rewritten to improve readability.
<b>Amendments to the intersection treatment, access road upgrade and further clarification of the over size, over mass vehicle configuration</b>	The Development Footprint and Development Site have been slightly increased to accommodate an enlarged and realigned intersection design.	The slightly larger development footprint would impact an additional 0.1 ha of native vegetation. This vegetation is of low conservation value, therefore the change would not materially increase the biodiversity impacts of the Proposal.  The amendment would improve road safety and reduce the potential for traffic impacts.	Yes  Two safeguards have been amended and two safeguards have been added to the project commitments.
<b>Battery Storage</b>	The battery energy storage capacity of the BESS has been reduced. The capacity has been revised to 30MWh.	No, the footprint of the BESS will remain the same at 0.13ha and other impacts will be reduced.	No.
<b>Other minor amendments:</b>	<ul style="list-style-type: none"> <li>Addition of a water tank for firefighting</li> </ul>	No. These minor amendments would reduce the impact of the proposal	No additional mitigation measures are required to address these amendments, however,

Amendment	Proposed amendment	Impact change?	Additional mitigation measures?
	<ul style="list-style-type: none"> <li>• Avoidance of low voltage powerlines</li> <li>• Updated mitigation measures with regard to land use compatibility and visual impact mitigation.</li> <li>• Update safeguards for stream crossings</li> <li>• Change to bushfire amendment for access road construction.</li> </ul>		these amendments themselves involve adding mitigation measures to the proposal.

## 6.2 Consolidated amended mitigation measures

In consideration of the additional assessment for the proposed amendments described in this report, the following additional/updated mitigation strategies are now proposed.

The complete set of updated mitigation measures are presented below. New measures from this Amendment Report are in **Bold**, new measures from the Submissions Report are **Bold Underlined**, and removed measures are ~~struck out~~.

PC: Pre-construction, C: Construction, PO: Pre-operation, O: Operation, D: Decommissioning

Table 6-2 New/updated mitigation measures, that now form a commitment of the proposal.

ID	Safeguards and Mitigation Measures	C	O	D
<b>Biodiversity</b>				
1	Avoid critical life cycle events: <ul style="list-style-type: none"> <li>Where practicable, hollow-bearing trees would not be removed during breeding and hibernation season (June to January) to mitigate impacts</li> <li>If clearing outside of this period cannot be achieved, pre-clearing surveys would be undertaken by an ecologist or suitably qualified person to ensure no impacts to fauna would occur.</li> </ul>	C		
2	Clearing protocols to include: <ul style="list-style-type: none"> <li>Pre-clearing checklist</li> <li>Tree clearing procedure</li> <li>Staged habitat removal</li> <li>Unexpected threatened species finds procedure</li> <li>Approved clearing limits to be clearly delineated with temporary fencing or similar prior to construction commencing</li> <li>No stockpiling or storage within dripline of any mature trees</li> <li>In areas to clear adjacent to areas to be retained, chainsaws would be used rather than heavy machinery to minimise risk of unauthorised disturbance.</li> </ul>	C		



ID	Safeguards and Mitigation Measures	C	O	D
3	Relocate habitat features: <ul style="list-style-type: none"> <li>Tree-clearing procedure including relocation of habitat features to adjacent area for habitat enhancement.</li> </ul>	C		
4	Manage noise impacts: <ul style="list-style-type: none"> <li>Construction Environmental Management Plan will include measures to avoid noise encroachment on adjacent habitats such as avoiding night works as much as possible.</li> </ul>	C		
5	Reduce impacts of light spill <ul style="list-style-type: none"> <li>Avoid Night Works</li> <li>Direct lights away from vegetation.</li> </ul>	C	O	
6	Adaptive dust monitoring programs to control air quality: <ul style="list-style-type: none"> <li>Daily monitoring of dust generated by construction and operation activities</li> <li>Construction would cease if dust observed being blown from site until control measures were implemented</li> <li>All activities relating to the proposal would be undertaken with the objective of preventing visible dust emissions from the development site.</li> </ul>	C		
7	Program construction activities to avoid impacts: <ul style="list-style-type: none"> <li>Where practicable, time construction activities outside Koala breeding season</li> <li>If clearing outside of this period cannot be achieved, pre-clearing surveys would be undertaken by an ecologist or suitably qualified person to ensure no impacts to fauna would occur.</li> </ul>	C		
8	Protect significant environmental features: <ul style="list-style-type: none"> <li>Fencing from buffer of riparian zones and drainage lines</li> </ul>	C		
9	A Weed Management procedure would be developed for the proposal to prevent and minimise the spread of weeds. This would include:	C	O	

ID	Safeguards and Mitigation Measures	C	O	D
	<ul style="list-style-type: none"> <li>• Management protocol for declared priority weeds under the Biosecurity Act 2015 during and after construction</li> <li>• Weed hygiene protocol in relation to plant, machinery, and fill</li> <li>• The weed management procedure would be incorporated into the Biodiversity Management Plan.</li> </ul>			
10	<p>Staff training and site briefing to communicate environmental features:</p> <ul style="list-style-type: none"> <li>• Site induction</li> <li>• Toolbox talks</li> <li>• Awareness training during site inductions regarding enforcing site speed limits.</li> <li>• Site speed limits to be enforced to minimise fauna strike.</li> </ul>	C	O	
11	<p>Preparation of a Construction Flora and Fauna Management Plan that would include protocols for:</p> <ul style="list-style-type: none"> <li>• Protection of native vegetation to be retained</li> <li>• Best practice removal and disposal of vegetation</li> <li>• Staged removal of hollow-bearing trees and other habitat features such as fallen logs with attendance by an ecologist</li> <li>• <b>Avoiding the removal of hollow-bearing trees during spring, where practicable, to avoid the main breeding period for hollow-dependent fauna</b></li> <li>• <b>Rehabilitation of disturbed areas with flora species that are characteristic of the PCTs that would be impacted (PCTs 567 and 704)</b></li> <li>• <b>Installation of nest boxes or hollow augmentation at a 2:1 ratio to mitigate removal of HBTs that are potential Greater Glider den sites</b></li> <li><del>• Weed management</del></li> <li>• Controlling weeds, feral pests and pathogens.</li> <li><del>• Unexpected threatened species finds</del></li> <li><del>• Rehabilitation of disturbed areas</del></li> </ul>	C		

ID	Safeguards and Mitigation Measures	C	O	D
	Active management of retained vegetation to substantially improve its condition, connectivity and ecological function (see below).			
12	Protect connectivity: <ul style="list-style-type: none"> <li>No use of barbed wire fencing as it provides a hazard to fauna such as Koala, Greater Glider and microbats</li> <li>Fencing adjacent to areas of the development site that are connected to areas of bushland outside the development site are to include Koala friendly structures to aid traversal of Koala across their range</li> </ul>	C		
13	Fencing to protect features: <ul style="list-style-type: none"> <li>Fencing from buffer of riparian zones, drainage lines and farm dams to be retained</li> <li>Development site to be fenced entirely during construction and operation</li> </ul>	C	O	
<b>Aboriginal heritage</b>				
1	<del>A cultural heritage management plan must be prepared for the protection and management of the following sites to be impacted: IF1, 2, 3, 4, 7, 10, 11, 14, 15, 16, 19, 23, 24, 25, 26, 27, 28, 29, 32, 34, 35, 36, 37, 40, 41, 42, 43, 44, 45, 46, 47, 48, 50</del> <del>This should be prepared prior to construction and will be relevant for all phases of the project.</del> <del>Approval to be gained for the surface salvage of the sites. This must occur prior to construction.</del>	C		
2	<del>A cultural heritage management plan must be prepared for the protection and management of all IFs outside the impact zone. This should be prepared prior to construction and will be relevant for all phases of the project.</del> <del>The site induction should include information regarding the identified Aboriginal heritage values within the Proposal area outside the Development Footprint which will be extant during all phases of works and must therefore not be impacted by incidental activity.</del>	C	O	D
3	<del>A cultural heritage management plan must be prepared for the protection and management of all artefact scatters to be impacted: AS2, 3, 4, 5, 6, 7, 10, 11, 12, 14, 15, part of 16, 17, 20, 21, 22, 23, 24, 25, 27.</del> <del>This should be prepared prior to construction and will be relevant for all phases of the project.</del>	C		

ID	Safeguards and Mitigation Measures	C	O	D
	Approval to be gained for the surface salvage of the sites. This must occur prior to construction. Monitoring of topsoil removal at sites AS24 and 25 is likely to be requested by RAPs.			
4	<del>A cultural heritage management plan must be prepared for the protection and management of all AS outside the impact zone. This should be prepared prior to construction and will be relevant for all phases of the project.</del> <del>The site induction should include information regarding the identified Aboriginal heritage values within the Proposal area outside the Development Footprint which will be extant during all phases of works and must therefore not be impacted by incidental activity.</del>	C	O	D
5	<del>A cultural heritage management plan must be prepared for the protection and management of ST4, 5, 6 and CT2. This should be prepared prior to construction and will be relevant for all phases of the project. It is recommended that the proposed design is modified to exclude any impact to these sites plus a 5m buffer surrounding each of them. However, if this is not possible further negotiation with RAPs is required regarding this issue.</del>	C		
6-1	<del>A cultural heritage management plan must be prepared for the protection and management of ST1, 2, 3 and CT1, 3. This should be prepared prior to construction and will be relevant for all phases of the project.</del> <del>Fencing to be placed a minimum of five metres from these sites in order to prevent any impacts to the scar or the health/condition of the trees.</del> <del>The site induction should include information regarding the identified Aboriginal heritage values within the Proposal area outside the Development Footprint which will be extant during all phases of works and must therefore not be impacted by incidental activity.</del> <b>The Tilbuster Solar Farm development avoids the six scarred tree sites (Tilbuster Solar Farm ST1, Tilbuster Solar Farm ST 2;Tilbuster Solar Farm ST3; Tilbuster Solar Farm ST4; Tilbuster Solar Farm ST5 and Tilbuster Solar Farm ST6) as well as the cultural trees (Tilbuster Solar Farm CT1, Tilbuster Solar Farm CT2 and Tilbuster Solar Farm CT3), which are located within the proposed development footprint. A minimum of a five-metre buffer should be established by placing high visibility bunting (or similar) around each of these trees to avoid impacts, with 10 metres preferred</b>	C	O	D

ID	Safeguards and Mitigation Measures	C	O	D
	where possible. Additionally, some of the locations of the trees have now been designated within a 'No Impact Zone' for further protection measures.			
2	Tilbuster Solar Farm ST4 is located between two areas proposed for solar arrays. It is recommended that a minimum of a five-metre buffer should be established by placing high visibility bunting (or similar) around this tree to avoid impacts.	C	O	D
3	The two No Impact Areas within the Development Site boundary as shown in Figure 7 2, which are based on the areas outside the development footprint, but inside the Development Site, must be fenced or otherwise clearly delineated and included in all onsite inductions and management plans. The development should avoid any direct or indirect impacts to the sites located within these no impact zones, including Tilbuster Solar Farm IF8, IF12, IF13, IF18, IF30, IF31, IF33, IF51, IF52, IF53; Tilbuster Solar Farm AS1, AS8, AS9; Tilbuster Solar Farm ST1, ST2, ST3, CT1 and CT3.	C	O	D
4	The southernmost No Impact Area, immediately to the south of the Development Site boundary must not be subject to any impacts, for the protection of Tilbuster Solar Farm IF9, IF21, IF22, IF39, Tilbuster Solar Farm AS13, part of AS16, AS18, AS19; and Tilbuster Solar Farm ST1. The existing fences must remain in place. Further assessment will be required if any impacts will occur within this area, including the replacement of existing fencing.	C	O	D
5	There are three sites that were recorded during the survey which are located outside the Development Site boundary (and not included within the No Impact Area): Tilbuster Solar Farm IF38, AS26 and AS28. These must not be subject to indirect or direct impacts as a result of activities relating to the construction, operation or decommissioning of the solar farm. It is recommended that fencing be placed between the Development Site and AS26 during construction, operation and decommissioning of the site due to its proximity.	C	O	D
6	With the exception of the access road from the main house along the northern boundary of the Development Site (refer to Figure 1 2), existing farm tracks, not within the development footprint may not be used for the purposes of the solar farm, with specific reference to access by large vehicles or plant. If the use of such tracks is required, these tracks must be assessed including archaeological survey and amendments or addendums to this report.	C	O	D



