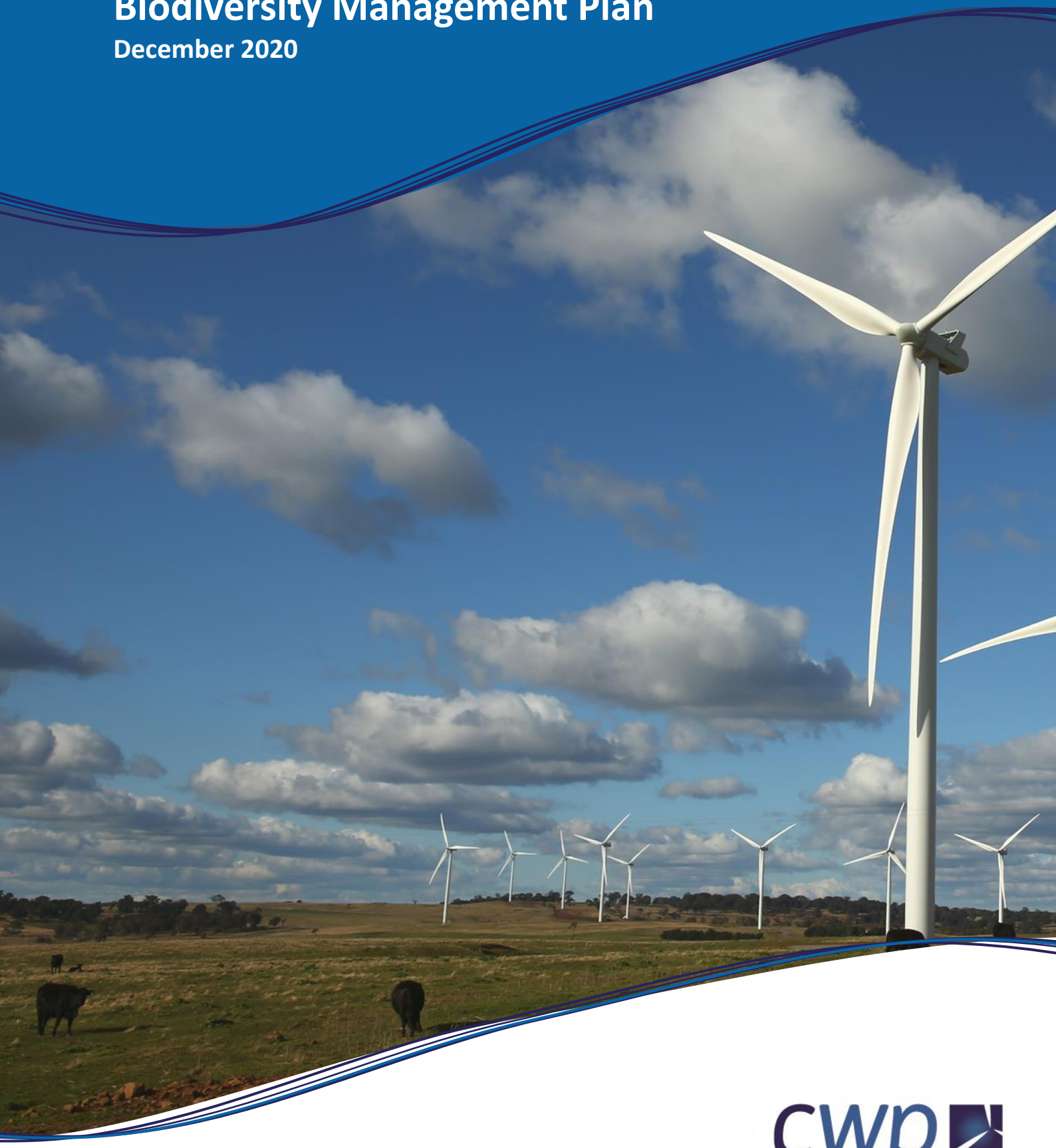
Bango Wind Farm

Southern Tablelands, New South Wales

Biodiversity Management Plan

December 2020



Prepared for Bango Wind Farm Pty Ltd by CWP Renewables Pty Ltd

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Term	Meaning
BC Act	NSW *Biodiversity Conservation Act 2017*
BGW	Box Gum Woodland
BMP	Biodiversity Management Plan
CCC	Community Consultative Committee
BCD	NSW Biodiversity and Conservation Directorate
BWF	Bango Wind Farm
CWP	CWP Renewables
DAWE	Department of Agriculture, Water and the Environment
DEE	Commonwealth Department of the Environment and Energy
Development Corridor	The approved Development Corridor as defined in the Development Consent and illustrated in SSD6686 of Appendix 2 – Layout and Figure 1.1 of the BMP. This is generally a 100 metre (m) wide buffer around the development footprint in which the turbine footprint, roads and electrical cables will be contained, comprising an area of 962.91 ha.
Development Footprint	The area of physical disturbance associated with the construction of the Project, comprised of temporary impacts and permanent impacts.
DPIE	NSW Department of Planning, Industry and Environment
DPE	NSW Department of Planning and the Environment (former)
EIS	Environmental Impact Statement
EMS	Environmental Management Strategy
EPA	Environment Protection Authority
EPC	Engineering Procurement and Construction contractor; also refers to any other principal contracting entity engaged on the Project, such as TransGrid
EP&A Act	NSW *Environmental Planning and Assessment Act* 1979
EPBC Act	Commonwealth *Environmental Protection and Biodiversity Conservation Act 1999*
HC	Hilltops Council
LGA	Local Government Area
Minister, the	Commonwealth Minister for the Environment
OEH	NSW Office of Environment and Heritage (former)
Project Site	The land within the cadastral boundaries associated with the proposed Project, as defined in the Development Consent.
RMP	Risk Management Plan
RMS	Roads and Maritime Services (former)
Secretary, the	Secretary for the NSW Department of Planning and the Environment
Original Study Area	An area of environmental assessment per the EIS and comprising a layout with 122 turbines.

TEC	Threatened Ecological Community
TfNSW	Transport for NSW
TSC Act	New South Wales *Threatened Species Conservation Act 1995 (repealed)*
YVC	Yass Valley Council

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1 Introduction

This Biodiversity Management Plan (BMP) has been prepared by Eco Logical Australia (ELA) for CWP Renewables (CWP), on behalf of Bango Wind Farm Pty Ltd (The Proponent).

The Bango Wind Farm (the Project) was granted State Significant Development Consent (SSD 6686) under the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act) and Controlled Action Approval under the Commonwealth *Environment Protection* and *Biodiversity Conservation Act 1999* (EPBC Act) (EPBC 2013/6810).

The Project will consist of up to 46 wind turbine generators (turbines) (from a selection of 49 approved locations), access roads, hardstands, laydown areas, internal electrical reticulation, temporary construction compounds, rock crushing facilities, concrete batching plant(s), a substation, an operations and maintenance facility, overhead transmission line and a switching station. The 46 turbines have been selected following micro-siting as per condition 9 of SSD 6686 at each of the approved locations prior to construction and operation.

A full description of the Project is provided with the Environmental Impact Statement (EIS) for the *Bango Wind Farm* (CWP 2016) and the amended DA for the Bango Wind Farm (CWP 2017). The approved layout is provided in Figure 1.1.

1.1 Background

The original Bango Wind Farm (BWF) proposal was for 118 turbines over three clusters known as Langs Creek, Kangiara and Mt Buffalo. In response to consultation and submissions, the BWF was amended to reduce the on-ground footprint and construct to only 75 turbines, a reduction of 43 turbines (36%) and removal of the Langs Creek cluster. As a result, and assessed by ERM (letter dated 9 May 2017), the amended DA provided:

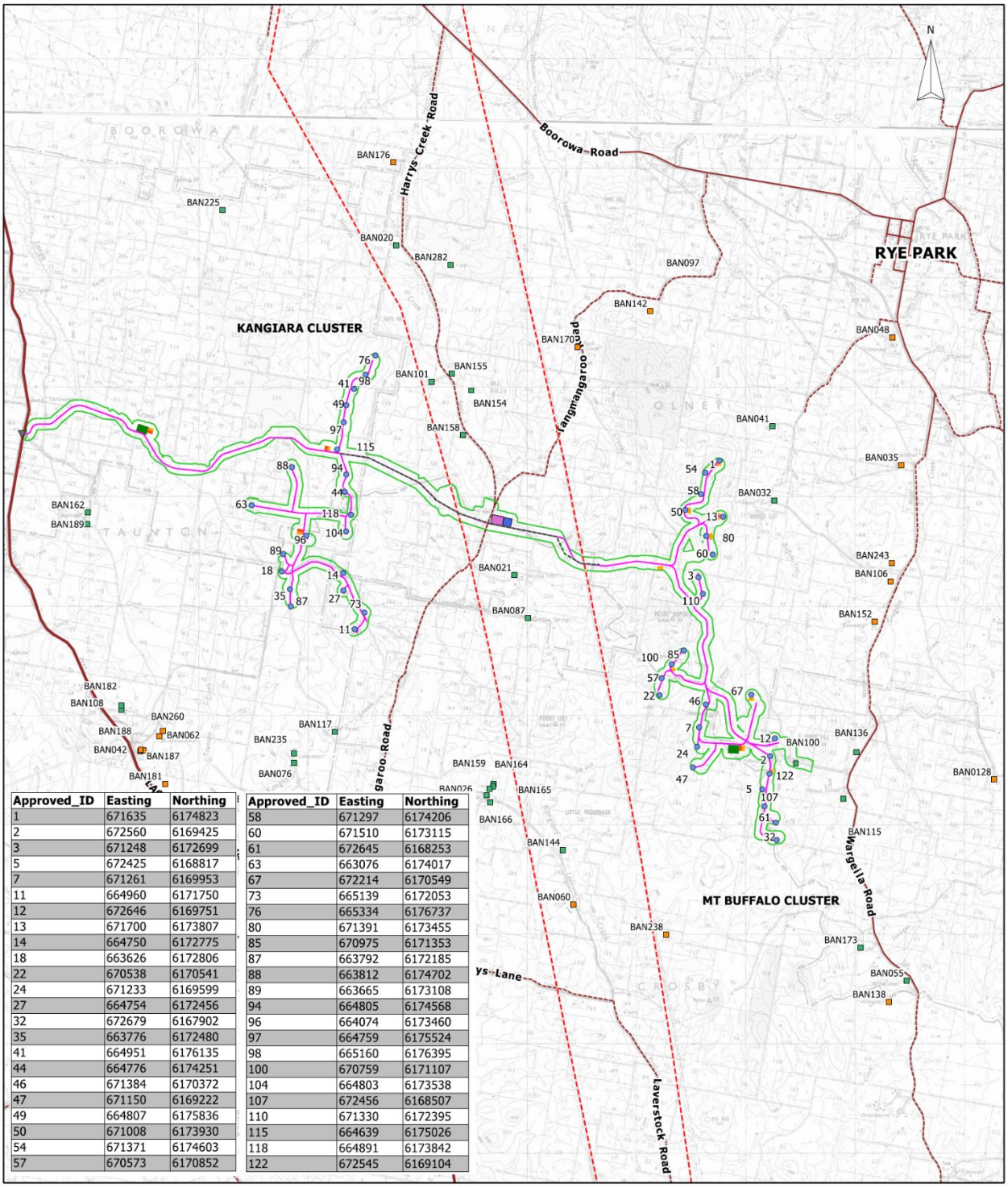
- Reduction in the loss of potential habitat for the Golden Sun Moth from 100.9 ha to 39.4 ha;
- Reduction in the loss of potential habitat for the Regent Honeyeater and the Swift Parrot from 6.58 ha to 4.77 ha;
- Reduction in the cumulative 'swept area' of turbine rotors (and hence the risk of blade strike) from 1.922M m² to 1.221M m² (36 % reduction);
- Removal of the need to disturb habitat along Hillview and Hopefield Lanes; and
- reduce disturbance along Wargeila and Tangmangaroo roads.

The turbine layout has been further refined to a 46 turbine layout per SSD6686. Updated baseline mapping has been undertaken within the Development Corridor during November 2018 and January 2019 (ELA 2019a;b), additional bird and bat monitoring data obtained in April (as contained in the draft bird and bat adaptive management plan (BBAMP)) and micro-siting of wind turbines (letter report dated 10/5/19 ELA).

1.2 Purpose and Objectives of the BMP

This BMP has been prepared to meet the requirements of condition 20 of SSD 6686 and condition 5 of EPBC 2013/6810. In addition, this plan addresses conditions that relate more broadly to biodiversity as listed in Table 1.2.

This BMP describes the biodiversity management measures that will be implemented to avoid, minimise, and mitigate impacts associated with the Project, during design, construction and operation. This BMP has been written to complement other management plans and has been developed as a component of, and should be read in conjunction with, the Project's Environmental Management Strategy (EMS).



Approved_ID	Easting	Northing
1	671635	6174823
2	672560	6169425
3	671248	6172699
5	672425	6168817
7	671261	6169953
11	664960	6171750
12	672646	6169751
13	671700	6173807
14	664750	6172775
18	663626	6172806
22	670538	6170541
24	671233	6169599
27	664754	6172456
32	672679	6167902
35	663776	6172480
41	664951	6176135
44	664776	6174251
46	671384	6170372
47	671150	6169222
49	664807	6175836
50	671008	6173930
54	671371	6174603
57	670573	6170852

Approved_ID	Easting	Northing
58	671297	6174206
60	671510	6173115
61	672645	6168253
63	663076	6174017
67	672214	6170549
73	665139	6172053
76	665334	6176737
80	671391	6173455
85	670975	6171353
87	663792	6172185
88	663812	6174702
89	663665	6173108
94	664805	6174568
96	664074	6173460
97	664759	6175524
98	665160	6176395
100	670759	6171107
104	664803	6173538
107	672456	6168507
110	671330	6172395
115	664639	6175026
118	664891	6173842
122	672545	6169104

LEGEND

Wind Farm
- WTG (46)
- Main Site Access
- Indicative Access Track
- Overhead Transmission Line
- Development Corridor

Residences
- Associated Residence
- Non-Associated Residence

Construction Facilities
- Construction Compound
- Concrete Batching Plant
- Rock Crushing Facility
- Collector Substation
- Switching Station

Existing Infrastructure
- Unsealed Road
- Sealed Road
- 132 kV Line

0 — 5 km

COMPANY				
BANGO WIND FARM PTY LTD				
TITLE				
ROCK CRUSHING UPDATES				
DATE	SCALE	DWG NO	REV	VER
16 JUL 2020	1:68000	BAN-282	A	1
DRAWN BY	CHECKED BY	SHEET	JOB NO	SIZE
B KRONENBERG	A GORDIJN	1 OF 1	080811	A3

Figure 1.1: Final Layout Plan (SSD 6686)

1.3 Legislative Requirements

Table 1-1 provides a summary of all legislation and policies that are relevant to biodiversity management for the Project, and how each of these applies.

Table 1-1: Relevant Legislation and Policies

Legislation	Relevance
Environment Protection and Biodiversity Conservation Act (EPBC Act)	Provides for the protection of the environment, particularly those aspects that are Matters of National Environmental Significance (MNES). Protected Matters relevant to the Project are Golden Sun Moth and Superb Parrot which Controlled Action Approval (EPBC 2013/6810) was granted 2018 and later varied April 2019.
Environmental Planning and Assessment Act 1979 (EP&A Act)	This legislation is the principal planning legislation for NSW and provides a framework for land use control and assessment, determination and management of development. The Project was transitioned from Part 3A to Part 4 of the Act on 19/3/2014 and was assessed and approved by the IPCN as a State Significant Development in May 2018. This decision was appealed under the jurisdiction of the Land and Environment Court of NSW, with conciliation being reached in December 2018.
Biodiversity Conservation Act 2017 (BC Act)	The purpose of the BC Act is to maintain a healthy, productive and resilient environment for the greatest well-being of the community, now and into the future, consistent with the principles of ecologically sustainable development. The BC Act contains provisions relating to threatened species and ecological communities' listings and assessment, repealing the *Threatened Species Conservation Act 1995* (TSC Act) and section 5A of the EP&A Act. The *Biodiversity Conservation Regulation 2017* supports the BC Act.
Fisheries Management Act 1994 (FM Act)	The FM Act aims to conserve, develop and share the fishery resources of NSW for the benefit of present and future generations. The FM Act defines 'fish' as any marine, estuarine or freshwater fish or other aquatic animal life at any stage of their life history, excluding whales, mammals, reptiles, birds, amphibians, or other species specifically excluded. No threatened fish species, or endangered populations are known to occur within the Development Corridor. In accordance with section 75U of the EP&A Act, applications for separate permits under section 201, 205 or 219 of the FM Act 1994 are not required as these matters are addressed and approved as part of the EP&A Part 4 process.
Biosecurity Act 2015 (Biosecurity Act)	The *Noxious Weeds Act 1993* was repealed on 1 July 2017 due to the inception of the *Biosecurity Act 2015*. No state and/or regional priority weeds (formerly "noxious" weeds) are located within the Development Corridor.
State Environmental Planning Policy (SEPP) (Koala Habitat Protection) 2019	Koala Habitat Protection SEPP aims to encourage the proper conservation and management of areas of natural vegetation that provide habitat for koalas to ensure a permanent free-living population over their present range and reverse the current trend of koala population decline. The Koala Habitat Protection SEPP applies to the Yass Valley and Hilltops LGAs (the Hilltops LGA includes the former Boorowa LGA, which is listed under the SEPP). Koalas have previously been recorded within the locality. Schedule 2 of the SEPP includes a list of Koala feed tree species. No Koalas were recorded in the original Study Area, however, six koala feed trees identified in the SEPP are present within the original Study Area including *Eucalyptus albens, E. melliodora, E. polyanthemos, E. goniocalyx, E. blakelyi,* and *E. bridgesiana.* The Koala, listed as a vulnerable species under the BC Act, was assessed as part of the EIS.
Boorowa Council Local Environmental Plan (LEP) *2012*	The Project falls within both the Yass Valley and Hilltops Council (an amalgamation of Boorowa, Harden and Young Councils) LGAs. The Project was assessed under Part 4 of the EP&A Act and, therefore, NSW Department of Planning and Environment (DPE) is the consent authority.
Yass Valley Local Environmental Plan (LEP) 2013	

1.4 Conditions of Approval

Biodiversity related conditions addressed in this BMP relevant to SSD 6686 are summarised in Table 1-2, with biodiversity related conditions associated with EPBC 2013/6810 summarised in Table 1-3. A reference is provided to sections of this BMP where the approval condition has been addressed.

