

Modification Application Environmental Assessment Report

SUNRAYSIA SOLAR FARM

SSD-7680

JUNE 2018



Document Verification



Project Title:

Sunraysia Solar Farm

Project Number: 18-256

Project File Name: Sunraysia Solar Farm_Final v1.1_120618

Revision	Date	Prepared by (name)	Reviewed by (name)	Approved by (name)
V1.1	08/06/18	Louiza Romane	Nick Graham-Higgs	Nick Graham-Higgs

NGH Environmental prints all documents on environmentally sustainable paper including paper made from bagasse (a by-product of sugar production) or recycled paper.

NGH Environmental Pty Ltd (ACN: 124 444 622. ABN: 31 124 444 622)

www.nghenvironmental.com.au

e: ngh@nghenvironmental.com.au

Sydney Region
18/21 mary st
surry hills nsw 2010 (t 02 8202 8333)

Newcastle - Hunter and North Coast
7/11 union st
newcastle west nsw 2302 (t 02 4929 2301)

Canberra - NSW SE & ACT
8/27 yallourn st (po box 62)
fyshwick act 2609 (t 02 6280 5053)

Wagga Wagga - Riverina and Western NSW
suite 1, 39 fitzmaurice st (po box 5464)
wagga wagga nsw 2650 (t 02 6971 9696)

Brisbane
level 5, 320 adelaide st
brisbane qld 4000 (t 07 3511 0238)

Bega - ACT and South East NSW
suite 1, 216 carp st (po box 470)
bega nsw 2550 (t 02 6492 8333)

CONTENTS

1	INTRODUCTION	1
1.1	PURPOSE OF THIS DOCUMENT	1
1.2	PROPOSED MODIFICATION OVERVIEW	2
1.3	LEGISLATIVE CONTEXT FOR THE MODIFICATION APPLICATION	3
1.4	CONDITIONS OF CONSENT	3
2	COMMUNITY INVOLVEMENT	5
2.1	PREVIOUS COMMUNITY CONSULTATION	5
2.2	CONSULTATION FOR THE MODIFICATION APPLICATION.....	5
3	MODIFICATION DESCRIPTION	6
3.1	SUBSTANTIALLY THE SAME PROJECT	6
3.2	DETAIL OF THE PROPOSED MODIFICATIONS	6
4	ENVIRONMENTAL ASSESSMENT APPROACH.....	12
4.1	ENVIRONMENTAL IMPACTS OF THE APPROVED PROJECT.....	12
4.2	ENVIRONMENTAL ASSESSMENTS FOR THE PROPOSED MODIFICATIONS	12
5	ENVIRONMENTAL IMPACT ASSESSMENT.....	14
5.1	BIODIVERSITY	14
5.1.2	Updated Biobanking calculations	18
5.2	ABORIGINAL HERITAGE	27
5.3	VISUAL IMPACT	29
5.4	NOISE.....	29
5.5	LAND USE	30
5.6	SOIL AND WATER QUALITY	30
5.7	TRANSPORT	31
5.8	RESOURCE AND WASTE GENERATION	31
5.9	SOCIOECONOMIC FACTORS	31
6	IMPACT SUMMARY	32
7	PROPOSED MODIFICATIONS TO CONSENT CONDITIONS	34
7.1	CONDITIONS OF CONSENT	34
8	SUMMARY AND CONCLUSIONS.....	36
8.1	CONDITIONS OF CONSENT	36
8.2	MODIFICATIONS BEING SOUGHT	36
8.3	CONCLUSION.....	37

9	REFERENCES.....	38
APPENDIX A	CONSTRAINTS MAPS.....	A-I
APPENDIX B	REVISED YANGA WAY INTERSECTION WORKS	B-I
APPENDIX C	CONSISTENCY REVIEW CHECKLIST	C-II
APPENDIX D	SUMMARY OF CONSULTATION	D-XV
APPENDIX E	BIOBANKING CREDIT PROFILE	E-XVII

TABLES

Table 1-1	Change to Development Consent condition.....	3
Table 3-1	Proposed new lots	10
Table 5-1	Plant Community Types, zones and conditions from the <i>Sunraysia Solar Farm Biodiversity Assessment Report</i> (NGH Environmental 2017)	14
Table 5-2	Plant community types for the subdivision, laydown, site access and access track merging	15
Table 5-3	Comparison of approved and updated impact areas.	18
Table 5-4	Plot data	21
Table 5-5	Geographic / habitat features.....	24
Table 5-6	Ecosystem credit species predicted to occur.....	24
Table 5-7	Threatened species requiring survey (candidate species).....	25
Table 5-8	Credit profile summary: modified layout.....	26
Table 5-9	Credit profile summary: approved layout.....	26
Table 6-1	Assessment of the changes and magnitude of environmental impact.....	32
Table 6-2	Additional proposed environmental safeguard	33
Table 7-1	Proposed modifications to consent conditions	34

FIGURES

Figure 3-1	Approved and proposed modification to construction, upgrading and decommissioning activities	11
Figure 5-1	Sunraysia Solar Project vegetation mapping	17
Figure 5-2	Location Map showing landscape assessment circles and Mitchel landscapes (NGH Environmental 2017).	20

Figure 5-3 Representative photo of Zone 5, taken in May 2018.23

ACRONYMS AND ABBREVIATIONS

AHIMS	Aboriginal heritage information management system
Cwth	Commonwealth
DPE	Department of Planning and Environment
EIA	Environmental impact assessment
EP&A Act	<i>Environmental Planning and Assessment Act 1979 (NSW)</i>
ha	hectares
NSW INP	NSW Industrial Noise Policy
km	kilometres
kV	Kilovolt
LALC	Local Aboriginal Land Council
LGA	Local Government Area
LEP	Local Environment Plan
m	Metres
MW	Megawatts
NSW	New South Wales
OEH	(NSW) Office of Environment and Heritage, formerly Department of Environment, Climate Change and Water
PCT	Plant Community Type
RMS	Roads and Maritime Service
NML	Noise Management Level
NSW RNP	NSW Road Noise Policy
SIS	Species Impact Statement
SSD	State Significant Development
sp/spp	Species/multiple species
TSC Act	<i>Threatened Species Conservation Act 1995 (NSW)</i>
TSR	Travelling Stock Reserve
VIA	Visual Impact Assessment

1 INTRODUCTION

1.1 PURPOSE OF THIS DOCUMENT

Development consent for the Sunraysia Solar Farm SSD 7680 was granted by the NSW Minister for Planning on 20 June 2017 (Development Consent), and allows for the construction, operation and decommissioning of a 200 Megawatts (MW AC) photovoltaic (PV) solar farm and its associated infrastructure. The Sunraysia Solar Farm will be constructed about 17km south of Balranald and 140km south east of Mildura, within the Balranald Shire Council Local Government Area (LGA).

This report has been prepared to support an application to modify the Development Consent (Modification Application) for the Sunraysia Solar Farm.

This Report provides context and detailed assessment to support the modification application including:

- Legislative context for the Modification Application Section 1.3
- Details of the consultation undertaken in relation to the proposed modifications. Section 2
- Detailed description and justification of the modifications being sought. Section 3
- An outline of the approach taken to identify and assess the impacts of the modifications. Section 4
- Specialist environmental assessments of changes in level of impact associated with the modifications. Sections 5
- Updated environmental safeguards, where required, to ensure that any impacts of the modified project, are appropriately managed and mitigated. Sections 5
- Impact summary. Section 6
- An outline of the amendments sought to the conditions of consent. Section 7
- Conclusion Section 8

Supporting appendices include:

Appendix A: Map sets of constraints for modified projects.

Appendix B: Revised Yanga Way Intersection Works

Appendix C: Consistency review checklist

Appendix D: Summary of Consultation

Appendix E: Biobanking Credit Profile

This report has been prepared by NGH Environmental Pty Ltd on behalf of the proponent, Sunraysia Solar Project Pty Ltd (ACN 612 072 536) as trustee for Sunraysia Solar Project Trust (ABN 86 116 311 664).

The proponent proposes to commence construction of the Sunraysia Solar Farm in July 2018. The proposed modifications to the Development Consent are required to deliver an efficient, constructible and commercially viable project.

1.2 PROPOSED MODIFICATION OVERVIEW

The proposed modifications sought by this application involve the following components;

- Access route:
 - Relocation of the approved site entry point to The Cut Line, approximately 50m south of the approved site entry. This modification is required to meet RMS' requirements and allows for a single road intersection upgrade at the intersection between Balranald-Tooleybuc Road (also known as Yanga Way and Mallee Highway) and The Cut Line.
 - Modification of the Development Consent to allow for specific site establishment activities that would facilitate mobilisation to site to occur prior to the upgrade of the site entry point at the intersection between Balranald-Tooleybuc Road (also known as Yanga Way and Mallee Highway) and The Cut Line.
- Additional temporary laydown area:
 - Establishment of a 10 hectare temporary laydown area east of the proposed arrays.
- Subdivision:
 - Subdivision of part of the Project site, being lots 9 and 10 of DP 751179, for the purpose of;
 - i. providing a 1 ha lot (Subdivision 1 – SSF Substation) for the proposed internal substation that will be developed and owned by TransGrid (Proposed Lot 1) as depicted in (Appendix A3);
 - ii. providing a 31 ha lot (Subdivision 2 – TransGrid Access and Battery) that will be retained by the landowner and would include the future battery storage area and an access easement for TransGrid (Proposed Lot 2) as depicted in (Appendix A3)
 - iii. enabling the whole of the residual lots (that land remaining within lots 9 and 10 of DP 751179) to be leased to the proponent for a term of greater than 5 years for the construction and operation of the solar farm and ancillary activities (such as management of the biobanking area) (Proposed Lots 3 and 4).
- Clearing extent:
 - Modification of the type of native vegetation to be cleared, and a reduction in the area of native vegetation to be cleared by 4.4ha, associated with the modified development of Sunraysia Solar Farm
- Heavy vehicle restriction:
 - Modification of heavy vehicle restriction to support the use of B-doubles during construction
- Working hours:
 - Extension of working hours to 6am to 6pm from Monday to Sunday and including NSW public holidays.
- Change in name of Applicant

The modifications to the solar farm are illustrated in Appendix A.

1.3 LEGISLATIVE CONTEXT FOR THE MODIFICATION APPLICATION

Under Section 4.55 of the *Environmental Planning and Assessment Act 1979* (EP&A Act), a State Significant Development (SSD) can be modified. This can be done where the modified development remains 'substantially the same' as the original Approved project. An applicant can apply to the Minister for Planning to modify an SSD approval and lodge a request for assessment of a modification with the Department of Planning and Environment.

Subsection (1A) refers to modifications involving minimal environmental impact. It states that;

A consent authority may, on application being made by the applicant or any other person entitled to act on a consent granted by the consent authority and subject to and in accordance with the regulations, modify the consent if:

- (a) it is satisfied that the proposed modification is of minimal environmental impact, and*
- (b) it is satisfied that the development to which the consent as modified relates is substantially the same development as the development for which the consent was originally granted and before that consent as originally granted was modified (if at all).*

This Modification Report addresses these stipulations. Section 4 of this report addresses the nature and level of environmental impact that would result from the modification and has identified that there would be no additional environmental impacts.

Section 3.2 sets out the description of the modified project, which can be seen to be substantially the same as the Approved project.

1.4 CONDITIONS OF CONSENT

In considering whether the modified project would be able to meet specific conditions of the Development Consent, a consistency review was undertaken and is provided in Appendix C. This review found several Development Consent Conditions would not be met. These are addressed in this modification and summarised in Table 1-1.

Table 1-1 Change to Development Consent condition

Condition of Development Consent	Proposed modification
Schedule 1	Change to name of Applicant
Definitions	Change to definition of Applicant, new definition of site establishment activities
Condition 2 of Schedule 3	Increase maximum vehicle length
Condition 4 of Schedule 3	Relocation of approved site entry point (note that this is a change to the Appendix 1 rather than to the condition itself)
Condition 5 of Schedule 3	Relocation of approved site entry point and permission to commence site establishment activities prior to upgrading site entry point
Condition 10 of Schedule 3	Extension of working hours

Condition of Development Consent	Proposed modification
Appendix 1 General Layout	Inclusion of additional temporary laydown area, internal access road, proposed subdivisions of Lots 9 and 10, access track merging area, and relocated site entry point within proposal area.

Table 7-1 sets out the proposed modifications to the conditions of the Development Consent. The proposed changes assessed in this modification application are considered justifiable, and the impacts identified in this assessment are considered manageable with the implementation of specific strategies that form commitments of the modified project.