ID	Safeguards and Mitigation Measures	C	O	D
7	Salvage of the isolated finds and artefact scatters within the development footprint and not within a designated No Impact Zone must be undertaken in the form of surface collection. This would include the collection of the artefacts to be temporarily stored at the NGH office for further analysis, with permanent storage to be at Armidale and Region Aboriginal Cultural Centre & Keeping Place for all artefacts, or where the storage of all artefacts cannot be achieved, formal tools will be stored/displayed at the Cultural Centre, and the remaining artefacts will be buried on site, outside of the development footprint.	C		
8	Monitoring of topsoils stripping by representatives of the RAPs should be undertaken for sites AS4, AS23, AS24 and AS25, with reference to similar programs undertaken at other sites in the region.	C		
9	A minimum five (5) metre buffer should be observed around all sites that are to be avoided and that are not within the designated No Impact Zones. Limited vehicle movement is allowed only within the demonstrated strip adjacent to the west of the middle No Impact Zone and vehicles may not proceed past the the No Impact Zone designated area and fencing.	C	O	D
10	The Proponent should prepare a Cultural Heritage Management Plan (CHMP) to address the potential for finding additional Aboriginal objects during the construction of the solar farm and management of known sites and artefacts. The CHMP should include an unexpected finds procedure to deal with construction activity. The preparation of the CHMP should be completed in consultation with RAPs.	C	O	D
11	In the unlikely event that human remains are discovered during the development works, all work must cease in the immediate vicinity. DPIE, the local police and the RAPs should be notified. Further assessment would be undertaken to determine if the remains were Aboriginal or non-Aboriginal. Further archaeological assessment would be required if the proposal activity extends beyond the area of the current investigation. This would include consultation with the registered Aboriginal parties and may include further field surveys and subsurface testing.	C	O	D
Land and soil				

ID	Safeguards and Mitigation Measures	C	O	D
1	Undertake a base line soil survey prior to construction to inform the CEMP and sub-plans, rehabilitation and operational aspects of soil and groundcover management.	PC		
2	<p>As part of the CEMP, a Soil and Water Management Plan (SWMP) (with erosion and sediment control plans) would be prepared, implemented and monitored during the proposal, in accordance with Landcom (2004), to minimise soil (and water) impacts. These plans would include provisions to:</p> <ul style="list-style-type: none"> <li>• Install, monitor and maintain erosion controls.</li> <li>• Ensure that machinery leaves the site in a clean condition to avoid tracking of sediment onto public roads which may cause risks to other road users through reduced road stability.</li> <li>• Manage topsoil in all excavation activities, separate subsoils and topsoils and ensure that they are replaced in their natural configuration to assist revegetation. Stockpile topsoil appropriately so as to minimise weed infestation, maintain soil organic matter, maintain soil structure and microbial activity.</li> <li>• Minimise the area of disturbance from excavation and compaction; rationalise vehicle movements and restrict the location of activities that compact and erode the soils as much as practical. Any compaction caused during construction would be treated such that revegetation would not be impaired.</li> <li>• Manage works in consideration of heavy rainfall events; if a heavy rainfall event is predicted, the site should be stabilised, and work ceased until the wet period had passed.</li> <li>• Areas of soil disturbed by the Proposal would be rehabilitated progressively or immediately post-construction, reducing views of bare soil.</li> </ul>	C		
3	<p>A Groundcover Management Plan would be developed in consultation with an agronomist and to ensure final land use includes perennial grass cover establishment across the site as soon as practicable after construction and maintained throughout the operation phase. The plan would cover:</p> <ul style="list-style-type: none"> <li>• Soil handling, restoration and preparation requirements.</li> <li>• Plant Species election.</li> <li>• Soil preparation.</li> <li>• Establishment techniques.</li> <li>• Maintenance and monitoring requirements.</li> </ul>	C	O	D

ID	Safeguards and Mitigation Measures	C	O	D
	<ul style="list-style-type: none"> <li>Perennial groundcover targets, indicators, condition monitoring, reporting and evaluation arrangements – i.e. A target of 70% live grass cover would apply to protect soils, landscape function and water quality. Additional measures would be implemented where practical when live grass cover falls below 70%. Grass cover would be monitored on a fortnightly basis using an accepted methodology.</li> <li>Contingency measures to respond to declining soil or groundcover condition. I.e. any grazing stock would be removed from the site when cover falls below the target of 70% live ground cover.</li> <li>Identification of baseline conditions for rehabilitation following decommissioning.</li> <li>Preserve the native composition as much as possible</li> </ul>			
4	The array would be designed to allow sufficient space between panels to establish and promote groundcover beneath the panels and allow for implementation of weed controls.	Design		
5	<p>A Spill and Contamination Response Plan would be developed as part of the overall Emergency Response Plan to prevent contaminants affecting adjacent surrounding environments. The plan would include measures to:</p> <ul style="list-style-type: none"> <li>Respond to the discovery of existing contaminants at the site (e.g. pesticide containers or asbestos), including stop work protocols and remediation and disposal requirements.</li> <li>Requirement to notify the EPA for incidents that cause material harm to the environment (refer s147-153 of the POEO Act).</li> <li>Manage the storage of any potential contaminants onsite.</li> <li>Mitigate the effects of soil contamination by fuels or other chemicals (including emergency response and the EPA notification procedures and remediation.</li> <li>Ensure that machinery arrives on site in a clean, washed condition, free of fluid leaks.</li> <li>Prevent contaminants affecting adjacent pastures, dams, water courses and native vegetation.</li> <li>Monitor and maintain spill equipment</li> <li>Induct and train all site staff.</li> </ul>	C	O	D
6	The transformers will be filled with oil, and waterproof bunds built around them to manage oil spills.	Design		

ID	Safeguards and Mitigation Measures	C	O	D
7	A protocol would be developed in relation to unexpected discover of buried contaminants within the Development Site (e.g. pesticide containers). It would include stop work, remediation and disposal requirements.	C		
8	A Rehabilitation Plan would be prepared to ensure the array site is returned to at least or better than pre-solar farmland and soil capability. The plan would be developed with reference to the base line soil testing and with input from an agronomist to ensure the site is left stabilised, under a cover crop or other suitable ground cover. The soil survey would be based on: <ul style="list-style-type: none"> <li>• <i>Australian Soil and Land Survey Handbook (CSIRO, 2009)</i></li> <li>• <i>Guidelines for Surveying Soil and Land Resources (CSIRO, 2008)</i></li> <li>• <i>The land and soil capability assessment scheme: second approximation (OEH, 2012)</i></li> </ul>			D
9	A pest and weed management plan would be prepared to manage the occurrence of priority weeds and pest species across the site during construction and operation. The plans must be prepared in accordance with Armidale Regional Council and NSW DPI requirements. <b><u>The New England Weeds Authority will be consulting during the development of the plan.</u></b>	C	O	D
<b>Compatibility with existing land uses</b>				
1	Consultation would be undertaken with TransGrid regarding connection to the substation and design of electricity transmission infrastructure.	PC		
2	Consultation with adjacent landowners, to minimise impact of the Proposal on adjacent agricultural activities and access.	PC		
3	Consultation with DPIE (Crown Lands) would be ongoing and the following would be undertaken: Prior to construction, a license will be applied for to allow construction to commence within Crown roads on the Development Site.	PC		
4	Consultation with representatives from nearby major projects, including Salisbury Solar Farm, Oxley Solar Farm, New England Solar Farm, to ensure traffic and pressure on local services are managed adequately	PC/C		

ID	Safeguards and Mitigation Measures	C	O	D
5	<b><u>No above ground built infrastructure will be constructed within 20 m of the existing Essential Energy transmission line.</u></b>	PC/C		
6	<b><u>Any fencing disturbed during construction of the proposal would be maintained to the existing condition throughout construction. This may involve constructing temporary fencing during the construction period. Following construction, boundary fences around the development site would be reinstated to precondition condition, or better</u></b>	C		
<b>Hydrology and flooding</b>				
1	<p>The design of buildings, equipment foundations and footings for electrical componentry and panel mounts would be designed to avoid the 1% AEP flood level to minimise impacts from potential flooding including:</p> <ul style="list-style-type: none"> <li>• The solar array mounting piers would be designed to withstand the forces of floodwater (including any potential debris loading) up to the 1% AEP flood event plus 500mm freeboard, giving regard to the depth and velocity of floodwaters.</li> <li>• The tracking axis for solar tracking modules would be located above 1% AEP flood event plus 500mm freeboard.</li> <li>• The mounting height of the solar module frames would be designed such that the lower edge of the module is clear of the predicted 1% AEP flood level.</li> <li>• All electrical infrastructure, including inverters, would be located above the 1% AEP flood level plus 500mm freeboard.</li> <li>• Where electrical cabling is required to be constructed below the 1% AEP flood level it would be capable of continuous submergence in water.</li> <li>• The proposed perimeter security fencing would be constructed in a manner which does not adversely affect the flow of floodwater and should be designed to withstand the forces of floodwater, or collapse in a controlled manner to prevent impediment to floodwater.</li> <li>• Security fencing would be designed so as to create two separate fenced compounds on either side of Duval Creek.</li> </ul>	Design		



ID	Safeguards and Mitigation Measures	C	O	D
2	At the substation site, slight raising of the adjacent roadway (or similar type bunding) is recommended in order to divert upslope runoff around this critical piece of infrastructure.	Design		
3	<p>If the proposed crossing structures over Duval Creek will be rendered impassable during significant flood events, the following would occur:</p> <ul style="list-style-type: none"> <li>i. Flood warning signs and flood level indicators should be placed on each approach to the proposed crossings.</li> <li>ii. A flood refuge building or structure be provided within the Proposal area on the eastern side of Duval Creek, such that in the event the proposed Duval Creek crossings are not trafficable any staff on-site have access to a weatherproof, flood free structure to seek temporary refuge. Such refuge area should be located a minimum of 500mm above the PMF level.</li> </ul> <p>A Business Floodsafe Plan be prepared for the development to ensure the safety of employees during flood events in general accordance with the NSW SES “Business Floodsafe Toolkit and Plan”.</p>	C	O	D
4	<p>Any road crossings on watercourses within the Proposal Area would be of the type defined in Table 2 of the Hydrological and Hydraulic Analysis Report was prepared by Footprint NSW Pty Ltd in Appendix G.</p> <p>Any proposed crossings (vehicular or service) of existing watercourses on the subject site should be designed in accordance with the following guidelines, and in the case of vehicle crossing should preferably consist of bed level crossings constructed flush with the bed of the watercourse on first and second order watercourses to minimise any hydraulic impact:</p> <ul style="list-style-type: none"> <li>i. Guidelines for Watercourse Crossings on Waterfront Land (NSW DPI, 2012)</li> <li>ii. Guidelines for Laying pipes and Cables in Watercourses on Waterfront Land (NSW DPI, 2012).</li> </ul>	Design		
5	<p>Within the floodplain access roads should be constructed as close to natural ground levels as possible so as not to form an obstruction to floodwaters.</p> <ul style="list-style-type: none"> <li>• The surface treatment of roads should be designed giving regard to the velocity of floodwaters to minimise potential for scouring during flood events.</li> </ul>	C		
6	An Emergency Response Plan incorporating a Flood Response Plan would be prepared prior to construction covering all phases of the Proposal . The plan would:	C	O	D