Table 1-2: NSW Development Consent (SSD-6686) conditions relevant to this Management Plan

Condition of Approval	Requirement	Section this is Addressed
Schedule 3 Condition 9	***Limits on Consent*** **Micro-siting restrictions** *The Applicant may micro-site the wind turbines and ancillary infrastructure without further approval provided:* *(a) they remain within the development corridor shown on the figure in Appendix 2;* *(b) no wind turbine is moved more than 100 metres from the GPS coordinates shown in Appendix 2;* *(c) wind turbine numbers 76 and 98 are not moved any closer to residence 282 unless it ceases to be a non-associated residence;* *(d) the revised location of the wind turbines listed in Appendix 3 are not any closer to the corresponding Wedge-tailed eagle (Aquila audax) nest; and* *(e) the revised location of the wind turbine and/or ancillary infrastructure would not result in any non-compliance with the conditions of this consent.*	Section 4.1.1
Schedule 3 Condition 17	***Operating Conditions*** *The Applicant must:*	
	(a) *ensure that no more than 84.2 hectares (ha) of Box Gum Woodland EEC (LA103), including Box Gum Woodland derived grassland, is cleared for the development, unless the Secretary agrees otherwise;*	Section 4.1.2
	(b) *avoid impacts to the known locations of Yass Daisy (Ammobium craspedioides); and*	Section 4.4
	(c) *implement reasonable and feasible measures to minimise:* • *the impacts of the development on hollow-bearing trees;* • *the impacts of the development on threatened bird and bat populations; and* • *the clearing of native vegetation and key habitat within the approved disturbance footprint.*	Section 4.2 Section 4.3 Section 4.1 Section 4.4
Schedule 3 Condition 20	***Biodiversity Management Plan*** *Prior to the commencement of construction, the Applicant must prepare a Biodiversity Management Plan for the development to the satisfaction of the Secretary. This plan must:* *(a) be prepared in consultation with OEH; and* *(b) include:* • *a description of the measures that would be implemented for:* – *minimising the amount of native vegetation clearing within the approved development footprint;* – *minimising the loss of key fauna habitat, including tree hollows;* – *minimising the impacts on fauna on site, including undertaking pre-clearance surveys;* – *minimising the potential indirect impacts on threatened and migratory species, including:* ▪ *flora species, including the Yass Daisy (Ammobium craspodioides); and* ▪ *fauna species, including the Golden Sun Moth (Synemon plana), Brown Tree-creeper (Climacteris picumnus victoriae), Diamond Firetail (Stagonopleura guttata), Grey-crowned Babbler (Pomatostomus temporalis temporalis), Scarlet Robin (Petroica boodang), Speckled Warbler (Chthonicola sagittata), Spotted Harrier (Circus assimilis), Square-tailed Kite (Lophoictinia isura), Superb Parrot (Polytelis swainsonii), Varied Sitella (Daphoenositta chrysoptera), Squirrel Glider*	This document Section 1.5 Section 4.1 Section 4.2 Section 4.3 Section 4.4 Section 4.3

Condition of Approval	Requirement	Section this is Addressed
	(Petaurus norfolcensis), Eastern Bentwing Bat (Miniopterus schreibersii oceanensis) and Yellow-bellied Sheathtail Bat (Saccolaimus flaviventris); – *rehabilitating and revegetating temporary disturbance areas;* – *protecting native vegetation and key fauna habitat outside the approved disturbance area;* – *maximising the salvage of resources within the approved disturbance area - including vegetative and soil resources - for beneficial reuse (including fauna habitat enhancement) during the rehabilitation and revegetation of the site;* – *collecting and propagating seed (where relevant);* – *controlling weeds and feral pests;* – *controlling erosion; and* – *bushfire management;* • *a detailed program to monitor and report on the effectiveness of these measures.* *Following the Secretary's approval, the Applicant must implement the Biodiversity Management Plan.*	Section 4.5 Section 4.6 Section 4.7 Section 4.8 Section 4.9 Section 4.10 Section 4.11 Section5
Schedule 3 Condition 32	***Bushfire*** *The Applicant must:* (a) *ensure that the development:* • *provides for asset protection in accordance with the RFS's Planning for Bushfire Protection 2006 (or equivalent); and* • *is suitability equipped to respond to any fires on site* (b) *develop procedures to manage potential fires on site, in consultation with the RFS; and* (c) *assist the RFS and emergency services as much as possible if there is a fire in the vicinity of the site.*	Section 4.11
Schedule 3 Condition 35	***Rehabilitation objectives – Decommissioning*** *Within 18 months of the cessation of operations, unless the Secretary agrees otherwise, the Applicant must rehabilitate the site to the satisfaction of the Secretary. This rehabilitation must comply with the objectives in Table 3.*	Section 4.5 and Section 5.2

Feature	Objective
Development site (as a whole)	*- safe, stable, non-polluting* *- minimise the visual impact of any above ground ancillary infrastructure agreed to be retained for an alternative use as far as is reasonable and feasible*
Revegetation	*- Restore native vegetation generally as identified in the EIS*
Above ground wind turbine infrastructure (excluding wind turbine pads)	*- To be decommissioned and removed, unless the Secretary agrees otherwise.*
Wind turbine pads	*- To be covered with soil and/or rock and revegetated*
Above ground ancillary infrastructure	*- To be decommissioned and removed, unless an agreed alternative use is identified to the satisfaction of the Secretary*
Internal access roads	*- To be decommissioned and removed, unless an agreed alternative use is identified to the satisfaction of the Secretary*
Land Use	*- Restore or maintain land capability as described in the EIS*
Community	*- Ensure public safety*

Schedule 3 Condition 36	***Progressive Rehabilitation*** *The Applicant must:* *(a) rehabilitate all areas of the site not proposed for future disturbance progressively, that is, as soon as reasonably practicable following construction or decommissioning;* (b) *minimise the total area exposed at any time; and* (c) *employ interim rehabilitation strategies to minimise dust generation, soil erosion and weed incursion on parts of the site that cannot yet be permanently rehabilitated.*	Section 4.5

Table 1-3: Commonwealth approval (2013/6810) conditions relevant to this Management Plan

Condition of Approval	Requirement	Section this is Addressed
2	*The **approval holder** must not clear more than:*	
	(a) 39.54 ha of Golden Sun Moth habitat (as marked in pink and purple on the map at Annexure B)	Section 2.3
	(b) 9.54 ha of Superb Parrot habitat (as marked in brown on the map at Annexure C).	Section 4.1
	(c) 0.32 ha of Box Gum Woodland (as marked in red on the map at Annexure D).	Section 4.2
	(d) 8 primary hollow bearing trees (as marked on the map at Annexure C).	Section 4.4 Section 2.2.3
3	*The **approval holder** must protect known and potential **Superb Parrot** nest trees by:*	
	(a) Only conducting blasting within 50 m and clearing within 30 m of known and potential nest trees (as determined through EPBC condition 5) between 1 February and 31 August (outside the breeding season).	Section 4.3.2.5
	(b) *Locating wind turbines at least 50 m away from known and potential nest trees.*	Section 4.1
	(c) Locating onsite infrastructure, with the exception of wind turbines, at least 30m away from known and potential Superb Parrot nest trees.	
5	*The approval holder must submit a Biodiversity Management Plan (BMP) to the Minister for approval. Commencement of the action must not occur unless the Minister has approved the BMP. The approval holder must implement the approved BMP.*	This document
	The BMP must include:	
	(a) Spatial maps, description and quantification of the final disturbance footprint in relation to proposed impacts to protected matters, including the number, type of hollow bearing trees and size of hollows to be removed.	Appendix A Section 2.1
	(b) Management measures to ensure the protection and maintenance of habitat for protected matters during the construction and operational phases of the approved action.	Section 2.2 Section 2.3 Section 4.1 Section 4.2 Section 4.3 Section 4.4

1.5 Statement of Commitments

Biodiversity related Statement of Commitments (SoC) addressed in this BMP relevant to SSD 6686 are summarised in Table 1-4. A reference is provided to where the SoC have been addressed in this BMP or other associated documentation.

Table 1-4: Statement of Commitments

ref	Requirement	Requirement	Section addressed
012	Spread of weeds	An EMS sub-plan will be developed, which includes:	
		• Soil which may contain exotic species to be piled at least 50 m from any water source, or areas of native vegetation;	Section 4.9
		• All construction staff and sub-contractors to be educated on noxious weeds present at the Project site and on ways to prevent spread;	Section 4.9
		• Where a specific weed risk has been identified, all machinery, equipment and vehicles are to be washed down before entry and egress of the Project site;	Section 4.9
		• Where practicable, topsoil in areas that have a high proportion of native vegetation and is limited in weeds to be harvested to salvage the native soil seed bank and reintroduced into disturbed areas. Otherwise, revegetate with locally native endemic species characteristic of the cleared vegetation type;	Section 4.9

ref	Requirement	Requirement	Section addressed
		• Control of perennial weed grasses within the disturbance zone for three to five years after construction; • Where practicable, and in consultation with host landowners, manage stock access during periods of revegetation; and • Imported soil and rubble to be certified as free of weeds and weed seeds.	Section 4.9 Section 4.9 Section 4.9
013	Loss of biodiversity value	An EMS sub-plan will be developed, which includes: • All site staff are to be inducted on the procedures of the EMS subplan in relation to flora and fauna; • Where practicable, Project vehicles are to remain within the extent of the earth works designed specifically for the Project to minimise vegetation disturbance; • Laydown or temporary disturbance areas will be sited in already disturbed areas where practicable to avoid any unnecessary clearing of native vegetation and habitat; • Where practicable, and in consultation with host landowners, logs and large rocks removed from within the proposed development area are to be redistributed following the completion of works in temporary clearance areas or adjacent areas to supplement habitat; • Where practicable, trenches to be dug at least 15 m away from the base of trees and outside drip lines; • Native vegetation that is removed will be chipped and mulched for on-site use where practicable; • Native vegetation greater than 3 m in height to be retained during transmission line construction where practicable; • Minimise dust creation during construction through the use of water carts; • If micro-siting of the Development Footprint occurs, where practicable, maintain a 30 m buffer between all turbines and hollow bearing trees; • Boundaries of the construction area are to be clearly identified within EMS sub-plans, and where practicable on the ground, to prevent breaches of construction boundaries; • Outside of the Development Footprint tree clearance will be avoided where practicable; • Rehabilitation of internal access roads that are not required following construction to be undertaken; and • Landscaping around the main collector and switching substation sites is to incorporate native species where appropriate	Section 4.12.1 Section 4.6 Section 4.6 Section 4.1.3 Section 4.1.3 Section 4.5 Section 4.1.3 Section 4.7 EPBC condition 3 and section 4.1.1 4.1.3 Section 4.6 Section 4.5 CoA 3.1
014	Loss of biodiversity value	An appropriate offset package will be secured within 12 months of commencing construction to compensate for the loss of habitat within the Study Area outlined within this Amended DA. Final calculation of the offset area will be carried out during the pre-construction phase once wind turbine selection has taken place and the final Development Footprint is known.	CoA 3.18, 3.19 and EPBC 8 and 9

ref	Requirement	Requirement	Section addressed
015	Habitat Loss – Golden Sun Moth	An EMS sub-plan will be developed to include specific measures to address loss of habitat for Golden Sun Moth (GSM). Measures include: • Disturbance to mapped GSM habitat will be minimised during the flying period, from November to January, if possible; • Areas of habitat will be delineated by barrier tape (or similar) to clearly demarcate these areas and limit risk of vehicles traversing through habitat accidently; and • All vehicle movements will be contained to roads and tracks where possible	 Section 4.3.2.6 Section 4.3.2.6 Section 4.3.2.6
016	Habitat Loss – Box-Gum Woodland	An EMS sub-plan will be developed to include specific measures to address loss of habitat for Box-Gum Grassy Woodland and Derived Native Grassland (DNG). Measures include: • Where micro-siting of transmission lines and easements is to occur, impacts are to be minimised by siting in areas that are already cleared for existing driveways and access gates where possible; • Where hollow bearing trees are removed, the material will be placed in adjacent habitat, where practicable in consultation with landowners; • Clearing will be restricted to the canopy and mid-storey; and • Remaining Box-Gum Grassy Woodland areas (including areas of DNG) will be delineated by barrier tape (or similar) to clearly demarcate these areas and limit the risk of vehicles or machinery causing damage to these areas.	 Section 4.1.1 Section 4.7 Section 4.4.4
017	Fauna Mortality	An EMS sub-plan will be developed to include specific measures to minimise fauna mortality. Measures include: • Designing a pre-clearance protocol to manage the removal of fauna from hollow-bearing trees; • Undertaking pre-clearance surveys to determine if roosts, nests or dens are present in any hollow-bearing trees; • An Environmental Compliance Manager or field officer qualified in the handling of fauna to be present on-site during clearing of hollow bearing trees to capture and re-release fauna, where appropriate; • A trench monitoring protocol will be prepared and implemented to rescue trapped fauna; • Where practicable, fencing to be erected along open trenches to prevent fauna falling in; and • Management measures will be defined to reduce fauna mortality on roads and access tracks.	 Section 4.3.1 Section 4.3.1 Section 4.3.1 Section 4.3.2 Section 4.3.2 Section 4.3.2
018	Erosion, Runoff and Dust	Erosion and sediment control measures to be included in an EMS subplan to limit runoff to adjacent habitat areas and watercourses. Details to include devices to be installed, monitoring requirements and corrective actions. Management measures to include: • All erosion and sedimentation control devices regularly checked, cleared and repaired, particularly after periods of heavy rainfall; • Rehabilitation and stabilisation methods to limit erosive and dust generation potential of earth areas exposed that are not required for permanent infrastructure;	 Table 3.1 and Section 4.10 Section 4.5

ref	Requirement	Requirement	Section addressed
		• Disturbed soil surfaces should be stabilised as soon as practical after works have ceased in the area; • Stockpiles will be covered, where practicable, to prevent the loss of material during high wind and rain events, and appropriate sediment barrier fencing will be used in areas to inhibit the flow of sediment into surrounding areas; and • Stockpile locations will consider shelter from the wind where practical.	Section 4.10 Section 4.10
019	Wind turbine collision or barotrauma	A specific Bird and Bat Adaptive Monitoring Plan (BBAMP) to be developed with the objective of minimising the impacts of the operational wind farm on threatened bird species. The BBAMP will include: • The required monitoring measures; • Key thresholds for determining permissible impacts and corrective actions that are required in order to achieve the objectives of the plan; and • The roles and responsibilities for the proponent, operator and agencies in implementing, assessing and enforcing the plan. The frequency of reporting strike data will be determined during the preparation of a monitoring program. Adaptive management measures that could be implemented should strike thresholds be reached will be negotiated with OEH and DoE if significant strike rates are detected. Bird and bat strike monitoring will be undertaken with consideration of relevant monitoring guidelines.	CoA 3.21 EPBC 6 and BBAMP

1.6 Consultation

Per the requirements of CoA 3.20(a) consultation with OEH was undertaken during the preparation of the BMP. Comment on the BMP were received from OEH on the 28 May 2019 and a meeting convened 5 June 2019, following which further amendments to the BMP were made.

Consultation with DEE has also been undertaken during the preparation of this BMP and comments addressed within.

2 Overview of the Existing Environment

2.1 Overview

Condition 18, Schedule 3 of SSD 6686 requires that prior to the commencement of construction, the baseline mapping of vegetation and key habitat within the final disturbance footprint is updated. Baseline mapping of the Development Corridor was undertaken by ELA in November 2018 and January 2019. The updated mapping has been undertaken and provided to OEH and DPE for their comment and approval. In addition, a Variation to the EPBC Approval has been granted to incorporate the updated mapping.

This BMP has been prepared based on the updated baseline mapping and includes revision to:

- Vegetation types (including mapping refinements and assignment of PCTs and Box Gum Woodland (NSW BC Act listed and Commonwealth EPBC Act listed));
- Key fauna habitat of the Squirrel Glider, Golden Sun Moth and Superb Parrot; and
- Hollow bearing trees.

Additional pre construction monitoring and operational monitoring data is collected per the Bird and Bat Adaptive Management Plan. The results of which are contained within the BBAMP. Where relevant the data have been used to inform turbine micrositing, ancillary infrastructure and the ongoing operation of the BWF.

2.2 Vegetation and Flora

The Development Corridor is characterised by a mix of native woodland and open-forest, native pasture, exotic pasture and cleared land. A total of 176 flora species were recorded across the original Study Area in the EIS and subsequent survey effort as part of the updated baseline mapping (ERM, 2013; ELA, 2019a;b). Of these, 127 (72 %) were native species.

Sites of higher elevation containing woodland vegetation were dominated by Long-leaved Box (*Eucalyptus goniocalyx*) and Red Stringybark (*Eucalyptus macrorhyncha*), with Inland Scribbly Gum (*Eucalyptus rossii*), Yellow Box (*Eucalyptus melliodora*) and Blakely's Red Gum (*Eucalyptus blakelyi*) less common. Red-anther Wallaby Grass (*Rytidosperma pallidum*), Wire Grasses (*Aristida* spp.) and Mat-Rushes (*Lomandra* spp.) were the dominant groundcover in these areas. The flats, lower hillslopes, drainage lines and gully channels were representative of an open woodland dominated by Yellow Box and Blakely's Red Gum, the majority of which represented the BC Act listed Threatened Ecological Community; Box-Gum Woodland. The native groundcover species with the highest abundance in these lower lying areas were Speargrasses (*Austrostipa spp*.) and Wallaby Grasses (*Rytidosperma spp.).*

Riparian vegetation (native and exotic) are present along drainage lines in areas where more permanent pools are located within the wider Study Area.

There were no listed regional or state priority weeds under the *Biosecurity Act 2015* identified within the Development Corridor (ERM 2013, LLS 2017).

2.2.1 Vegetation Types

Vegetation communities were originally mapped by ERM and described within the EIS (ERM 2013). That mapping has been updated (ELA 2019a) and agreed with OEH per consultation requirements of condition 18(a), Schedule 3 of SSD 6686.

Five (5) PCTs were identified in the Development Corridor (Table 2-1, Figure 2.1 and Figure 2.2) (ELA 2019a), of which three (3) are likely to be directly impacted by the project. These are PCT 277, PCT 352 and PCT 349 and have been mapped into vegetation zones, representing eight vegetation zones of different condition states (Table 2-1; Figure 2.1 and Figure 2.2). All of the vegetation zones of PCT 277 satisfy the criteria for *White Box Yellow Box Blakely's Red Gum Woodland* (Box-Gum Woodland) endangered ecological community, listed under the NSW BC Act. One vegetation zone ,vegetation zone 1, also represents the critically endangered ecological community listed under the Commonwealth EPBC Act: *White Box Yellow Box Blakely's Red Gum Grassy Woodland and Derived Native Grassland* (Box-Gum Woodland) (refer Section 2.2.2).

Table 2-1: PCTs and EEC/CEEC Equivalent within the Development Corridor

PCT ID (BVT ID)	Vegetation Zone	Plant Community Type	BC Act	EPBC Act
277 (LA120)	1	Blakely's Red Gum – Yellow Box grassy tall woodland of the NSW South Western Slopes	White Box Yellow Box Blakely's Red Gum Woodland (Endangered)	White Box Yellow Box Blakely's Red Gum Grassy Woodland and Derived Native Grassland (Critically Endangered)
277 (LA120)	2	Blakely's Red Gum – Yellow Box grassy tall woodland of the NSW South Western Slopes	White Box Yellow Box Blakely's Red Gum Woodland (Endangered)	-
277 (LA120)	3	Blakely's Red Gum – Yellow Box grassy tall woodland of the NSW South Western Slopes	White Box Yellow Box Blakely's Red Gum Woodland (Endangered)	-
277 (LA120)	4	Blakely's Red Gum – Yellow Box grassy tall woodland of the NSW South Western Slopes	White Box Yellow Box Blakely's Red Gum Woodland (Endangered)	-
352 (LA255)	5	Red Stringybark – Blakely's Red Gum hillslope open forest on meta-sediments in the Yass – Boorowa – Crookwell regions of the NSW South Western Slopes Bioregion and South Eastern Highlands Bioregion	-	-
352 (LA255)	6	Red Stringybark – Blakely's Red Gum hillslope open forest on meta-sediments in the Yass – Boorowa – Crookwell regions of the NSW South Western Slopes Bioregion and South Eastern Highlands Bioregion	-	-
352 (LA255)	7	Red Stringybark – Blakely's Red Gum hillslope open forest on meta-sediments in the Yass – Boorowa – Crookwell regions of the NSW South	-	-

PCT ID (BVT ID)	Vegetation Zone	Plant Community Type	BC Act	EPBC Act
		Western Slopes Bioregion and South Eastern Highlands Bioregion		
349 (LA242)	8	Inland Scribbly Gum - Red Stringybark open forest on hills composed of silicous substrates in the mid-Murrumbidgee and upper Lachlan catchments mainly in the western South Eastern Highlands Bioregion	-	-
5	9	River Red Gum herbaceous-grassy very tall open forest wetland on inner floodplains in the lower slopes sub-region of the NSW South Western Slopes Bioregion and the eastern Riverina Bioregion.	-	-
266	10	White Box grassy woodland in the upper slopes sub-region of the NSW South Western Slopes Bioregion	White Box Yellow Box Blakely's Red Gum Woodland (Endangered)	White Box Yellow Box Blakely's Red Gum Grassy Woodland and Derived Native Grassland (Critically Endangered)

It is important to note that due to changes in the NSW Government's biodiversity legislation and impact assessment methodologies the EIS and Development Consent refer to BVTs which have now been described through the updated baseline mapping as PCTs. In this regard Box Gum Woodland (LA 103) previously described in the EIS and SSD 6686 is now referred to as PCT 277 (as equivalent).

2.2.2 Threatened Ecological Communities

One threatened ecological community (TEC) listed under NSW and Commonwealth legislation was recorded within the Development Corridor; *White Box Yellow Box Blakely's Red Gum Woodland* (Box-Gum Woodland) listed as endangered under the NSW BC Act and *White Box Yellow Box Blakely's Red Gum Grassy Woodland and Derived Native Grassland* (also referred to as Box-Gum Woodland) listed as critically endangered under the Commonwealth EPBC Act (Figure 2.1 and Figure 2.2).

In preparing the updated vegetation mapping (ELA 2019;b), additional areas of EPBC Act listed *White Box Yellow Box Blakely's Red Gum Grassy Woodland and Derived Native Grassland* (vegetation zone 1) were mapped than that identified in the EIS (ERM, 2013). ERM (2013) reported an impact area of 0.26 hectares of *White Box Yellow Box Blakely's Red Gum Grassy Woodland and Derived Native Grassland* within the development corridor in only one area (adjacent to Tangmangaroo Road). During the revised baseline assessments two additional areas were identified within the development corridor (to the east and west of Tangmangaroo Rd). The net area of known *White Box Yellow Box Blakely's Red Gum Grassy Woodland and Derived Native Grassland* has increased by approximately 11.9 ha.

All vegetation zones of PCT 277 (vegetation zones 1 to 4) and PCT 266 (vegetation zone 10) meet the Box-Gum Woodland listing under the NSW BC Act. Vegetation zones 1 and 10 also meet the condition thresholds for *White Box Yellow Box Blakely's Red Gum Grassy Woodland and Derived Native Grassland* listed under the EPBC Act (Table 2-1, above).

2.2.3 Threatened Flora

One threatened flora species, the Yass Daisy (*Ammobium craspedioides*), which is listed as vulnerable under the EPBC Act and the BC Act, was recorded approximately 1,500m west of the Development Corridor during EIS surveys of a now superseded development layout (ERM 2013). Those surveys identified a population of over 200 individuals (Figure 2.3). The population will not be impacted by the project.

No threatened flora species have been recorded within the Development Corridor.