2 COMMUNITY INVOLVEMENT

2.1 PREVIOUS COMMUNITY CONSULTATION

A Community Consultation Plan was prepared and used to guide consultation throughout the planning approval process. A range of engagement tools were employed including:

- Public information session held by the Proponent in Balranald on 6 October 2016 to provide proposal information and answer questions (NGH, 2017).
- A second detailed consultation event was held on 9 November 2016 to provide information about the technology and respond to any concerns the public may have.

2.2 CONSULTATION FOR THE MODIFICATION APPLICATION

The following stakeholders have been consulted in relation to the proposed modifications. Details of the consultation are provided in Appendix D.

- DPE
- TransGrid
- Balranald Shire Council
- Landowners and neighbours
- NSW Aboriginal Land Council
- Balranald Local Aboriginal Land Council
- Department of Industry – Lands and Forestry (Crown Lands)
- Local Land Services
- RMS

3 MODIFICATION DESCRIPTION

3.1 SUBSTANTIALLY THE SAME PROJECT

The modified project will be substantially the same as the Approved project for which Development Consent was obtained on 20 June 2017. The Approved project comprises a 200 MW capacity solar farm with associated upgrading or decommissioning of infrastructure and equipment, internal access tracks, 2 km long 220 kV overhead power line connecting to the existing TransGrid Balranald substation and temporary construction infrastructure. No changes are proposed to this general description as part of the modification.

Appendix 1 of the Development Consent includes the general layout of the Approved project and shows the proposal area outlined in red. The schedule of lands in Appendix 1 of the development consent identifies Lots 9, 10, 11 and 14 DP 751179, Lot 7301 DP1157986 and Lot 48 DP1015985 as the proposal area.

As illustrated in Appendix A, it is proposed that the boundaries of the proposal area will be modified to include:

- the new access route from The Cut Line (Appendix A1)
- TransGrid's access road within the proposed subdivision (Appendix A5, A6 and A7); and
- establishment of an additional temporary laydown area (Appendix A1).

While the modifications would increase the proposal area by about 34ha, from about 822ha to 856ha, they would not have any additional adverse impacts on the environment.

Development exclusion zones have been applied to the constraints mapping, these areas are identified as areas in which no development will occur. This includes areas located within the transmission line easement, as depicted in Appendix A9, where the clearing extent has been reduced by 4.4ha. The proposed modifications would not result in a substantially different development.

3.2 DETAIL OF THE PROPOSED MODIFICATIONS

The modifications to the layout of the Development and proposal area are illustrated in Appendix A.

Relocation of approved site entry point

During consultation with RMS following the grant of the Development Consent, it was identified by RMS that upgrading of the intersection at the approved site entry point shown on Appendix 1 to the Development Consent would result in road safety concerns, due to the proximity of the approved site entry point with the nearby road The Cut Line. After investigating a number of options, including a new entry to the north of the approved site access, RMS advised its preference for the approved site entry point to be relocated to The Cut Line, with the road intersection upgrade to be made at the intersection between Balranald-Tooleybuc Road (also known as Yanga Way and Mallee Highway) and The Cut Line.

Accordingly, site access relocation to The Cut Line is proposed in this modification for the following reasons:

- It will reduce traffic disruption to Yanga Way by maintaining a single intersection off the main road

- The Cut Line is a gazetted road reserve maintained and controlled by Balranald Shire Council. Upgrade of this intersection would provide added benefits to other users of The Cut Line.
- The impact to Yanga Way Travelling Stock Reserve (TSR) would be less than would have occurred if the alternative intersection was developed to the north of the approved site entry point.

The new site access track from The Cut Line will merge onto the existing internal access track. A minimum curvature radius will be required for this intersection to suit the length of the construction vehicles using this track. As the detailed design for this has not been completed, a conservative area nominated as the “access track merging area” has been surveyed for heritage and ecological impacts and is shown in pink outline in the maps at Appendix A. It should be noted that only a small portion of this area is expected to be used for the final access track merge area.

Limited site establishment activities prior to upgrade of site entry point

Modification of the Development Consent to permit some limited site establishment activities to occur prior to the upgrade of the site entry point including:

- Establishment of temporary access via the originally approved and existing site entry point off Yanga Way.
- Repair and establishment of access tracks from existing site entry to laydown, hardstand and site facilities areas.
- Site fencing and security camera installation
- Establishment of construction site facilities (offices, cribs, ablutions), laydown and hardstand

The RMS’ request to relocate the site entry point impacts on the Approved project’s construction timeline. This modification is required to mitigate against construction delays by facilitating limited site establishment activities to occur in parallel with the road intersection upgrade. A traffic control plan will be prepared specific to the temporary access point, and all traffic control measures required will be implemented prior to vehicles entering the Project site to perform the above activities.

It is understood that RMS’ primary concern is to limit the number of heavy vehicles entering the Project site prior to the road intersection upgrade being completed. The limited scope for the site establishment activities has been carefully defined in consultation with RMS, to minimise these numbers, including consideration of the maximum number of daily heavy vehicle movements for each activity, and the number of heavy vehicles making right hand turns from Yanga Way prior to the road intersection upgrade. The proponent has made a number of changes to limit the site establishment activities based on feedback from RMS, and it is understood that RMS has no objections to the final scope of activities as described in this modification application.

The road intersection upgrade at the intersection of Yanga Way and The Cut Line is expected to commence as soon as possible following approval of the detailed design by the relevant roads authority. Once the upgrade is complete and the permanent site access has been established, the temporary (existing) site entry point on Yanga Way will be closed and all vehicles (including those required for any remaining site establishment activities) will enter the site via the new permanent site entry point.

Establishment of temporary laydown area

The temporary laydown area of about 10ha will facilitate construction of the solar farm as it will provide;

- Optimisation of access to laydown by delivery vehicles reducing site traffic movements and conflict between delivery and construction vehicles and personnel
- Confinement and reduction of disturbance during the proposed Site Establishment Activities
- Adequate area for storage and more direct site access for deliveries during the proposed site establishment and construction activities.

Subdivision of land

Subdivision of lots 9 and 10 of DP 751179 is required to facilitate TransGrid's ability to access, construct and manage the internal substation facility, lease the residual lots to the proponent for the construction and operation of the solar farm, and retain a portion of land for a future battery storage area.

Table 3-1 identifies the proposed new lots to be created following subdivision and their lot sizes.

Lot 10 is proposed to be subdivided to enable the internal substation to be transferred to TransGrid in freehold. The transfer of the internal substation site to TransGrid is a requirement of the Project Agreement between TransGrid and the proponent executed , after the grant of Development Consent, on 20 December 2017 (Subdivision 1).

Lots 9 and 10 are proposed to be subdivided to create an internal access road, and to enable a portion of land to be retained by the landowner, from the areas to be leased, for a future battery storage (Subdivision 2). The internal access road is also required to meet the requirements of the Project Agreement, as TransGrid requires a 10m wide easement to access the internal substation.

The residual lots created by the subdivision of lots 9 and 10 will be leased to the proponent for the purposes of the construction and operation of the solar farm for a term of greater than 5 years.

Permissibility

Lots 9 and 10 of DP 751179 are zoned RU1 Primary Production under the Balranald LEP. Clause 4.1 of the Balranald LEP specifies that the minimum subdivision lot size for these lots, as shown on the Lot Size Map, is 40 ha. Given that the Proposed lots 1 and 2 are under the minimum subdivision lot size, the proposed subdivision is not permitted under clause 4.1 of the Balranald LEP. The proposed subdivision is also not permitted under clause 4.2 of the Balranald LEP given the purpose of the subdivision is not primary production.

However, the proposed subdivisions are permissible under Part 4, Division 4.7 section 4.38 of the EP&A Act, which states development consent for State significant development 'may be granted despite the development being partly prohibited by an environmental planning instrument'.

Table 3-1 Proposed new lots

	Lot	Zoning	Purpose	Size (Approximately)
Current	9	RU1 – Primary Production	Agriculture	257 ha
	10	RU1 – Primary Production	Agriculture	762 ha
Proposed	Proposed lot 1	RU1 – Primary Production	Subdivision 1 for the purpose of TransGrid assets (internal SSF substation)	1 ha
	Proposed lot 2	RU1 – Primary Production	Subdivision 2 for the purpose the of TransGrid access and battery storage	31 ha
	Proposed lot 3 (residual lot following subdivision of lot 9)	RU1 – Primary Production	Solar Farm	244 ha
	Proposed lot 4 (residual lot following subdivision of lot 10)	RU1 – Primary Production	Solar Farm	743 ha

Extent of clearing

The proposed modifications change the type, area and total quantity of plant community types (PCTs) to be cleared as a result of:

1. clearing associated with construction of the relocated site entry point required by RMS; and
2. a more refined design of the transmission line, and advice provided by TransGrid regarding the actual impact to native vegetation along the TSR for the construction of the transmission line.

As explained in Section 5.1 below:

1. the additional clearing associated with the construction of the relocated site entry point involves previously cropped grasses including PCT 46, which is not a threatened ecological community or threatened species habitat; and
2. the refined design of the transmission line reduces the approved amount of clearing of PCT 170 within the TSR.

Overall, the modifications reduce the total amount of PCTs to be cleared by 4.4 ha, and consequently reduce the number of ecosystem credits required by 119 credits, from 391 ecosystem credits to 272 ecosystem credits.

Heavy vehicle restriction

This modification proposes to increase the maximum length of vehicles from 19m to 26m for general construction activities, and allow for the transport of TransGrid's HV transformer which will involve the use of an oversize vehicle 35 metres in length.

The proposed modification to heavy vehicle restriction would:

- Enable the use of 26 metre long B-Double semi-trailers
- Allow for use of oversized vehicles to 35 metres in length for transportation of TransGrid's HV Transformer
- Significantly reduce the number of traffic movements
- Minimise disruption to local traffic
- Decrease packaging requirements and effectively utilise transport for removal of waste
- Maintain compliance with the conditions of Development Consent

The proposed haulage route is NHVR registered as a B-Double route.

Extension of work hours

This modification proposes work hours to be modified as follows:

Figure 3-1 Approved and proposed modification to construction, upgrading and decommissioning activities

	Approved	Proposed
Monday - Friday	7am – 6pm	6am – 6pm
Saturday	8am – 1pm	6am – 6pm
Sunday	At no time	6am – 6pm
NSW Public Holidays	At no time	allowed

Modification of work hours to those stipulated in Figure 3-1 would:

- Reduce risk of potential public nuisance risks posed by construction personnel accommodated in Balranald camp during Sundays and public holidays
- Facilitate the proposed rolling roster of 21 days on/7 days off
- Ensure a continuous construction program minimising the duration of the construction phase

Change in name of Applicant

The Proponent requests that the Applicant as defined in the Development Consent be changed to the proponent, namely, "Sunraysia Solar Project Pty Ltd (ACN 612 072 536) as trustee for Sunraysia Solar Project Trust (ABN 86 116 311 664)".

4 ENVIRONMENTAL ASSESSMENT APPROACH

4.1 ENVIRONMENTAL IMPACTS OF THE APPROVED PROJECT

The key environmental impacts for the Approved project included:

- Biodiversity
- Aboriginal Heritage
- Visual impact
- Noise
- Land use

Other issues assessed for the Approved project included:

- Soils and water quality
- Transport
- Hazards
- Resource and waste generation
- Historic heritage
- Air quality and climate
- Socioeconomic factors
- Cumulative impacts

All potential impacts of the Approved project were considered manageable with the implementation of the environmental safeguards listed in the EIS and Submissions Report.

4.2 ENVIRONMENTAL ASSESSMENTS FOR THE PROPOSED MODIFICATIONS

Process for identifying new or additional impacts

This modification report assesses the environmental impacts of the proposed modifications relative to those assessed for the Approved project. The following process was utilised in identifying changes to of the environmental impacts:

- A review of the environmental impacts considered for the Approved project.
- Identification of environmental aspects where the modifications could result in changes in magnitude of impact.
- Identification of any modification that could result in an inconsistency with the existing consent conditions.

Issues requiring assessment

Additional site investigations were undertaken in relation to the impact of the proposed modifications on Aboriginal heritage and biodiversity. In addition, the following environmental issues were identified as requiring consideration and assessment in relation to the proposed modifications:

- Visual impact
- Noise
- Land use
- Soil and Water Quality
- Transport
- Resource and Waste Generation
- Socio-economic factors

5 ENVIRONMENTAL IMPACT ASSESSMENT

5.1 BIODIVERSITY

As a result of the enlargement of the proposal area, further assessment by an NGH ecologist was undertaken on Monday 21st and Tuesday 22nd May 2018. Results are summarised below.

Existing environment

Four distinct PCTs were identified within the Proposal area in the *Sunraysia Solar Farm Biodiversity Assessment Report* (NGH Environmental 2017). These are included in Table 5-1 with Zone ID and BVT#.