ID	Safeguards and Mitigation Measures	C	O	D
	<ul style="list-style-type: none"> <li>Detail who would be responsible for monitoring the flood threat and how this is to be done.</li> <li>Detail specific response measures to ensure site safety and environmental protection.</li> <li>Outline a process for removing any necessary equipment and materials offsite and out of flood risk areas (i.e. rotate array modules to provide maximum clearance of the predicted flood level).</li> <li>Consider site access in the event that some tracks become flooded.</li> <li>Establish an evacuation point.</li> <li>Define communication protocols with emergency services agencies.</li> </ul>			
7	<b><u>Construction of waterway crossings or services through waterways would be designed and constructed in accordance with DPI Fisheries Policy &amp; Guideline document: Policy and Guidelines for Fish Habitat Conservation and Management (Update 2013)</u></b>	C		
<b>Visual amenity and landscape character</b>				
1	<p>The materials and colour of onsite infrastructure would, where practical, be non-reflective and in keeping with the materials and colouring of existing infrastructure or of a colour that will blend with the landscape. Where practical:</p> <ul style="list-style-type: none"> <li>Proposed new buildings will be non-reflective and in eucalypt green, beige or muted brown.</li> <li>Pole mounts will be non-reflective.</li> <li>Security fencing posts and wire would be non-reflective.</li> </ul>	Design		
2	During construction, dust would be controlled in response to visual cues.	C		
3	Night lighting would be minimised to the maximum extent possible (i.e. manually operated safety lighting at main component locations).		O	
4	In the event that a Development Application for a residential dwelling on Lot 4 DP800611, the proponent would undertake consultation with the landowner in relation to potential visual impacts.	C		
5	<b>The proponent has committed to provide funding towards vegetation screening for Lot 4 DP876537, in the event existing vegetation within this property dies or is cleared.</b>	C	O	

ID	Safeguards and Mitigation Measures	C	O	D
<b>Noise and vibration</b>				
1	<p>A Noise Management Plan would be developed as part of the CEMP. The plan would include, but not be limited to:</p> <ul style="list-style-type: none"> <li>• Use less noisy plant and equipment where feasible and reasonable.</li> <li>• Plant and equipment to be properly maintained.</li> <li>• Provide special attention to the use and maintenance of 'noise control' or 'silencing' kits fitted to machines to ensure they perform as intended.</li> <li>• Strategically position plant on site to reduce the emission of noise to the surrounding neighbourhood and to site personnel.</li> <li>• Avoid any unnecessary noise when carrying out manual operations and when operating plant.</li> <li>• Any equipment not in use for extended periods during construction work should be switched off.</li> <li>• Complaints procedure deal with noise complaints that may arise from construction activities. Each complaint would need to be investigated and appropriate noise amelioration measures put in place to mitigate future occurrences, where the noise in question is in excess of allowable limits.</li> <li>• Establish good relations with people living in the vicinity of the site at the beginning of Proposal and maintain. Keep people informed, deal with complaints seriously and expeditiously. The community liaison member of staff should be adequately experienced.</li> </ul>	C		
<b>Water use and water quality</b>				
1	<p>Design waterway crossings and services crossing in accordance with the publications:</p> <ul style="list-style-type: none"> <li>• <i>Why do fish need to cross the road? Fish Passage Requirements for Waterway Crossings</i> (Fairfull and Witheridge, 2003).</li> <li>• <i>Policy and Guidelines for Fish Friendly Waterway Crossings</i> (NSW DPI, 2003).</li> <li>• <i>Guidelines for Watercourse Crossings on Waterfront Land</i> (NSW DPI, 2012).</li> <li>• <i>Guidelines for Laying Pipes and Cable in Watercourses on Waterfront Land</i> (NSW DPI, 2012).</li> </ul>	C	O	D

ID	Safeguards and Mitigation Measures	C	O	D
2	All fuels, chemicals, and liquids would be stored at least 50 m from any waterways or drainage lines, not on sloping land and would be stored in an impervious bunded area.	C	O	D
3	Machinery would be checked daily to ensure there is no oil, fuel or other liquids leaking from the machinery. All staff would be appropriately trained through toolbox talks for the minimisation and management of accidental spills.	C	O	D
4	The refueling of plant and maintenance would be undertaken in impervious bunded areas on hardstand areas only.	C	O	D
5	All potential pollutants stored on-site would be stored in accordance with HAZMAT requirements and bunded.	C	O	D
6	Adequate incident management procedures would be incorporated into the Construction and Operation Environmental Management Plans, including requirement to notify EPA for incidents that cause material harm to the environment (refer s147-153 Protection of the Environment Operations Act).	C	O	D
7	Ensure appropriate drainage controls are incorporated into the design to minimise the area of disturbance, runoff and pollutant generation.	Design		
8	If groundwater is to be intercepted at any stage of the development the proponent must obtain the relevant entitlement and approval where required prior to any extraction.	C	O	D
9	Re-use of stormwater should be considered wherever possible.		O	
10	Inspect stormwater control measures at least quarterly, and before and after rainfall of more than 10 mm in 24 hours.	C	O	
<b>Historic heritage</b>				
1	Should an item of historic heritage be identified, the Heritage Division (EES) would be contacted prior to further work being carried out in the vicinity.	C	O	D
<b>Social and economic impacts</b>				

ID	Safeguards and Mitigation Measures	C	O	D
1	Liaison with local industry representatives to maximise the use of local contractors, manufacturing facilities, materials.	C		
2	Liaison with local representatives regarding accommodation options for staff, to minimise adverse impacts on local services.	C		D
3	Liaison with local tourism industry representatives to manage potential timing conflicts with local events.	C		D
4	<p>The Community Consultation Strategy would be implemented to manage impacts to community stakeholders, including but not limited to:</p> <ul style="list-style-type: none"> <li>• Protocols to keep the community updated about the progress of the Proposal and Proposal benefits.</li> <li>• Protocols to inform relevant stakeholders of potential impacts (haulage, noise, air quality etc.).</li> <li>• Protocols to respond to any complaints received.</li> </ul>	C		D
<b>Traffic, transport and safety</b>				
1	<p>A Haulage Plan would be developed and implemented during construction and decommissioning, including but not limited to:</p> <ul style="list-style-type: none"> <li>• Assessment of road routes to minimise impacts on transport infrastructure.</li> <li>• Direction of traffic flow (both heavy and light).</li> <li>• Loads, weights and length of haulage and construction related vehicles and the number of movements of such vehicles.</li> <li>• Scheduling of deliveries of major components to minimise safety risks (on other local traffic).</li> <li>• Traffic controls (signage and speed restrictions etc.).</li> <li>• All heavy vehicle movements to/from the access point are to be managed to ensure that only one inbound or outbound vehicle is travelling along the access route in the vicinity of the site at a time.</li> <li>• Heavy vehicle movements into and out of the Development Site will be controlled via traffic management means, including a traffic controller, temporary lowered speed limit and additional road signage alerting vehicles of truck movements in the area.</li> </ul>	C	O	D



ID	Safeguards and Mitigation Measures	C	O	D
2	<p><b>A Construction Traffic Management Plan (CTMP) will be prepared prior to construction commencing by the appointed contractor. The CTMP will provide additional information regarding the traffic volumes and distribution of construction vehicles that is not available at this time, including:</b></p> <p><b>Road transport volumes, distribution and vehicle types broken down into:</b></p> <ul style="list-style-type: none"> <li>• Hours and days of construction.</li> <li>• Schedule for phasing/staging of the project.</li> </ul> <p><b>The origin, destination and routes for:</b></p> <ul style="list-style-type: none"> <li>• Employee and contractor light traffic.</li> <li>• Heavy vehicle traffic.</li> <li>• Oversize and overmass traffic.</li> </ul> <p>A Traffic Management Plan would be developed and implemented during construction and decommissioning. The plan will be prepared in consultation with the relevant road authority and the appointed transport contractor. The plan would include, but not be limited to:</p> <ul style="list-style-type: none"> <li>• The designated routes and vehicular access of construction traffic (both light and heavy) to the site. This will include the management and coordination of movement of vehicles for construction and worker related access to limit disruptions to other motorists, emergency vehicles, school buses and other public transport.</li> <li>• Procedure for informing the public where any road access will be restricted as a result of the project.</li> <li>• The designated routes of construction traffic to the site.</li> <li>• Carpooling/shuttle bus arrangements to minimise vehicle numbers during construction.</li> <li>• Scheduling of deliveries.</li> <li>• Community consultation regarding traffic impacts for nearby residents. <b>Including, neighbours of the solar farm be notified regarding the timing of major deliveries which may require additional traffic control and disrupt access.</b></li> <li>• Consideration of cumulative impacts.</li> </ul>	C		D

ID	Safeguards and Mitigation Measures	C	O	D
	<ul style="list-style-type: none"> <li>Traffic controls (speed limits, signage, etc.), and any proposed precautionary measures to warn road users such as motorists about the construction activities for the project, especially at the access site along New England Highway.</li> <li>Procedure to monitor traffic impacts and adapt controls (where required) to reduce the impacts.</li> <li>Details of measures to be employed to ensure safety of road users and minimise potential conflict.</li> <li>A driver Code of Conduct to address such items as appropriate driver behaviour including adherence to all traffic regulations and speed limits, driver fatigue, safe overtaking and maintaining appropriate distances between vehicles, etc. and appropriate penalties for infringements of the Code.</li> <li>Details of procedures for receiving and addressing complaints from the community concerning traffic issues associated with truck movements to and from the site.</li> <li>Providing a contact phone number to enable any issues or concerns to be rapidly identified and addressed through appropriate procedures.</li> <li>Water to be used on unsealed roads to minimise dust generation through increased traffic use.</li> <li><b>Loading and unloading is proposed to occur within the Development Site. No street or roads will be used for material storage at any time.</b></li> <li><b>Delivery of larger plant to occur outside of school bus service times to prevent larger vehicles interacting with the school bus.</b></li> <li><b>All vehicles will enter and exit the site in a forward direction.</b></li> <li><b>Management of vehicular access to and from the site is essential in order to maintain the safety of the general public as well as the labour force. The following code is to be implemented as a measure to maintain safety within the site:</b> <ul style="list-style-type: none"> <li><b>Utilisation of only the designated transport routes.</b></li> <li><b>Construction vehicle movements are to abide by finalised schedules as agreed by the relevant authorities.</b></li> </ul> </li> <li><b>All permits for working within the road reserve must be received from the relevant authority prior to works commencing.</b></li> </ul>			

ID	Safeguards and Mitigation Measures	C	O	D
	<ul style="list-style-type: none"> <li>• <b>A map of the primary haulage routes highlighting critical locations.</b></li> <li>• <b>An induction process for vehicle operators and regular toolbox meetings.</b></li> <li>• <b>Local climatic conditions that may impact road safety of employees throughout all project phases (e.g. fog, wet and significant dry, dusty weather).</b></li> <li>• Following construction, a post condition survey of the relevant sections of the existing road network to be undertaken to ensure it is of similar condition to that prior to construction.</li> </ul>			
3	Obtain a Section 138 Consent from the relevant council/agency to perform works within the road reserve.	C		
4	<p><del>The proponent would consult with Armidale Regional Council and TfNSW regarding the proposed upgrade of the unnamed road for site access.</del></p> <p><del>The upgrade would be subject to detailed design and would be designed and constructed to the relevant Australian road design standards.</del></p> <p><b>The unnamed Council road between the New England Highway and the Development Site would be upgraded accordance with the design requirements of a 'Rural Access Minor' road as provided by Armidale Regional Council.</b></p>	Design		
5	The proponent would repair any damage resulting from project traffic (except that resulting from normal wear and tear) as required at the proponent's cost.	C		D
6	The proponent would engage an appropriately qualified person to prepare a Road Dilapidation Report for all road routes to be used during the construction (and decommissioning) activities, in consultation with the relevant road authority. This report is to address all road related infrastructure. Reports must be prepared prior to commencement and after completion of construction (and decommissioning). Any damage resulting from the construction (or decommissioning) traffic, except that resulting from normal wear and tear, must be repaired at the Proponent's cost. Such work shall be undertaken at a time agreed upon between the Proponent and relevant road authorities.	PC		D
7	Prior to the commencement of construction on-site, the Proponent would undertake all works to upgrade relevant state roads, their associated road reserve and any public infrastructure in that road reserve to a standard suitable for use by heavy vehicles to meet any reasonable requirements that may be specified	PC		D