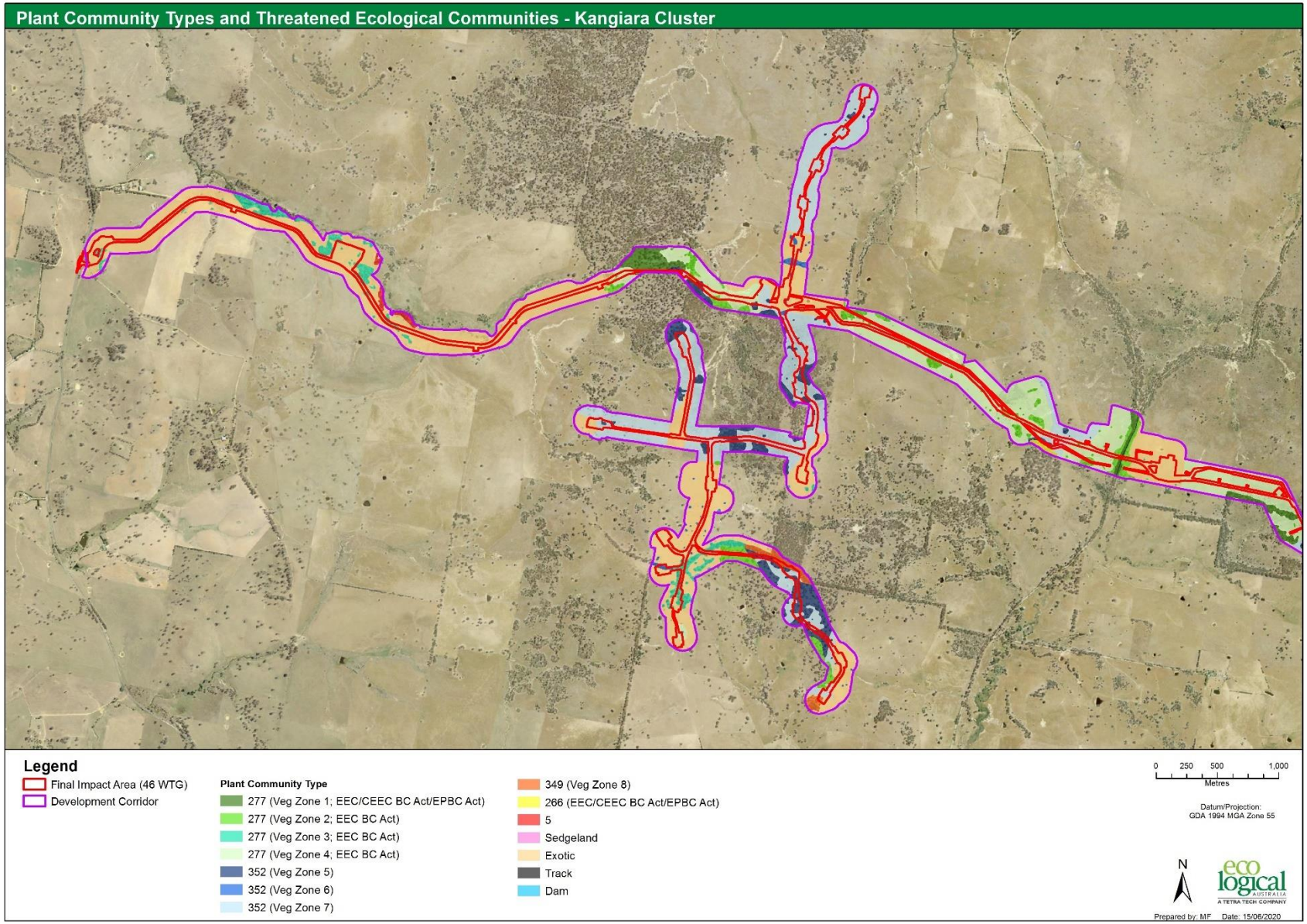


Figure 2.1: Vegetation types and EEC/CEEC locations – Kangiara Cluster

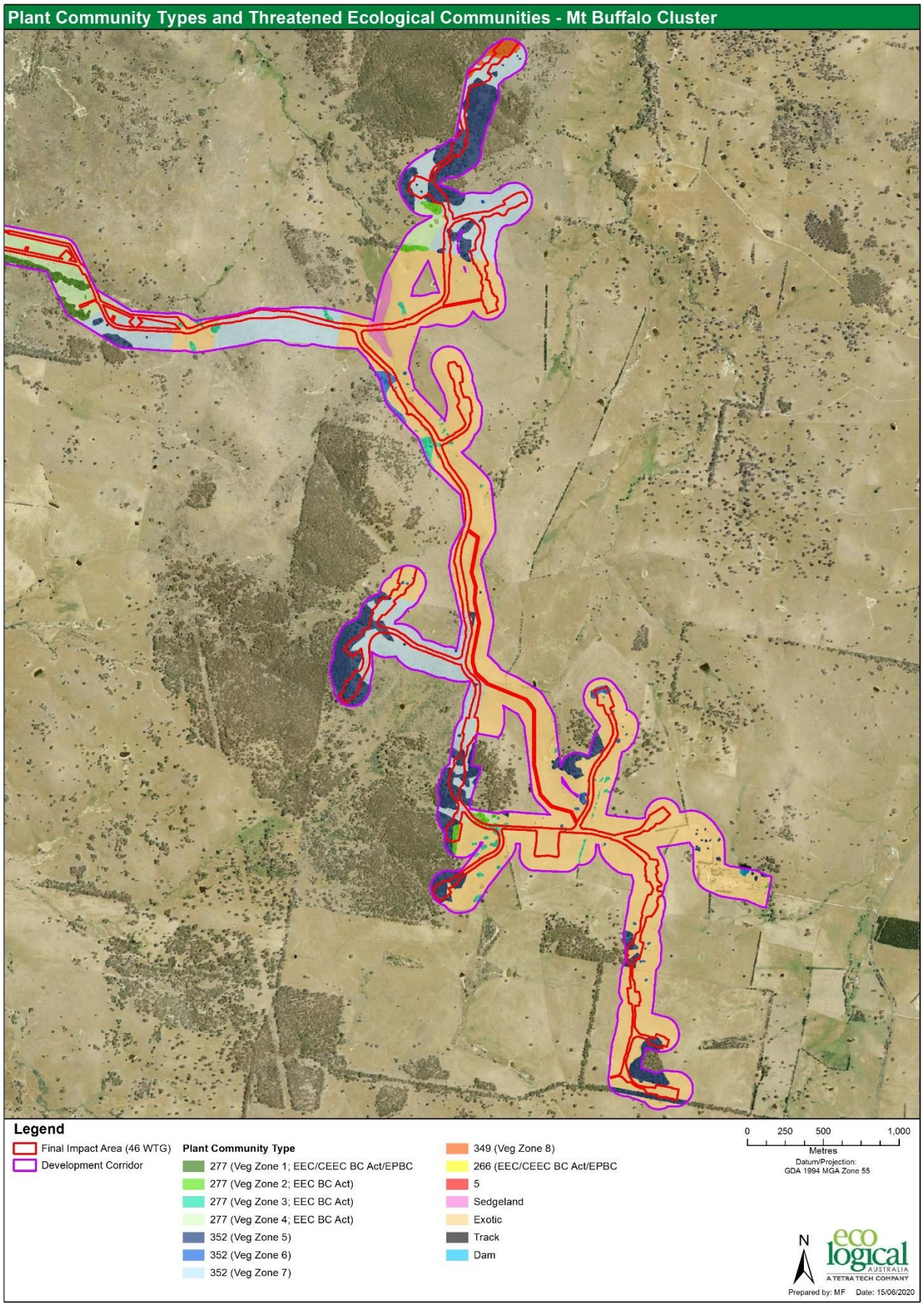


Figure 2.2: Vegetation types and EEC/CEEC locations – Mt Buffalo Cluster

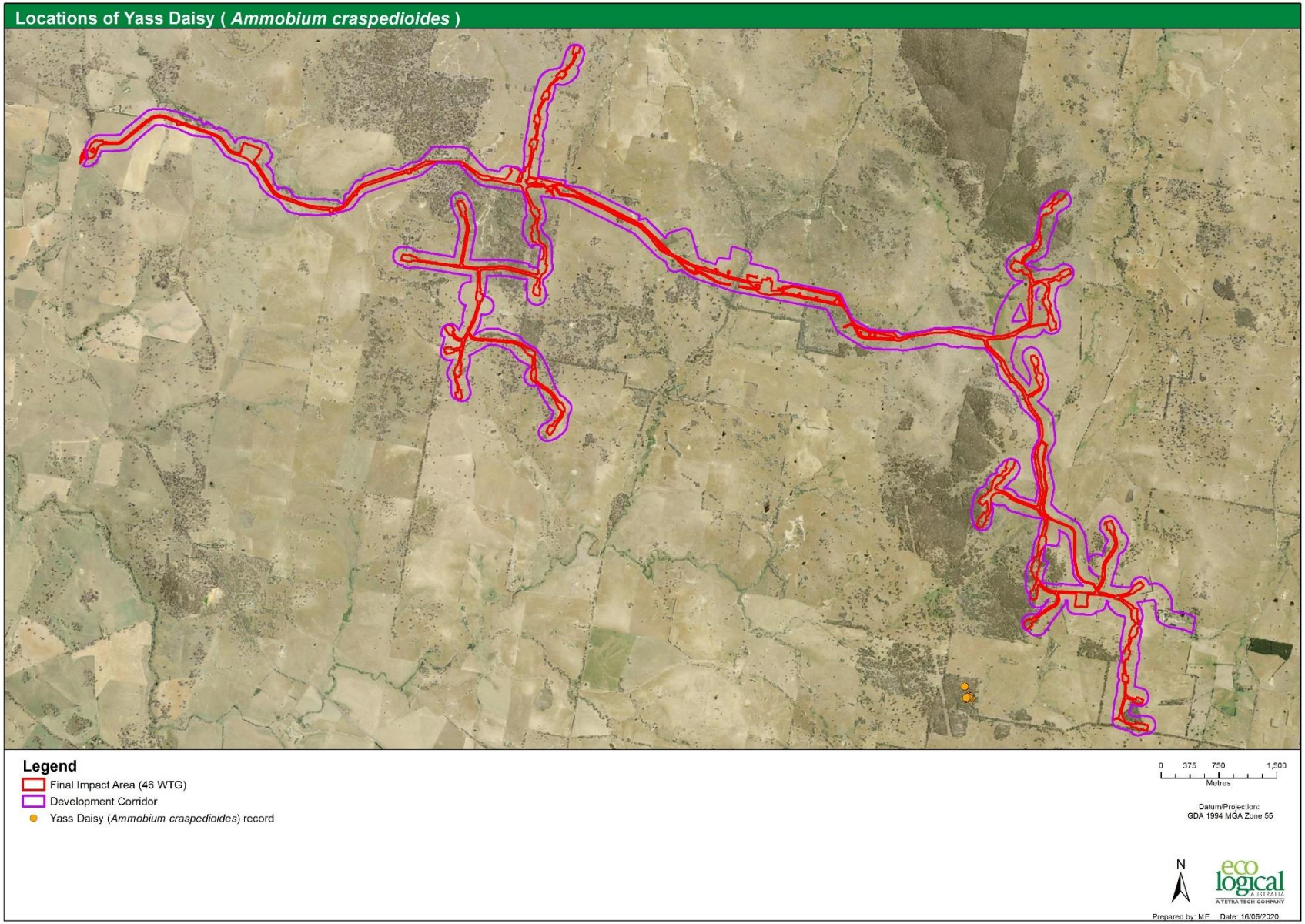


Figure 2.3: Recorded locations of Yass Daisy (*Ammobium craspedioides*)

2.3 Fauna and Habitat

A total of 153 fauna species (including nine (9) introduced species) were recorded throughout the original Study Area as reported in the EIS (ERM 2013).

Fauna recorded included 12 reptile species, seven (7) frog species, 106 bird species (of which four are introduced), 27 mammals (including 13 microbat species and five introduced species) and one invertebrate species (ERM 2013).

Potential fauna habitat was observed during the completion of the EIS (ERM 2013) and revised during the baseline vegetation and key habitat mapping by ELA (2019a;b). The general fauna habitat types present within the Development Corridor are presented in Table 2-2 below.

Table 2-2: Fauna habitat within the Development Corridor

Species type	Habitat type	Habitat description within Development Corridor
Reptiles	Granite rock Tussock grass areas	Reptile habitat associated with granite rock occurs mostly on hilltops and slopes. Tussock grasses include Kangaroo Grass (*Themeda australis*), Wallaby Grasses and Poa Tussocks (*Poa sp.*), which occur more within the valleys and lower foot slopes.
Water birds	Small dams	Small dams provide a source of drinking water for water birds and other fauna species
Amphibians	Ephemeral drainage lines	Limited within the Development Corridor and associated with valley flats and drainage lines.
Microbat	Disused mines Tree hollows Man-made / artificial structures	The disused mines are unlikely to be used as roost sites for microbats based on low activity levels recorded during EIS surveys. Tree hollows suitable for microbats are present within remnant woodland and scattered trees. No man-made or other artificial structures suitable for microbats are present within the Development Corridor.
Hollow-dependent species	Tree hollows Hollow-bearing logs	Tree hollows and hollow-bearing logs are present within remnant woodland and scattered trees, as well as large woody debris. Hollow bearing trees (HBTs) within the Development Corridor have been characterised and mapped. Note that hollows are suitable for a range of different fauna and the designation of HBTs as Primary, Secondary and Other was made as part of the impact assessment process to indicate their relative suitability to the Superb Parrot as nesting trees. For the purposes of hollow-dependent species as a group, the designation of Superb Parrot suitability (Primary, Secondary, and Other) should be ignored and all HBTs and hollows considered as relevant.
Golden Sun Moth	Grassland habitat: • Known • Potential	Key habitat is not defined in NSW BioNet. Habitat has been defined as potential and known habitat as described in the EIS: • Known habitat – areas of species records, and areas containing patches of Speargrass (*Austrostipa* sp.) and Wallaby Grass (*Rytidosperma* sp.) that are relatively short with spaces between the tussocks. • Potential habitat –coincides with areas of derived Box-Gum Woodland and is based on a review of OEH derived native grassland modelling for the south-western slopes

Species type	Habitat type	Habitat description within Development Corridor
Wedge-tailed Eagle	Nest	There were 7 nests identified within the original Study Area during the EIS, with an additional nest identified post EIS approval. Following the revised Development Corridor management measures have been applied to the three wedge-tailed eagle nest trees that are located within 500m of the Development Corridor (Refer *Hollow-bearing Tree* Figure in Appendix A).
Superb Parrot	Known and potential nest trees	HBTs within the Development Corridor have been designated according to their suitability to the Superb Parrot as Primary, Secondary and Other (Refer *Hollow-bearing Tree* Figure of Appendix A). Primary HBT is defined in the EPBC Act Approval Consent (2013/6810) as trees of the Blakely's Red Gum, Yellow Box, Apple Box, White Box species or dead stags, containing hollows 5-13 m above the ground of greater than 5 cm diameter. No active Superb Parrot nest trees have been identified within the Development Corridor and are considered to be potential nest trees only.

2.3.1 Threatened and Migratory Fauna Species

Threatened and migratory fauna species identified in the Project area during the EIS (ERM 2013) and / or listed is the SSD6686 (CoA 3.20(b)) are detailed in Table 2-3.

Table 2-3: Threatened and migratory fauna species

Scientific name	Common name	BC Act	EPBC Act	Identified in Project Site
Birds				
Chthonicola sagittata	Speckled Warbler	V	-	Y
Circus assimilis	Spotted Harrier	V	-	Y
Climacteris picumnus victoriae	Brown Treecreeper	V	-	Y
Daphoenositta chrysoptera	Varied Sittella	V	-	Y
Lophoictinia isura	Square tailed Kite	V	-	N
Petroica boodang	Scarlet Robin	V	-	Y
Polytelis swainsonii	Superb parrot	V	V	Y
Pomatostomus temporalis temporalis	Grey-crowned Babbler	V	-	Y
Stagonopleura guttata	Diamond Firetail	V	-	Y
Migratory birds				
Ardea ibis	Cattle Egret	-	Mi	
Gallinago hardwickii	Latham's Snipe	-	Mi	
Haliaeetus leucogaster	White-bellied Sea-eagle	V	Mi	
Hirundapus caudacutus	White-throated Needletail	-	Mi	
Merops ornatus	Rainbow Bee-eater	-	Mi	

Scientific name	Common name	BC Act	EPBC Act	Identified in Project Site
Bats				
Miniopterus schreibersii oceanensis	Eastern Bentwing-bat	V	-	Y
Saccolaimus flaviventris	Yellow Bellied Sheathtail-bat	V	-	Y
Mammals				
Petaurus norfolcensis	Squirrel Glider	V	-	Y
Invertebrates				
Synemon plana	Golden Sun Moth	E	CE	Y

Note: CE = Critically Endangered, E = Endangered, V = Vulnerable, M = Migratory, N = No, Y = Yes

2.3.2 Key Threatened Fauna Habitat

Key threatened fauna habitat has been mapped for species credit species according to the Framework for Biodiversity Assessment (refer Table 2-4, Figure 2.4 and Figure 2.5).

Table 2-4: Key threatened fauna habitat mapping

Common Name	Scientific Name	BC Act Status	EPBC Act Status	Key Habitat
Golden Sun Moth	*Synemon plana*	Endangered	Critically Endangered	Key habitat is not defined in NSW BioNet Atlas. Habitat has been defined as potential (17.38 ha) and known habitat (15.16 ha) within the Development Corridor and described in the EIS: • *Known habitat* – areas of species records, and areas containing patches of Speargrass (*Austrostipa* sp.) and Wallaby Grass (*Rytidosperma* sp.) that are relatively short with spaces between the tussocks. • *Potential habitat* – coincides with areas of derived Box-Gum Woodland and is based on a review of OEH derived native grassland modelling for the south-western slopes.
Superb Parrot	*Polytelis swainsonii*	Vulnerable	Vulnerable	Key habitat under the BC Act relates to potential nest or breeding trees for this species, as defined in the NSW BioNet Atlas. A 100 m buffer has been applied to all Primary hollow-bearing trees (HBTs), with the buffer area then cut to the final impact area. Primary HBT is defined in the EPBC Act Approval Consent (2013/6810) as *trees of the Blakely's Red Gum, Yellow Box, Apple Box, White Box species or dead stags, containing hollows 5-13 m above the ground of greater than 5 cm diameter*. This is consistent with the description of a nest tree in the species Recovery Plan and differs from the habitat mapped under the NSW BC Act for calculating offset credits. It is noted that no Superb Parrots were recorded nesting or breeding within these Primary HBTs, but habitat for nesting / breeding has been mapped nonetheless.

Common Name	Scientific Name	BC Act Status	EPBC Act Status	Key Habitat
				Key habitat for Superb Parrot under the EPBC Act is mapped based on suitable woodland habitat for the species, Box Gum Woodland, as defined by the species Recovery Plan (see *Superb Parrot Records and Habitat* Figure in Appendix A). Clearing of primary HBTs is restricted as per the conditions of EPBC 2013/6810 (Section 1.3).
Squirrel Glider	*Petaurus norfolcensis*	Vulnerable	-	Key habitat is consistent with the good condition Box Gum Woodland (PCT 277) along Tangmangaroo Road, where the single individual was recorded. Habitat notes from NSW BioNet - *relies on large old trees with hollows for breeding and nesting. These trees are also critical for movement and typically need to be closely-connected (i.e. no more than 50 m apart).* Squirrel glider habitat has been mapped within the Development Corridor only. Whilst it is acknowledged that habitat is likely to be present just outside the Development Corridor it has not been mapped as no clearing or tree trimming will occur.

2.3.3 Pest Fauna Species

Pest fauna species listed under the *Biosecurity Act 2015* are commonly found across the Project Site. Species identified onsite include foxes, pigs, hares and rabbits.