Table 5-1 Plant Community Types, zones and conditions from the *Sunraysia Solar Farm Biodiversity Assessment Report* (NGH Environmental 2017)

Plant community type (PCT)	Zone ID	BVT #	Condition class	Endangered ecological community?
Chenopod sandplain mallee woodland/shrubland of the arid and semi-arid (warm) zones (170)	1	MU534	Moderate to good	No
Yarran tall open shrubland of the sandplains and plains of the semi-arid (warm) and arid climate zones (23)	2	MU609	Moderate to good	Yes
Black Box grassy open woodland wetland of rarely flooded depressions in south western NSW (mainly Riverina Bioregion and Murray Darling Depression Bioregion) (16)	3	MU514	Moderate to good	No
Black Oak - Western Rosewood open woodland on deep sandy loams mainly in the Murray Darling Depression Bioregion (58)	4	MU517	Moderate to good	No

A description of these PCTs and a summary of the plot data is available in the *Sunraysia Solar Farm Biodiversity Assessment Report* (NGH Environmental 2017).

Assessment methodology

Vegetation surveys were undertaken for the areas not previously assessed in the EIS to determine PCTs and condition. This included the new subdivision site, the relocation of site access, an access track merging area and an area designated for temporary laydown. Additionally, existing vegetation mapping within these areas was validated for PCT and condition.

The seasonal conditions were not appropriate to undertake plot surveys. Instead, the random meander (Cropper 1993) method was used to survey vegetation. This method provides good coverage in terms of area and microhabitats and maximises opportunities for detecting rare or sparsely distributed species.

Species occurrences were recorded progressively, and cover/abundances were generalised over the extent of the vegetation unit. Relative cover/abundance is based on visual estimates of foliage cover (Carnahan 1997). The survey method and effort are consistent with the NSW guidelines Field Survey Methods (DEC 2004).

PCTs were identified according to the OEH BioNet Vegetation Classification. The BioNet Vegetation Classification reporting tool was used to identify candidate PCTs based on NSW Riverina Bioregion and NSW Western Bioregion. Condition reflects the Framework for Biodiversity Assessment (FBA) methodology for major projects:

Vegetation in low condition is:

a) *woody native vegetation with native over-storey percent foliage cover less than 25% of the lower value of the over-storey percent foliage cover benchmark for that vegetation type, and where either:*

- *less than 50% of ground cover vegetation is indigenous species, or*
- *greater than 90% of ground cover vegetation is cleared*

OR

b) *native grassland, wetland or herbfield where either:*

- *less than 50% of ground cover vegetation is indigenous species, or*
- *more than 90% of ground cover vegetation is cleared.*

Results

Previously mapped vegetation for the Proposal area was validated and no changes to the existing mapped areas were necessary. Two PCTs were identified in the new areas. Two different condition states of the same PCT were also observed. This is reflected in the creation of two additional zones, Zone 5 and Zone 6 (Table 5-2).

Table 5-2 Plant community types for the subdivision, laydown, site access and access track merging

Plant community type (PCT)	Biometric name	Zone ID	Condition class	Threatened ecological community?	Location
Chenopod sandplain mallee woodland/shrubland of the arid and semi-arid (warm) zones (170)	MU534	1	Moderate to good	No	New site access.
Chenopod sandplain mallee woodland/shrubland of the arid and semi-arid (warm) zones (170)	MU534	5	Low	No	Subdivision and new site access.
Curly windmill grass – speargrass – wallaby grass grassland on alluvial clay and loam on the Hay Plain (46)		6	Low	No	New site access, subdivision, access track merging and temporary laydown.

PCT 170 was identified along the road reserve for the new site access. This area is composed of a small pocket of Zone 1 (moderate to good PCT 170) with majority Zone 5 (moderate to good - low PCT 170). The

moderate to good - low condition for PCT 170 was assessed using the OEH *Community Condition Benchmarks* where the vegetation condition was below the benchmark of 6 % tree cover, 14 % shrub cover and 5 % grass and grass-like cover in a 20 m x 20 m area. While below the benchmark parameters, it still meets the definition of moderate to good condition under the FBA. It has been separated out as a new homogenous zone.

The vegetation mapped for Zone 6 is PCT 46. Native grasses intermixed with exotics is the current condition of these areas. These areas have previously been cropped in addition to being grazed, and future management of areas outside of the proposed PV array will also likely involve these activities. Crops were present when the initial field work was undertaken in November 2016, and as such it was assessed as being exotic. The low condition for Zone 6 / PCT 46 was assessed using the OEH *Community Condition Benchmarks* where the vegetation condition was below the benchmark of 4% shrub cover and 46% grass and grass like cover in a 20 m x 20 m area.

PCTs of the same condition have been mapped as homogeneous zones and are provided in Figure 5-1 for the modified proposal area (previously assessed) and new impact area.

The approved and modified project impact areas are shown in Table 5-3. Overall, the modifications will reduce the impacts by 4.4 ha.

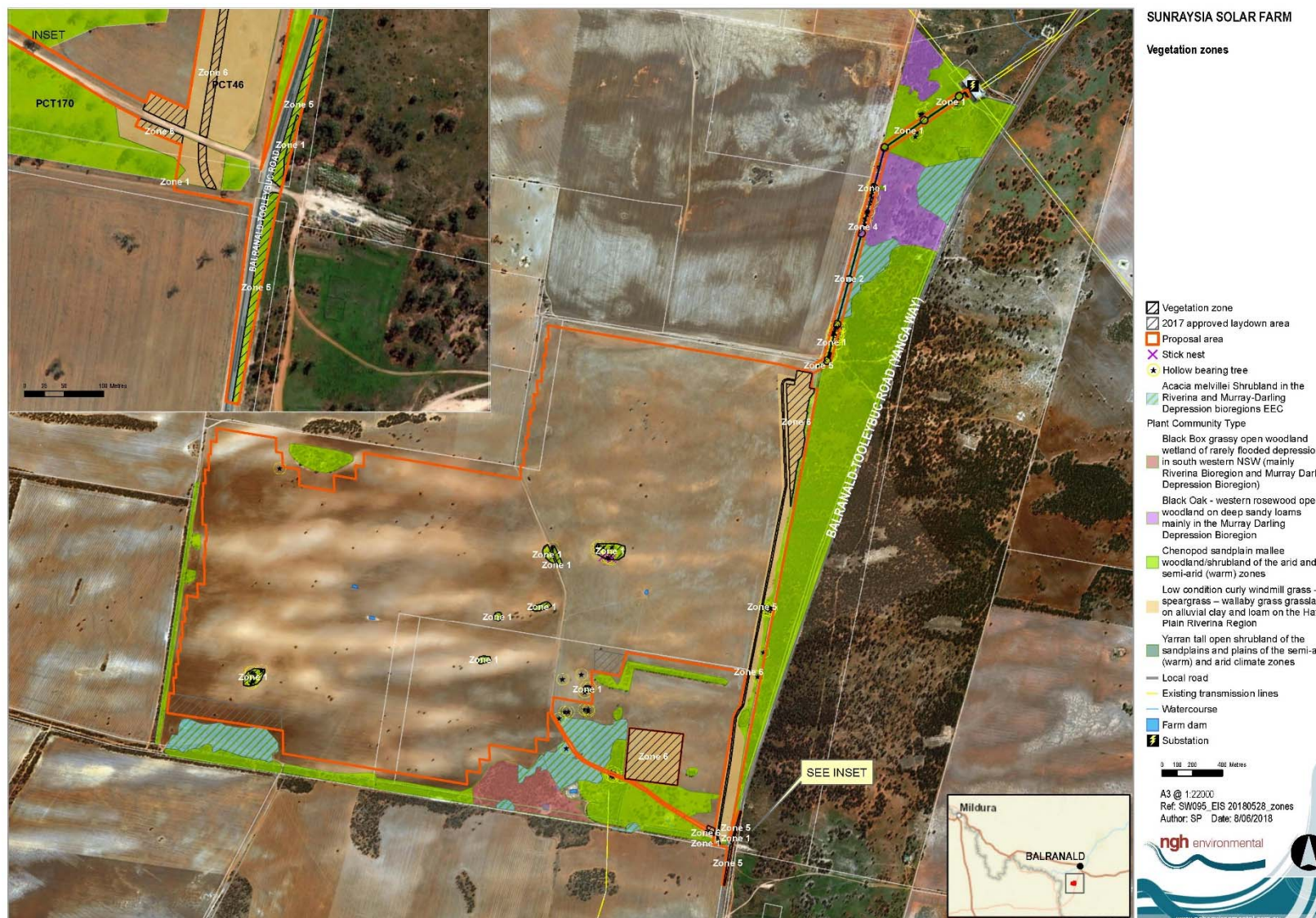


Figure 5-1 Sunraysia Solar Project vegetation mapping

Sufficient plot data was collected in November 2016 for vegetation zones 1, 2, 3, and 4 to satisfy the Biobanking methodology. Zone 3 will not be impacted by the proposal. These zones have a moderate to good condition class. Zone 6 is periodically cropped and is not assessed. Zone 5 represents a new zone. As no plot data could be collected for this zone due to seasonal conditions in 2018, the Zone 1 plot data have been used as a conservative approach.

As a result of past and future management and the low condition of Zone 6, it will not be included in biobanking calculations. These areas have previously been cropped and future management will also involve cropping. Therefore, the current condition is native low condition but is not anticipated to be a lasting condition. PCT 46 is not an endangered ecological community or threatened species habitat. Based on the composition and existing management practices, it has not been included in the updated Biobanking calculations.

Table 5-3 Comparison of approved and updated impact areas.

Plant community type (PCT)	EEC?	Zone ID	Impact area approved layout (ha)	Impact area modified layout (ha)	Net change (ha)
Chenopod sandplain mallee woodland/shrubland of the arid and semi-arid (warm) zones (170) – moderate to good condition.	No	1	9.59	6.42	-3.17
Yarran tall open shrubland of the sandplains and plains of the semi-arid (warm) and arid climate zones (23) – moderate to good condition.	Yes	2	1.29	0.33	-0.96
Black Box grassy open woodland wetland of rarely flooded depressions in south western NSW (mainly Riverina Bioregion and Murray Darling Depression Bioregion) (16) – moderate to good condition.	No	3	0.01	No impact	-0.01
Black Oak - Western Rosewood open woodland on deep sandy loams mainly in the Murray Darling Depression Bioregion (58) – moderate to good condition.	No	4	1.23	0.42	-0.81
Chenopod sandplain mallee woodland/shrubland of the arid and semi-arid (warm) zones (170) – moderate to good (poor) condition.	No	5	No impact	0.55	0.55
Curly windmill grass – speargrass – wallaby grass grassland on alluvial clay and loam on the Hay Plain (46) – low condition.	No	6	Not included in calculations	Not included in calculations	NA
Net (ha)					-4.4

5.1.2 Updated Biobanking calculations

As the submitted and approved Sunraysia Solar Farm Biobanking calculations could not be re-accessed, a new Biobanking file was created for this modification. This new file provides an updated credit requirement for the entire modified project, not just the areas where changes have occurred.

The new file was created by accredited Biobanking assessor Brooke Marshall (0035/2018/4834MP), based on approved file: 205/2016/4042MP Version 1. As the changes were minor, all landscape and survey assessment data for the approved file were re-entered. The only changes to the file are the changes to the impact areas in each vegetation zone, as set out above in Table 5-3.

The following is a summary of the Biobanking data entered.

Background information

- The dominant IBRA subregion affected by the proposal is the South Otago Plain Subregion.
- Two Mitchell Landscapes occur within the proposal area; Murrumbidgee Depression Plains and Mallee Cliffs Sandplains:
 - Murrumbidgee Depression Plains occurs throughout the majority of the proposal area. The per cent cleared estimate for this landscape is currently 93% (OEH 2007).
 - Mallee Cliffs Sandplains occurs in the western section of the proposal area. The per cent cleared estimate for this landscape is currently 30% (OEH 2007).
- Using GIS, an inner and outer assessment circle with the ratio of 1:10 was established. A 20,000 ha outer assessment circle and 2000 ha inner assessment was established over the proposal area and centred over the area of native vegetation that is impacted most by the proposal. The total area of native vegetation mapped within the outer assessment circle is 3672.34 ha.
- Approximately 803.49 ha (98.52%) within the proposal area is cleared (non-native vegetation) land.
- No rivers or streams are present within the proposal area.
- There are four man-made dams occurring within the proposal area. These wetlands provide habitat for wetland birds and amphibians, although it is considered low quality due to a sparse covering of aquatic vegetation. The closest Nationally Important Wetland to the proposal area is Yanga Lake approximately eight kilometres to the north-east.
- No state or regionally significant biodiversity links occur within the proposal area and within the inner and outer assessment circles.