ID	Safeguards and Mitigation Measures	C	O	D
	by TfNSW. The design, specifications and construction of these works must be completed and certified by an appropriately qualified person to a standard to accommodate the traffic generating requirements of the project. On Classified Roads the geometric road design and pavement design must be to the satisfaction of the TfNSW.			
8	For works on the State road network the developer is required to enter a Works Authorisation Deed (WAD) with TfNSW before finalizing the design or undertaking any construction work within or connecting to the road reserve. The WAD documentation is to be submitted for each specific change to the state road network for assessment and approval by TfNSW prior to commencement of any works within the road reserve.	PC		
9	<b>A heavy vehicle permit would be sought from the National Heavy Vehicle Regulator for use of the unnamed Council road by heavy vehicles during construction.</b>	PC		
10	<b>A Decommissioning Traffic Management Plan would be developed for the decommissioning phase of the Proposal. This plan will be prepared prior to decommissioning and would have the same requirements as the Construction Traffic Management Plan (where relevant).</b>			D
<b>Bush fire</b>				
1	Copper conductors would be used where necessary to electrically bond the metal structures to earth to protect personnel and equipment in the event of lightning strikes and electrical faults.	Design		
2	Dangerous or hazardous materials would be stored and handled in accordance with AS1940-2004: The storage and handling of flammable and combustible liquids.	C	O	D
3	Develop a Bush Fire Management Plan to include but not be limited to: <ul style="list-style-type: none"> <li>• Specific management of activities with a risk of fire ignition (hot works, vehicle use, smoking, use of flammable materials, blasting).</li> <li>• Incorporation of fire safety and response in staff and contractor induction, training, OHS procedures and Work Method Statements.</li> <li>• Designation of a staff safety officer tasked with ensuring implementation of the plan and regular liaison with firefighting agencies.</li> </ul>	C	O	D

ID	Safeguards and Mitigation Measures	C	O	D
	<ul style="list-style-type: none"> <li>Document all firefighting resources maintained at the site with an inspection and maintenance schedule.</li> <li>Monitoring and management of vegetation fuel loads.</li> <li>A communications strategy incorporating use of mobile phones, radio use (type, channels and call-signs), Fire Danger Warning signs located at the entrance to the site compounds, emergency services agency contacts.</li> <li>In developing the Bush Fire Management Plan, NSW RFS would be consulted on the volume and location of water supplies, fire-fighting equipment maintained on-site, fire truck connectivity requirements, proposed APZ and access arrangements, communications, vegetation fuel levels and hazard reduction measures.</li> </ul>			
4	<p>An APZ of minimum 10 m would be maintained between remnant or planted woody vegetation and solar farm infrastructure. The APZ around the perimeter of the site would incorporate a 4 m wide <del>gravel</del> <b>unsealed</b> access track.</p> <p>Average grass height within the APZ would be maintained at or below 5 cm on average throughout the October-March fire season. Average grass height outside the APZ, including beneath the solar array, would be maintained at or below 15 cm throughout the fire season.</p>	C	O	
5	The overhead powerlines at the site would be managed by maintaining appropriate vegetation clearance limits to minimise potential ignition risks, in accordance with the ISSC 3 Guideline for Managing Vegetation Near Power Lines.		O	
6	Appropriate fire-fighting equipment would be held on site to respond to any fires that may occur at the site during construction. This equipment would include fire extinguishers, a 1000 L water cart retained on site on a precautionary basis, particularly during any blasting and welding operations. Equipment lists would be detailed in Work Method Statements.	C		
7	The NSW RFS and Fire and Rescue would be provided with a contact point for the solar farm, during construction and operation.	C	O	



ID	Safeguards and Mitigation Measures	C	O	D
8	Following commissioning of the solar farm, the local RFS and Fire and Rescue brigades would be invited to an information and orientation day covering access, infrastructure, firefighting resources on-site, fire control strategies and risks/hazards at the site.		O	
9	The perimeter access track would comply with the requirements for Fire Trails in the PBP guidelines. All access and egress tracks on the site would be maintained and kept free of parked vehicles to enable rapid response for firefighting crews and to avoid entrapment of staff in the case of bush fire emergencies. Access tracks would be constructed as through roads as far as practicable. Dead end tracks would be signposted and include provision for turning firetrucks.	C	O	D
10	A Hot Works Permit system would be applied to ensure that adequate safety measures are in place. Fire extinguishers would be present during all hot works. Where practicable hot works would be carried out in specific safe areas (such as the Construction Compound temporary workshop areas).	C	O	D
11	Machinery capable of causing an ignition would not be used during bush fire danger weather, including Total Fire Ban days.	C	O	D
12	<p>Prior to operation of the solar farm, an Emergency Response Plan (ERP) would be prepared in consultation with the RFS and Fire and Rescue NSW. This plan must include but not be limited to:</p> <ul style="list-style-type: none"> <li>Specifically addresses foreseeable on site and off site fire events and other emergency incidents.</li> <li>Risk control measures would include the level of personal protective clothing required to be worn, the minimum level of respiratory protection required, decontamination procedures, minimum evacuation zone distances and a safe method of shutting down and isolating the PV system (either in its entirety or partially, as determined by risk assessment).</li> <li>Outline other risk control measures that may need to be implemented in a fire emergency due to any unique hazards specific to the site.</li> <li>Two copies of the ERP are stored in a prominent 'Emergency Information Cabinet' which is located in a position directly adjacent to the site's main entry point/s.</li> </ul> <p>Once constructed and prior to operation, the operator of the facility would contact the relevant local emergency management committee (LEMC).</p>		O	

ID	Safeguards and Mitigation Measures	C	O	D
13	<p>Fire risks associated with the lithium-ion energy storage facility would include:</p> <ul style="list-style-type: none"> <li>• Locating the Energy Storage Facility as far as practicable from any sensitive receptors or large stands of vegetation.</li> <li>• Installing reliable automated monitoring (voltage and temperature), alarm and shutdown response systems.</li> <li>• Installing reliable integrated fire detection and fire suppression systems (inert gas).</li> <li>• Ensuring the battery containers are not vulnerable to external heat effects in the event of a bush fire.</li> <li>• Designing appropriate separation and isolation between battery containers and between batteries and other infrastructure, including gravel surfacing around the facility.</li> <li>• Compliance with all relevant guidelines and standards.</li> <li>• Preparation of a specific Battery Fire Response Plan, under the general Bush fire Management Plan, in consultation with fire authorities, fire suppression experts and in reference to relevant standards and guidelines.</li> </ul> <p>Facilitation of first responder training in the management of Lithium-ion battery fires at the site for local brigades.</p>		O	
14	A Fire Safety Study (FSS) will be undertaken and developed in accordance with the requirements of Hazardous Industry Planning Advisory Paper No. 2 (HIPAP No.2) and consultation with FRNSW prior to commencement of construction. The FSS will consider the limited operational capacity of local fire agencies and the need for the facility to achieve an adequate level of on-site fire and life safety dependence.	PC		
15	<b><u>A 20,000 litre water supply (tank) fitted with a 65mm storz fitting shall be suitably located along a property access road to the development within the APZ.</u></b>	PC/C	O	
<b>Electric and magnetic fields</b>				
1	All electrical equipment would be designed in accordance with relevant codes and industry best practice standards in Australia.	C		

ID	Safeguards and Mitigation Measures	C	O	D
2	All design and engineering would be undertaken by qualified and competent person/s with the support of specialists as required.	C		
3	Design of electrical infrastructure would minimise EMFs.	C		
<b>Air quality and climate</b>				
1	Track width of internal tracks would be minimised during detailed design.	Design		
2	Dust generation by vehicles accessing the site and earthworks at the site would be suppressed using water applications or other means as required.	C		D
3	Vehicle loads of material which may create dust would be covered while using the public road system.	C		D
4	All vehicles and machinery used at the site would be in good condition, fitted with appropriate emission controls and comply with the requirements of the POEO Act, relevant Australian standards and manufacturer's operating recommendations. Plant would be operated efficiently and turned off when not in use.	C	O	D
5	Fires and material burning are prohibited on the Development Site.	C	O	D
6	Track width of internal tracks would be minimised during detailed design.	C		D
<b>Resource and waste generation</b>				
1	<p>A Waste Management Plan (WMP) would be developed to minimise wastes. It would include but not be limited to:</p> <ul style="list-style-type: none"> <li>• Identification of opportunities to avoid, reuse and recycle, in accordance with the waste hierarchy.</li> <li>• Quantification and classification of all waste streams.</li> <li>• Provision for recycling management onsite.</li> <li>• Provision of toilet facilities for onsite workers and identify that sullage would be disposed of (i.e., pump out to local sewage treatment plant).</li> <li>• Tracking of all waste leaving the site.</li> </ul>	C	O	D

ID	Safeguards and Mitigation Measures	C	O	D
	<ul style="list-style-type: none"> <li>Disposal of waste at facilities permitted to accept the waste.</li> </ul> Requirements for hauling waste (such as covered loads).			
2	Septic system is installed and operated according to the Armidale Regional Council regulations.	C	O	
<b>Hazardous materials and development</b>				
1	Design of the Energy Storage Facility would be undertaken to address fire risks (spacing and setbacks).	Design		
2	Dangerous or hazardous materials would be stored and handled in accordance with AS1940-2004: <i>The storage and handling of flammable and combustible liquids</i> .	C	O	D
3	Protocols would be developed for lithium-ion battery energy storage, maintenance, and incident response to mitigate Lithium-ion fire risks.	C	O	D
4	The transportation of new and waste lithium-ion batteries would comply with the requirements of the Dangerous Goods Code, including specific 'special provisions' and 'packing instructions' applying to the transportation of Li-ion batteries.	C	O	D

## 7 Conclusion

This Amendment Report has considered the amendments to the proposed Tilbuster Solar Farm proposal. The proposed changes are to the Development Footprint and generation capacity, the intersection upgrade, the BESS capacity and other minor amendment.

The investigation of potential environmental impacts of the proposed amendments has shown there are no substantive additional impacts to those proposed in the EIS. The amendments result in some changes to the mitigation strategies for the project. This amendment would result in a reduction in total impact area of the Proposal and would significantly reduce impacts to Critically Endangered Box Gum Woodland, improve traffic safety and reduce the capacity of the BESS.

The project benefits of the proposed Tilbuster Solar Plan would remain unchanged. The proposal would result in a number of benefits including:

- Supporting Commonwealth and NSW climate change commitments.
- Contributing enough clean renewable energy to provide electricity to about 48,000 average NSW homes and displace approximately 250,000 metric tonnes of carbon dioxide annually.
- Enhancing electricity reliability and security by contributing about 150MW of clean energy to the national grid and supporting the energy transition from coal fired to renewables. Additionally, the proposal incorporates a 30 MWH battery energy storage system with a peak output of 15 MW, that allows energy to be released during periods of highest demand.
- Direct and indirect employment opportunities during all phases of the proposal, including around 125 construction jobs during the peak construction phase and around 5 equivalent full-time jobs once the proposal is operational.
- Estimated \$174 million in capital expenditure in total.
- Development of a new land use thereby diversifying local land uses within the locality and offering host landholders an alternative income stream.

The project has been assessed in accordance with the *Environmental Planning and Assessment Act 1979* and has taken into consideration the *Environment Protection and Biodiversity Conservation Act 1999*, along with other Federal, State and Local Government legislation, policy and guidelines. The scope of the assessment covered the Secretary's Environmental Assessment Requirements, the requirements of other State and Federal agencies, and consideration of the wellbeing of community stakeholders. Specialists were also engaged to provide impact assessment expertise in key environmental areas including traffic, biodiversity, noise and Aboriginal heritage.

The specialist's reports found that impacts would be generally managed consistent with the measures set out in the initial EIS. However, updates to several specialist studies were completed as part of the amendment report process, as follows:

1. Biodiversity Development Assessment Report v1.4 (BDAR) (Appendix C) (NGH, 2021). The BDAR was amended, updating the assessment to include the further Development Footprint refinement identified to reduce biodiversity impacts. The updated report is summarised in Section 5.1.
2. The Aboriginal Cultural Heritage Assessment v3.1 (ACHA) (Appendix E) (NGH, 2021). The ACHA was amended, updating the assessment to include the further Development



Footprint refinement identified to reduce biodiversity impacts. The updated report is summarised in Section 5.4.