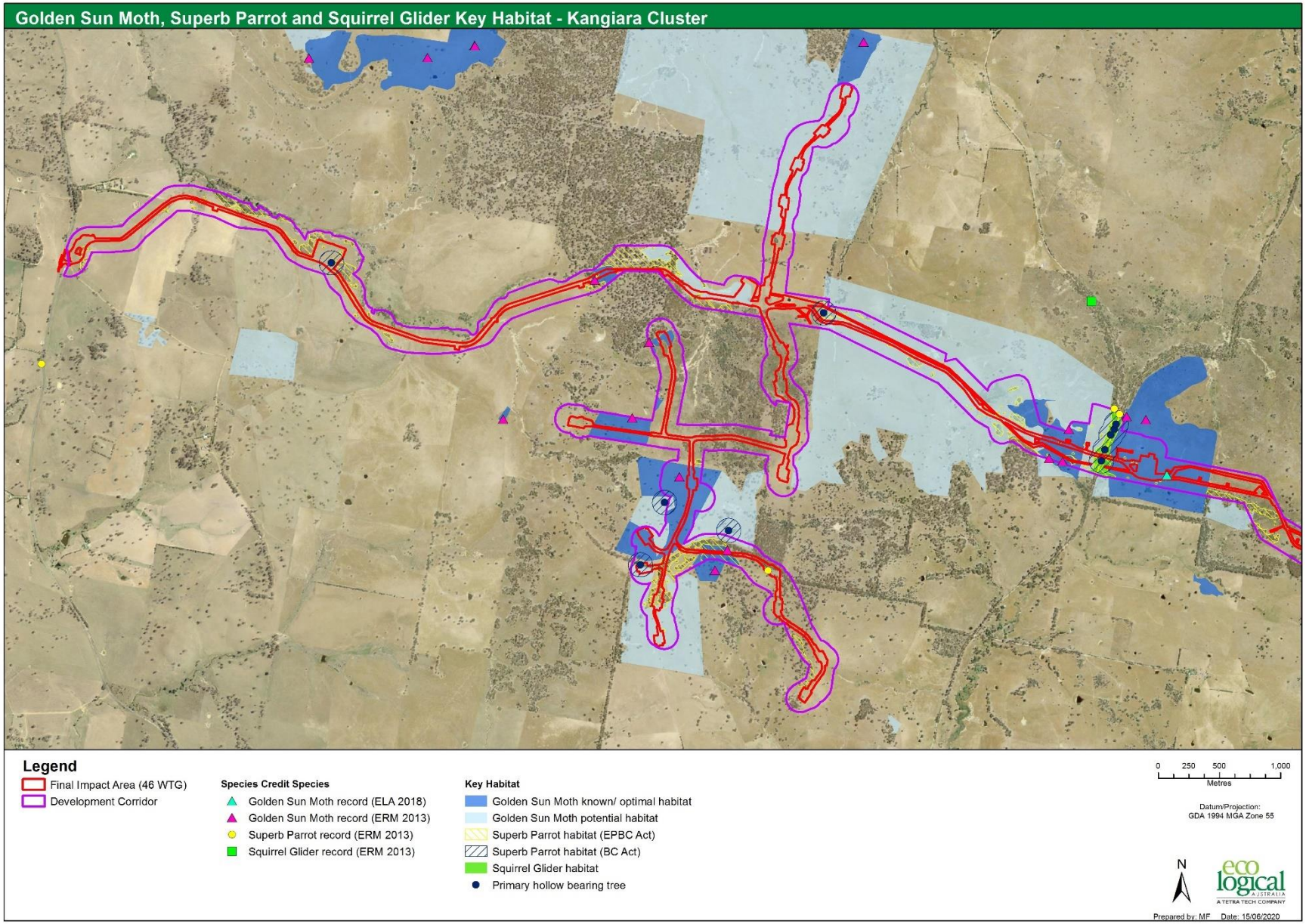


Figure 2.4: Key Habitat for Golden Sun Moth, Superb Parrot, Squirrel Glider – Kangiara Cluster

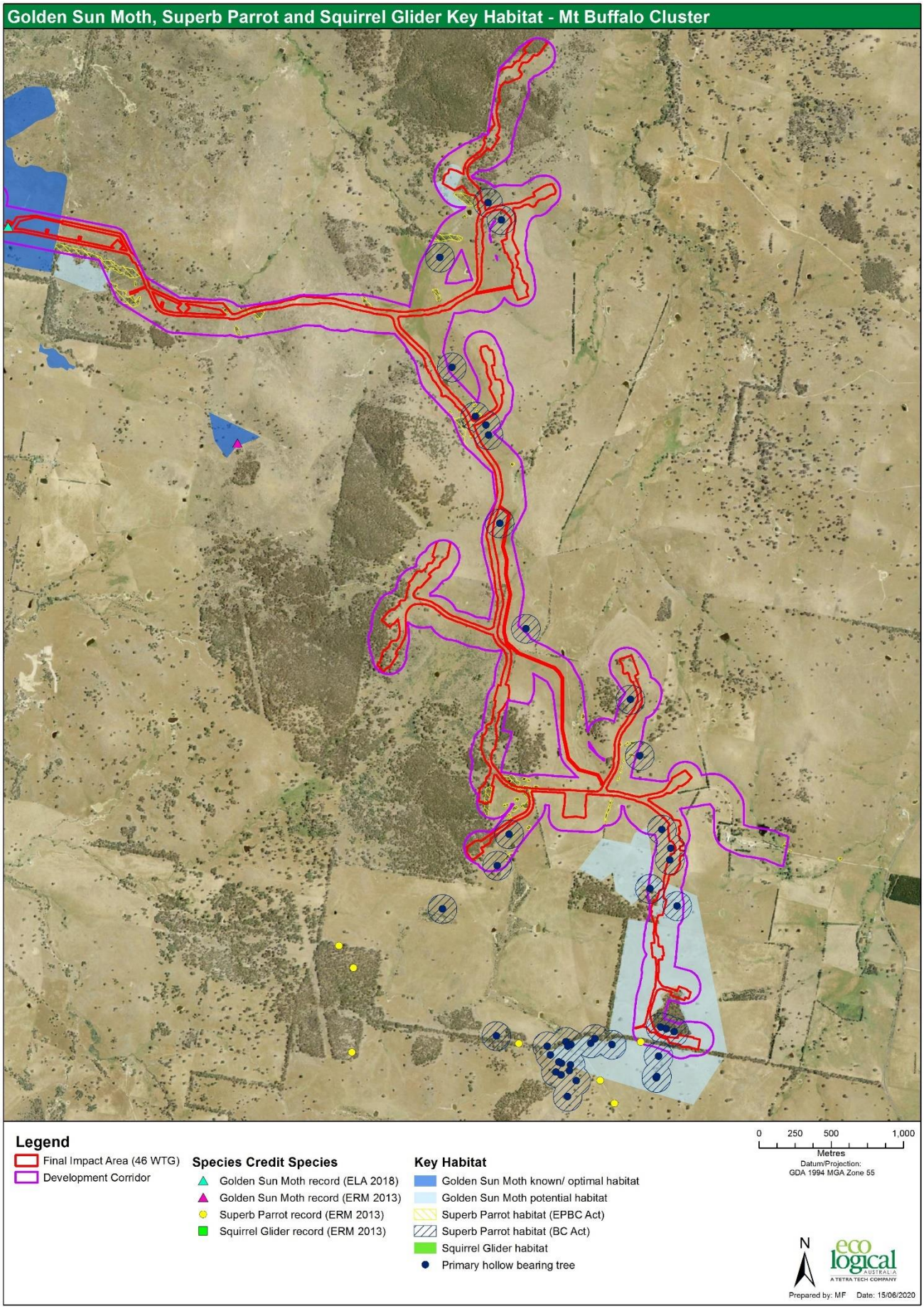


Figure 2.5: Key Habitat for Golden Sun Moth, Superb Parrot, Squirrel Glider – Mt Buffalo Cluster

2.4 Potential Impacts

Impacts to flora, fauna and ecological communities were assessed as part of the EIS for the Project (ERM 2013). Direct impacts expected to occur during construction of the project includes:

- Native vegetation clearance;
- Impacts to threatened ecological communities (i.e. Box-Gum Woodland); and
- Loss of known and potential threatened flora and fauna habitat (i.e. Squirrel Glider, Golden Sun Moth and Superb Parrot).

Disturbance associated with the Project consists of permanent and temporary removal of vegetation. Areas that are subject to temporary impacts will be rehabilitated following completion of works in those areas, as they will not require ongoing use throughout the project. Temporary impact areas include:

- Laydown areas and construction compound;
- Drainage swales;
- Underground and overhead cables; and
- Temporary access and parking areas; and
- construction areas.

Permanent impact areas include:

- Permanent office facility;
- Access roads;
- Substation; and
- Wind turbines.

Both permanent and temporary disturbance areas have been calculated based on the final turbine locations and design of associated infrastructure (e.g. roads, substation and cables). Based on the final impact area it is estimated that approximately 89 ha of native vegetation will be cleared and 94 ha of non-native vegetation will be cleared.

In addition to the above description of impact, maps and quantification of the final impact area on EPBC Act listed vegetation (including Box-Gum Woodland; EPBC Act listed *White Box Yellow Box Blakely's Red Gum Grassy Woodland and Derived Native Grassland*), key habitat (Golden Sun Moth habitat and Superb Parrot habitat), and hollow bearing trees is provided in Appendix A. These maps and quantification of impact will be further refined and updated during various stages of project development and construction including final turbine location / micro-siting, detailed road design and cable installation. Such revisions to the BMP will be undertaken in accordance with condition 21 of EPBC 2013/6810 and Schedule 2 condition 18 of SSD 6686.

Notwithstanding, total vegetation clearing will not exceed:

- 39.54 ha of EPBC Act listed Golden Sun Moth habitat;
- 9.54 ha of EPBC Act listed Superb Parrot habitat;
- 0.32 ha of EPBC Act listed *White Box Yellow Box Blakely's Red Gum Grassy Woodland and Derived Native Grassland*;
- 84.2 ha of BC Act listed White Box Yellow Box Blakely's Red Gum Woodland; and
- 8 Primary hollow bearing trees.

Clearing of BC Act Superb Parrot habitat will be minimised per the requirements of SSD 6686 and as addressed in the BMP. It is expected that approximately 12.95 ha of the BC Act superb parrot habitat will be cleared.

The identified Yass daisy locations will not be impacted by the Project.

3 Roles and Responsibilities

Table 3-1: Roles and responsibilities

Role	Responsibility
Principal Project Manager / Asset Manager	• *Responsible for implementation of CWP Renewables Environmental Policy* • *Responsible for delivery of the Project in accordance with this BMP and associated plans and statements;* • *Review and approve Project design changes, and update Project Environment Officer;* • *Provide adequate resources to allow the implementation of the project BMP;* • *Issue non-conformance notices and to issue actions to avoid or minimise potential environmental impacts, and failing the effectiveness of such steps, order cessation of a specific activity;* • *Ensure all project personnel attend a site induction prior to commencing work;* • *Hold regular project team meetings; and* • *Support and attend Community Consultative Committee (CCC).*
Project Environment Officer	• *Ensure site specific environmental requirements are fulfilled and be the primary point of contact for community liaison;* • *Ensure EPC Contractors and sub-contractors and their agents comply with this plan;* • *Undertake internal environmental auditing and reporting;* • *Respond to environmental incidents;* • *Prepare environmental induction training materials in conjunction with EPC Contractors;* • *Implement the management programs and plans;* • *Be the primary point of contact for regulatory authority liaison;* • *Oversee environmental monitoring; and* • *Report to the Principal Project Manager on environmental performance of the EPC and sub-contractors.*
Independent Environmental Auditor	• *Review the adequacy of the measures undertaken to deliver the Project in accordance with the EMS, management plans, programs, Development Consent and Commonwealth approval;* • *Request reasonable steps to be taken to avoid or minimise unintended or adverse environmental impacts, and failing the effectiveness of such steps, direct that relevant actions be ceased immediately; and* • *Provide an audit report to be forwarded to the Secretary or Minister as relevant.*
EPC Project Manager	• *Overall responsibility for the performance of the EPC Contractor and its sub-contractors against the requirements of this plan and the conditions of the Development Consent and Commonwealth approval;* • *Develop the Risk Management Plan for construction, and maintaining that plan throughout construction;* • *Consult with Principal Project Manager in relation to all Project design plan changes;* • *Provide the Project Environment Officer with detailed designs including mapping demarcating clearing boundaries and clearing limits consistent with the Approval and BMP;* • *Ensure all staff and sub-contractors complete a site biodiversity induction prior to commencing work on site;* • *Ensure adequate resources are available for all contractors and subcontractors to deliver the Project in compliance with the EMS and other relevant documents;* • *Hold regular project team meetings and toolbox talks, ensuring information is shared between all site personnel; and*

Role	Responsibility
	• *Support and attend Community Consultative Committee (CCC) meetings at the request of the Principal Project Manager.*

EPC Environment Officer	• *Prepare site specific environmental management programs in accordance with the BMP, consistent with the requirements of this plan, and in compliance with the Development Consent and Commonwealth approval;*
	• *Submit site specific environmental management programs to the Principal Project Manager and Project Environment Officer for approval prior to commencement of works;*
	• *Specific responsibilities in relation to this plan:*
	  ○ *Demarcation of the Development Footprint with markers or flagging tape where threatened flora species or EEC's are known to occur;*
	  ○ *Undertake the pre-clearance procedure in Section 4.2 prior to works in a given construction area, including engaging a qualified ecologist as required;*
	  ○ *Implement the threatened flora management strategies identified in Section 4.3;*
	  ○ *Manage the vegetation clearance procedures in Section 4.4;*
	  ○ *Implementing the rehabilitation and revegetation measures identified in Section 4.5;*
	  ○ *Undertake the Seed collection and propagation activities identified in Section 4.7;*
	  ○ *Keep records of threatened species identified within the Development Corridor;*
	  ○ *Implement the weed control measures identified in Section 4.8, including preparation of a Weed Control Plan to the satisfaction of the Project Environment Officer;*
	  ○ *Prepare and implement an Erosion and Sediment Control Plan identified in Section 4.10, to the satisfaction of the Project Environment Officer;*
	  ○ *Preparation of a Contamination and Waste Management Plan identified in Section 4.11, to the satisfaction of the Project Environment Officer;*
	  ○ *Preparation of a Bushfire Emergency Plan identified in Section 4.13, to the satisfaction of the Project Environment Officer;*
	  ○ *Monitoring of management activities as defined in Section 5, including maintenance of monitoring records and support of auditing;*
	  ○ *Weekly reporting identified in Section 6.1 and providing documentation required to comply with the reporting requirements in Section 6; and*
	  ○ *Notify the Project Environment Officer of any environmental incident or non-conformance immediately upon identifying the issue.*

All Employees and Contractors	• *Complete a site induction prior to commencing works on site;* • *Attend all environmental training as required;* • *Comply with the specific controls in this BMP and associated plans;* • *Undertake all activities in accordance with agreed procedures and work methods;* • *Implement the actions identified in their management plans and programs in order to comply with the Development Consent conditions; and* • *Follow instructions of the Project Environmental Officer.*

4 Biodiversity Management Measures

This section describes the management measures that will be implemented during the Project to manage potential risks and impacts to biodiversity values.

4.1 Minimising native vegetation clearing

Prior to construction, the Project will undergo a detailed design process. The detailed design process will:

1. Confirm which of the 46 turbine locations are to be constructed from the 49 possible locations;
2. Identify the final micro-sited locations of those turbines;
3. Assess construction requirements, site compounds and laydown areas;
4. Confirm the ancillary infrastructure to be used for the Project; and
5. Provide detailed civil and electrical designs for most infrastructure, including the clearance limits required during construction.

The detailed design process will seek to minimise clearing of vegetation where possible. Where it is unavoidable, the disturbance footprint will be minimised.

The maps and quantification of the final disturbance footprint contained in the above sections and Appendix A will be periodically reviewed and updated consistent with stages of detailed design and construction.

4.1.1 Micro-siting of infrastructure

Micro-siting of turbines is undertaken as part of the design development of the project. The micro-siting exercise involves representatives from CWP, General Electric (GE), iCubed and ELA. Each proposed turbine location is inspected to determine its most efficient position, considering the ability to construct and transport the turbine while maintaining consistency with the Conditions of Consent and minimising biodiversity impacts.

Micro-siting of Project infrastructure is permitted without further approval if the chosen location complies with the requirements of Condition 9 Schedule 2 of SSD-6686 (refer to Table 1-2) and EPBC 2013/6810, Condition 3 (b) (refer to Table 1-3).

At each of the turbine locations the merits of the final position is discussed with the multiple priorities of:

- Complying with micro-siting restrictions under Condition 9, Schedule 2 of SSD-6686;
- Complying with micro-siting restrictions under Condition 3 (b) of EPBC Approval 2013/6810;
- Maximising distance between wind turbine and hollow bearing trees and wedge-tailed eagle nests;
- Reducing vegetation clearing of Box Gum Woodland, known and potential Golden Sun Moth habitat, Superb Parrot habitat and HBTs;
- Maximising constructability of existing terrain;
- Enabling safe access and egress for personnel and over-dimensional equipment;
- Identifying optimal positioning of hardstand and foundation footprints; and
- Optimising Project energy yield.

Once the turbine locations are confirmed, detailed design of all remaining Project infrastructure will be undertaken. This generally will be undertaken by the EPC Contractor and occur prior to the commencement

of construction, although some design will be undertaken post commencement of construction and in parallel with construction. The layouts for the access tracks and sub-station will consider minimising vegetation clearing and siting in areas that are already cleared for existing driveways and access gates.

Micro-siting during construction may also be required in the event that unexpected finds or construction complications arise, and the measures provided in this plan are designed to allow for such circumstances.

In all instances micro-siting of turbines and onsite infrastructure will be undertaken to minimise and avoid where possible, HBTs, Superb Parrot habitat, Golden Sun Moth habitat and Box Gum Woodland. Where possible turbines will be micro-sited to a distance of 50m from Primary HBTs and 30m to onsite infrastructure. A maximum of 8 will be subject to incursion.

4.1.2 Identifying clearance boundaries

The EPC Contractors detailed design will define the disturbance boundaries required for the wind turbines and associated infrastructure. The boundaries will be digitally captured and displayed within site survey and GIS databases. This data will be made available both digitally and in hard copy map format to inform and guide vegetation clearing, and post-construction for land preparation and rehabilitation requirements. The data provided will include all impact-limited biodiversity features within the development footprint (that is, those for which impact avoidance is required and / or proximity encroachment is not permitted).

The EPC Contractor will be responsible for demarcating clearing boundaries based on the detailed design and will provide the Project Environment Officer with mapping of the boundaries.

4.1.3 Management of vegetation clearing activities

Where vegetation is to be cleared, the EPC will be responsible for ensuring the following vegetation clearance measures are implemented:

- Clear demarcation with tape or similar will be used to visually identify clearing limits where construction activities are adjoining the Development Corridor, within Box Gum Woodland (Veg zone 1) or occur between 31 August - 1 February within 30m of Primary HBTs.
- Primary HBTs within the Development Corridor will be visually identified and marked.
- Tree clearance will be avoided wherever possible and only Primary HBTs cleared where prior approval by the Principal is given.
- The Pre-clearance procedure is to be completed prior to commencement of vegetation clearance in a given work area (Section 4.3.1).
- During clearing, care will be taken to prevent damage to adjacent tree roots of trees that are not going to be impacted. Where possible, trenches will be dug at least 15 m away from the base of trees to minimise root interference, and outside of drip lines for vegetation to avoid unintended pruning. Where 15 m cannot be achieved, a minimum trench distance from the base of the tree can be calculated using the Tree Protection Zone formula (TPZ Australian Standard 4970-2009). The TPZ is calculated by multiply the diameter at breast height (DBH – 130cm above the ground) by twelve. Where the TPZ cannot be met an arborist will be consulted to ensure the health of the tree can be maintained.
- Native vegetation greater than 3 m in height will be retained during transmission line construction where practical.
- Pruning of vegetation should be considered wherever possible to reduce the area of vegetation to be cleared.

- Where vegetation is cleared, large fallen logs and woody debris will be salvaged where it is considered appropriate for use in revegetation or habitat enhancement activities.
- Surface disturbance at the site is to be minimised and no vegetation clearing is to occur outside the Development Corridor.

4.2 Minimising impacts on key fauna habitat

Impacts to key fauna habitat are described in this section consistent with the habitat features described in Table 2-2 and Table 2-4 :

Table 4-1: Fauna habitat within the Development Corridor and impact minimisation measures

Species type	Habitat type	Impact Minimisation Measures
Reptiles	Granite rock Tussock grass areas	Rock disturbance will be limited to the development footprint. Granite rocks that are removed from the construction area will be relocated adjacent to the construction impact area subject to landowner agreement. Grass tussock disturbance is limited to the development footprint.
Water birds	Small dams	Impacts to small dams will be avoided by the layout where possible. Where avoidance is not possible, dams will be visually checked for waterbirds and if none present, drained with the water used elsewhere onsite. Draining of dams will follow a dam-dewatering process to relocate aquatic fauna such as turtles, eels and fish.
Amphibians	Ephemeral drainage lines	Ephemeral drainage lines will be avoided by the layout wherever possible and impacts where possible will be limited to crossings. Crossings will be designed to minimise erosion and impedance of flows (in accordance with the Project EMS and EPCs ESCP) and construction in accordance with the Water Guidelines for Controlled Activities on Waterfront Land (2012), or its latest version and Why Do Fish Need to Cross the Road? Fish Passage Requirements for Waterway Crossings (2004), or its latest version. Impacts undertaken during dry periods where possible.
Microbat	Disused mines Tree hollows Man-made / artificial structures	Impacts to be avoided (disused mine) and minimised (tree hollows) in detailed design.
Hollow-dependent species	Tree hollows Hollow-bearing logs	Micro-siting wind turbines and associated infrastructure away from hollow bearing trees as much as possible. Undertaking pre-clearance surveys to determine if roosts, nests or dens are visible in any hollow-bearing trees (refer section 4.3.1 and 4.3.2). Hollow bearing logs requiring removal and cleared larger woody debris will be relocated adjacent to the construction impact area (subject to landowner agreement) into adjacent habitat or placed on rehabilitated disturbance areas.
Golden Sun Moth	Grassland habitat: • Known • Potential	Detailed design to limit clearing of known GSM habitat where possible. Disturbance to mapped 'known' GSM habitat will be minimised during the flying period, from November to January, if possible.
Wedge-tailed Eagle	Nest	Wind turbines will not be micro-sited any closer to the three known wedge-tailed eagle nests (referred to in the SSD6686 as IDs 2, 3 and the

Species type	Habitat type	Impact Minimisation Measures
		newly identified nest). Note the location of the wedge-tailed eagle nests are illustrated in Appendix A - *Hollow-bearing Tree*. If additional wedge-tailed eagle nests are identified during construction, it will be notified to DPIE and advice from an ecologist will be sought to ensure impacts are minimised.
Superb Parrot	Nest trees	Detailed design to limit clearing through mapped habitats. Blasting within 50m and clearing within 30m of Primary HBTs will only occur between 1 February and 31 August each year. Where possible locating wind turbines at least 50m from Primary hollow bearing trees (note this is calculated from the nearest point of the turbine, often the blade tip, to the tree which calculates as a 71m horizontal distance from the turbine). Locating onsite infrastructure (other than wind turbines) at least 30m from Primary hollow bearing trees. Clearing no more than 8 Primary hollow bearing trees. For every Primary HBT removed within 50m of each turbine, 10 HBTs will be legally protected and secured from the same vegetation formation within the South-west Slopes of NSW Important Bird Area.
Squirrel Glider	Woodland along Tangmangaroo Road	Detailed design will limit required clearing through this woodland. Undertake pre-clearance procedures. Clearance will be limited to the Development Corridor through this woodland and will be minimised to as far as is possible. The 60 m wide transmission line strip is required for electrical clearance safety. If this clearance requires removal of all trees, this may hinder Squirrel Glider movement across the gap as it is beyond the 50 m gliding distance recognised for this species on relatively flat terrain (Australian Museum 2011). Mitigation measures would be required to maintain connectivity for the species across that 60 m transmission line strip which may include, reducing the span of clearance to 45 m, vegetation retention (as long as electrical clearance safety can be maintained) or installation of glider poles located so no gap exceeds 50 m.