Landscape assessment

- The proposal conforms to the definition of a *site-based development* according to the FBA.
- Current native vegetation cover within the inner assessment circle is 30.60%.
- Current native vegetation cover within the outer assessment circle is 18.81%.
- Future native vegetation cover in the inner assessment circle is 29.62%.
- Future native vegetation cover in the outer assessment circle is 18.71%.
- The proposal does not impact on any state or regional biodiversity links.
- Based on the above parameters, the landscape value score is 12.60.

The landscape assessment circles used to generate this score are shown in Figure 5-2, below.

Plot data entered into BCC

The plot data collected in November 2016 for vegetation Zones 1, 2, 3 and 4 are shown in Table 5-4. Note, the most representative Zone 1 data (Q7) are used to represent Zone 5, as a conservative approach for this zone where no plot data could be collected. An image of this zone is provided in The BCC assessment assumes all zone site scores would be '0' after development.

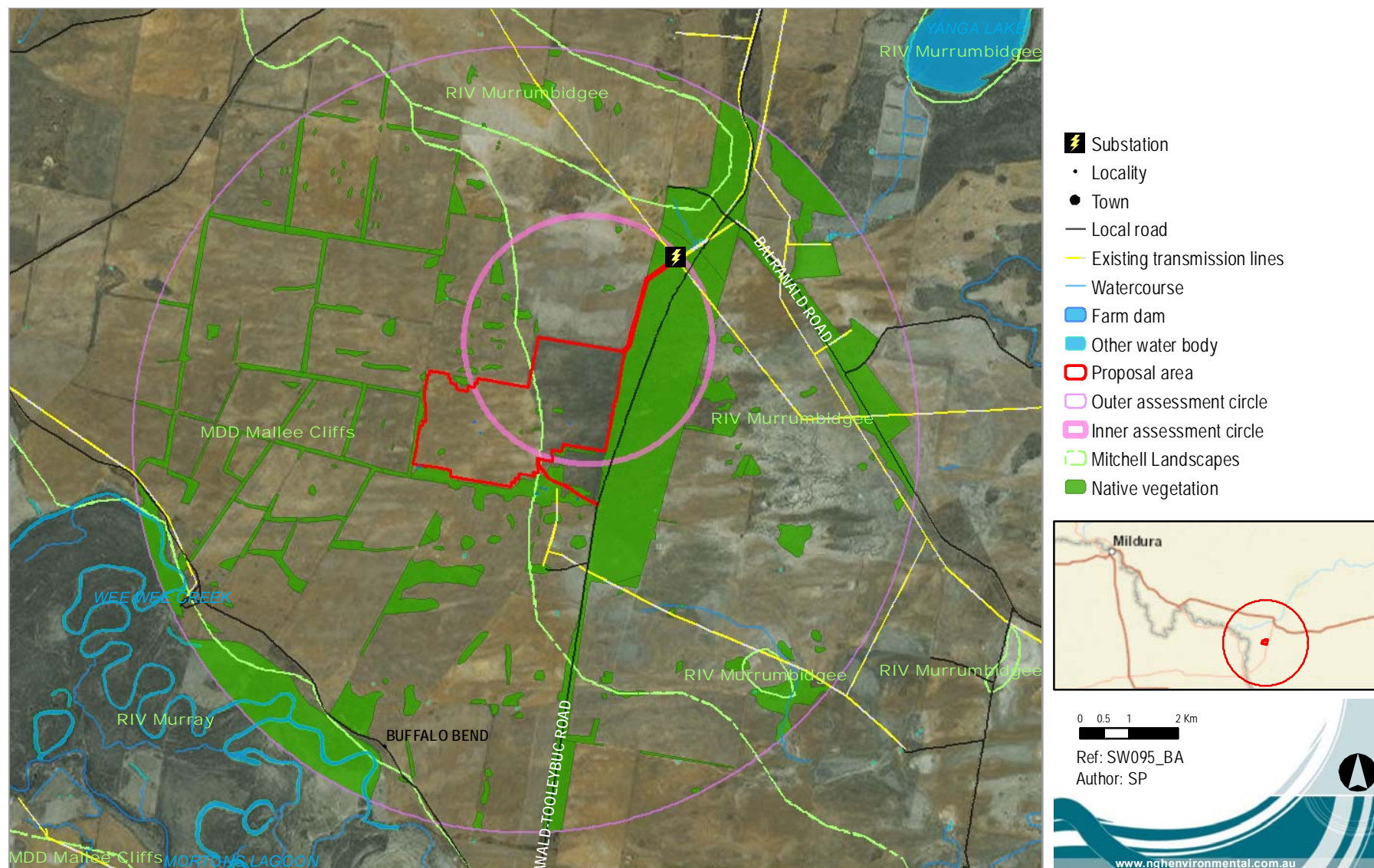


Figure 5-2 Location Map showing landscape assessment circles and Mitchel landscapes (NGH Environmental 2017).

Table 5-4 Plot data

ZONE 1 PCT #170 BVT # MU534 Chenopod sandplain mallee woodland/shrubland of the arid and semi-arid (warm) zones [site score = 61.11]

Plot name	Native plant species richness	Native over-storey cover	Native mid-storey cover	Native ground cover (grasses)	Native ground cover (shrubs)	Native ground cover (other)	Exotic plant cover	Number of trees with hollows	Overstory regeneration	Total length of fallen logs	Easting	Northing	Zone
Q1	8	3.6	0	0	20	2	50	0	0	12.7	728719	6145838	54
Q2	22	6.5	0	3	29	14	39	0	0	47.8	728217	6145468	54
Q3	10	7.5	0	0	14	7	45	2	1 ¹	5	726247	6144963	54
Q4	14	2.5	0	4	19	3	20	2	0	59.8	730115	6147250	54
Q7	15	0	0	0	22	32	45	0	0	21	730761	6148763	54
Q12	15	0	0	26	1	10	26	0	0	0	730526	6148577	54

ZONE 2 PCT #23 BVT # MU609 Yarran tall open shrubland of the sandplains and plains of the semi-arid (warm) and arid climate zones [site score = 44.62]

Plot name	Native plant species richness	Native over-storey cover	Native mid-storey cover	Native ground cover (grasses)	Native ground cover (shrubs)	Native ground cover (other)	Exotic plant cover	Number of trees with hollows	Overstory regeneration	Total length of fallen logs	Easting	Northing	Zone
Q5	17	0	0	19	4	17	12	0	0	0	730321	6147823	54
Q9	13	2	3	9	18	4	15	1	0	15	728395	6144562	54

¹ Entered as '0' in the 2016 Biobanking file but assumed to be an error and updated in the 2018 calculations as shown here (score of '1' now applicable to entire zone).

Plot name	Native plant species richness	Native over-storey cover	Native mid-storey cover	Native ground cover (grasses)	Native ground cover (shrubs)	Native ground cover (other)	Exotic plant cover	Number of trees with hollows	Overstory regeneration	Total length of fallen logs	Easting	Northing	Zone
-----------	-------------------------------	--------------------------	-------------------------	-------------------------------	------------------------------	-----------------------------	--------------------	------------------------------	------------------------	-----------------------------	---------	----------	------

Q11 12 7 0 5 10 1 22 0 0 0 728588 6144406 54

ZONE 4 PCT # 23 BVT # 517 Black Oak - Western Rosewood open woodland on deep sandy loams mainly in the Murray Darling Depression Bioregion [site score = 78.65]

Plot name	Native plant species richness	Native over-storey cover	Native mid-storey cover	Native ground cover (grasses)	Native ground cover (shrubs)	Native ground cover (other)	Exotic plant cover	Number of trees with hollows	Overstory regeneration	Total length of fallen logs	Easting	Northing	Zone
-----------	-------------------------------	--------------------------	-------------------------	-------------------------------	------------------------------	-----------------------------	--------------------	------------------------------	------------------------	-----------------------------	---------	----------	------

Q6 19 0 0 3 14 18 35 1 0 6.1 730364 6148173 54

Q8 12 8 1 4 26 4 10 0 1² 11.1 730490 6148436 54

ZONE 5 PCT #170 BVT # MU534 Chenopod sandplain mallee woodland/shrubland of the arid and semi-arid (warm) zones [site score 30.86]

Plot name	Native plant species richness	Native over-storey cover	Native mid-storey cover	Native ground cover (grasses)	Native ground cover (shrubs)	Native ground cover (other)	Exotic plant cover	Number of trees with hollows	Overstory regeneration	Total length of fallen logs	Easting	Northing	Zone
-----------	-------------------------------	--------------------------	-------------------------	-------------------------------	------------------------------	-----------------------------	--------------------	------------------------------	------------------------	-----------------------------	---------	----------	------

Q7 15 0 0 0 22 32 45 0 0 21 730761 6148763 54

² Entered as '0' in the 2016 Biobanking file but assumed to be an error and updated in the 2018 calculations as shown here (score of '1' now applicable to entire zone).



Figure 5-3 Representative photo of Zone 5, taken in May 2018.

Geographic / habitat feature

The following habitat feature was entered for the proposal area, in the Geographic / habitat feature tab of the BCC.

Table 5-5 Geographic / habitat features

Impact?	Common name	Scientific name	Feature
Yes	Winged Peppercress	<i>Lepidium monoplacoides</i>	Land containing seasonally damp or waterlogged sites
Yes	Bitter Quandong	<i>Santalum murrayanum</i>	Land west of Moulamein in the Murrumbidgee CMA sub-region

The Grey Falcon *Falco hypoleucos* was precluded as the site does not contain land containing and within 100 m of riparian woodland on inland rivers containing mature living eucalypts or isolated paddock trees overhanging water or dry watercourses.

Candidate species

The following species are all species predicted by the BCC to occur, based on the data entered for the landscape assessment and the geographic and habitat features in the assessment. These constitute all species which will generate ecosystem credits in the credit calculations.

Table 5-6 Ecosystem credit species predicted to occur.

Common name	Scientific name	TS offset multiplier
Australian Bustard	<i>Ardeotis australis</i>	2.6
Barking Owl	<i>Ninox connivens</i>	3.0
Bush Stone-curlew	<i>Burhinus grallarius</i>	2.6
Chestnut Quail-thrush	<i>Cinclosoma castanotum</i>	1.3
Corbens Long-eared Bat	<i>Nyctophilus corbeni</i>	2.1
Diamond Firetail	<i>Stagonopleura guttata</i>	1.3
Gilberts Whistler	<i>Pachycephala inornata</i>	1.3
Grey-crowned Babbler (eastern subspecies)	<i>Pomatostomus temporalis subsp. temporalis</i>	1.3
Hooded Robin (south-eastern form)	<i>Melanodryas cucullata subsp. cucullata</i>	1.7
Little Eagle	<i>Hieraaetus morphnoides</i>	1.4
Major Mitchells Cockatoo	<i>Lophochroa leadbeateri</i>	1.9

Common name	Scientific name	TS offset multiplier
Painted Honeyeater	<i>Grantiella picta</i>	1.3
Pied Honeyeater	<i>Certhionyx variegatus</i>	1.3
Regent Parrot (eastern subspecies)	<i>Polytelis anthopeplus subsp. monarchoides</i>	1.8
Spotted Harrier	<i>Circus assimilis</i>	1.4
Varied Sittella	<i>Daphoenositta chrysoptera</i>	1.3

The following species were returned by the BCC as requiring survey. The table below states whether each species was detected during November surveys and furthermore, if they are expected to be impacted by the proposal and therefore are required to be offset. It is noted that no species credit species were detected during surveys.

Table 5-7 Threatened species requiring survey (candidate species)

Common name	Scientific name	Surveys	Present/presumed present	Affected by the proposal
Winged Peppergrass	<i>Lepidium monoplacoides</i>	Not detected	No	Unlikely – not recorded within the proposal area, only one record within 20 km of site, marginal habitat
A spear-grass	<i>Austrostipa metatoris</i>	Not detected	No	Unlikely – not recorded within the proposal area
Bitter Quandong	<i>Santalum murrayanum</i>	Not detected	No	Unlikely – not recorded within the proposal area

TARGETED SURVEYS

Targeted surveys were conducted for these threatened flora species in 2016 for the approved layout. These surveys were conducted in accordance with the NSW Guide to Surveying Threatened Plants, and included formal linear transects within the proposal area, in addition to random meanders (after Cropper 1993) across all areas of suitable habitat. Formal linear transects (parallel field traverses) were walked by two surveyors at a distance of 10 m. Transects were walked within linear corridors, and random meanders were conducted within discrete vegetation patches. A total of 8 km of linear transects were completed within the north-east portion of the proposal area, with a further 3 km of linear transects conducted within the south-east portion of the proposal area.