3. Traffic Impact Assessment (TIA) (Appendix G) (Amber, 2021). The TIA was amended, to respond to comments from Armidale Regional Council and Transport for NSW. The updated report is summarised in Section 5.3.
4. Hydrological and Hydraulic Analysis report v3 (“Hydrology Report”) (Appendix H) (Footprint Engineering, 2021). The Hydrology Report was amended, updating the assessment to include the further Development Footprint refinement identified to reduce biodiversity impacts. The updated report is summarised in Section 5.4.
5. Moir Landscape Architecture (Moir Landscape Architecture , 2021) in collaboration with NGH have completed an amended Visual Impact Assessment. This assessment includes assessment of additional receivers, updates to assessments of previously identified receivers and consideration of the amendments identified in this report. This information is provided in Section 5.2, and further assessment information is shown in Appendix F.
6. The Noise and Vibration Assessment (Technical memo) (Renzo Tonin & Associates, 2021) was considered. Additional assessment was undertaken with Renzo Tonin and Associates to review additional sensitive receivers. No additional impacts or safeguards were identified relative to the 2020 EIS. Noise and vibration are addressed in Section 5.6.

In consideration of the assessment of the impacts from the proposal contained in the EIS, and the proposed mitigation measures committed to in the revised mitigation measures (included in Appendix A of this report), it is believed that all relevant matters have been addressed and that the project should now proceed for approval by the Minister.

## **8 References**

- Amber, 2021. *Tilbuster Solar Farm Traffic Impact Assessment*, s.l.: s.n.
- ARRB Transport Research, 2009. *Unsealed roads manual : guidelines to good practice*, s.l.: s.n.
- Austrroads, 2017. *Guide to Traffic Management Part 6: Intersections, Interchanges and Crossings*. s.l.:Austrroads.
- DPIE, 2021. *Water Management (General) Regulation 2018 Hydro Line spatial data*, s.l.: s.n.
- Footprint Engineering, 2021. *Proposed Solar Farm, Tilbuster, New South Wales Hydrological and Hydraulic Analysis*, s.l.: s.n.
- Moir Landscape Architecture , 2021. *Tilbuster Solar Farm Wireframe Diagram Analysis*, s.l.: s.n.
- NGH, 2020. *Environmental Impact Statement Tilbuster Solar Farm October 2020*, s.l.: s.n.
- NGH, 2021. *Tilbuster Solar Farm Aboriginal Cultural Heritage Assessment v3.1*, Sydney: NGH.
- NGH, 2021. *Tilbuster Solar Farm Biodiversity Development Assessment Report v1.4* , Sydney: NGH.
- NGH, 2021. *Tilbuster Solar Farm Submissions Report*, s.l.: s.n.
- Renzo Tonin & Associates, 2021. *Tilbuster Solar Farm - Newly Identified Receivers* , s.l.: s.n.

## Appendix A Revised Mitigation measures

The complete set of updated mitigation measures are presented below.

PC: Pre-construction, C: Construction, PO: Pre-operation, O: Operation, D: Decommissioning

ID	Safeguards and Mitigation Measures	C	O	D
<b>Biodiversity</b>				
1	Avoid critical life cycle events: <ul style="list-style-type: none"> <li>Where practicable, hollow-bearing trees would not be removed during breeding and hibernation season (June to January) to mitigate impacts</li> <li>If clearing outside of this period cannot be achieved, pre-clearing surveys would be undertaken by an ecologist or suitably qualified person to ensure no impacts to fauna would occur.</li> </ul>	C		
2	Clearing protocols to include: <ul style="list-style-type: none"> <li>Pre-clearing checklist</li> <li>Tree clearing procedure</li> <li>Staged habitat removal</li> <li>Unexpected threatened species finds procedure</li> <li>Approved clearing limits to be clearly delineated with temporary fencing or similar prior to construction commencing</li> <li>No stockpiling or storage within dripline of any mature trees</li> <li>In areas to clear adjacent to areas to be retained, chainsaws would be used rather than heavy machinery to minimise risk of unauthorised disturbance.</li> </ul>	C		
3	Relocate habitat features: <ul style="list-style-type: none"> <li>Tree-clearing procedure including relocation of habitat features to adjacent area for habitat enhancement.</li> </ul>	C		

ID	Safeguards and Mitigation Measures	C	O	D
4	Manage noise impacts: <ul style="list-style-type: none"> <li>Construction Environmental Management Plan will include measures to avoid noise encroachment on adjacent habitats such as avoiding night works as much as possible.</li> </ul>	C		
5	Reduce impacts of light spill <ul style="list-style-type: none"> <li>Avoid Night Works</li> <li>Direct lights away from vegetation.</li> </ul>	C	O	
6	Adaptive dust monitoring programs to control air quality: <ul style="list-style-type: none"> <li>Daily monitoring of dust generated by construction and operation activities</li> <li>Construction would cease if dust observed being blown from site until control measures were implemented</li> <li>All activities relating to the proposal would be undertaken with the objective of preventing visible dust emissions from the development site.</li> </ul>	C		
7	Program construction activities to avoid impacts: <ul style="list-style-type: none"> <li>Where practicable, time construction activities outside Koala breeding season</li> <li>If clearing outside of this period cannot be achieved, pre-clearing surveys would be undertaken by an ecologist or suitably qualified person to ensure no impacts to fauna would occur.</li> </ul>	C		
8	Protect significant environmental features: <ul style="list-style-type: none"> <li>Fencing from buffer of riparian zones and drainage lines.</li> </ul>	C		
9	A Weed Management procedure would be developed for the proposal to prevent and minimise the spread of weeds. This would include: <ul style="list-style-type: none"> <li>Management protocol for declared priority weeds under the <i>Biosecurity Act 2015</i> during and after construction</li> <li>Weed hygiene protocol in relation to plant, machinery, and fill</li> <li>The weed management procedure would be incorporated into the Biodiversity Management Plan.</li> </ul>	C	O	
10	Staff training and site briefing to communicate environmental features:	C	O	

ID	Safeguards and Mitigation Measures	C	O	D
	<ul style="list-style-type: none"> <li>• Site induction</li> <li>• Toolbox talks</li> <li>• Awareness training during site inductions regarding enforcing site speed limits.</li> <li>• Site speed limits to be enforced to minimise fauna strike.</li> </ul>			
11	<p>Preparation of a Construction Flora and Fauna Management Plan that would include protocols for:</p> <ul style="list-style-type: none"> <li>• Protection of native vegetation to be retained</li> <li>• Best practice removal and disposal of vegetation</li> <li>• Staged removal of hollow-bearing trees and other habitat features such as fallen logs with attendance by an ecologist</li> <li>• Avoiding the removal of hollow-bearing trees during spring, where practicable, to avoid the main breeding period for hollow-dependent fauna</li> <li>• Rehabilitation of disturbed areas with flora species that are characteristic of the PCTs that would be impacted (PCTs 567 and 704)</li> <li>• Installation of nest boxes or hollow augmentation at a 2:1 ratio to mitigate removal of HBTs that are potential Greater Glider den sites</li> <li>• Controlling weeds, feral pests and pathogens</li> <li>• Active management of retained vegetation to substantially improve its condition, connectivity and ecological function (see below).</li> </ul>	C		
12	<p>Protect connectivity:</p> <ul style="list-style-type: none"> <li>• No use of barbed wire fencing as it provides a hazard to fauna such as Koala, Greater Glider and microbats</li> <li>• Fencing adjacent to areas of the development site that are connected to areas of bushland outside the development site are to include Koala friendly structures to aid traversal of Koala across their range.</li> </ul>	C		
13	<p>Fencing to protect features:</p> <ul style="list-style-type: none"> <li>• Fencing from buffer of riparian zones, drainage lines and farm dams to be retained</li> </ul>	C	O	



ID	Safeguards and Mitigation Measures	C	O	D
	<ul style="list-style-type: none"> <li>Development site to be fenced entirely during construction and operation.</li> </ul>			
<b>Aboriginal heritage</b>				
1	The Tilbuster Solar Farm development avoids the six scarred tree sites (Tilbuster Solar Farm ST1, Tilbuster Solar Farm ST 2;Tilbuster Solar Farm ST3; Tilbuster Solar Farm ST4; Tilbuster Solar Farm ST5 and Tilbuster Solar Farm ST6) as well as the cultural trees (Tilbuster Solar Farm CT1, Tilbuster Solar Farm CT2 and Tilbuster Solar Farm CT3), which are located within the proposed development footprint. A minimum of a five-metre buffer should be established by placing high visibility bunting (or similar) around each of these trees to avoid impacts, with 10 metres preferred where possible. Additionally, some of the locations of the trees have now been designated within a 'No Impact Zone' for further protection measures.	C	O	D
2	Tilbuster Solar Farm ST4 is located between two areas proposed for solar arrays. It is recommended that a minimum of a five-metre buffer should be established by placing high visibility bunting (or similar) around this tree to avoid impacts.	C	O	D
3	The two No Impact Areas within the Development Site boundary as shown in Figure 7 2, which are based on the areas outside the development footprint, but inside the Development Site, must be fenced or otherwise clearly delineated and included in all onsite inductions and management plans. The development should avoid any direct or indirect impacts to the sites located within these no impact zones, including Tilbuster Solar Farm IF8, IF12, IF13, IF18, IF30, IF31, IF33, IF51, IF52, IF53; Tilbuster Solar Farm AS1, AS8, AS9; Tilbuster Solar Farm ST1, ST2, ST3, CT1 and CT3.	C	O	D
4	The southernmost No Impact Area, immediately to the south of the Development Site boundary must not be subject to any impacts, for the protection of Tilbuster Solar Farm IF9, IF21, IF22, IF39, Tilbuster Solar Farm AS13, part of AS16, AS18, AS19; and Tilbuster Solar Farm ST1. The existing fences must remain in place. Further assessment will be required if any impacts will occur within this area, including the replacement of existing fencing.	C	O	D
5	There are three sites that were recorded during the survey which are located outside the Development Site boundary (and not included within the No Impact Area): Tilbuster Solar Farm IF38, AS26 and AS28. These must not be subject to indirect or direct impacts as a result of activities relating to the construction, operation	C	O	D

ID	Safeguards and Mitigation Measures	C	O	D
	or decommissioning of the solar farm. It is recommended that fencing be placed between the Development Site and AS26 during construction, operation and decommissioning of the site due to its proximity.			
6	With the exception of the access road from the main house along the northern boundary of the Development Site (refer to Figure 1 2 of the EIS), existing farm tracks, not within the development footprint may not be used for the purposes of the solar farm, with specific reference to access by large vehicles or plant. If the use of such tracks is required, these tracks must be assessed including archaeological survey and amendments or addendums to this report.	C	O	D
7	Salvage of the isolated finds and artefact scatters within the development footprint and not within a designated No Impact Zone must be undertaken in the form of surface collection. This would include the collection of the artefacts to be temporarily stored at the NGH office for further analysis, with permanent storage to be at Armidale and Region Aboriginal Cultural Centre & Keeping Place for all artefacts, or where the storage of all artefacts cannot be achieved, formal tools will be stored/displayed at the Cultural Centre, and the remaining artefacts will be buried on site, outside of the development footprint.	C		
8	Monitoring of topsoils stripping by representatives of the RAPs should be undertaken for sites AS4, AS23, AS24 and AS25, with reference to similar programs undertaken at other sites in the region.	C		
9	A minimum five (5) metre buffer should be observed around all sites that are to be avoided and that are not within the designated No Impact Zones. Limited vehicle movement is allowed only within the demonstrated strip adjacent to the west of the middle No Impact Zone and vehicles may not proceed past the the No Impact Zone designated area and fencing.	C	O	D
10	The Proponent should prepare a Cultural Heritage Management Plan (CHMP) to address the potential for finding additional Aboriginal objects during the construction of the solar farm and management of known sites and artefacts. The CHMP should include an unexpected finds procedure to deal with construction activity. The preparation of the CHMP should be completed in consultation with RAPs.	C	O	D
11	In the unlikely event that human remains are discovered during the development works, all work must cease in the immediate vicinity. DPIE, the local police and the RAPs should be notified. Further assessment would be undertaken to determine if the remains were Aboriginal or non-Aboriginal.	C	O	D