4.3 Minimising impacts to fauna (including threatened and migratory species)

Impact minimisation to fauna is described in this section in two parts as risk minimisation steps in the construction process:

- Identifying and managing likely fauna presence via a pre-clearance procedure; and
- Active management during clearing.

Whether undertaken during pre-clearance (Section 4.3.1 below), or during clearance (Section 4.3.2 below), a person suitably qualified and experienced (such as an ecologist, wildlife carer or veterinarian) with appropriate threatened species licenses will be used to capture and relocate any fauna. Relocation will be undertaken in consultation with an ecologist. Fauna that is harmed during site activities will be taken to a vet or wildlife carer. Suitable release areas will be determined by the qualified ecologist based on site conditions.

Release areas will prioritise adjacent areas of similar suitable habitat, or where adjacent similar habitat is not available, suitable habitat otherwise identified by the qualified ecologist.

4.3.1 Pre-clearance procedure

A pre-clearance procedure is to be undertaken prior to ground disturbance in any given work area.

A preliminary inspection of the disturbance area will be undertaken by the EPC Environment Officer or other suitably qualified person prior to clearing, to determine if the vegetation present provides potential habitat for threatened flora or native fauna (including roosts, nests or dens and considering the project biodiversity data held), or if weed or pest species require management. If these features are present, the pre-clearing procedures below will be followed, otherwise works may proceed.

Pre-clearance surveys will be undertaken by a qualified ecologist in areas where threatened flora have been recorded, and in areas where native fauna habitat is identified by the EPC Environment Officer (or other suitably qualified person) as part of the preliminary inspections noted above. These pre-clearance surveys undertaken by a qualified ecologist will aim to identify:

- Potential habitat features located within proposed disturbance areas (such as hollows in trees and fallen logs, which may provide habitat for threatened woodland birds, owls, arboreal mammals and bats) that may require management during clearing;
- Habitat features (such as large fallen logs and trees with hollows) that can be salvaged where practicable for reuse in rehabilitation areas or in adjoining non-disturbed native vegetation areas (Section 4.2);
- Actively nesting threatened birds or mammals and/or suspected active microbat roosts that may require active management prior to or during disturbance to minimise impacts on threatened fauna species (including woodland birds, owls, arboreal mammals and hollow dwelling bats).
- All hollows in squirrel glider habitat are checked immediately before removal of the tree;
- All Primary HBTs are checked for Superb Parrots prior to clearing;
- Primary HBT are only cleared outside the Superb Parrot breeding season (1st February - 31st August);
- BCD is notified if threatened species are found and relocated.

There are no seasonal restrictions on when fauna pre-clearance surveys need to be undertaken.

Individual fauna identified in the pre-clearance surveys may require relocation prior to clearing, and potentially during clearing and it is the role of the ecologist undertaking the pre-clearance survey to identify whether relocation is required prior to, or during clearing.

Fauna habitat features (or fauna) identified by the process above will be physically demarcated using a clear and consistent method which is developed by the EPC Environment Officer in consultation with the Project Environmental Officer and Principal.

Data collected in the pre-clearance surveys will be retained by the EPC Environment Manager to and provided to the Project Environmental Officer for records management.

4.3.2 Fauna active management protocols

In any area to be cleared, non-habitat vegetation should be cleared first with identified fauna habitat demarcated during the pre-clearance procedure left standing overnight to encourage the self-relocation of fauna that may be using the available habitat feature.

Active management protocols to be employed for each species group is described below. Where there are specific management requirements for threatened fauna species, these are outlined in the following sections (Table 4-2).

Table 4-2: Species type summary

Species type	Section	Threatened species addressed
Aboreal mammals	4.3.2.1	Squirrel Glider
Nesting birds	4.3.2.2	Brown Tree-creeper, Diamond Firetail, Grey-Crowned Babbler, Scarlet Robin, Speckled Warbler, Spotted Harrier, Square -Tailed Kite, Varied Sittella and Superb Parrot and Wedge-tailed Eagle
Microbats	4.3.2.3	Eastern Bentwing Bat, Yellow-bellied Sheathtail Bat
Hollow dependent species	4.3.2.4	Squirrel Glider and Superb Parrot
NA	4.3.2.5	Superb Parrot
NA	4.3.2.6	Golden Sun Moth

Not specific to any fauna species or group, construction procedures will include measures to further minimise direct and indirect impacts to fauna including:

- Preparation (by the EPC) of a fauna rescue protocol that includes notification of local wildlife carers and a veterinarian should they be required during clearing;
- Temporary construction features such as trenches, and pits should be fenced/covered overnight and when not in use for construction. Open trenches will be checked twice daily by the EPC Contractor per table 5.1;
- all external lighting associated with the development uses best management practice for bat deterrence; and
- Vehicle speed limits within construction areas should be reduced to minimise fauna strike risk. Vehicle use will be restricted to the Development Corridor and to areas which are to be used for access tracks or infrastructure wherever possible.

4.3.2.1 Arboreal mammals

Where habitat trees are present, and the presence of arboreal mammals is suspected or known, they will be managed by:

- Shaking the tree with machinery to be used during clearing activities to encourage the animal to move to an alternative location;
- Soft pushing the tree to the ground in order to reduce the likelihood of disturbance to the habitat feature/animal present;
- Inspection of the felled tree to confirm that the mammal has relocated from the habitat feature; and
- Where the mammal is still present, leave the felled tree overnight to encourage the animal to relocate, which will be confirmed by reinspection on the following day.

4.3.2.2 Nesting birds

- Where a nest is active, the birds present (generally fledglings) will be collected where safe, and taken to a wildlife carer to be cared for, prior to later release;
- Where the nest is not active (ie. no fledglings present), the nest will be removed from the tree (where safe to do so) to ensure that the nest does not become active prior to disturbance. The tree should be inspected immediately prior to clearing to ensure that no further nesting activity has recommenced. If nesting has recommenced, then this will be removed before any nest can be established and the tree then cleared.

4.3.2.3 Microbats

Habitat trees with suspected or confirmed bat roosts will be managed by:

- Shaking the tree with machinery prior to clearing to encourage bats to move to an alternative site;
- Soft pushing the tree to the ground in order to reduce the likelihood of disturbance to the habitat feature/roost/microbat present;
- Preferentially positioning the tree on the ground so the entrance to the hollow faces upwards (i.e. so bats are able to exit);
- Inspecting the felled tree to confirm whether bats have exited the tree; and
- Leaving the felled tree overnight to allow any remaining bats time to exit, which will be confirmed by reinspection on the following day.

4.3.2.4 Hollow dependent species

Species that are hollow dependent (in addition to the microbat species above) include the Squirrel Glider and the Superb Parrot.

Habitat trees will be managed by:

- Shaking the tree with machinery prior to clearing to encourage fauna to move to an alternative site;
- Soft pushing the tree to the ground in order to reduce the likelihood of disturbance to the habitat feature/roost/species present;
- Preferentially positioning the tree on the ground so the entrance to the hollow faces upwards (i.e. so species are able to exit);
- Inspecting the felled tree to confirm whether fauna has exited the tree; and
- Leaving the felled tree overnight to allow any remaining fauna time to exit, which will be confirmed by reinspection on the following day.

4.3.2.5 Superb Parrot

Condition 3 of EPBC Approval 2013/6810 restricts blasting activities proposed to occur to within 50 m and clearing within 30 m of known and potential nest trees to occur only between 1 February and 31 August, which is outside of the breeding season for this species.

Management measures for hollow bearing trees (habitat for the Superb Parrot) are provided above in Section 4.3.2.

4.3.2.6 Golden Sun Moth

Impact minimisation to GSM will include:

- Areas of habitat will be clearly identified and mapped to limit risk of vehicles traversing through habitat accidently;
- No more than 39.54 ha of known and potential habitat for the GSM will be removed;

- Movement through and disturbance to mapped GSM habitat will be minimised during the flying period, from November to January, if possible; and
- All vehicle movements in areas of GSM known and potential habitat will be contained to the existing roads and tracks and the Development Footprint where possible.

4.4 Minimising impacts to threatened flora and threatened ecological communities

4.4.1 Pre-clearing surveys

Refer to Section 4.3.1.

4.4.2 Impacts to Previously Unidentified Threatened Flora

- If previously unidentified threatened flora is identified within the Development Corridor all efforts will be made to avoid impact. Where impacts are unavoidable an ecologist will be consulted and further ecological assessment undertaken.
- All threatened species recorded within the Development Corridor with be reported to BCD.

4.4.3 Yass Daisy

- Yass Daisy individuals are located outside of the Development Corridor, with no direct impact anticipated.
- No work is authorised to occur outside the Development Corridor without approval by the CWP environmental representative.
- Should Yass Daisy individuals be identified within the Development Corridor, these locations will be recorded and reported to the CWP environmental representative.

4.4.4 Box-Gum Woodland

Impacts to the Box-Gum Woodland will primarily be managed through implementation of the management measures outlined within Section 4.1.

Schedule 3, Condition 17 a) of Development Consent SSD-6686 restricts clearing to 84.2 ha of the BC Act listed Box Gum Woodland EEC. Clearing of the EPBC Act listed Box-Gum Woodland is restricted to 0.32 ha under Condition 2 of EPBC Approval 2013/6810 (Section 2.3.1). The management measures provided in Section 4.1 will be used to ensure compliance with these conditions and impacts to the EPBC Act listed Box Gum Woodland will be further minimised by:

- Detailed design to avoid the eastern patch of Box gum woodland and where possible staying outside the mapped area;
- Box-Gum Woodland present along Tangmangaroo Road will have some impact from construction of overhead and underground cables to and from the substation, construction access roads and intersection works to ensure safety along Tangmangaroo Rd. However, this impact will be minimised through further detailed design options including underboring, raising overhead transmission lines, road design and use of traffic control to maintain line of sight distances; and
- Box-Gum Woodland present within the western section cannot avoid impacts, but clearing will be limited through design including a combination of selecting the most direct and shortest route, road width narrowing to one traffic lane (with the provision of traffic control), cables constructed with the road formation, reduction in curve radius to reduce sweep paths for the transport of blades and transformer (for example).

The following measures relating to the Box Gum Woodland impacts were stated in the EIS Statement of Commitments (CWP 2016) specifically relating to the area of Box Gum Woodland along Tangmangaroo Road:

- Where micro-siting of transmission lines and easements is to occur, impacts are to be minimised by siting in areas that are already cleared for existing driveways and access gates where possible;
- Where hollow bearing trees are removed the material will be placed in adjacent habitat, where practicable;
- Clearing will be restricted to the canopy and mid-storey*; and
- Remaining Box-Gum Grassy Woodland areas (including areas of DNG) will be delineated by barrier tape (or similar) to clearly demarcate these areas and limit the risk of vehicles or machinery causing damage to these areas.

  * note that this was written to address impact minimisation from the proposed 60m wide transmission line easement crossing Tangmangaroo Road which is no longer part of the design.

4.5 Rehabilitating and Revegetating Temporary Disturbance Areas

- Rehabilitation and revegetation of temporary impact areas will aim to return disturbed areas to ensure that they are safe, stable and non-polluting and reduce the total area exposed at any time in accordance with the Development Consent, including the re-creation of habitat for fauna.
- With consideration of the requirements for safe, stable and non-polluting landscapes, existing vegetation communities in the Development Corridor will be used to inform the targeted vegetation communities to be used in final rehabilitation.
- Plants propagated from local native seed will be incorporated into revegetation where within a threatened ecological community.
- Rehabilitation will be undertaken progressively in all temporary impact areas, that is, those areas that are not required to be maintained for the operational phase of the project.
- Rehabilitation to internal access roads that are not required following construction will be undertaken.

Prior to the commencement of rehabilitation activities, the EPC Environment Officer will establish the pre-existing conditions and identify the proposed methods for rehabilitation of each site in a Rehabilitation Management Program. The Rehabilitation Management Program, prepared by the EPC, will be developed in consultation with BCD to ensure targets and species selection are appropriate in areas where TECs and threatened species habitat have been impacted. The program will include as a minimum:

- Identify the pre-existing land use prior to construction, including mapping or relevant drawings;
- A program for the proposed rehabilitation activities (commencement and any follow up);
- Proposed rehabilitation methods (i.e. cover crop, seeding, topsoil, mulching, watering regime etc);
- Plant species mix to be established at each site, based on an initial cover crop to stabilise the soil and native species that reflect the pre-existing land use and condition;
- Proposed physical works for rehabilitated areas including items such as:
  - ensuring stability of slopes;
  - ensuring that drainage is appropriate and does not result in ponding or scouring;
  - early rectification of any erosion occurrences; and
- Details of proposed weed control (hand removal, spot spraying, broad application of herbicide).

The EPC prepared Rehabilitation Management Program will include a diagram showing the location of areas to be rehabilitated, vegetation communities to be established and species composition based on the revised baseline mapping (ELA 2019). Where rehabilitation works are to occur close to threatened communities or

species habitat, revegetation will be with species native to the mapped communities where possible. Measurable criteria following the SMART principles for floristic and structural diversity will developed as part of the Rehabilitation Management Program.

The EPC Environment Officer will be responsible for implementing the Rehabilitation Management Program under the supervision of the Project Environment Officer. Rehabilitation will be monitored by the EPC Contractor in accordance with the schedule in Section 5.2. The Project Environment Officer will monitor the effectiveness of the plan and report to the Principal Project Officer and Independent Environmental Auditor on its performance.

All rehabilitation must comply Schedule 3, condition 35, Table 3 of SSD 6866.

Table 4-3: Rehabilitation Objectives

Feature	Objective
Development site (as a whole)	*- Safe, stable, non-polluting* *- Minimise the visual impact of any above ground ancillary infrastructure agreed to be retained for an alternative use as far as is reasonable and feasible*
Revegetation	*- Restore native vegetation generally as identified in the EIS*
Above ground wind turbine infrastructure (excluding wind turbine pads)	*- To be decommissioned and removed, unless the Secretary agrees otherwise.*
Wind turbine pads	*- To be covered with soil and/or rock and revegetated*
Above ground ancillary infrastructure	*- To be decommissioned and removed, unless an agreed alternative use is identified to the satisfaction of the Secretary*
Internal access roads	*- To be decommissioned and removed, unless an agreed alternative use is identified to the satisfaction of the Secretary*
Land Use	*- Restore or maintain land capability as described in the EIS*
Community	*- Ensure public safety*

4.6 Protecting native vegetation and key fauna habitat outside the disturbance area

The EPC Environment Officer will be responsible for ensuring the following mitigation measures are implemented to protect native vegetation and key fauna habitat:

- Where practicable, Project vehicles are to remain within the extent of the earthworks designed specifically for the Project to minimise vegetation disturbance;
- Laydown or temporary disturbance areas will be sited in already disturbed areas where practicable to avoid any unnecessary clearing of native vegetation and habitat;
- To minimise the spread of weeds through the project site in compliance with section 4.9
- No vegetation clearing is undertaken outside the Development Corridor;
- To ensure the Identification of clearance boundaries and the demarcation of Development Footprint is in compliance with section 4.1.

4.7 Salvage of resources

- Where soil is cleared for excavations or cuttings, it will be used for fill or habitat enhancement activities within the Project site.

- Dust suppression measures such as the use of water carts/sprays will be used to mitigate dust impacts to adjacent vegetated areas.
- Vegetation that has been cleared that does not contain habitat features may be placed in areas of exotic vegetation, mulched or removed from site (pending negotiation with the relevant landowner).

4.8 Collecting and propagating seed

Local native seed collection and propagation will be incorporated where TECs will be impacted to ensure that the genetic integrity, structure and composition of revegetated areas are consistent with the broader landscape. Where required, seed collection and propagation for threatened species will be carried out by a suitably qualified provider with appropriate experience and training in seed collection, data recording, seed storage and propagation.

4.9 Controlling weeds and feral pests

Weed species present within the Project Site have the potential to impede the success of surrounding agriculture and remnant native vegetation as well as vegetation regeneration and rehabilitation activities in the Development Footprint. Weed management activities will be undertaken in the Development Footprint in a manner that will ensure adjacent agricultural land and native vegetation is not significantly impacted. Weeds will be proactively managed in the Development Footprint to avoid the spread of existing weeds and to manage any incursions which arise throughout construction and operation of the Project.

The EPC Environment Officer will undertake a pre-construction assessment of weeds in each work area, prior to ground disturbance. The assessment will consider the weed species present, their concentrations and likelihood of spread to adjacent areas. A Weed Management Program will be prepared in accordance with the EMS to identify the mitigation measures and monitoring requirements to ensure the spread of weeds is prevented and that incursions are adequately managed by the EPC Contractor.

The Weed Management Program will include requirements for:

- Regular inspections of work areas and soil stockpiles identifying weeds present and implementing required management actions;
- Implementation of weed management actions which may include mechanical removal, slashing, application of approved herbicides and biological control;
- Control and management of weeds identified in work areas in accordance with the *South East Regional Strategic Weed Management Plan 2017-2022* (Local Land Services, 2017). All work will be completed in accordance with the *Pesticides Act 1999*;
- Minimising the potential for establishment of new weeds by minimising the transport of weed species to and from the Development Footprint (mitigations may include restrictions on vehicle access, and requirements to wash-down of vehicles, machinery and boots);
- Routine inspection of vehicles, machinery and plant for weed and weed seed;
- The application of any herbicides are to be in accordance with the manufacturers specifications and measures implemented to prevent spray drift (including to known and potential superb parrot nest hollows); and
- Monitoring to assess the effectiveness of the weed management measures implemented and the requirement for any additional weed control activities, including where soil from stockpiles with known weed infestations is respread over previously clean areas.

To minimise the spread of weeds the following will be completed in accordance with the statement of commitments within the RTS:

- Soil which may contain exotic species to be stockpiled at least 50 m from any water source where possible
- All construction staff and sub-contractors to be educated on noxious weeds present at the project site and on ways to prevent spread
- Where a specific weed risk has been identified, all machinery equipment and vehicles are to be washed down before entry and when leaving the project site
- Where practical topsoil in areas that have a high proportion of native vegetation and is limited in weeds to be harvested to salvage the native soil seed bank and reintroduction into disturbed areas. Otherwise revegetate with locally native endemic species characteristic of the cleared vegetation type
- Control of perennial weed grasses within the disturbance zone for three to five years after construction
- Where practicable and in consultation with host landowners manage stock access during periods of revegetation
- Imported soil and rubble to be certified as free of weeds and weed seeds.

Weed control activities will be documented by the EPC Environment Officer, with the following information being recorded:

- The date, time and location of areas that have undergone weed control activities;
- Methods used for weed control including where used, the types of chemicals used;
- Issues encountered; and
- Recommended frequency and methods for follow-up weed control.

Where it has been identified that weed control activities have not been effective, the method of control implemented will be reviewed prior to further control activities occurring.

A number of introduced species (foxes, pigs, hares and rabbits) have been identified within the Project Site and have the potential to both compete with native species and cause considerable damage to land and vegetation. Contamination and waste management will be managed in accordance with the Project EMS. This will identify the waste management measures to be implemented to reduce opportunities for scavenging for animals such as foxes, wild dogs and feral cats.

The Project will cooperate with landowners to facilitate ongoing vertebrate pest control programs being undertaken on freehold land in the Project Site. Any vertebrate pest control activities undertaken in the Development Footprint will be done in accordance with the requirements of the Local Land Services.

4.10 Controlling erosion

The EPC Contractor's Risk Management Plan will identify areas of the Project where erosion or soil management issues are likely to occur.