A total of 5 km of random meander surveys (after Cropper 1993) were conducted for the additional impact areas during the site visit on 21st and 22nd May 2018. None of the species were detected.

Zero impact was entered for candidate species in the Biobanking calculations.

Updated credit profile

The credit requirement of the modified project is 272 ecosystem credits. No species credits are relevant to the project. The full credit profile is provided in Appendix F.

Table 5-8 Credit profile summary: modified layout

PC type code	Plant community type name	Management zone area (ha)	Loss in LandScape Value	Loss in site value score	EEC Offset Multiplier	Credits req for TS	TS with highest credit req	TS offset multiplier	Ecosystem credits required
MU534	Chenopod sandplain mallee woodland/shrubland of the arid and semi-arid (warm) zones	6.42	12.60	61.11	1.0	226	Corben's Long-eared Bat	2.1	226
MU609	Yarran tall open shrubland of the sandplains and plains of the semi-arid (warm) and arid climate zones	0.33	12.60	44.62	3.0	11	Australian Bustard	2.6	12
MU517	Black Oak - Western Rosewood open woodland on deep sandy loams mainly in the Murray Darling Depression Bioregion	0.42	12.60	78.65	1.0	23	Australian Bustard	2.6	23
MU534	Chenopod sandplain mallee woodland/shrubland of the arid and semi-arid (warm) zones	0.55	12.60	30.86	1.0	11	Corben's Long-eared Bat	2.1	11

For comparison, the approved credit requirement is provided below. The new credit requirement of 272 credits has been reduced by 119 credits by the modified layout.

Table 5-9 Credit profile summary: approved layout

PC type code	Plant community type name	Management zone area (ha)	Loss in LandScape Value	Loss in site value score	EEC Offset Multiplier	Credits req for TS	TS with highest credit req	TS offset multiplier	Ecosystem credits required
MU534	Chenopod sandplain mallee woodland/shrubland of the arid and semi-arid (warm) zones	9.59	12.60	51.85	1.0	291	Corben's Long-eared Bat	2.1	291
MU609	Yarran tall open shrubland of the sandplains and plains of the semi-arid (warm) and arid climate zones	1.29	12.60	44.62	3.0	41	Australian Bustard	2.6	47
MU517	Black Oak - Western Rosewood open woodland on deep sandy loams mainly in the Murray Darling Depression Bioregion	1.23	12.60	61.46	1.0	53	Australian Bustard	2.6	53
MU514	Black Box grassy open woodland wetland of rarely flooded depressions in south western NSW (mainly Riverina Bioregion and Murray Darling Depression Bioregion)	0.00	12.60	40.00	1.0	0	Barking Owl	3.0	0

Summary

PCT and condition were confirmed for areas previously mapped in the Sunraysia Biodiversity Assessment Report (NGH Environmental 2017). Field surveys were conducted for new areas identified in this modification. Field surveys identified a new PCT for the proposed location of the temporary laydown, access track merging area and site access. These areas have previously been cropped and future management will also involve cropping. PCT 46 is not a threatened ecological community or threatened species habitat. Based on the composition and existing management practices, it has not been included in the updated biobanking calculations.

PCT 170 was identified along the eastern boundary of the proposed subdivision and along the roadside for new site access. A small proportion was identified as of moderate-good condition. While much of this additional area is below benchmark with no canopy cover, and shrub and grass cover it still meets the FBA moderate to good condition definition. A new zone was created, Zone 5, for PCT 170 – moderate to good - low condition to differentiate its lower condition. 2017 plot data were used for this new zone, given seasonality precluded new plots being carried out.

An overall net reduction of 4.4 ha of impacts has been calculated. The ecosystem credit requirement of the modified project is 272 credits; a reduction of 119 credits. No species credits are relevant to the project.

5.2 ABORIGINAL HERITAGE

As a result of the enlargement of the proposal area, further assessment by Matthew Barber Principal Heritage Consultant with NGH Environmental was undertaken on Friday 18th May. Results are summarised below.

Assessment Methodology

As AHIMS results are only valid for 12 months, a new AHIMS search was carried out to ensure that no previously identified sites were known within each of the modification areas. The results showed that only the sites recorded during the original survey for the Approved project were within proximity of the modification assessment area.

Contact was made with the registered Aboriginal parties, the Pappin Family Corporation incorporating the Mutthi Mutthi Nations, for the project advising them of the proposed modifications and seeking involvement in a field assessment. They indicated that they would be interested and available to undertake a field assessment.

It was agreed with the RAPs that the fieldwork would be conducted on 18 May 2018. Participants in the survey representing the Pappin family and Mutthi Mutthi were:

- Bernadette Pappin
- Jason Pappin
- Maxine Kelly

The survey team of four people conducted a comprehensive survey of the designated areas. The survey strategy was to walk parallel transects back and forth across each of the required areas, with an approximate spacing between survey participants of 20 m. The use of parallel transects in this way ensured effective and comprehensive coverage of each area.

As standard archaeological practice, notes were made as to the visibility of the area, the landforms and representative photos were taken.

Laydown area

The proposed laydown of approximately 350 x 350 m (12.25 ha) was examined by four people with a total of 9,000 m of transect walked. Visibility was variable, ranging from 10% up to 30%, with higher visibility encountered on the crest of the sand dune. The soils consisted of a red sand on the upper areas and crest and a sandy silty deposit with some calcium carbonate gravels on the mid to lower slopes.

No archaeological material was found during the survey of the laydown area.

Subdivision area (southern section outside approved proposal area)

This area measured approximately 1000 x 120 m (12 ha) and was surveyed by four people, with about 4,400 m of transect walked, including a small buffer of the area. Visibility within this section varied considerably, with the existing vehicle track adjacent to the fence line providing about 80%, while off the track the grass restricted visibility to about 5-15%. Soils consisted of a variation between red sands on some sections including the low crests and swales while on the mid slopes the soils were more a red sandy silt with some calcium carbonate gravels.

No archaeological material was found during the survey of the subdivision area, but the Aboriginal community members present indicated that they would like to see the stand of trees and in particular the "Rosewood" (*Alectryon oleisilius subsp. canescens*) trees in the southern part of the proposed subdivision

be retained. These trees are included within the area mapped as PCT 170 and will be avoided. Although there was no archaeological site identified at this location, the RAPs indicated that such trees were generally rare, and it was important to retain trees as much as possible within the landscape.

Access Track Merging area

This area measured approximately 100 x 80 m, but a larger area of 200 x 100 m was inspected by four people to allow flexibility in the establishment of the access track merging area. There was considerable disturbance of some of this area from likely drainage works with a shallow cutting in part of the area and the farm access road also having table drains either side. Visibility was good with the southern side of the access road having about 50% but the northern side reduced by grass cover to 10%. Soils were red silty sand with some natural gravels.

No archaeological material was found during the survey of the access track merging area.

Intersection

The proposed intersection upgrade extends approximately 230 m north of the property access gate and 270 m south of the access gate, for a combined length of 500 m. The area had undergone considerable disturbance through construction of Balranald-Tooleybuc Road (Yanga Way) and with a buried Telstra cable along the western side of the road north of the farm access gate. Visibility on the western side of the road was good at approximately 40% but in a highly disturbed context.

The eastern side of the road reserve was also heavily disturbed with the road cutting, soil movement, a Telstra cable all causing disturbance at least 15-20 m from the edge of the sealed road. Visibility within the eastern side of the road reserve was about 10% but also within a highly disturbed context.

No archaeological material was found during the survey of the intersection upgrade area.

Summary

While grass cover inhibited the discovery of archaeological material in the form of stone artefacts, the results of the original survey for the proposal area indicate that this landform does not contain high concentrations of archaeological material. The absence of archaeological material from the project area is therefore likely to be a true reflection of the archaeological record of this area. While many sites have been recorded in the wider region, the lack of water and notable resources in the current project area is likely to have been a factor in reduced Aboriginal use of this particular landscape.

Discussion with the Aboriginal representatives on site during and at the conclusion of the archaeological survey concluded that they were happy with the survey results and had no concerns with the project plans for the modification to proceed from a heritage perspective, noting the preference to retain the trees in the subdivision section.

Recommendations

The following recommendations are provided based on the results of the survey, consultation with the Aboriginal representatives and consideration of the statutory requirements.

1. If at all possible, avoid the stand of trees in the southern part of the proposed subdivision .
2. If, during construction any object is identified that is suspected of being Aboriginal in origin, work must cease in the immediate area and an archaeologist and the Aboriginal community representatives notified to assess the find.

3. These recommendations and results should form part of the updated management plan for the project.

5.3 VISUAL IMPACT

The modification will result in relocation of site access approximately 50m south of the approved site access. A residence located 1.4km south of the site was identified in the EIS as having moderate sensitivity. The temporary laydown area is on a west south-west oriented slope and existing roadside vegetation will screen visibility for road users of Yanga Way. The visibility of the relocated access will not increase for this residence; the EIS demonstrated that there is sufficient screening at this residence to partially obscure the view of the solar farm and its associated infrastructure. This was validated on site by an NGH field officer on the 21st May 2018.

It is anticipated that the reduction in vegetation clearing proposed in this modification along with the environmental safeguards proposed in the EIS and VIA for visual impact will be sufficient.

5.4 NOISE

A Construction and Operational Noise and Vibration Assessment (Renzo Tonin & Associates, 2016) was undertaken for the EIS based on the work hours originally proposed and the definitions day, evening and night work stipulated in the NSW Industrial Noise Policy (INP). The NSW INP defines these periods as follows:

- Day is defined as:
 - 7am – 6pm Monday to Saturday
 - 8am – 6pm Sundays and Public Holidays
- Evening is defined as:
 - 6pm – 10pm Monday to Sunday and Public Holidays
- Night is defined as:
 - 10pm – 7am Monday to Saturday
 - 10pm – 8am Sundays and Public Holidays

This Modification Application seeks to extend work hours, which would see night work between the hours of 6am and 7am on Monday to Saturday and 6am – 8am on Sunday and NSW Public Holidays.

The predicted construction noise levels presented in the EIS were in the range of <20-32dB(A). The Interim Construction Noise Guideline stipulates the night time construction Noise Management Level (NML) would be 35dB(A), as such, construction noise during the proposed extending work hours would comply with these guidelines.

The relocation of site access would place the nearest receiver closer than the approved project. Predicted construction noise levels under the worst-case scenario at the nearest receiver were based on traffic movements along Yanga Way. The traffic noise criteria stipulated in the NSW Road Noise Policy (RNP) are as follows:

- Arterial roads
 - Day criteria (7am – 10pm) is 60dB(A)
 - Night criteria (10pm – 7am) is 55dB(A)
- Local Roads
 - Day criteria (7am – 10pm) is 55dB(A)

- Night criteria (10pm – 7am) is 50dB(A)

Results of this assessment predicted noise contribution levels from solar farm traffic travelling along Yanga Way to be 51dB(A). Given Yanga Way is an arterial road and works were proposed to be undertaken during daytime hours only, the EIS found construction traffic noise levels to be compliant with traffic noise criteria.

Although construction traffic would still travel along Yanga Way, this modification would see site access be relocated to The Cut Line Road, which is categorised as a local road. Construction traffic was predicted to be 51dB(A) resulting in a minor exceedance of night criteria (50dB(A) between 6am and 7am. This noise criteria are based on dwellings being 20m from the road. Given that the only residence within 2km of the solar farm site is about 900 m from Yanga Way and 1.4km from The Cut Line, and traffic would only utilise the first 50 metres of The Cut Line, increased impact from construction noise is not anticipated.

The extension of work hours would not result in a change in the nature of the potential noise and vibration, however the relocation of site access results in minor exceedances of noise criteria. As such, the proponent has committed to installing noise monitoring equipment at the nearest receiver. Where exceedances are detected, steps will be taken to identify and reduce the impacts of the relevant activities to acceptable levels. Ongoing consultation with the landowner throughout construction will be undertaken to manage noise impacts.

5.5 LAND USE

The temporary laydown proposed in this modification would result in a temporary loss of agricultural potential of this area for the duration of construction. Additionally, the construction of TransGrid access road facilitated by subdivision would result in a permanent loss of agricultural land within the roads hardstand. The area in which temporary laydown and TransGrid access would be located is minimal and is considered to belong to the same land capability category as the land assessed in the EIS, which was described as having very severe limitations.

The site access proposed in this modification will involve construction of an intersection at The Cut Line, within Crown Land administered by Balranald Shire Council. This will improve road infrastructure at this location. Consultation with the relevant authorities, including Balranald Shire Council, who are responsible for maintaining The Cut Line is summarised in Section 2. The works would not impact on The Cut Line existing land use.