ID	Safeguards and Mitigation Measures	C	O	D
	Further archaeological assessment would be required if the proposal activity extends beyond the area of the current investigation. This would include consultation with the registered Aboriginal parties and may include further field surveys and subsurface testing.			
<b>Land and soil</b>				
1	Undertake a base line soil survey prior to construction to inform the CEMP and sub-plans, rehabilitation and operational aspects of soil and groundcover management.	PC		
2	<p>As part of the CEMP, a Soil and Water Management Plan (SWMP) (with erosion and sediment control plans) would be prepared, implemented and monitored during the proposal, in accordance with Landcom (2004), to minimise soil (and water) impacts. These plans would include provisions to:</p> <ul style="list-style-type: none"> <li>• Install, monitor and maintain erosion controls.</li> <li>• Ensure that machinery leaves the site in a clean condition to avoid tracking of sediment onto public roads which may cause risks to other road users through reduced road stability.</li> <li>• Manage topsoil in all excavation activities, separate subsoils and topsoils and ensure that they are replaced in their natural configuration to assist revegetation. Stockpile topsoil appropriately so as to minimise weed infestation, maintain soil organic matter, maintain soil structure and microbial activity.</li> <li>• Minimise the area of disturbance from excavation and compaction; rationalise vehicle movements and restrict the location of activities that compact and erode the soils as much as practical. Any compaction caused during construction would be treated such that revegetation would not be impaired.</li> <li>• Manage works in consideration of heavy rainfall events; if a heavy rainfall event is predicted, the site should be stabilised, and work ceased until the wet period had passed.</li> <li>• Areas of soil disturbed by the Proposal would be rehabilitated progressively or immediately post-construction, reducing views of bare soil.</li> </ul>	C		
3	<p>A Groundcover Management Plan would be developed in consultation with an agronomist and to ensure final land use includes perennial grass cover establishment across the site as soon as practicable after construction and maintained throughout the operation phase. The plan would cover:</p> <ul style="list-style-type: none"> <li>• Soil handling, restoration and preparation requirements.</li> </ul>	C	O	D

ID	Safeguards and Mitigation Measures	C	O	D
	<ul style="list-style-type: none"> <li>Plant Species election.</li> <li>Soil preparation.</li> <li>Establishment techniques.</li> <li>Maintenance and monitoring requirements.</li> <li>Perennial groundcover targets, indicators, condition monitoring, reporting and evaluation arrangements – i.e. A target of 70% live grass cover would apply to protect soils, landscape function and water quality. Additional measures would be implemented where practical when live grass cover falls below 70%. Grass cover would be monitored on a fortnightly basis using an accepted methodology.</li> <li>Contingency measures to respond to declining soil or groundcover condition. I.e. any grazing stock would be removed from the site when cover falls below the target of 70% live ground cover.</li> <li>Identification of baseline conditions for rehabilitation following decommissioning.</li> <li>Preserve the native composition as much as possible.</li> </ul>			
4	The array would be designed to allow sufficient space between panels to establish and promote groundcover beneath the panels and allow for implementation of weed controls.	Design		
5	<p>A Spill and Contamination Response Plan would be developed as part of the overall Emergency Response Plan to prevent contaminants affecting adjacent surrounding environments. The plan would include measures to:</p> <ul style="list-style-type: none"> <li>Respond to the discovery of existing contaminants at the site (e.g. pesticide containers or asbestos), including stop work protocols and remediation and disposal requirements</li> <li>Requirement to notify the EPA for incidents that cause material harm to the environment (refer s147-153 of the POEO Act)</li> <li>Manage the storage of any potential contaminants onsite</li> <li>Mitigate the effects of soil contamination by fuels or other chemicals (including emergency response and the EPA notification procedures and remediation</li> <li>Ensure that machinery arrives on site in a clean, washed condition, free of fluid leaks</li> </ul>	C	O	D

ID	Safeguards and Mitigation Measures	C	O	D
	<ul style="list-style-type: none"> <li>Prevent contaminants affecting adjacent pastures, dams, water courses and native vegetation</li> <li>Monitor and maintain spill equipment</li> <li>Induct and train all site staff.</li> </ul>			
6	The transformers will be filled with oil, and waterproof bunds built around them to manage oil spills.	Design		
7	A protocol would be developed in relation to unexpected discover of buried contaminants within the Development Site (e.g. pesticide containers). It would include stop work, remediation and disposal requirements.	C		
8	<p>A Rehabilitation Plan would be prepared to ensure the array site is returned to at least or better than pre-solar farmland and soil capability. The plan would be developed with reference to the base line soil testing and with input from an agronomist to ensure the site is left stabilised, under a cover crop or other suitable ground cover. The soil survey would be based on:</p> <ul style="list-style-type: none"> <li><i>Australian Soil and Land Survey Handbook</i> (CSIRO, 2009)</li> <li><i>Guidelines for Surveying Soil and Land Resources</i> (CSIRO, 2008)</li> <li><i>The land and soil capability assessment scheme: second approximation</i> (OEH, 2012).</li> </ul>			D
9	A pest and weed management plan would be prepared to manage the occurrence of priority weeds and pest species across the site during construction and operation. The plans must be prepared in accordance with Armidale Regional Council and NSW DPI requirements. The New England Weeds Authority will be consulting during the development of the plan.	C	O	D
<b>Compatibility with existing land uses</b>				
1	Consultation would be undertaken with TransGrid regarding connection to the substation and design of electricity transmission infrastructure.	PC		
2	Consultation with adjacent landowners, to minimise impact of the Proposal on adjacent agricultural activities and access.	PC		
3	Consultation with DPIE (Crown Lands) would be ongoing and the following would be undertaken:	PC		



ID	Safeguards and Mitigation Measures	C	O	D
	Prior to construction, a license will be applied for to allow construction to commence within Crown roads on the Development Site.			
4	Consultation with representatives from nearby major projects, including Salisbury Solar Farm, Oxley Solar Farm, New England Solar Farm, to ensure traffic and pressure on local services are managed adequately.	PC/C		
5	No above ground built infrastructure will be constructed within 20 m of the existing Essential Energy transmission line.	PC/C		
6	Any fencing disturbed during construction of the proposal would be maintained to the existing condition throughout construction. This may involve constructing temporary fencing during the construction period. Following construction, boundary fences around the development site would be reinstated to precondition condition, or better.	C		
<b>Hydrology and flooding</b>				
1	<p>The design of buildings, equipment foundations and footings for electrical componentry and panel mounts would be designed to avoid the 1% AEP flood level to minimise impacts from potential flooding including:</p> <ul style="list-style-type: none"> <li>• The solar array mounting piers would be designed to withstand the forces of floodwater (including any potential debris loading) up to the 1% AEP flood event plus 500mm freeboard, giving regard to the depth and velocity of floodwaters.</li> <li>• The tracking axis for solar tracking modules would be located above 1% AEP flood event plus 500mm freeboard.</li> <li>• The mounting height of the solar module frames would be designed such that the lower edge of the module is clear of the predicted 1% AEP flood level.</li> <li>• All electrical infrastructure, including inverters, would be located above the 1% AEP flood level plus 500mm freeboard.</li> <li>• Where electrical cabling is required to be constructed below the 1% AEP flood level it would be capable of continuous submergence in water.</li> </ul>	Design		

ID	Safeguards and Mitigation Measures	C	O	D
	<ul style="list-style-type: none"> <li>The proposed perimeter security fencing would be constructed in a manner which does not adversely affect the flow of floodwater and should be designed to withstand the forces of floodwater, or collapse in a controlled manner to prevent impediment to floodwater.</li> <li>Security fencing would be designed so as to create two separate fenced compounds on either side of Duval Creek.</li> </ul>			
2	At the substation site, slight raising of the adjacent roadway (or similar type bunding) is recommended in order to divert upslope runoff around this critical piece of infrastructure.	Design		
3	<p>If the proposed crossing structures over Duval Creek will be rendered impassable during significant flood events, the following would occur:</p> <ol style="list-style-type: none"> <li>Flood warning signs and flood level indicators should be placed on each approach to the proposed crossings.</li> <li>A flood refuge building or structure be provided within the Proposal area on the eastern side of Duval Creek, such that in the event the proposed Duval Creek crossings are not trafficable any staff on-site have access to a weatherproof, flood free structure to seek temporary refuge. Such refuge area should be located a minimum of 500mm above the PMF level.</li> </ol> <p>A Business Floodsafe Plan be prepared for the development to ensure the safety of employees during flood events in general accordance with the NSW SES "Business Floodsafe Toolkit and Plan".</p>	C	O	D
4	<p>Any road crossings on watercourses within the Proposal Area would be of the type defined in Table 2 of the Hydrological and Hydraulic Analysis Report was prepared by Footprint NSW Pty Ltd in Appendix G.</p> <p>Any proposed crossings (vehicular or service) of existing watercourses on the subject site should be designed in accordance with the following guidelines, and in the case of vehicle crossing should preferably consist of bed level crossings constructed flush with the bed of the watercourse on first and second order watercourses to minimise any hydraulic impact:</p> <ol style="list-style-type: none"> <li><i>Guidelines for Watercourse Crossings on Waterfront Land</i> (NSW DPI, 2012)</li> <li><i>Guidelines for Laying pipes and Cables in Watercourses on Waterfront Land</i> (NSW DPI, 2012).</li> </ol>	Design		

ID	Safeguards and Mitigation Measures	C	O	D
5	<p>Within the floodplain access roads should be constructed as close to natural ground levels as possible so as not to form an obstruction to floodwaters.</p> <ul style="list-style-type: none"> <li>The surface treatment of roads should be designed giving regard to the velocity of floodwaters to minimise potential for scouring during flood events.</li> </ul>	C		
6	<p>An Emergency Response Plan incorporating a Flood Response Plan would be prepared prior to construction covering all phases of the Proposal . The plan would:</p> <ul style="list-style-type: none"> <li>Detail who would be responsible for monitoring the flood threat and how this is to be done.</li> <li>Detail specific response measures to ensure site safety and environmental protection.</li> <li>Outline a process for removing any necessary equipment and materials offsite and out of flood risk areas (i.e. rotate array modules to provide maximum clearance of the predicted flood level).</li> <li>Consider site access in the event that some tracks become flooded.</li> <li>Establish an evacuation point.</li> <li>Define communication protocols with emergency services agencies.</li> </ul>	C	O	D
7	<p>Construction of waterway crossings or services through waterways would be designed and constructed in accordance with <i>DPI Fisheries Policy &amp; Guideline document: Policy and Guidelines for Fish Habitat Conservation and Management (Update 2013)</i></p>	C		
<b>Visual amenity and landscape character</b>				
1	<p>The materials and colour of onsite infrastructure would, where practical, be non-reflective and in keeping with the materials and colouring of existing infrastructure or of a colour that will blend with the landscape. Where practical:</p> <ul style="list-style-type: none"> <li>Proposed new buildings will be non-reflective and in eucalypt green, beige or muted brown.</li> <li>Pole mounts will be non-reflective.</li> <li>Security fencing posts and wire would be non-reflective.</li> </ul>	Design		
2	<p>During construction, dust would be controlled in response to visual cues.</p>	C		