Where an erosion or sedimentation risk is identified, prior to commencement of works in an area, the Contractor will prepare an Erosion and Sediment Control Plan in accordance with the EMS. The plan will ensure the wind turbines and ancillary infrastructure, particularly any access roads on steep slopes, are designed, constructed and maintained to minimise any soil erosion and minimise any soil erosion associated with the construction and decommissioning of the development by implementing the relevant mitigation measures in Managing Urban Stormwater: Soils and Construction (Landcom, 2004).

The EPC will ensure the site is managed and monitored in accordance with the Erosion and Sediment Control Plan. The plan will form part of the induction for all workers on site. The Project Environment Officer will monitor the effectiveness of the plan and report to the Principal Project Officer and Independent Environmental Auditor on its performance.

4.11 Bushfire Management

The Project will be designed to provide asset protection in accordance with the Rural Fire Services (RFS's) Planning for Bushfire Protection 2006, be suitably equipped to respond to any fires on site and if required, assist the RFS and emergency services as much as possible if there is a fire in the vicinity of the site. A Bushfire Management Plan will be developed in consultation with the RFS and maintained to manage potential fires on site.

4.12 Other

4.12.1 Inductions

Prior to the commencement of works on site, all site personnel will be required to undertake a site induction identifying their responsibilities under this BMP and the EPC Contractor's management plans and programs required under the EMS, to ensure that biodiversity is managed appropriately. This will ensure that unnecessary impacts to biodiversity are avoided.

4.12.2 Environmental risk management

The Environmental Management Strategy requires that the EPC Contractor prepares a Risk Management Plan for construction of the Project which evaluates environmental risks, identifies mitigation measures and assigned responsibilities. One of the key mitigation measures to be adopted in the plan will be to avoid and minimise vegetation clearance and biodiversity impacts.

Environmental objectives and targets will be set and reviewed regularly throughout construction, particularly for environmental risks where the adequacy of mitigations has identified to be 'Satisfactory' or lesser. Where necessary, Environmental Management Programs and Plans will be prepared to enable effective risk management, compliance with relevant statutory requirements, and consistency with the Environmental Policy, Environmental Management Strategy, environmental objectives and targets.

4.12.3 Contamination and waste

The EPC Contractor will minimise waste generated on site, classify all waste generated on site in accordance with the EPA's Waste Classification Guidelines 2014, store and handle all waste generated on site in accordance with its classification, not receive or dispose of any waste on site and ensure all waste is disposed of at appropriately licensed waste facilities.

Storage and handling of all dangerous or hazardous materials on site will be in accordance with AS1940-2004: The storage and handling of flammable and combustible liquids. The concrete batching plants and substation areas will be suitably bunded and minimise any spills of hazardous materials or hydrocarbons, and clean up any spills as soon as possible after they occur.

4.12.4 Access Management (Control and Restrictions)

The EPC Contractor will have a Site Management Plan to ensure that the Development Corridor will be managed to limit access to the site to only authorised and inducted personnel and minimising the opportunities to prevent the public from being able to gain entry to the site without authorisation or induction. This will reduce the risk of disturbance to intact vegetation and regenerating or revegetated areas, disturbance of soil, weed dispersal, fauna habitat disturbance and illegal rubbish dumping.

4.12.5 Construction Environmental Management Plan

The EPC is responsible for developing a Construction Environmental Management Plan (CEMP) to address all requirements of this BMP and to meet compliance with the relevant standards. The EPC must correctly map and identify biodiversity constraints identified in the Project Approval and this BMP and provide comprehensive monitoring and reporting regimes to monitor environmental performance and compliance.

5 Monitoring

5.1 Environmental Monitoring

Monitoring of environmental control measures will be undertaken to record the effectiveness of pre and post construction control measures and inform adaptive management of the environmental management plans and programs within Table 5-1.

All rehabilitated areas will be monitored on a monthly basis by the EPC Environment Officer during the construction phase, and every six months by the Project Environment Officer during operations. Thresholds have been identified for each monitoring aspect which will trigger implementation of remedial or management actions within Table 5-1.

A photographic images register will be utilised to record groundcover conditions at the commencement of rehabilitation to monitor progress over time.

Table 5-1: Monitoring Program

Item	Requirement	Frequency	Trigger for corrective action	Corrective action
1	Inspection of any open trenches for trapped fauna	Twice daily. 1 – within 2 hrs of sunrise or the commencement of work 2 – within the last hour before sunset or the cessation of work	Fauna are present within open trenches and cannot self-evacuate.	Capture trapped fauna and release at locations identified by a person suitably qualified and experienced (such as an ecologist, wildlife carer or veterinarian).
2	Ensure that threatened flora species and areas of EEC to remain intact have been clearly demarcated.	Prior to vegetation clearing	When undertaking pre-clearing surveys (described in Section 4.3) or inspection of trenches for trapped fauna - areas where known records of threatened species and areas of EEC have not been previously demarcated by inspection prior to commencement of vegetation clearing works.	Demarcate areas that are not defined clearly in the field.
3	Ensure that habitat resources to be salvaged have been identified and the requirement for salvage communicated to the clearing contractor.		When undertaking pre-clearing surveys (described in Section 4.3) or inspection of trenches for trapped fauna - habitat resources to be salvaged have not been salvaged prior to commencement of vegetation clearing works or are not present within adjacent remnant vegetation post clearing. Salvage requirements have not been communicated to the clearing contractor.	Demarcate the habitat resources to be salvaged. Salvage resources. Communicate the requirement for salvage to the clearing contractor.
4	Ensure that demarcated areas for exclusion of clearing have not been disturbed.	Post vegetation clearing	Demarcated areas have been disturbed.	Determine the extent of the impact. Report any non-conformances using the procedures outlined in Section 6.2 of this document and or complete an incident investigation and reporting. Develop a plan for remediation/rehabilitation where necessary.
5	Ensure that threatened species present within the demarcated areas remain intact.		Threatened species marked prior to clearing have been disturbed.	
6	Ensure that areas of EEC excluded from clearing activities have not been impacted by the clearing works and remain intact.		Areas of EEC have been disturbed and are no longer intact.	
7	Check that areas that have been cleared are consistent with those included within the project's final layout.		Areas that have been cleared are not consistent with the final project layout.	
8	Weed monitoring	As defined in the EPC Contractors Weed Control Program	Weeds have spread beyond the area of infestation identified during the pre-construction assessment.	Develop a plan for ongoing weed management in areas where weeds are identified, and implement where necessary.
9	Inspection of hazardous material storage controls	As defined in the EPC Contractors Contamination	Hazardous materials are found to not be in accordance with the EPC	Develop a plan to access issues identified, and implement where necessary.

Item	Requirement	Frequency	Trigger for corrective action	Corrective action
		and Waste Management Plan.	contractors contamination and waste management plan.	
10	Rehabilitation and revegetation monitoring	Monthly until revegetated areas have achieved 80% coverage	Weeds are present within rehabilitated and revegetated areas.	Implementation of follow up management activities including any weed control, reseeding, vertebrate pest control and watering as identified through monitoring.
			Areas of rehabilitation or revegetation are found to not be successfully establishing.	
			Areas of rehabilitation are not adequately stabilised and if erosion is occurring.	
			If there are areas of instability that require stabilisation or remediation.	
			If there is poor drainage conditions with evidence of ponding or scouring.	
			Evidence and/or presence of vertebrate pests are present within rehabilitated and revegetated areas.	
11	Photographic monitoring	At completion of rehabilitation	Issues are identified during review of photographs post monitoring such as erosion, non-establishment of vegetation, weed and vertebrate presence, ponding and/or rubbish presence.	Where issues are identified through the monitoring, develop a plan to address these, and implement where necessary.
		Bi-annually until rehabilitation is 80% successful		

5.2 Monitoring Records

Results of monitoring will be recorded by the EPC and the Project Environment Officer as part of inspection checklists that will include as a minimum:

- Date of inspection;
- Personnel undertaking the inspection;
- Features to be inspected/monitored;
- Outcomes of the inspection and details of compliance with objectives;
- Requirement for any corrective actions; and
- Details of any photographic records (file name and saved location) detailing evidence of monitoring.

Results of all monitoring will be maintained at the Project office for supply to relevant agencies upon request.

5.3 Auditing

The construction work will be subject to regular (i.e. quarterly) internal audits by the Project Environment Officer to evaluate the EPC Contractors performance. Scheduled auditing will also be undertaken by an Independent Environmental Auditor within 6 months of the commencement of construction and every three years thereafter, in accordance with Schedule 4, Condition 6 of the Development Consent. The requirements for audits are identified in the EMS. Unscheduled auditing may also be undertaken by NSW DPIE and the Commonwealth Department of the Environment and Energy at any stage to evaluate the Project's compliance.

The EPC Contractor will support the Project Environment Officer in providing all records and documentation required to demonstrate compliance with this document, the Development Consent and the Commonwealth approval.

6 Reporting and Documentation Requirements

Reporting requirements for the vegetation clearance protocol and threatened species management have been addressed in the Biodiversity Management Strategies section of this Plan (Section 4).

6.1 Internal Reporting

The EPC Environment Officer will provide weekly reporting to the Project Environment Officer during the construction phase. Weekly reporting will:

- Detail any areas identified requiring ecologist assessment and areas where habitat features will need to be relocated;
- Identify the location of any pre-clearance surveys undertaken;
- Detail areas cleared during the week;
- Results of trench inspections;
- Detail of any fauna relocated/rescued; and
- Stockpiles and any management undertaken.

All site inspection and monitoring records are to be retained onsite for the duration of construction works and will be produced as required for auditing purposes.

Records of threatened species occurring within the Development Corridor are to be kept by the EPC Environmental Officer and the Project Environment Officer for collation and annual reporting.

6.2 Reporting Environmental Incidents and Non-conformances

All environmental incidents will be recorded and reported internally to aid in the prevention of further occurrences. Environmental Incidents will also trigger regulatory reporting in accordance with the Development Consent and Commonwealth approval.

The EPC Environment Officer is responsible for notifying the Project Environment Officer for of any incident that has caused, or threatens to cause, material harm to the environment as a result of the EPC Contractors operations. The EPC Contractor must provide the Project Environment Officer with all records and documentation to support the immediate notification of the Secretary and any other relevant agencies as required under Condition 4 of Schedule 4 of the Development Consent. The Project Environment Officer is responsible for notifying the Secretary under this condition.

The EPC Environment Officer is responsible for notifying the Project Environment Officer for of any potential or actual contravention of the conditions of the NSW and Commonwealth approval (including contravention of a commitment made in a management plan, program or strategy) as a result of the EPC Contractors operations. The EPC Contractor must provide the Project Environment Officer with all records and documentation to support the notification of the Department of the Environment and Energy within 7 days of the approval holder becoming aware of the actual or potential contravention.

Incident reporting will be undertaken using the incident management procedures developed for the project in the EMS.

6.3 Annual Reporting

The Project Environment Officer will prepare an annual report describing environmental performance of the Project against this plan and the conditions of the Development Consent and the Commonwealth approval. The reports will include the results of monitoring undertaken in accordance with Chapter 5, identification of threatened species and a description of any environmental incidents and non-conformances. Reporting will be made available to the public within three months of each 12-month anniversary of commencement of construction, on the Project website, in accordance with Condition 6 and 7 of Schedule 4 of the Development Consent and Condition 17 of EPBC Approval 2013/6810.

The EPC Contractor must provide the Project Environment Officer with all records and documentation to support preparation of the annual report. The Project Environment Officer will provide evidence of the date of publication to the NSW DPIE Secretary and the Commonwealth Department at the same time as the annual report is published.

6.4 Record Keeping

Records of all environmental activities will be maintained by the EPC Environment Officer and the Project Environment Officer to demonstrate compliance with this plan, the Development Consent and the Commonwealth approval. These records will be made available to the Independent Environmental Auditor, NSW DPIE and Commonwealth Department upon request.

Condition 16 of EPBC Approval 2013/6810 requires that the person taking the action maintains accurate records substantiating all activities associated with or relevant to the conditions of approval, including measures taken to implement the management plans, reports, strategies, agreements required by this approval, and make them available upon request to the Department. Such records may be subject to audit by the Department or an independent auditor in accordance with section 458 of the EPBC Act, or used to verify compliance with the conditions of approval. Summaries of audits will be posted on the Department's website. The results of audits may also be publicised through the general media.

7 Review

The Project Environment Officer will be responsible for reviewing this plan within five years of the commencement of construction, and every five years thereafter. The plan may also be required to be reviewed in response to the occurrence of an incident, the submission of an audit report, or modification to the conditions of the Development Consent, in accordance with Condition 2 of Schedule 4 of the Development Consent. Review of the plan will be undertaken in consultation with the NSW BCD and DPIE. Updates to the plan will be made available on the Project website.

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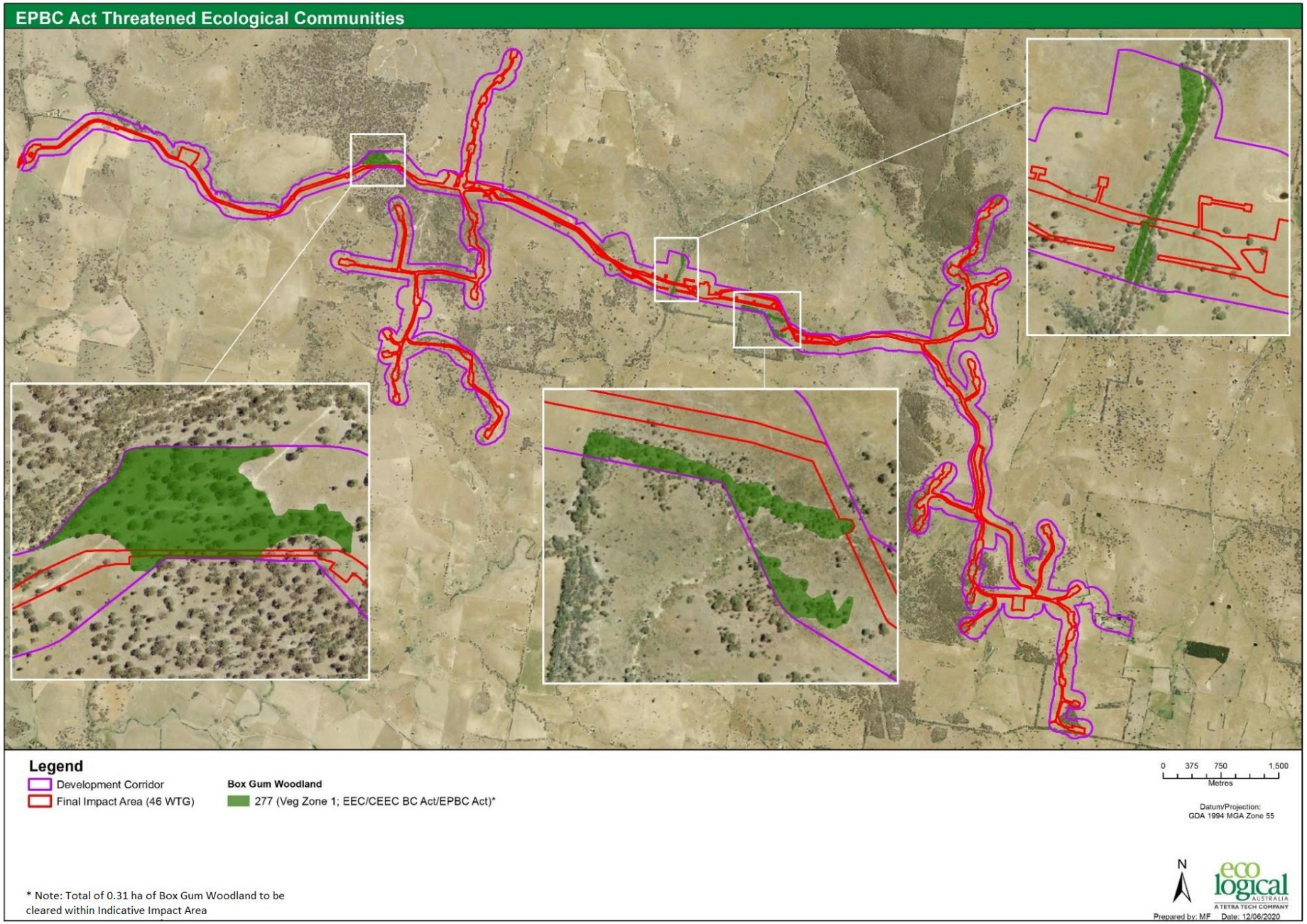
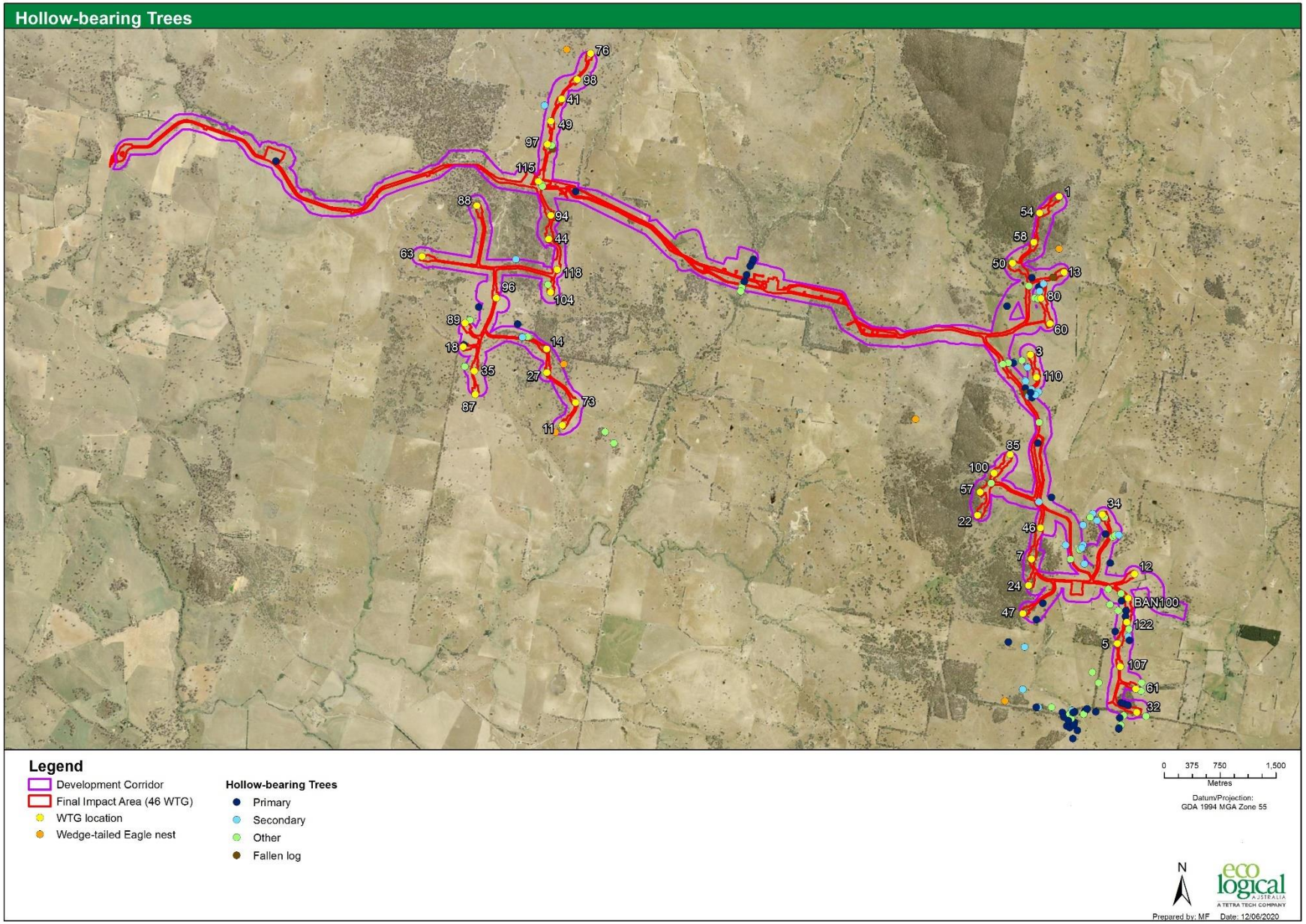
Eco Logical Australia 2019b. Bango FBA Credit Liability. Report prepared for CWP Renewables by Eco Logical Australia

Appendix A – EPBC Mapping and quantification


EPBC Act Threatened Ecological Communities
Legend
Development Corridor
Final Impact Area (46 WTG)
Box Gum Woodland
277 (Veg Zone 1; EEC/CEEC BC Act/EPBC Act)*
* Note: Total of 0.31 ha of Box Gum Woodland to be cleared within Indicative Impact Area
0 375 750 1,500
Metres
Datum/Projection:
GDA 1994 MGA Zone 55
N
eco logical AUSTRALIA
A TETRA TECH COMPANY
Prepared by: MF Date: 12/06/2020