None of the proposed modifications in this report impact on any current exploration or mining titles.

The environmental safeguards proposed in the EIS and Submissions Report are considered sufficient to manage the potential impacts from loss of agricultural land due to temporary laydown and TransGrid access road.

5.6 SOIL AND WATER QUALITY

The temporary laydown, and the relocation of site access proposed in this modification occur on land with the same soil classification as that assessed in the EIS. Additionally, no waterways or dams are located within the proposed areas.

The magnitude of impact associated with works proposed under this modification are unlikely to result in a material change of impact to soil and water quality. The environmental safeguards presented in the EIS are considered sufficient.

5.7 TRANSPORT

The relocation of site access to The Cut Line allows the road intersection upgrade to be constructed at the intersection of Yanga Way and The Cut Line. This would result in improved road safety than would have been the case if the intersection upgrade was constructed at the originally approved site access. .

The relocation of the laydown area would improve access of the construction compound to both delivery vehicles and construction workers. It would also reduce conflict between delivery vehicles and construction activities within the construction site.

Relocation of the Substation access road would reduce conflict between construction and operation traffic within the PV array and that of the substation, including oversize vehicle movement associated with the installation (and replacement/removal) of the substation transformers.

Extension of work hours and changes to vehicle length restrictions will result in a change in magnitude to the potential transport impacts assessed in the EIS.

No changes to the nature of potential transport impacts presented in the EIS are anticipated and existing environmental safeguards are considered sufficient.

5.8 RESOURCE AND WASTE GENERATION

The relocation of the temporary laydown would result in some improvement to efficiencies associated with resource and waste management.

No changes to the nature of potential resource and waste generation impacts presented in the EIS are anticipated and existing environmental safeguards are considered sufficient.

5.9 SOCIOECONOMIC FACTORS

The relocation of site access may result in short term disruption to property owners, leaseholders and workers during construction. In the long term, the site access proposed in this modification would result in safer and improved access at the intersection of Yanga Way and The Cut Line.

No changes to the nature of potential socioeconomic impacts presented in the EIS are anticipated and existing environmental safeguards are considered sufficient.

6 IMPACT SUMMARY

Section 5 of this report assessed key environmental issues relevant to the proposed modifications and in particular, whether they would result in any additional or increased impact. It also identified that no changes to the proposed environmental safeguards are required as a consequence of the modifications.

Table 6-1 summarises these results and identifies where changes to the consent conditions may be required to address these impacts. All proposed changes to the conditions of consent are discussed in Section 7.

Table 6-1 Assessment of the changes and magnitude of environmental impact

Relevant EIS section	Environmental factor	New Impact type (Y/N)	Changes in magnitude of impact (Y/N)	Need for further assessment (Y/N)	Section assessed in this Modification
7.1	Biodiversity	N	Y	Y	5.1
7.2	Aboriginal Heritage	N	Y	Y	5.2
7.3	Visual	N	Y	Y	5.3
7.4	Noise	N	Y	Y	5.4
7.5	Land Use	N	Y	Y	5.5
8.1	Soils and Water Quality	N	Y	Y	5.6
8.2	Transport	N	Y	Y	5.7
8.3	Hazards	N	N	N	NA
8.4	Resource and Waste Generation	N	Y	Y	5.8
8.5	Historic Heritage	N	N	N	NA
8.6	Air Quality and Climate	N	N	N	NA
8.7	Socio-Economic Factors	N	Y	Y	5.9
8.8	Cumulative impacts	N	N	N	NA

The assessment found the modifications would not result in any additional impact types compared to those assessed in the EIS and Submissions Report. It was assessed that the extent of impacts would not be noticeably greater in relation to any environmental factor, however a commitment has been made to minimise risk of impact to the nearest residential receiver.

Table 6-2 Additional proposed environmental safeguard

Environmental Safeguard			
<ul style="list-style-type: none"> For night time and out of hours work, monitoring would be undertaken in accordance with the requirements of Australian Standard AS1055.1 Acoustics - Description and Measurement of Environmental Noise - General Procedures. Where exceedances of levels stipulated in the Interim Construction Noise Guideline occurs mitigation strategies would be implemented to ensure exceedances do not occur. 	C		

7 PROPOSED MODIFICATIONS TO CONSENT CONDITIONS

7.1 CONDITIONS OF CONSENT

A consistency review of the Conditions of Consent for the Sunraysia Solar Farm, provided in Appendix C, found the modification of the proposal area would not meet all the Development Consent conditions. The Development Consent Conditions in Table 7-1 would require an update in order to make the modification compliant. All remaining conditions of consent can be met by the modified project.

Table 7-1 Proposed modifications to consent conditions

ID	Original versus proposed modification to consent condition	
Schedule 1	Change to name of Applicant	
Definitions	Original	Applicant: Sunraysia Solar Farm Two Pty Ltd, or any person who seeks to carry out the development approved under this consent
	Proposed	Applicant: Sunraysia Solar Project Pty Ltd (ACN 612 072 536) as trustee for Sunraysia Solar Project Trust (ABN 86 116 311 664) , or any person who seeks to carry out the development approved under this consent Site establishment activities: <ul style="list-style-type: none"> • Establishment of temporary access via the originally approved and existing site entry point off Yanga Way • Repair and establishment of access tracks from existing site entry to laydown, hardstand and site facilities areas • Installation of site fencing • Security camera installation • Establishment of construction site facilities (offices, cribs, ablutions), laydown and hardstand
Schedule: 3 Condition: 2	Original	Condition 8 requires that: The Applicant must ensure that the: (a) development does not generate more than: <ul style="list-style-type: none"> • 60 heavy vehicle movements a day during construction, upgrading or decommissioning; or • 20 heavy vehicle movements a day during operations; On the public road network; and (c) Length of any vehicles used for the development does not exceed 19 metres, unless the Secretary agrees otherwise.
	Proposed	Condition 8 to be amended as follows: The Applicant must ensure that the: (a) development does not generate more than: <ul style="list-style-type: none"> • 60 heavy vehicle movements a day during construction, upgrading or decommissioning; or

ID	Original versus proposed modification to consent condition	
		<ul style="list-style-type: none"> 20 heavy vehicle movements a day during operations; <p>On the public road network; and</p> <p>(c) Length of any vehicles used for the development does not exceed 26 metres (or 35 metres for delivery of the HV transformer), unless the Secretary agrees otherwise.</p>
Schedule: 3 Condition: 5	Original	Prior to commencement of construction, the Applicant must upgrade the site entry point at its intersection with Yanga Way in accordance with the Ausroads Guide to Road Design (as amended by RMS supplements) and to the satisfaction of RMS
	Proposed	Condition 5 to be amended as follows: Prior to commencement of construction (excluding Site Establishment Activities), the Applicant must upgrade the site entry point at its intersection with Yanga Way in accordance with the Ausroads Guide to Road Design (as amended by RMS supplements) and to the satisfaction of RMS.
Schedule: 2 Condition: 10	Original	Condition 10 requires that: Unless the Secretary agrees otherwise, the Applicant must only undertake construction, upgrading or decommissioning activities on site between: <ul style="list-style-type: none"> (a) 7 am to 6 pm Monday to Friday; (b) 8 am to 1 pm Saturdays; and (c) At no time on Sundays and NSW public holidays.
	Proposed	Condition 10 changed as follows: Unless the Secretary agrees otherwise, the Applicant must only undertake construction, upgrading or decommissioning activities, on site between: <ul style="list-style-type: none"> (a) 6 am to 6 pm Monday to Sunday and including NSW public holidays. <p>This would exclude heavy vehicle deliveries and pile driving, which would be restricted to daytime hours as stipulated in the NSW Road Noise Policy (RNP) and NSW Industrial Noise Policy (INP) respectively.</p>
Appendix 1	Original	The Development Footprint includes (3) separate 'Proposed laydown areas' within the site, and approved site entry point
	Proposed	Alteration to boundaries of the proposal area to include an additional 'Temporary Laydown Area', relocated site entry point, and internal access road at the locations identified in Appendix A

8 SUMMARY AND CONCLUSIONS

8.1 CONDITIONS OF CONSENT

A Consistency review of the Conditions of Development Consent for the Approved project, provided in Appendix C, found that the proposed modifications to the Approved project would not meet the following Conditions:

- Condition 2 of Schedule 3
- Condition 5 of Schedule 3
- Condition 10 of Schedule 3

The proposed modifications to conditions of the Development Consent are set out in Table 7-1 above.

Although some changes to the Conditions of Development Consent are sought, the proposed modified project would remain substantially the same as the Approved project.

8.2 MODIFICATIONS BEING SOUGHT

The key modifications to the Approved project include:

- Relocation of site access to The Cut Line, approximately 50m south of the approved site entry, allowing for a single road intersection upgrade at the intersection between Balranald-Tooleybuc Road (also known as Yanga Way and Mallee Highway) and The Cut Line.
- Modification of the Development Consent to permit limited site establishment activities prior to the site entry point upgrade.
- A 10 hectare temporary laydown area east of the proposed arrays.
- Subdivision of lots 9 and 10 of DP 751179 to enable the transfer of the internal substation site to TransGrid in freehold, permit unimpeded access to the internal substation to TransGrid, retain a portion for future battery storage, and enable a lease to be granted over the residual lots for the construction and operation of the solar farm.
- Modification of the extent of clearing of native vegetation associated with the Approved project
- Modification of heavy vehicle restriction to support the use of B-doubles during construction and to allow one over-sized delivery for the HV transformer
- Extension of construction, upgrading and decommissioning work hours to 6am to 6pm from Monday to Sunday and including NSW public holidays.
- Change in name of applicant from Sunraysia Solar Farm Two Pty Ltd to “Sunraysia Solar Project Pty Ltd (ACN 612 072 536) as trustee for Sunraysia Solar Project Trust (ABN 86 116 311 664)”

One additional environmental safeguard is suggested to mitigate noise impacts:

- *For night time and out of hours work, monitoring would be undertaken in accordance with the requirements of Australian Standard AS1055.1 Acoustics - Description and Measurement of Environmental Noise - General Procedures. Where exceedances of levels stipulated in the Interim Construction Noise Guideline occurs mitigation strategies would be implemented to ensure exceedances do not occur.*

8.3 CONCLUSION

This assessment outlines the Proponent's proposed modification for the development of the approved Sunraysia Solar Farm. The modifications to the Development Consent proposed in this report are required to deliver an efficient, constructible and commercially viable project, minimising impacts to the extent practically and reasonably feasible.

The key benefits of the modifications to Development Consent would be:

- Reduced traffic disruptions on Yanga Way as a consequence of site access relocation and modification to heavy vehicle restrictions
- Improved optimisation and efficiency of site access and reduced requirement for internal roads and construction tracks
- Minimised construction duration as a consequence of revised construction, upgrading and decommissioning work hours

This Modification Report demonstrates that there will be an equivalent environmental impact to that assessed.

9 REFERENCES

Carnahan, JA (1976) *'Natural Vegetation' in Atlas of Australian Natural Resources*. Second Series. Department of Natural Resources, Canberra.

Cropper, S.C. (1993) *Management of Endangered Plants*. CSIRO, East Melbourne, Victoria.