ID	Safeguards and Mitigation Measures	C	O	D
3	Night lighting would be minimised to the maximum extent possible (i.e. manually operated safety lighting at main component locations).		O	
4	In the event that a Development Application for a residential dwelling on Lot 4 DP800611, the proponent would undertake consultation with the landowner in relation to potential visual impacts.	C		
5	The proponent has committed to provide funding towards vegetation screening for Lot 4 DP876537, in the event existing vegetation within this property dies or is cleared.	C	O	
<b>Noise and vibration</b>				
1	<p>A Noise Management Plan would be developed as part of the CEMP. The plan would include, but not be limited to:</p> <ul style="list-style-type: none"> <li>• Use less noisy plant and equipment where feasible and reasonable.</li> <li>• Plant and equipment to be properly maintained.</li> <li>• Provide special attention to the use and maintenance of 'noise control' or 'silencing' kits fitted to machines to ensure they perform as intended.</li> <li>• Strategically position plant on site to reduce the emission of noise to the surrounding neighbourhood and to site personnel.</li> <li>• Avoid any unnecessary noise when carrying out manual operations and when operating plant.</li> <li>• Any equipment not in use for extended periods during construction work should be switched off.</li> <li>• Complaints procedure deal with noise complaints that may arise from construction activities. Each complaint would need to be investigated and appropriate noise amelioration measures put in place to mitigate future occurrences, where the noise in question is in excess of allowable limits.</li> <li>• Establish good relations with people living in the vicinity of the site at the beginning of Proposal and maintain. Keep people informed, deal with complaints seriously and expeditiously. The community liaison member of staff should be adequately experienced.</li> </ul>	C		
<b>Water use and water quality</b>				
1	Design waterway crossings and services crossing in accordance with the publications:	C	O	D

ID	Safeguards and Mitigation Measures	C	O	D
	<ul style="list-style-type: none"> <li>• <i>Why do fish need to cross the road? Fish Passage Requirements for Waterway Crossings</i> (Fairfull and Witheridge, 2003)</li> <li>• <i>Policy and Guidelines for Fish Friendly Waterway Crossings</i> (NSW DPI, 2003)</li> <li>• <i>Guidelines for Watercourse Crossings on Waterfront Land</i> (NSW DPI, 2012)</li> <li>• <i>Guidelines for Laying Pipes and Cable in Watercourses on Waterfront Land</i> (NSW DPI, 2012).</li> </ul>			
2	All fuels, chemicals, and liquids would be stored at least 50 m from any waterways or drainage lines, not on sloping land and would be stored in an impervious bunded area.	C	O	D
3	Machinery would be checked daily to ensure there is no oil, fuel or other liquids leaking from the machinery. All staff would be appropriately trained through toolbox talks for the minimisation and management of accidental spills.	C	O	D
4	The refueling of plant and maintenance would be undertaken in impervious bunded areas on hardstand areas only.	C	O	D
5	All potential pollutants stored on-site would be stored in accordance with HAZMAT requirements and bunded.	C	O	D
6	Adequate incident management procedures would be incorporated into the Construction and Operation Environmental Management Plans, including requirement to notify EPA for incidents that cause material harm to the environment (refer s147-153 Protection of the Environment Operations Act).	C	O	D
7	Ensure appropriate drainage controls are incorporated into the design to minimise the area of disturbance, runoff and pollutant generation.	Design		
8	If groundwater is to be intercepted at any stage of the development the proponent must obtain the relevant entitlement and approval where required prior to any extraction.	C	O	D
9	Re-use of stormwater should be considered wherever possible.		O	
10	Inspect stormwater control measures at least quarterly, and before and after rainfall of more than 10 mm in 24 hours.	C	O	



ID	Safeguards and Mitigation Measures	C	O	D
<b>Historic heritage</b>				
1	Should an item of historic heritage be identified, the Heritage Division (EES) would be contacted prior to further work being carried out in the vicinity.	C	O	D
<b>Social and economic impacts</b>				
1	Liaison with local industry representatives to maximise the use of local contractors, manufacturing facilities, materials.	C		
2	Liaison with local representatives regarding accommodation options for staff, to minimise adverse impacts on local services.	C		D
3	Liaison with local tourism industry representatives to manage potential timing conflicts with local events.	C		D
4	<p>The Community Consultation Strategy would be implemented to manage impacts to community stakeholders, including but not limited to:</p> <ul style="list-style-type: none"> <li>• Protocols to keep the community updated about the progress of the Proposal and Proposal benefits.</li> <li>• Protocols to inform relevant stakeholders of potential impacts (haulage, noise, air quality etc.).</li> <li>• Protocols to respond to any complaints received.</li> </ul>	C		D
<b>Traffic, transport and safety</b>				
1	<p>A Haulage Plan would be developed and implemented during construction and decommissioning, including but not limited to:</p> <ul style="list-style-type: none"> <li>• Assessment of road routes to minimise impacts on transport infrastructure</li> <li>• Direction of traffic flow (both heavy and light)</li> <li>• Loads, weights and length of haulage and construction related vehicles and the number of movements of such vehicles</li> <li>• Scheduling of deliveries of major components to minimise safety risks (on other local traffic).</li> </ul>	C	O	D

ID	Safeguards and Mitigation Measures	C	O	D
	<ul style="list-style-type: none"> <li>Traffic controls (signage and speed restrictions etc.)</li> <li>All heavy vehicle movements to/from the access point are to be managed to ensure that only one inbound or outbound vehicle is travelling along the access route in the vicinity of the site at a time</li> <li>Heavy vehicle movements into and out of the Development Site will be controlled via traffic management means, including a traffic controller, temporary lowered speed limit and additional road signage alerting vehicles of truck movements in the area.</li> </ul>			
2	<p>A Construction Traffic Management Plan (CTMP) will be prepared prior to construction commencing by the appointed contractor. The CTMP will provide additional information regarding the traffic volumes and distribution of construction vehicles that is not available at this time, including:</p> <p>Road transport volumes, distribution and vehicle types broken down into:</p> <ul style="list-style-type: none"> <li>Hours and days of construction.</li> <li>Schedule for phasing/staging of the project.</li> </ul> <p>The origin, destination and routes for:</p> <ul style="list-style-type: none"> <li>Employee and contractor light traffic.</li> <li>Heavy vehicle traffic.</li> <li>Oversize and overmass traffic.</li> </ul> <p>A Traffic Management Plan would be developed and implemented during construction and decommissioning. The plan will be prepared in consultation with the relevant road authority and the appointed transport contractor. The plan would include, but not be limited to:</p> <ul style="list-style-type: none"> <li>The designated routes and vehicular access of construction traffic (both light and heavy) to the site. This will include the management and coordination of movement of vehicles for construction and worker related access to limit disruptions to other motorists, emergency vehicles, school buses and other public transport.</li> <li>Procedure for informing the public where any road access will be restricted as a result of the project.</li> <li>The designated routes of construction traffic to the site.</li> <li>Carpooling/shuttle bus arrangements to minimise vehicle numbers during construction.</li> </ul>	C		D

ID	Safeguards and Mitigation Measures	C	O	D
	<ul style="list-style-type: none"> <li>• Scheduling of deliveries.</li> <li>• Community consultation regarding traffic impacts for nearby residents. Including, neighbours of the solar farm be notified regarding the timing of major deliveries which may require additional traffic control and disrupt access.</li> <li>• Consideration of cumulative impacts.</li> <li>• Traffic controls (speed limits, signage, etc.), and any proposed precautionary measures to warn road users such as motorists about the construction activities for the project, especially at the access site along New England Highway.</li> <li>• Procedure to monitor traffic impacts and adapt controls (where required) to reduce the impacts.</li> <li>• Details of measures to be employed to ensure safety of road users and minimise potential conflict.</li> <li>• A driver Code of Conduct to address such items as appropriate driver behaviour including adherence to all traffic regulations and speed limits, driver fatigue, safe overtaking and maintaining appropriate distances between vehicles, etc. and appropriate penalties for infringements of the Code.</li> <li>• Details of procedures for receiving and addressing complaints from the community concerning traffic issues associated with truck movements to and from the site.</li> <li>• Providing a contact phone number to enable any issues or concerns to be rapidly identified and addressed through appropriate procedures.</li> <li>• Water to be used on unsealed roads to minimise dust generation through increased traffic use.</li> <li>• Loading and unloading is proposed to occur within the Development Site. No street or roads will be used for material storage at any time.</li> <li>• Delivery of larger plant to occur outside of school bus service times to prevent larger vehicles interacting with the school bus.</li> <li>• All vehicles will enter and exit the site in a forward direction.</li> <li>• Management of vehicular access to and from the site is essential in order to maintain the safety of the general public as well as the labour force. The following code is to be implemented as a measure to maintain safety within the site:</li> </ul>			

ID	Safeguards and Mitigation Measures	C	O	D
	<ul style="list-style-type: none"> <li>○ Utilisation of only the designated transport routes.</li> <li>○ Construction vehicle movements are to abide by finalised schedules as agreed by the relevant authorities.</li> <li>• All permits for working within the road reserve must be received from the relevant authority prior to works commencing.</li> <li>• A map of the primary haulage routes highlighting critical locations.</li> <li>• An induction process for vehicle operators and regular toolbox meetings.</li> <li>• Local climatic conditions that may impact road safety of employees throughout all project phases (e.g. fog, wet and significant dry, dusty weather).</li> <li>• Following construction, a post condition survey of the relevant sections of the existing road network to be undertaken to ensure it is of similar condition to that prior to construction.</li> </ul>			
3	Obtain a Section 138 Consent from the relevant council/agency to perform works within the road reserve.	C		
4	The unnamed Council road between the New England Highway and the Development Site would be upgraded accordance with the design requirements of a 'Rural Access Minor' road as provided by Armidale Regional Council.	Design		
5	The proponent would repair any damage resulting from project traffic (except that resulting from normal wear and tear) as required at the proponent's cost.	C		D
6	The proponent would engage an appropriately qualified person to prepare a Road Dilapidation Report for all road routes to be used during the construction (and decommissioning) activities, in consultation with the relevant road authority. This report is to address all road related infrastructure. Reports must be prepared prior to commencement and after completion of construction (and decommissioning). Any damage resulting from the construction (or decommissioning) traffic, except that resulting from normal wear and tear, must be repaired at the Proponent's cost. Such work shall be undertaken at a time agreed upon between the Proponent and relevant road authorities.	PC		D
7	Prior to the commencement of construction on-site, the Proponent would undertake all works to upgrade relevant state roads, their associated road reserve and any public infrastructure in that road reserve to a	PC		D

ID	Safeguards and Mitigation Measures	C	O	D
	standard suitable for use by heavy vehicles to meet any reasonable requirements that may be specified by TfNSW. The design, specifications and construction of these works must be completed and certified by an appropriately qualified person to a standard to accommodate the traffic generating requirements of the project. On Classified Roads the geometric road design and pavement design must be to the satisfaction of the TfNSW.			
8	For works on the State road network the developer is required to enter a Works Authorisation Deed (WAD) with TfNSW before finalizing the design or undertaking any construction work within or connecting to the road reserve. The WAD documentation is to be submitted for each specific change to the state road network for assessment and approval by TfNSW prior to commencement of any works within the road reserve.	PC		
9	A heavy vehicle permit would be sought from the National Heavy Vehicle Regulator for use of the unnamed Council road by heavy vehicles during construction.	PC		
10	A Decommissioning Traffic Management Plan would be developed for the decommissioning phase of the Proposal. This plan will be prepared prior to decommissioning and would have the same requirements as the Construction Traffic Management Plan (where relevant).			D
<b>Bush fire</b>				
1	Copper conductors would be used where necessary to electrically bond the metal structures to earth to protect personnel and equipment in the event of lightning strikes and electrical faults.	Design		
2	Dangerous or hazardous materials would be stored and handled in accordance with AS1940-2004: The storage and handling of flammable and combustible liquids.	C	O	D
3	Develop a Bush Fire Management Plan to include but not be limited to: <ul style="list-style-type: none"> <li>Specific management of activities with a risk of fire ignition (hot works, vehicle use, smoking, use of flammable materials, blasting).</li> <li>Incorporation of fire safety and response in staff and contractor induction, training, OHS procedures and Work Method Statements.</li> <li>Designation of a staff safety officer tasked with ensuring implementation of the plan and regular liaison with firefighting agencies.</li> </ul>	C	O	D