Hollow-bearing Trees
76
98
41
49
97
115
88
94
44
63
118
96
104
89
18
14
35
27
87
73
11
1
54
58
50
13
80
60
3
110
85
100
57
22
34
46
7
12
24
BAN100
47
122
5
107
61
32
Legend
Development Corridor
Final Impact Area (46 WTG)
WTG location
Wedge-tailed Eagle nest
Hollow-bearing Trees
Primary
Secondary
Other
Fallen log
0 375 750 1,500
Metres
Datum/Projection:
GDA 1994 MGA Zone 55
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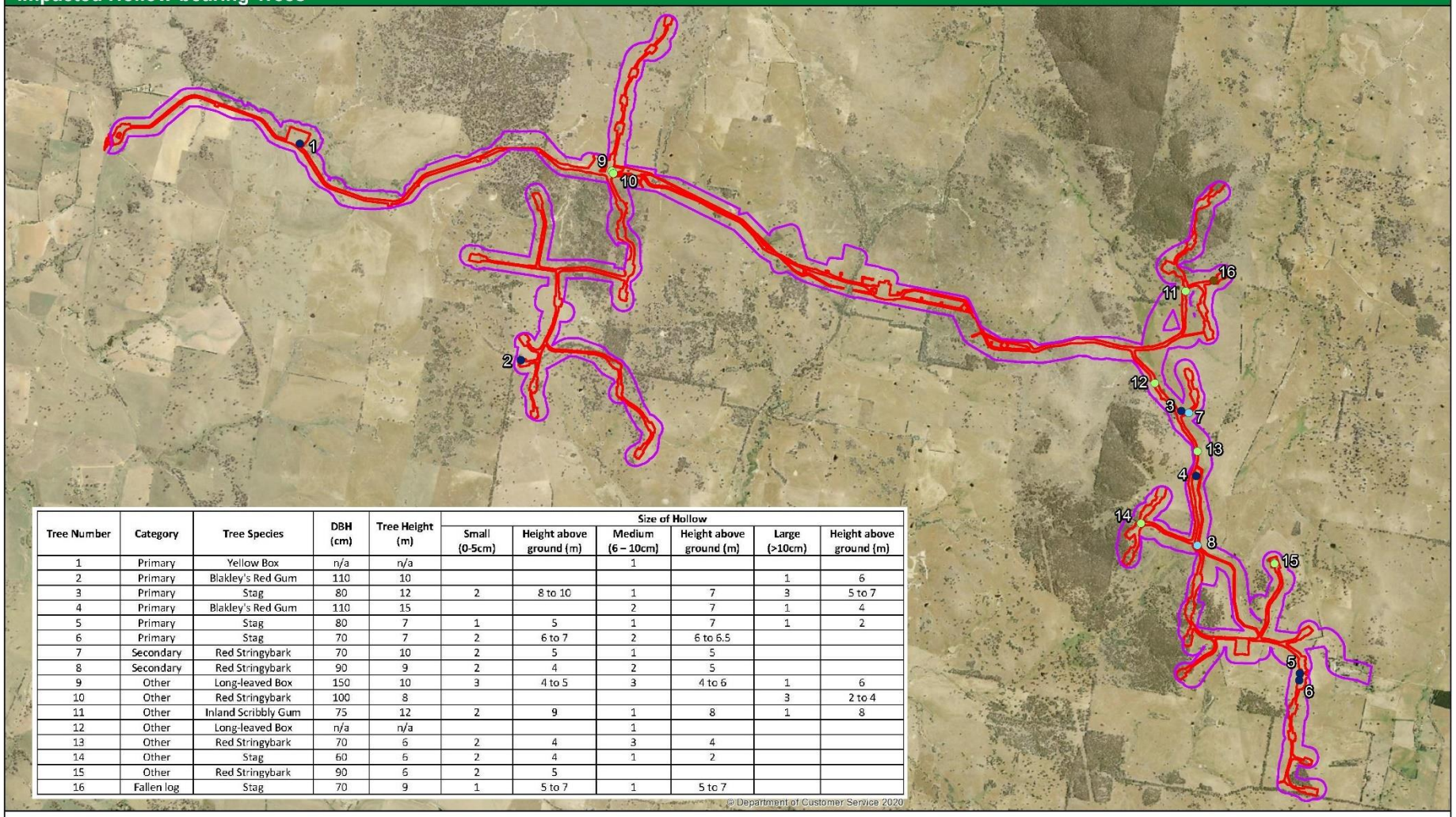
A TETRA TECH COMPANY
Prepared by: MF Date: 12/06/2020

Impacted Hollow-bearing Trees



Tree Number	Category	Tree Species	DBH (cm)	Tree Height (m)	Size of Hollow					
					Small (0-5cm)	Height above ground (m)	Medium (6 – 10cm)	Height above ground (m)	Large (>10cm)	Height above ground (m)
1	Primary	Yellow Box	n/a	n/a			1			
2	Primary	Blakley's Red Gum	110	10					1	6
3	Primary	Stag	80	12	2	8 to 10	1	7	3	5 to 7
4	Primary	Blakley's Red Gum	110	15			2	7	1	4
5	Primary	Stag	80	7	1	5	1	7	1	2
6	Primary	Stag	70	7	2	6 to 7	2	6 to 6.5		
7	Secondary	Red Stringybark	70	10	2	5	1	5		
8	Secondary	Red Stringybark	90	9	2	4	2	5		
9	Other	Long-leaved Box	150	10	3	4 to 5	3	4 to 6	1	6
10	Other	Red Stringybark	100	8					3	2 to 4
11	Other	Inland Scribbly Gum	75	12	2	9	1	8	1	8
12	Other	Long-leaved Box	n/a	n/a			1			
13	Other	Red Stringybark	70	6	2	4	3	4		
14	Other	Stag	60	6	2	4	1	2		
15	Other	Red Stringybark	90	6	2	5				
16	Fallen log	Stag	70	9	1	5 to 7	1	5 to 7		

Legend

- Final Impact Area (46 WTG)
- Development Corridor

Hollow-bearing Tree

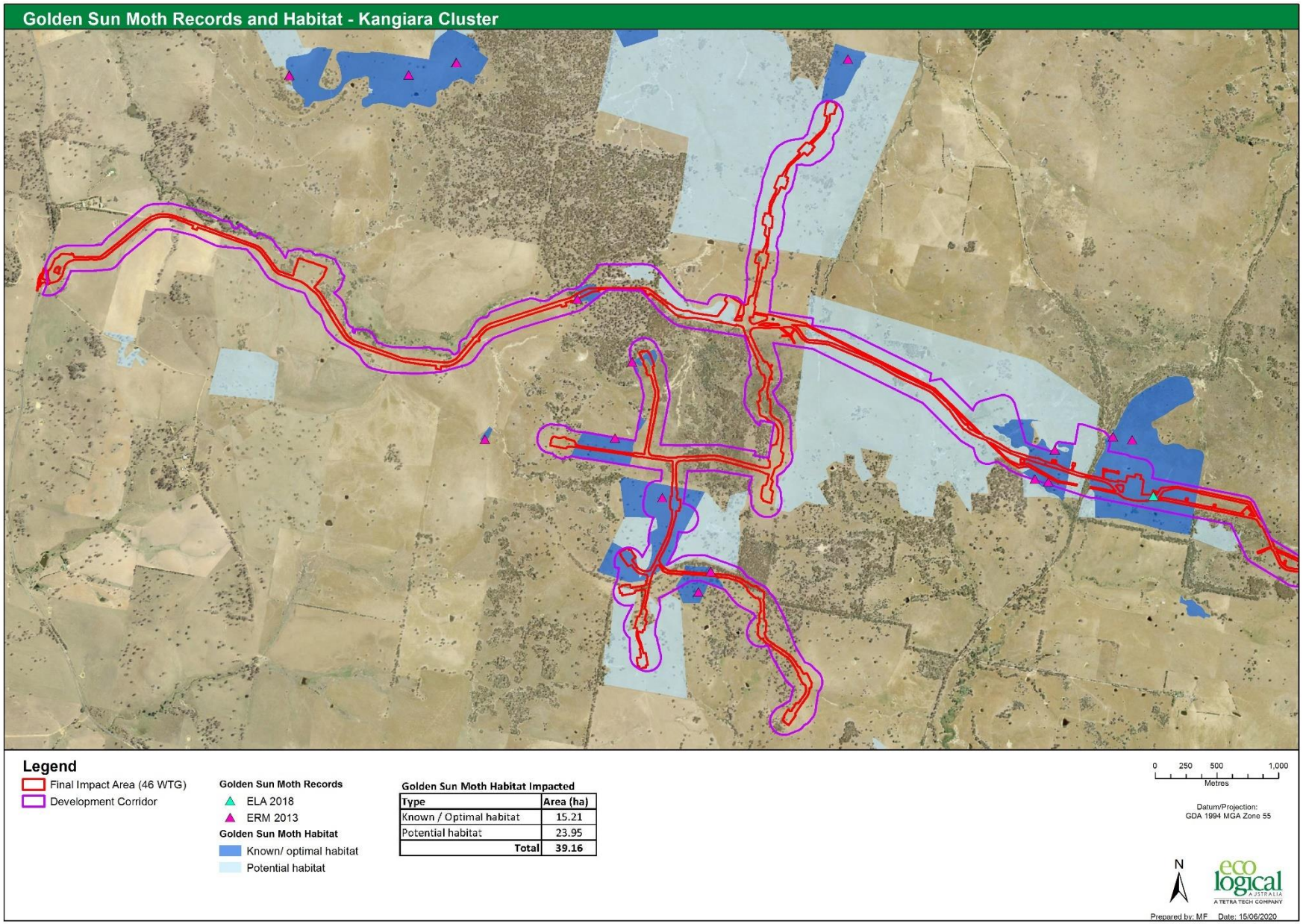
- Primary
- Secondary
- Other
- Fallen log

0 375 750 1,500
Metres

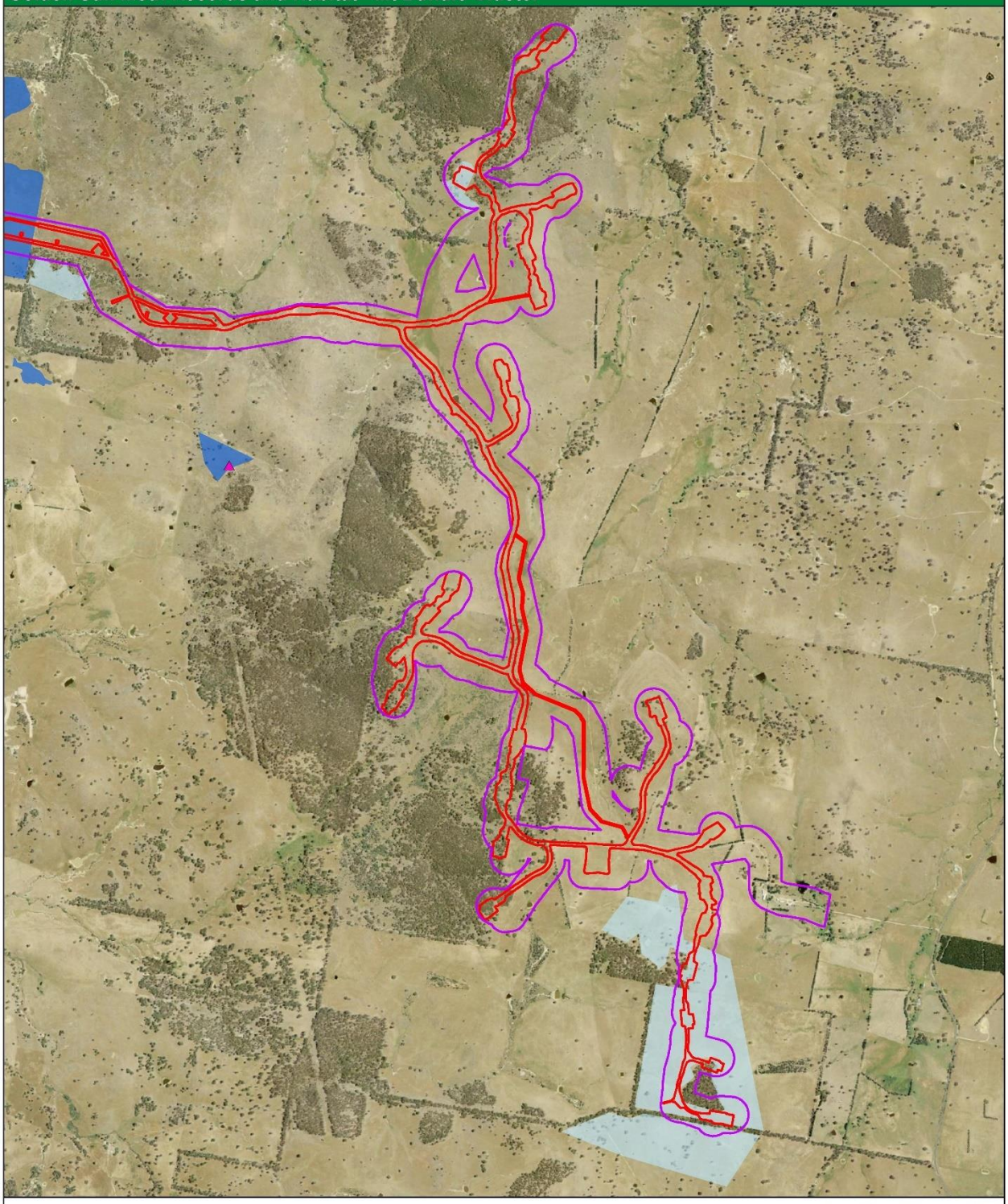
Datum/Projection:
GDA 1994 MGA Zone 55

N

Prepared by: MF Date: 16/06/2020


Golden Sun Moth Records and Habitat - Kangiara Cluster
Legend
Final Impact Area (46 WTG)
Development Corridor
Golden Sun Moth Records
ELA 2018
ERM 2013
Golden Sun Moth Habitat
Known/ optimal habitat
Potential habitat
Golden Sun Moth Habitat Impacted
Type | Area (ha)
Known / Optimal habitat | 15.21
Potential habitat | 23.95
Total | 39.16
0 250 500 1,000
Metres
Datum/Projection:
GDA 1994 MGA Zone 55
N
eco logical AUSTRALIA
A TETRA TECH COMPANY
Prepared by: MF Date: 15/06/2020

Golden Sun Moth Records and Habitat - Mt Buffalo Cluster



Legend

- Final Impact Area (46 WTG)
- Development Corridor

Golden Sun Moth Records

- ELA 2018
- ERM 2013

Golden Sun Moth Habitat

- Known/ optimal habitat
- Potential habitat

Golden Sun Moth Habitat Impacted

Type	Area (ha)
Known / Optimal habitat	15.21
Potential habitat	23.95
Total	**39.16**

0 250 500 1,000
Metres
Datum/Projection:
GDA 1994 MGA Zone 55

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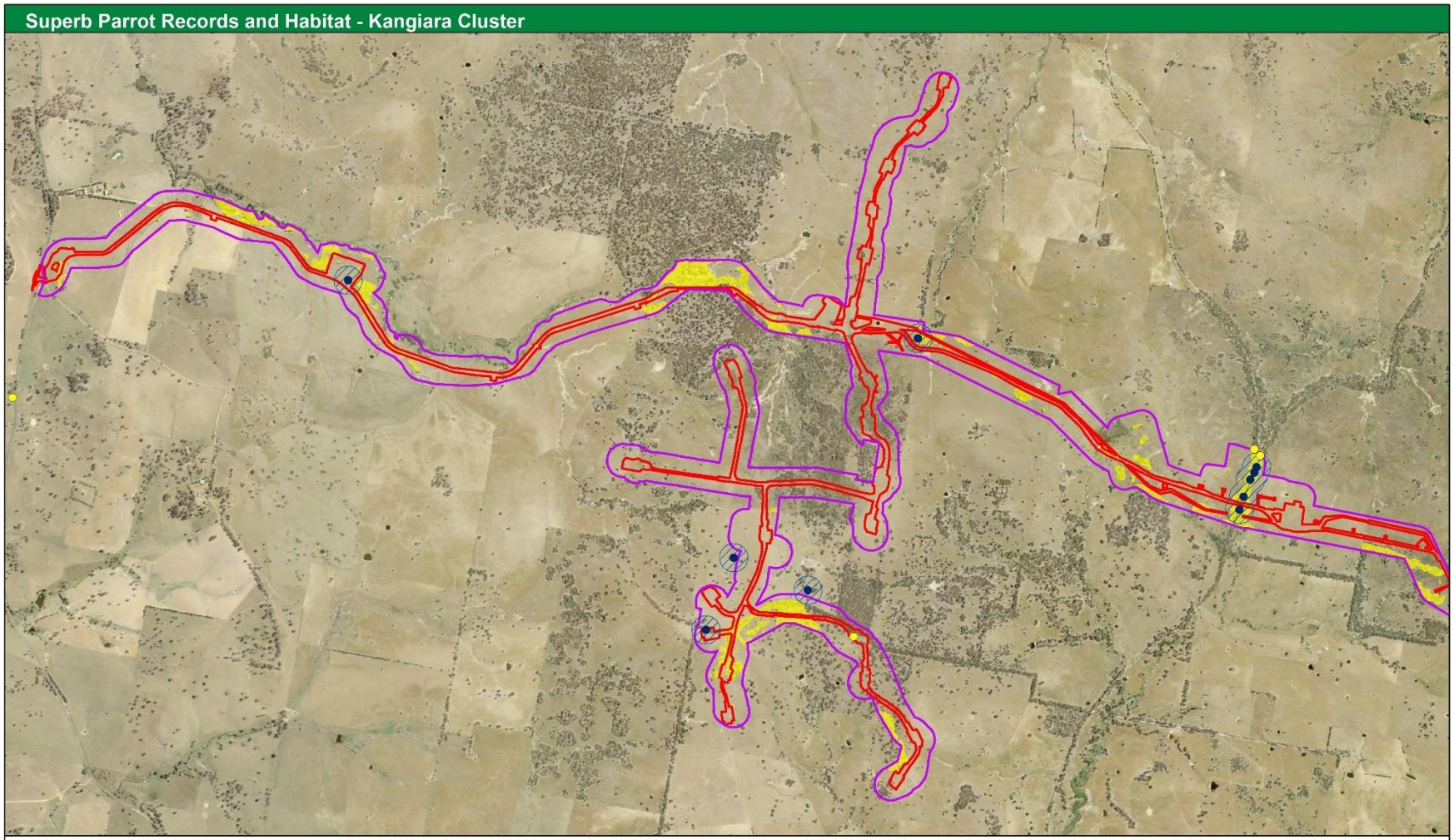
A TETRA TECH COMPANY

Prepared by: MF Date: 15/06/2020



Legend

- Final Impact Area (46 WTG)
- Development Corridor
- Superb Parrot habitat (EPBC Act)
- Superb Parrot potential breeding habitat (BC Act)
- Superb Parrot record (ERM 2013)
- Potential Superb Parrot nest site

Superb Parrot Habitat Impacted

Type	Area (ha)
Potential habitat (BC Act)	12.95
Potential habitat (EPBC Act)	6.58

0 250 500 1,000
Metres

Datum/Projection:
GDA 1994 MGA Zone 55

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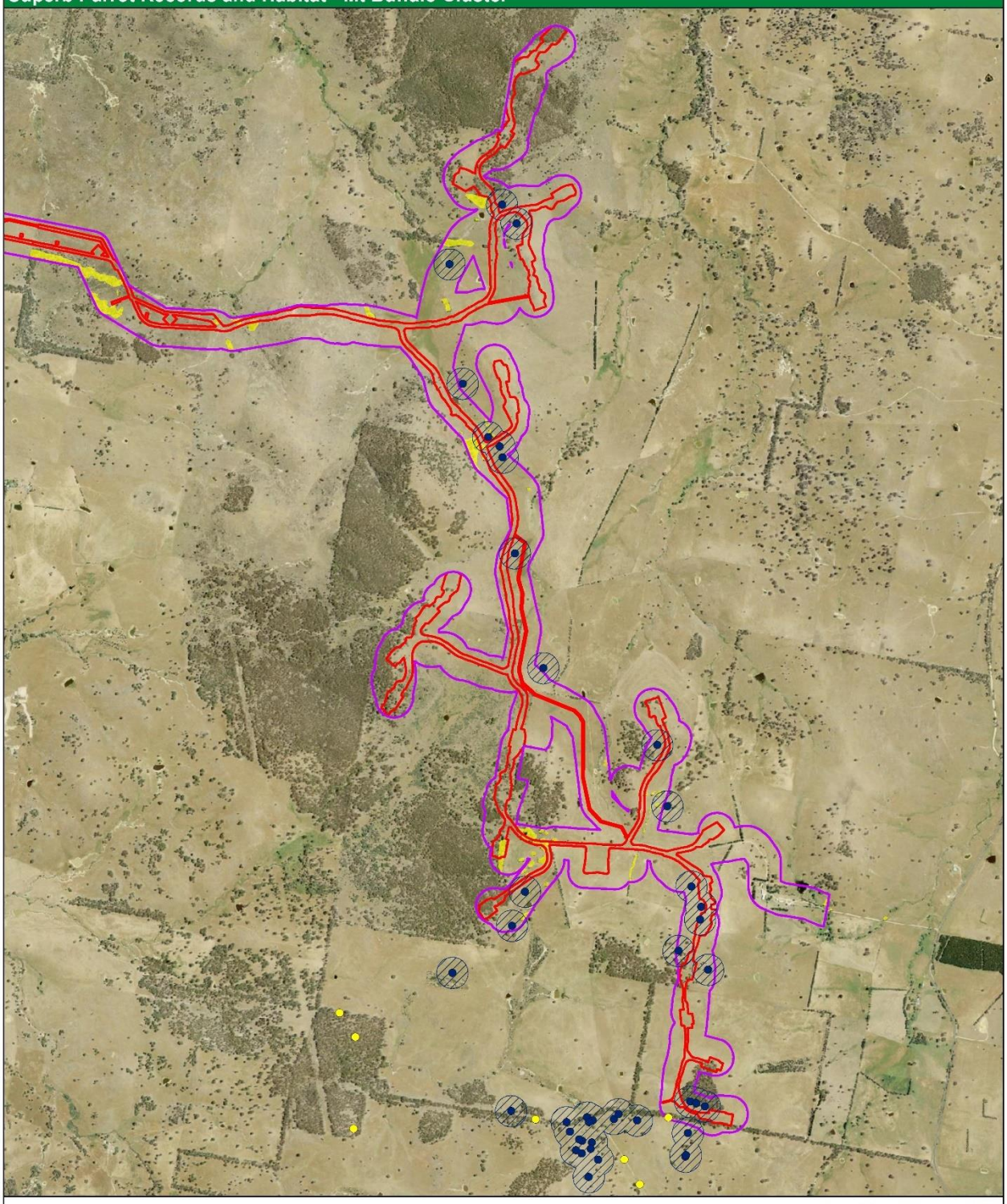
A TETRA TECH COMPANY