Department of Environment and Conservation (DEC) (2004) *Field Survey Methods*. 1 October 2004. <<http://www.environment.nsw.gov.au/topics/animals-and-plants/threatened-species/about-threatened-species/surveys-and-assessments/field-survey-methods>>

NGH Environmental, 2017, *Biodiversity Assessment Report*, Sunraysia Solar Farm, NGH Sydney

NGH Environmental, 2017, *Environmental Impact Statement*, Sunraysia Solar Farm, NGH Bega

NGH Environmental, 2017, *Submissions Report*, Sunraysia Solar Farm, NGH Bega

Renzo Tonin & Associates, 2016, *Construction and Operational Noise and Vibration Assessment*, Renzo Tonin Surry Hills

APPENDIX A CONSTRAINTS MAPS

- A1 Constraints Map
- A2 Proposal Area Modification Overview
- A3 Subdivision Overview
- A4 Constraints Map – Subdivision South
- A5 Constraints Map – Subdivision central
- A6 Constraints Map – Subdivision north
- A7 Constraints Map – South transmission easement
- A8 Constraints Map – North transmission easement
- A9 Development Exclusion Zones

APPENDIX B REVISED YANGA WAY INTERSECTION WORKS

APPENDIX C CONSISTENCY REVIEW CHECKLIST

Condition ID		Condition of Consent	Do proposed changes affect ability to meet condition?
Administrative Conditions			
Obligation to Minimise Harm to the Environment			
1		In addition to meeting the specific environmental performance criteria established under this consent, the Applicant must implement all reasonable and feasible measures to prevent and/or minimise any material harm to the environment that may result from the construction, operation, upgrading or decommissioning of the development.	Consistent
Terms of Consent			
2.		The applicant must carry out the development <ul style="list-style-type: none"> a) Generally in accordance with the EIS, Submissions Report and letter from Maoneng dated 6 June 2017 b) In accordance with the conditions of this consent 	Consistent
3.		If there is any inconsistency with the above documents, the most recent document must prevail to the extent of the inconsistency. However, the conditions of this consent must prevail to the extent of any inconsistency.	NA
4.		The Applicant must comply with any reasonable requirement/s of the Secretary arising from the Department's assessment of: <ul style="list-style-type: none"> a) Any strategies, plans or correspondence that are submitted in accordance with this consent; b) Any reports, reviews, or audits commissioned by the Department regarding compliance with this consent; and c) Implementation of actions or measures contained in these documents. 	Consistent
Final Layout Plans			
5.		Prior to the commencement of construction, the Applicant must submit detailed plans of the final layout of the development to the Secretary, including details on the siting of solar panels and ancillary infrastructure.	Consistent
Work as Executed Plans			
6.		Prior to the commencement of operations or following the upgrades of any solar panels or ancillary infrastructure, the Applicant must submit work as executed plans of the development to the Department.	Consistent

Condition ID		Condition of Consent	Do proposed changes affect ability to meet condition?
Upgrading of Solar Panels and Ancillary Infrastructure			
7.		Over time, the Applicant may upgrade the solar panels and ancillary infrastructure on site provided these upgrades remain within the approved development footprint of the site. Prior to carrying out any such upgrades, the Applicant must provide revised layout plans of the development to the Secretary incorporating the proposed upgrades.	Consistent
Notification of Works			
8.		<p>Prior to the commencement of construction, operations, upgrading or decommissioning of the development or the cessation of operations, the Applicant must notify the Department in writing of the date of commencement, or cessation, of the relevant phase.</p> <p>If any of these phases of the development are to be staged, then the Applicant must notify the Department in writing prior to the commencement of the relevant stage, and clearly identify the development that would be carried out during the relevant stage.</p>	Consistent
Structural Adequacy			
9.		The Applicant must ensure that all new buildings and structures, and any alterations or additions to buildings and structures, are constructed in accordance with the relevant requirements of the <i>Building Code of Australia</i> .	Consistent
Demolition			
10.		The Applicant must ensure that all demolition work on site is carried out in accordance with <i>Australian Standard AS 2601-2001: The Demolition of Structures</i> , or its latest version.	Consistent
Protection of Public Infrastructure			
11.		<p>Unless the Applicant and the applicable authority agree otherwise, the Applicant must:</p> <ul style="list-style-type: none"> a) Repair, or pay the full cost associated with repairing, any public infrastructure that is damaged by the development; and b) Relocate, or pay for the full costs associated with relocating, any public infrastructure that needs to be relocated as a result of the development. <p>This condition does not apply to the upgrade and maintenance of the road network, which is expressly provided for in the conditions of this consent.</p>	Consistent

Condition ID		Condition of Consent	Do proposed changes affect ability to meet condition?
Operation of Plant and Equipment			
12.		The Applicant must ensure that all plant and equipment used onsite, or in connection with the development is: <ul style="list-style-type: none"> a) Maintained in a proper and efficient condition b) Operated in a proper and efficient manner 	Consistent
Environmental Conditions			
Batteries			
1.	Battery Storage Restriction	Battery energy storage is not permitted on site	Consistent
Transport			
2.	Restriction on Heavy Vehicles	The Applicant must ensure that the: <ul style="list-style-type: none"> a) Development must not generate more than: <ul style="list-style-type: none"> • 60 heavy vehicles movements a day during construction, upgrading or decommissioning; or • 20 heavy vehicle movements a day during operations on the public road network. b) Length of any vehicles used for the development does not exceed 19 metres, unless the Secretary agrees otherwise. 	Inconsistent
3.		The Applicant must keep accurate records of the number of heavy vehicles entering or leaving the site each day.	Consistent
4.	Access Route	All vehicular traffic associated with the development must travel to and from the project site via Yanga Way and the approved site entry point.	Inconsistent
5.		Prior to the commencement of construction, the Applicant must upgrade the site entry point at its intersection with Yanga Way in accordance with the Austroads Guide to Road Design (as amended by RMS supplements) and to the satisfaction of RMS.	Inconsistent
6.	Operating Conditions	The applicant must ensure: <ul style="list-style-type: none"> a) The internal project site roadways are constructed as all-weather roadways. b) There is sufficient parking onsite, and no parking occurs on the public road network in the vicinity of the site. c) All vehicles are loaded and unloaded onsite, and enter and leave the site in a forward direction; and d) Vehicles leaving the site are in a clean condition and do not result in dirt being tracked onto the public road network. 	Consistent

Condition ID		Condition of Consent	Do proposed changes affect ability to meet condition?
7.	Traffic Management Plan	<p>Prior to the commencement of any road upgrades required under this consent, the Applicant must prepare a Traffic Management Plan for the development to the satisfaction of the Secretary. This plan must be prepared in consultation with the RMS and Council, and include:</p> <ul style="list-style-type: none"> a) Details of the transport route to be used for development-related traffic; b) A protocol for undertaking dilapidation surveys to assess the: <ul style="list-style-type: none"> • existing condition of the transport route/s prior to construction, upgrading or decommissioning activities; and • condition of the transport route/s following construction, upgrading or decommissioning activities; c) A protocol for the repair of any roads identified in the dilapidation surveys to have been damaged during construction, upgrading or decommissioning works, including the road reserve of Yanga Way; d) Details of the measures that would be implemented to minimise traffic safety issues and disruption to local users of the transport route/s during construction, upgrading or decommissioning works, including: <ul style="list-style-type: none"> • consideration of potential interaction with Limondale Solar Farm in consultation with the applicant of that project; • temporary traffic controls, including detours and signage; • notifying the local community about development-related traffic impacts; • procedures for receiving and addressing complaints from the community about development-related traffic; • minimising potential for conflict with school buses as far as practicable; • scheduling of haulage vehicle movements to 	Consistent

Condition ID		Condition of Consent	Do proposed changes affect ability to meet condition?
		<p>minimise convoy length or platoons;</p> <ul style="list-style-type: none"> • responding to any emergency repair or maintenance requirements; and • a traffic management system for managing over-dimensional vehicles; and <p>e) A drivers code of conduct that addresses:</p> <ul style="list-style-type: none"> • Travelling speeds; • Driver fatigue; • Procedures to ensure that drivers adhere to the designated transport routes; and • Procedures to ensure that drivers implement safe driving practices, particularly if using local roads through Balranald. <p>If the construction and/or decommissioning of the development is to be staged, the obligations in this condition apply to each stage of construction, upgrading and/or decommissioning.</p> <p>Following approval, the Applicant must implement the plan.</p>	
Biodiversity			
8.	Retirement of Credits	<p>Within two years of commencing development under this consent, unless otherwise agreed by the Secretary, the Applicant must retire biodiversity credits of a number and class specified in Table 1 below to the satisfaction of OEH.</p> <p>The retirement of these credits must be carried out in accordance with the NSW Biodiversity Offsets Policy for Major Projects and can be achieved by:</p> <ul style="list-style-type: none"> (a) acquiring or retiring credits under the Biobanking Scheme in the TSC Act; (b) making payments into an offset fund that has been developed by the NSW Government; or (c) providing supplementary measures. 	Consistent

9.	Biodiversity Management Plan	<p>Prior to commencement of construction, the Applicant must prepare a Biodiversity Management Plan for the development in consultation with OEH, to the satisfaction of the Secretary. This plan must:</p> <p>(a) include a description of the measures that would be implemented for:</p> <ul style="list-style-type: none"> managing the remnant vegetation and fauna habitat on the site; minimising clearing and avoiding unnecessary disturbance associated with the construction and operation of the development; minimising the impacts to fauna on site and implementing fauna management protocols (particularly in relation to the Grey Crowned Babbler, Major Mitchell Cockatoo, Regent Parrot and Rainbow Bee-eater); rehabilitating and revegetating temporary disturbance areas; protecting vegetation and fauna habitat outside the approved disturbance areas; maximising the salvage of vegetative and soil resources within the approved disturbance area for beneficial reuse in the enhancement of the offset area or the rehabilitation of the site; controlling weeds and feral pests; <p>(b) include a seasonally-based program to monitor and report on the effectiveness of these measures; and</p> <p>(c) include details of who would be responsible for monitoring, reviewing and implementing the plan, and timeframes for completion of actions.</p> <p>Following approval, the Applicant must implement the plan.</p>	Consistent
----	------------------------------	-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	------------

Condition ID		Condition of Consent	Do proposed changes affect ability to meet condition?
Amenity			
10.	Construction, Upgrading and Decommissioning Hours	<p>Unless the Secretary agrees otherwise, the Applicant must only undertake construction, upgrading or decommissioning activities on site between:</p> <ul style="list-style-type: none"> (d) 7 am to 6 pm Monday to Friday; (e) 8 am to 1 pm Saturdays; and (f) At no time on Sundays and NSW public holidays. <p>The following construction, upgrading or decommissioning activities may be undertaken outside these hours without the approval of the Secretary:</p> <ul style="list-style-type: none"> • the delivery of materials as requested by the NSW Police Force or other authorities for safety reasons; or • emergency work to avoid the loss of life, property and/or material harm to the environment. 	Inconsistent
11.	Noise	The Applicant must minimise the noise generated by any construction, upgrading or decommissioning activities on site in accordance with the best practice requirements outlined in the Interim Construction Noise Guideline (DECC, 2009), or its latest version.	Consistent
12.	Dust	The Applicant must minimise the dust generated by the development, including dust generated along the transport route from development-related traffic.	Consistent
13.	Visual	<p>The Applicant must:</p> <ul style="list-style-type: none"> a) Minimise the off-site visual impacts of the development, including the potential for any glare or reflection from the solar panels; b) Ensure the visual appearance of all ancillary infrastructure (including paint colours) blends in as far as possible with the surrounding landscape; and c) Not mount any advertising signs or logos on site, except where required for safety purposes. 	Consistent

Condition ID		Condition of Consent	Do proposed changes affect ability to meet condition?
14.	Lighting	<p>The Applicant must:</p> <ul style="list-style-type: none"> a) Minimise the off-site lighting impacts of the development; and b) Ensure that all external lighting associated within the development: <ul style="list-style-type: none"> • Is installed as low intensity lighting (except where required for safety or emergency purposes); • Does not shine above the horizontal • Complies with <i>Australian Standard AS4282 (INT) 1997 – Control of Obtrusive Effects of Outdoor Lighting</i>, or its latest version. 	Consistent
Heritage			
15.	Discovery of Human Remains	If human remains are discovered on site, then all work surrounding the area must cease, and the area must be secured. The Applicant must notify OEH as soon as possible following the discovery, and work must not recommence in the area until this is authorised by OEH.	Consistent
16.	Chance Finds Protocol	Prior to the commencement of construction, the Applicant must prepare a Chance Finds Protocol for the development in consultation with the Aboriginal Stakeholders, and to the satisfaction of OEH.	Consistent
17.	Management of Aboriginal Heritage Items	The Applicant must avoid and protect from impact the site identified as Sunraysia Solar Open Site 1.	Consistent
18		<p>The Applicant must carry out the following in consultation with OEH and the Aboriginal stakeholders:</p> <ul style="list-style-type: none"> a) Record the identified heritage items on site and submit the standard documentation to the Aboriginal Heritage Information Management System prior to construction; b) Minimise the disturbance of any unexpected heritage items identified on site; c) Relocate any heritage items that would be disturbed by the development to suitable alternative locations on the site prior to construction, in accordance with the relevant Code of Practice; d) Implement the Chance Finds Protocol; and e) Protect all heritage items on site, including those that would remain in situ as well as those that are relocated, from any impact. 	Consistent