ID	Safeguards and Mitigation Measures	C	O	D
	<ul style="list-style-type: none"> <li>Document all firefighting resources maintained at the site with an inspection and maintenance schedule.</li> <li>Monitoring and management of vegetation fuel loads.</li> <li>A communications strategy incorporating use of mobile phones, radio use (type, channels and call-signs), Fire Danger Warning signs located at the entrance to the site compounds, emergency services agency contacts.</li> <li>In developing the Bush Fire Management Plan, NSW RFS would be consulted on the volume and location of water supplies, fire-fighting equipment maintained on-site, fire truck connectivity requirements, proposed APZ and access arrangements, communications, vegetation fuel levels and hazard reduction measures.</li> </ul>			
4	An APZ of minimum 10 m would be maintained between remnant or planted woody vegetation and solar farm infrastructure. The APZ around the perimeter of the site would incorporate a 4 m wide unsealed access track. Average grass height within the APZ would be maintained at or below 5 cm on average throughout the October-March fire season. Average grass height outside the APZ, including beneath the solar array, would be maintained at or below 15 cm throughout the fire season.	C	O	
5	The overhead powerlines at the site would be managed by maintaining appropriate vegetation clearance limits to minimise potential ignition risks, in accordance with the ISSC 3 Guideline for Managing Vegetation Near Power Lines.		O	
6	Appropriate fire-fighting equipment would be held on site to respond to any fires that may occur at the site during construction. This equipment would include fire extinguishers, a 1000 L water cart retained on site on a precautionary basis, particularly during any blasting and welding operations. Equipment lists would be detailed in Work Method Statements.	C		
7	The NSW RFS and Fire and Rescue would be provided with a contact point for the solar farm, during construction and operation.	C	O	
8	Following commissioning of the solar farm, the local RFS and Fire and Rescue brigades would be invited to an information and orientation day covering access, infrastructure, firefighting resources on-site, fire control strategies and risks/hazards at the site.		O	

ID	Safeguards and Mitigation Measures	C	O	D
9	The perimeter access track would comply with the requirements for Fire Trails in the PBP guidelines. All access and egress tracks on the site would be maintained and kept free of parked vehicles to enable rapid response for firefighting crews and to avoid entrapment of staff in the case of bush fire emergencies. Access tracks would be constructed as through roads as far as practicable. Dead end tracks would be signposted and include provision for turning firetrucks.	C	O	D
10	A Hot Works Permit system would be applied to ensure that adequate safety measures are in place. Fire extinguishers would be present during all hot works. Where practicable hot works would be carried out in specific safe areas (such as the Construction Compound temporary workshop areas).	C	O	D
11	Machinery capable of causing an ignition would not be used during bush fire danger weather, including Total Fire Ban days.	C	O	D
12	<p>Prior to operation of the solar farm, an Emergency Response Plan (ERP) would be prepared in consultation with the RFS and Fire and Rescue NSW. This plan must include but not be limited to:</p> <ul style="list-style-type: none"> <li>Specifically addresses foreseeable on site and off site fire events and other emergency incidents.</li> <li>Risk control measures would include the level of personal protective clothing required to be worn, the minimum level of respiratory protection required, decontamination procedures, minimum evacuation zone distances and a safe method of shutting down and isolating the PV system (either in its entirety or partially, as determined by risk assessment).</li> <li>Outline other risk control measures that may need to be implemented in a fire emergency due to any unique hazards specific to the site.</li> <li>Two copies of the ERP are stored in a prominent 'Emergency Information Cabinet' which is located in a position directly adjacent to the site's main entry point/s.</li> </ul> <p>Once constructed and prior to operation, the operator of the facility would contact the relevant local emergency management committee (LEMC).</p>		O	
13	<p>Fire risks associated with the lithium-ion energy storage facility would include:</p> <ul style="list-style-type: none"> <li>Locating the Energy Storage Facility as far as practicable from any sensitive receptors or large stands of vegetation.</li> </ul>		O	

ID	Safeguards and Mitigation Measures	C	O	D
	<ul style="list-style-type: none"> <li>Installing reliable automated monitoring (voltage and temperature), alarm and shutdown response systems.</li> <li>Installing reliable integrated fire detection and fire suppression systems (inert gas).</li> <li>Ensuring the battery containers are not vulnerable to external heat effects in the event of a bush fire.</li> <li>Designing appropriate separation and isolation between battery containers and between batteries and other infrastructure, including gravel surfacing around the facility.</li> <li>Compliance with all relevant guidelines and standards.</li> <li>Preparation of a specific Battery Fire Response Plan, under the general Bush fire Management Plan, in consultation with fire authorities, fire suppression experts and in reference to relevant standards and guidelines.</li> </ul> <p>Facilitation of first responder training in the management of Lithium-ion battery fires at the site for local brigades.</p>			
14	A Fire Safety Study (FSS) will be undertaken and developed in accordance with the requirements of Hazardous Industry Planning Advisory Paper No. 2 (HIPAP No.2) and consultation with FRNSW prior to commencement of construction. The FSS will consider the limited operational capacity of local fire agencies and the need for the facility to achieve an adequate level of on-site fire and life safety dependence.	PC		
15	A 20,000 litre water supply (tank) fitted with a 65mm storz fitting shall be suitably located along a property access road to the development within the APZ.	PC/C	O	
<b>Electric and magnetic fields</b>				
1	All electrical equipment would be designed in accordance with relevant codes and industry best practice standards in Australia.	C		
2	All design and engineering would be undertaken by qualified and competent person/s with the support of specialists as required.	C		

ID	Safeguards and Mitigation Measures	C	O	D
3	Design of electrical infrastructure would minimise EMFs.	C		
<b>Air quality and climate</b>				
1	Track width of internal tracks would be minimised during detailed design.	Design		
2	Dust generation by vehicles accessing the site and earthworks at the site would be suppressed using water applications or other means as required.	C		D
3	Vehicle loads of material which may create dust would be covered while using the public road system.	C		D
4	All vehicles and machinery used at the site would be in good condition, fitted with appropriate emission controls and comply with the requirements of the POEO Act, relevant Australian standards and manufacturer's operating recommendations. Plant would be operated efficiently and turned off when not in use.	C	O	D
5	Fires and material burning are prohibited on the Development Site.	C	O	D
6	Track width of internal tracks would be minimised during detailed design.	C		D
<b>Resource and waste generation</b>				
1	<p>A Waste Management Plan (WMP) would be developed to minimise wastes. It would include but not be limited to:</p> <ul style="list-style-type: none"> <li>• Identification of opportunities to avoid, reuse and recycle, in accordance with the waste hierarchy</li> <li>• Quantification and classification of all waste streams</li> <li>• Provision for recycling management onsite</li> <li>• Provision of toilet facilities for onsite workers and identify that sullage would be disposed of (i.e., pump out to local sewage treatment plant)</li> <li>• Tracking of all waste leaving the site</li> <li>• Disposal of waste at facilities permitted to accept the waste</li> <li>• Requirements for hauling waste (such as covered loads).</li> </ul>	C	O	D

ID	Safeguards and Mitigation Measures	C	O	D
2	Septic system is installed and operated according to the Armidale Regional Council regulations.	C	O	
<b>Hazardous materials and development</b>				
1	Design of the Energy Storage Facility would be undertaken to address fire risks (spacing and setbacks).	Design		
2	Dangerous or hazardous materials would be stored and handled in accordance with AS1940-2004: <i>The storage and handling of flammable and combustible liquids</i> .	C	O	D
3	Protocols would be developed for lithium-ion battery energy storage, maintenance, and incident response to mitigate Lithium-ion fire risks.	C	O	D
4	The transportation of new and waste lithium-ion batteries would comply with the requirements of the Dangerous Goods Code, including specific 'special provisions' and 'packing instructions' applying to the transportation of Li-ion batteries.	C	O	D



## Appendix B Key issues Raised by DPIE during consultation

Issue	Where addressed in Amendment Report
<b>Road upgrades (factor in vehicle type, size, frequency of movements).</b>	Access road would be upgraded in accordance with Armidale Regional Council 'Rural Access Minor' design specifications. Refer to Section 4.2.2.
<b>Transport route: clarify the type, size and frequency of vehicle movements and whether local routes are also proposed to be utilised.</b>	No changes from the EIS.
<b>OSOM vehicle length (liaise with TfNSW and Council).</b>	Approximately 34 meters. Refer to Section 4.2.3.
<b>Clarify traffic movements for light and heavy vehicles, number of shuttle buses for peak period and also expected traffic movements during operations.</b>	No changes from the EIS. Full traffic summary provided in Appendix G.
<b>Project site and Development Footprint areas.</b>	Development Site: 310.0 ha. Refer to Section 4.2.1. Development Footprint: 169.7 ha. Refer to Section 4.1.
<b>Generating capacity (MW AC).</b>	150 MW AC. Refer to Section 4.1.
<b>Indicative number of solar panels.</b>	Approximately 400,000, to be confirmed at the detailed design stage.
<b>Road upgrades, site access, including figures</b>	Refer to Section 4.2.
<b>CIV.</b>	Unchanged from EIS. \$174 million.
<b>Construction timeline.</b>	12 months, 3-4 months of peak construction.
<b>Number of construction and/or operational workers required.</b>	Unchanged from EIS. Approximately 125 full time equivalent jobs during peak construction and 5 full time equivalent jobs during operation.
<b>List all associated and non-associated receivers (table and figure), including distances to the project.</b>	Refer to Table 5-5.
<b>Proposed screening.</b>	Commitment to provide funding towards screening for certain landowners, refer to Section 5.2.

Issue	Where addressed in Amendment Report
<b>Water volumes required for construction and operation of the project.</b>	Unchanged from EIS. 7 ML in total during construction. 100 KL during operation.
<b>Number of water crossings required.</b>	Eleven water crossing required.
<b>Number of farm dams proposed to be filled for construction of the project, and number of dams proposed to be retained.</b>	9 to be infilled and two retained.
<b>Construction transport traffic information.</b>	No changes from the EIS. Full traffic summary provided in Appendix G.
<b>Aboriginal Cultural Heritage impacts (including an amended map).</b>	Impacts reduced. Refer to Section 5.5.
<b>Updates to visual and noise assessments given any amended distances from the project to receivers.</b>	Refer to Section 5.2 and 5.6.
<b>Any changes to biodiversity impacts, including amended disturbance areas for each PCT, identify the location and areas of avoided vegetation on site, specifying its condition.</b>	Refer to Section 5.1.
<b>Areas and percentages of each land classes in both the project area and Development Footprint (including BSAL).</b>	Refer to Section 5.7.
<b>Total area of clearing, including native vegetation (woodland, grassland, etc).</b>	115.7 ha.
<b>Proposed subdivision.</b>	Subdivision may be required to close on option area of Subject Land. To be confirmed following Biodiversity Stewardship Assessment Report to delineate areas.
<b>Hazards assessments</b>	Not required for this proposal.
<b>Clarification of impacts as a non-associated residence and confirming non-association (or otherwise) of R4, R7 and R14 and visual impact assessment if required.</b>	Refer to Table 5-5.
<b>Outline the visual mitigation measures proposed, is the visual assessment reliant on vegetation on the respective non-associated landowner's, project site or additional vegetation proposed?</b>	Refer to Section 5.2.4.
<b>Provide evidence of recent discussions with Council regarding VPA</b>	Provided separately.
<b>If available, provide more recent evidence of capacity in the transmission network.</b>	Provided separately.

Issue	Where addressed in Amendment Report
<p><b>If R15 is now an associated receiver, provide evidence of the impacts that receiver has agreed to (eg, visual, noise, traffic, etc).</b></p>	<p>Provided separately.</p>
<p><b>The lot and DP figure do not show the full extent of the lot boundaries. The lot boundaries shown in Figure 1-2 of the EIS appears to be smaller than what is shown on government maps. Please provide a revised lot and DP figure which includes the correct lot boundaries.</b></p>	<p>Refer to Figure 4-1.</p>

## **Appendix C Amended Biodiversity Development Assessment Report (BDAR)**

## **Appendix D Biodiversity Offset Strategy**

## **Appendix E Amended Aboriginal Cultural Heritage Assessment**



## **Appendix F   Amended Visual Impact Assessment**

## **F.1 Wireframe analysis**

## **F.2      Reverse viewsheds**

## **Appendix G Amended Traffic Impact Assessment (TIA)**

## **Appendix H Amended Hydrology and Flooding Study**

## **Appendix I    Updated Noise and Vibration impact assessment**