Condition ID		Condition of Consent	Do proposed changes affect ability to meet condition?
Soil and Water			
19.	Water Pollution	The Applicant must ensure that the development does not cause any water pollution, as defined under Section 120 of the POEO Act.	Consistent
20.	Soil Erosion	The Applicant must: <ul style="list-style-type: none"> a) Minimise any soil erosion associated with the construction, upgrading or decommissioning of the development in accordance with the relevant requirements in the <i>Managing Urban Stormwater: Soils and Construction</i> (Landcom, 2004) manual, or its latest version; and b) Ensure the solar panels and associated infrastructure are designed, constructed and maintained to avoid causing any tunnel erosion on site. 	Consistent
21.	Stormwater Drainage	Prior to the commencement of construction, the Applicant must: <ul style="list-style-type: none"> a) Prepare detailed Stormwater Plans for the site to the satisfaction of Council, in accordance with the requirements in Council's Engineering Guidelines - Subdivisions and Development Standards and Stormwater Drainage and Disposal Policy; and b) Submit a copy of these plans to the Department. 	Consistent
Hazards			
22.	Storage and Handling of Dangerous Goods	The Applicant must: <ul style="list-style-type: none"> a) Store and handle all dangerous or hazardous materials on site in accordance with <i>AS1940-2004: The storage and handling of flammable and combustible liquids</i>, or its latest version; b) Ensure the substation is suitably bunded; and c) Minimise any spills of hazardous materials or hydrocarbons, and clean up any spills as soon as possible after they occur. 	Consistent

Condition ID		Condition of Consent	Do proposed changes affect ability to meet condition?
23.	Operating Conditions	<p>The Applicant must:</p> <p>a) Ensure that the development:</p> <ul style="list-style-type: none"> Complies with the relevant asset protection requirements in the RFS's <i>Planning for Bushfire Protection 2006</i> (or equivalent);; Minimises the fire risks of the development; is suitably equipped to respond to any fires on site; and <p>b) assist the RFS and emergency services as much as practicable if there is a fire in the vicinity of the site.</p>	Consistent
24.	Emergency Response Plan	<p>Prior to the commencement of operations, the Applicant must prepare an Emergency Response Plan for the development in consultation with the RFS and Fire & Rescue NSW. This plan must identify the fire risks and controls of the development, and the procedures that would be implemented if there is a fire on site or in the vicinity of the site. A copy of the plan must be kept on site in a prominent position adjacent to both site entry points at all times.</p>	Consistent
Waste			
25.		<p>The Applicant must:</p> <p>a) Minimise the waste generated by the development;</p> <p>b) Classify all waste generate on site in accordance with the EPA's <i>Waste Classification Guidelines 2014</i> (or its latest version);</p> <p>c) Store and handle all waste on site in accordance with its classification;</p> <p>d) Not receive or dispose of any waste on site; and</p> <p>Remove all waste from the site as soon as practicable, and ensure it is sent to appropriately licensed waste facility for disposal.</p>	Consistent

Condition ID		Condition of Consent	Do proposed changes affect ability to meet condition?
Accommodation and Employments Strategy			
26.		<p>Prior to the commencement of construction, the Applicant must prepare an Accommodation and Employment Strategy for the development in consultation with Council, and to the satisfaction of the Secretary. This strategy must:</p> <ul style="list-style-type: none"> a) Provide updated estimates of the likely accommodation demand of the development, including consideration of the potential interaction with Limondale Solar Farm and the Balranald Mineral Sands Mine, in consultation with the applicant of that project; b) Investigate options for maximising the use of available accommodation within Balranald during construction of the development; c) Propose a strategy to facilitate the accommodation of the workforce associated with the development; and d) Investigate options for prioritising the employment of local workers for the construction and operation of the development where feasible; e) Include a program to monitor and review the effectiveness of the strategy over the life of the development. <p>Following the Secretary's approval, the Applicant must implement the strategy.</p>	Consistent
Decommissioning and Rehabilitation			
27.		<p>Within 18 months of the cessation of operations, unless the Secretary agrees otherwise, the Applicant shall rehabilitate the site to the satisfaction of the Secretary. This rehabilitation must comply with the objectives in table 1.</p>	Consistent

Condition ID		Condition of Consent	Do proposed changes affect ability to meet condition?
Environmental Management and Reporting			
Environmental Management			
1.	Environmental Management Strategy	<p>Prior to the commencement of construction, the Applicant must prepare an Environmental Management Strategy for the development to the satisfaction of the Secretary. This strategy must:</p> <ol style="list-style-type: none"> Provide the strategic framework for environmental management of the development; Identify the statutory approvals that apply to the development; Describe the role, responsibility, authority and accountability of all key personnel involved in the environmental management of the development; Describe the procedures that would be implemented to: <ul style="list-style-type: none"> Keep the local community and relevant agencies informed about the operation and environmental performance of the development; Receive, handle, respond to, and record complaints; Resolve any disputes that may arise; Respond to any non-compliance; Respond to emergencies; and include: <ul style="list-style-type: none"> Copies of any plans approved under the conditions of this consent; and A clear plan depicting all the monitoring to be carried out in relation to the development. <p>Following the Secretary's approval, the Applicant must implement the Environmental Management Strategy.</p> <p>The Applicant must implement the most recent version of the Environmental Management Strategy, as approved by the Secretary for the duration of construction, operations and decommissioning of the development.</p>	Consistent

Condition ID		Condition of Consent	Do proposed changes affect ability to meet condition?
2.	Revision of Strategies and Plans	<p>The Applicant must:</p> <ul style="list-style-type: none"> a) Update the strategies and plans required under this consent to the satisfaction of the Secretary prior to carrying out any upgrading or decommissioning activities on site; and b) Review and, if necessary, revise the strategies and plans required under this consent to the satisfaction of the Secretary within 1 month of the: <ul style="list-style-type: none"> • Submission of an incident report under condition 4 below; or • Any modification to the conditions of consent. 	Consistent
Incident Reporting			
3.		The Applicant must immediately notify the Secretary and any other relevant agencies of any incident on site. Within 7 days of the date of the incident, the Applicant must provide the Secretary and any relevant agencies with a detailed report on the incident, and such further reports as may be requested.	Consistent
Access to information			
4.		<p>The Applicant must:</p> <ul style="list-style-type: none"> a) Make the following information publicly available on its website as relevant to the stage of the development: <ul style="list-style-type: none"> • The EIS; • The final layout plans for the development; • Current statutory approvals for the development; • The proposed staging plans for the development if the construction, operation or decommissioning of the development is to be staged; • How complaints about the development can be made; • A complaint register; • Any other matter required by the Secretary; and <p>Keep this information up to date, to the satisfaction of the Secretary.</p>	Consistent

APPENDIX D SUMMARY OF CONSULTATION

Item	Date	Contact Name	Issue
DPE			
DPE1	2 nd /3 rd May 2018 (in person)	Iwan Davies (Senior Planning Officer); Stephen Shoesmith (Senior Planning Officer)	Preliminary meetings to discuss modification scope and timing
DPE2	11 th May 2018 (email)	Rose-Anne Hawkeswood (Senior Planning Officer)	Summary of modification scope sent in advance
Balranald Shire Council			
BSC1	23 rd May 2018 (letter)	Michael Kitzelmann (General Manager)	Formal letter summarising results of ongoing consultation and providing support for: <ul style="list-style-type: none"> 1. Modification to increase maximum length of vehicles to 26m 2. Modification to working hours to 6am to 6pm Monday to Sunday, inclusive of NSW public holidays
RMS			
RMS1	9 th May 2018 (in person)	Maurice Morgan (Manager Land Use) Peter Johnson (Contracts Manager)	Meeting to discuss relocation of intersection upgrade and preliminary scope of site establishment works
RMS2	25 th May 2018 (telecon)	Maurice Morgan	Clarification and finalisation of site establishment activities
NSWALC & BLALC			
ALC1	15 th May 2018 (email)	Damien Aidon (CEO BLALC) Troy Lancaster (Senior Land Rights Officer)	Summary of road widening works and impact on Lot 7301 DP1157986 sent in advance
ALC2	21 st May 2018 (telecon)	Damien Aidon Troy Lancaster	Call to clarify scope of changes and request for consent
ALC3	28 th May 2018 (in person)	Damien Aidon	Meeting to discuss process for ongoing engagement and consultation
Neighbours			
NEI1	16 th May 2018 (in person)	Ron Hoare (Neighbour)	Meeting to discuss impacts of intersection upgrade works and increased working hours.
NEI2	28 th May 2018 (in person)	Ron Hoare	Follow up meeting to discuss mitigation measures, particularly around noise impacts from changed working hours.
TransGrid			
TG1	30 th May 2018 (email)	Mansour Rahme	Confirmation of consultation regarding subdivision for TransGrid substation and internal access road
Western Local Land Services			

Item	Date	Contact Name	Issue
LLS1	14 th May 2018 (email)	Kerryn Hart (Senior Land Services Officer – TSR)	Confirmation that LLS has no objections to road intersection upgrade works based on agreed Assessment Criteria
Crown Lands			
CL1	9 th May 2018 (email)	Cedelia Duke (Property Management Project Officer)	Confirmation of Crown Lands standard requirements to grant consent for road intersection works including requirement to consult with relevant authorities in relation to existing Land Claims and TSR.
CL2	30 th May 2018 (email)	Thomas Delgatto (Manager Strategic Sales and Disposals)	Request for confirmation of consultation regarding road intersection upgrade

APPENDIX E BIOBANKING CREDIT PROFILE

Biodiversity credit report



This report identifies the number and type of biodiversity credits required for a major project.

Date of report: 31/05/2018

Time: 4:55:04PM

Calculator version: v4.0

Major Project details

Proposal ID: 0035/2018/4834MP
Proposal name: Sunraysia solar farm modification
Proposal address: the cut line - balranald NSW 2715

Proponent name: Maoneng Australia
Proponent address: level 4, 5 Talavera Rd - Macquarie Park NSW 2113
Proponent phone: 9199 8599

Assessor name: Brooke Marshall
Assessor address: 1/216 Carp St - Bega NSW 2250
Assessor phone: 64928333
Assessor accreditation: 0035

Summary of ecosystem credits required

Plant Community type	Area (ha)	Credits created
Black Oak - Western Rosewood open woodland on deep sandy loams mainly in the Murray Darling Depression Bioregion	0.42	23.00
Chenopod sandplain mallee woodland/shrubland of the arid and semi-arid (warm) zones	6.97	237.00
Yarran tall open shrubland of the sandplains and plains of the semi-arid (warm) and arid climate zones	0.33	12.08
Total	7.72	272

Credit profiles

1. Black Oak - Western Rosewood open woodland on deep sandy loams mainly in the Murray Darling Depression Bioregion, (MU517)

Number of ecosystem credits created: 23
IBRA sub-region: South Olary Plain, MU Basin Sands (Part A) - Murray

Offset options - Plant Community types	Offset options - IBRA sub-regions
Black Oak - Western Rosewood open woodland on deep sandy loams mainly in the Murray Darling Depression Bioregion, (MU517)	South Olary Plain, MU Basin Sands (Part A) and any IBRA subregion that adjoins the IBRA subregion in which the development occurs

2. Chenopod sandplain mallee woodland/shrubland of the arid and semi-arid (warm) zones, (MU534)

Number of ecosystem credits created 237
 IBRA sub-region South Olary Plain, MU Basin Sands (Part A) - Murray

Offset options - Plant Community types	Offset options - IBRA sub-regions
Chenopod sandplain mallee woodland/shrubland of the arid and semi-arid (warm) zones, (MU534) Sandplain mallee of central NSW, (MU591)	South Olary Plain, MU Basin Sands (Part A) and any IBRA subregion that adjoins the IBRA subregion in which the development occurs

3. Yarran tall open shrubland of the sandplains and plains of the semi-arid (warm) and arid climate zones, (MU609)

Number of ecosystem credits created 12
 IBRA sub-region South Olary Plain, MU Basin Sands (Part A) - Murray

Offset options - Plant Community types	Offset options - IBRA sub-regions
Yarran tall open shrubland of the sandplains and plains of the semi-arid (warm) and arid climate zones, (MU609) Buloke - Moonah - Black Box open woodland on sandy rises of semi arid (warm) climate zone (mainly Riverina Bioregion and Murray Darling Depression Bioregion), (MU530) Cypress Pine woodland of source-bordering dunes mainly on the Murray and Murrumbidgee River floodplains, (MU541) White Cypress Pine open woodland of sand plains, prior streams and dunes mainly of the semi-arid (warm) climate zone, (MU607) White Cypress Pine - Drooping Sheoak grassy open woodland of the Riverine Plain, (MU608) Yellow Box - White Cypress Pine grassy woodland on deep sandy-loam alluvial soils of the eastern Riverina Bioregion and western NSW South Western Slopes Bioregion, (MU611) Yellow Gum tall woodland of the Murray River floodplain, Riverina Bioregion, (MU613) Slender Cypress Pine - Sugarwood - Western Rosewood open woodland on sandy rises mainly in the Riverina Bioregion and Murray Darling Depression Bioregion, (MU628)	South Olary Plain, MU Basin Sands (Part A) and any IBRA subregion that adjoins the IBRA subregion in which the development occurs