Prepared by: MF Date: 16/06/2020

Superb Parrot Records and Habitat - Mt Buffalo Cluster



Legend

- Final Impact Area (46 WTG)
- Development Corridor
- Superb Parrot habitat (EPBC Act)
- Superb Parrot potential breeding habitat (BC Act)
- Superb Parrot record (ERM 2013)
- Potential Superb Parrot nest site

Superb Parrot Habitat Impacted

Type	Area (ha)
Potential habitat (BC Act)	12.95
Potential habitat (EPBC Act)	6.58

0 250 500 1,000
Metres
Datum/Projection:
GDA 1994 MGA Zone 55

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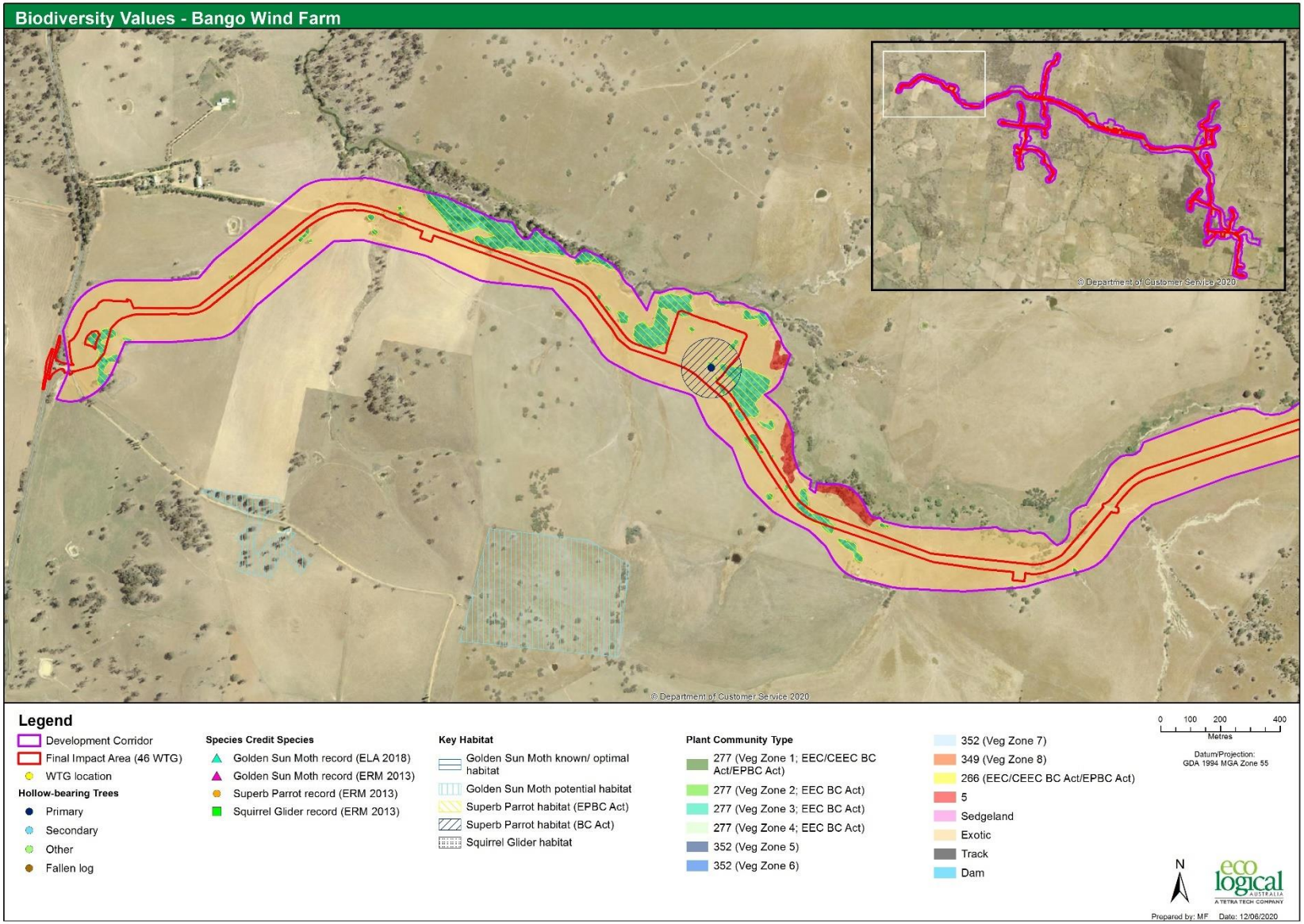
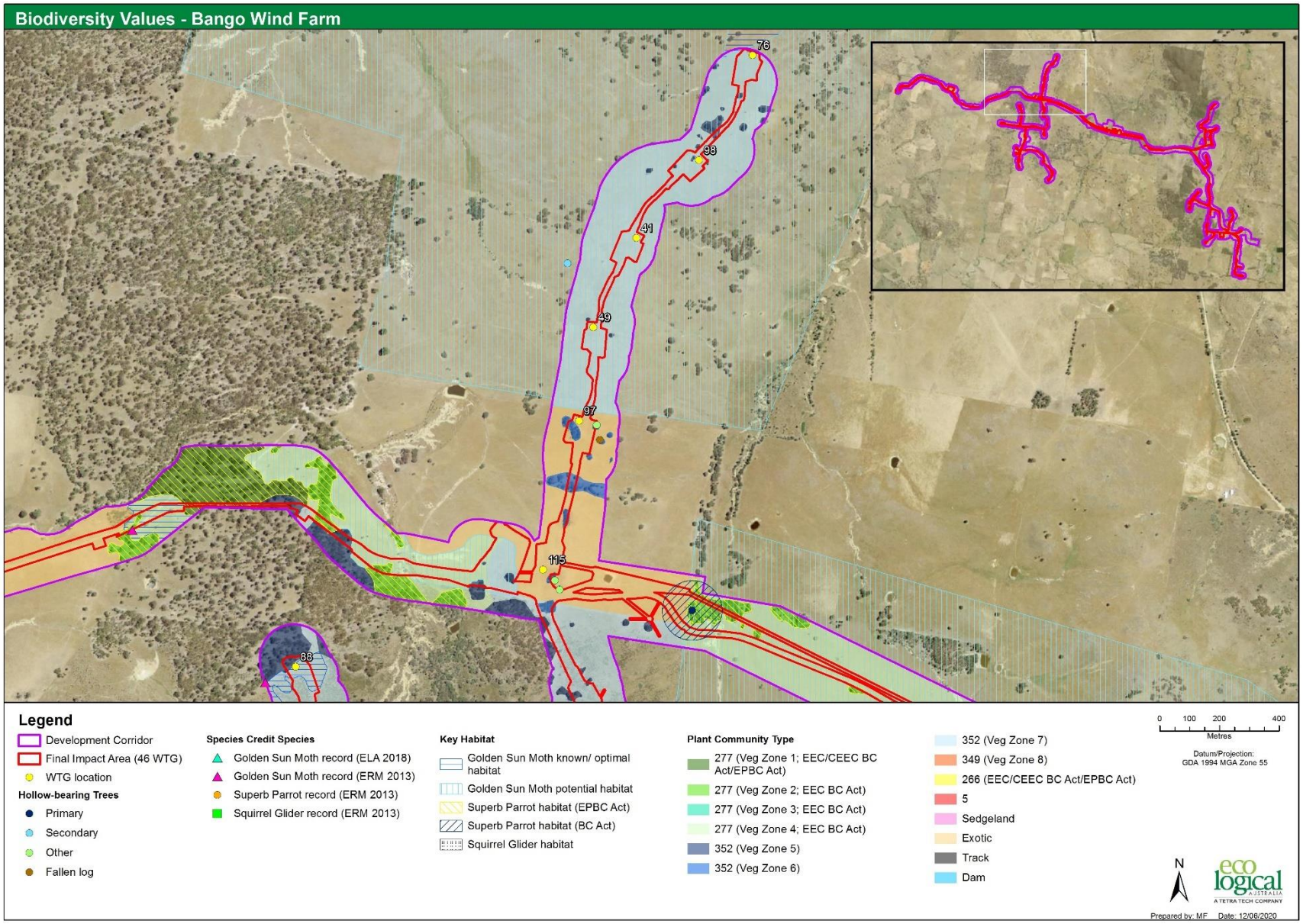
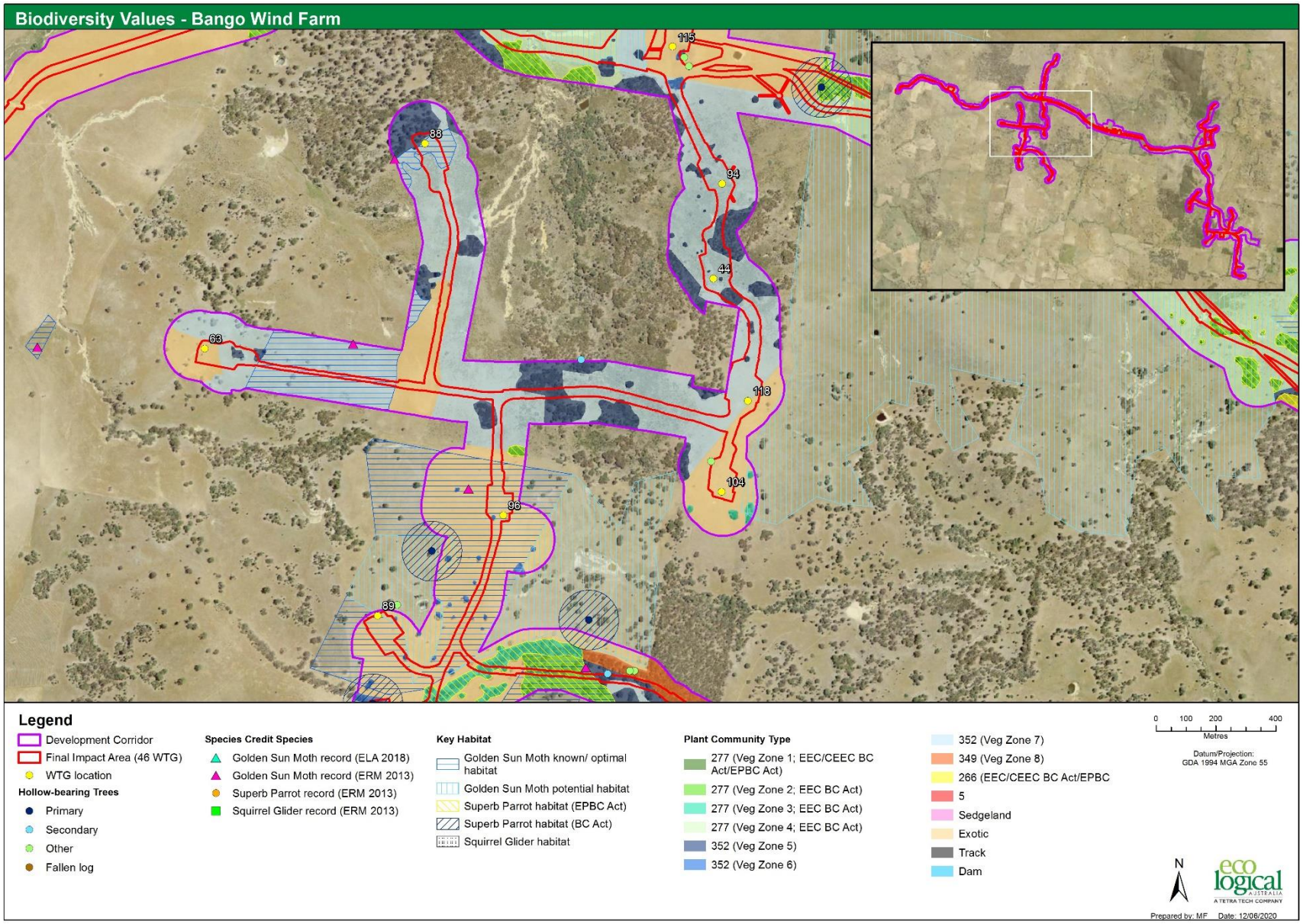
A TETRA TECH COMPANY

Prepared by: MF Date: 16/06/2020

Appendix B – Biodiversity Constraints Map




Biodiversity Values - Bango Wind Farm
76
98
41
49
97
115
88
Legend
Development Corridor
Final Impact Area (46 WTG)
WTG location
Hollow-bearing Trees
Primary
Secondary
Other
Fallen log
Species Credit Species
Golden Sun Moth record (ELA 2018)
Golden Sun Moth record (ERM 2013)
Superb Parrot record (ERM 2013)
Squirrel Glider record (ERM 2013)
Key Habitat
Golden Sun Moth known/ optimal habitat
Golden Sun Moth potential habitat
Superb Parrot habitat (EPBC Act)
Superb Parrot habitat (BC Act)
Squirrel Glider habitat
Plant Community Type
277 (Veg Zone 1; EEC/CEEC BC Act/EPBC Act)
277 (Veg Zone 2; EEC BC Act)
277 (Veg Zone 3; EEC BC Act)
277 (Veg Zone 4; EEC BC Act)
352 (Veg Zone 5)
352 (Veg Zone 6)
352 (Veg Zone 7)
349 (Veg Zone 8)
266 (EEC/CEEC BC Act/EPBC Act)
5
Sedgeland
Exotic
Track
Dam
0 100 200 400
Metres
Datum/Projection:
GDA 1994 MGA Zone 55
N
eco logical
AUSTRALIA
A TETRA TECH COMPANY
Prepared by: MF Date: 12/06/2020


Biodiversity Values - Bango Wind Farm
115
88
94
44
63
113
104
96
89
Legend
Development Corridor
Final Impact Area (46 WTG)
WTG location
Hollow-bearing Trees
Primary
Secondary
Other
Fallen log
Species Credit Species
Golden Sun Moth record (ELA 2018)
Golden Sun Moth record (ERM 2013)
Superb Parrot record (ERM 2013)
Squirrel Glider record (ERM 2013)
Key Habitat
Golden Sun Moth known/ optimal habitat
Golden Sun Moth potential habitat
Superb Parrot habitat (EPBC Act)
Superb Parrot habitat (BC Act)
Squirrel Glider habitat
Plant Community Type
277 (Veg Zone 1; EEC/CEEC BC Act/EPBC Act)
277 (Veg Zone 2; EEC BC Act)
277 (Veg Zone 3; EEC BC Act)
277 (Veg Zone 4; EEC BC Act)
352 (Veg Zone 5)
352 (Veg Zone 6)
352 (Veg Zone 7)
349 (Veg Zone 8)
266 (EEC/CEEC BC Act/EPBC
5
Sedgeland
Exotic
Track
Dam
0 100 200 400
Metres
Datum/Projection:
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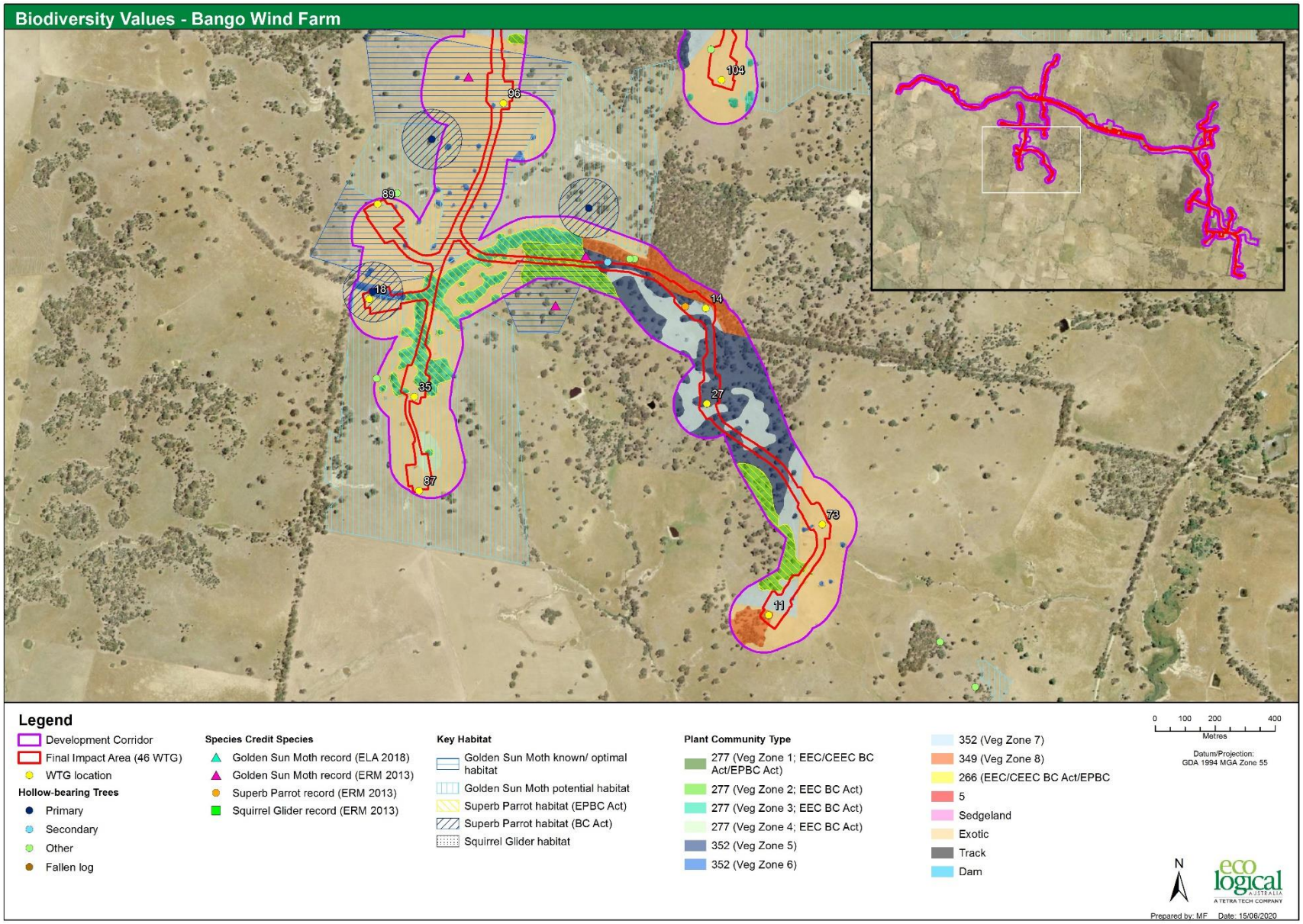
AUSTRALIA
A TETRA TECH COMPANY
Prepared by: MF Date: 12/06/2020


Biodiversity Values - Bango Wind Farm
104
96
89
18
14
35
27
87
73
11
Legend
Development Corridor
Final Impact Area (46 WTG)
WTG location
Hollow-bearing Trees
Primary
Secondary
Other
Fallen log
Species Credit Species
Golden Sun Moth record (ELA 2018)
Golden Sun Moth record (ERM 2013)
Superb Parrot record (ERM 2013)
Squirrel Glider record (ERM 2013)
Key Habitat
Golden Sun Moth known/ optimal habitat
Golden Sun Moth potential habitat
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Superb Parrot habitat (BC Act)
Squirrel Glider habitat
Plant Community Type
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277 (Veg Zone 2; EEC BC Act)
277 (Veg Zone 3; EEC BC Act)
277 (Veg Zone 4; EEC BC Act)
352 (Veg Zone 5)
352 (Veg Zone 6)
352 (Veg Zone 7)
349 (Veg Zone 8)
266 (EEC/CEEC BC Act/EPBC
5
Sedgeland
Exotic
Track
Dam
0 100 200 400
Metres
Datum/Projection:
GDA 1994 MGA Zone 55
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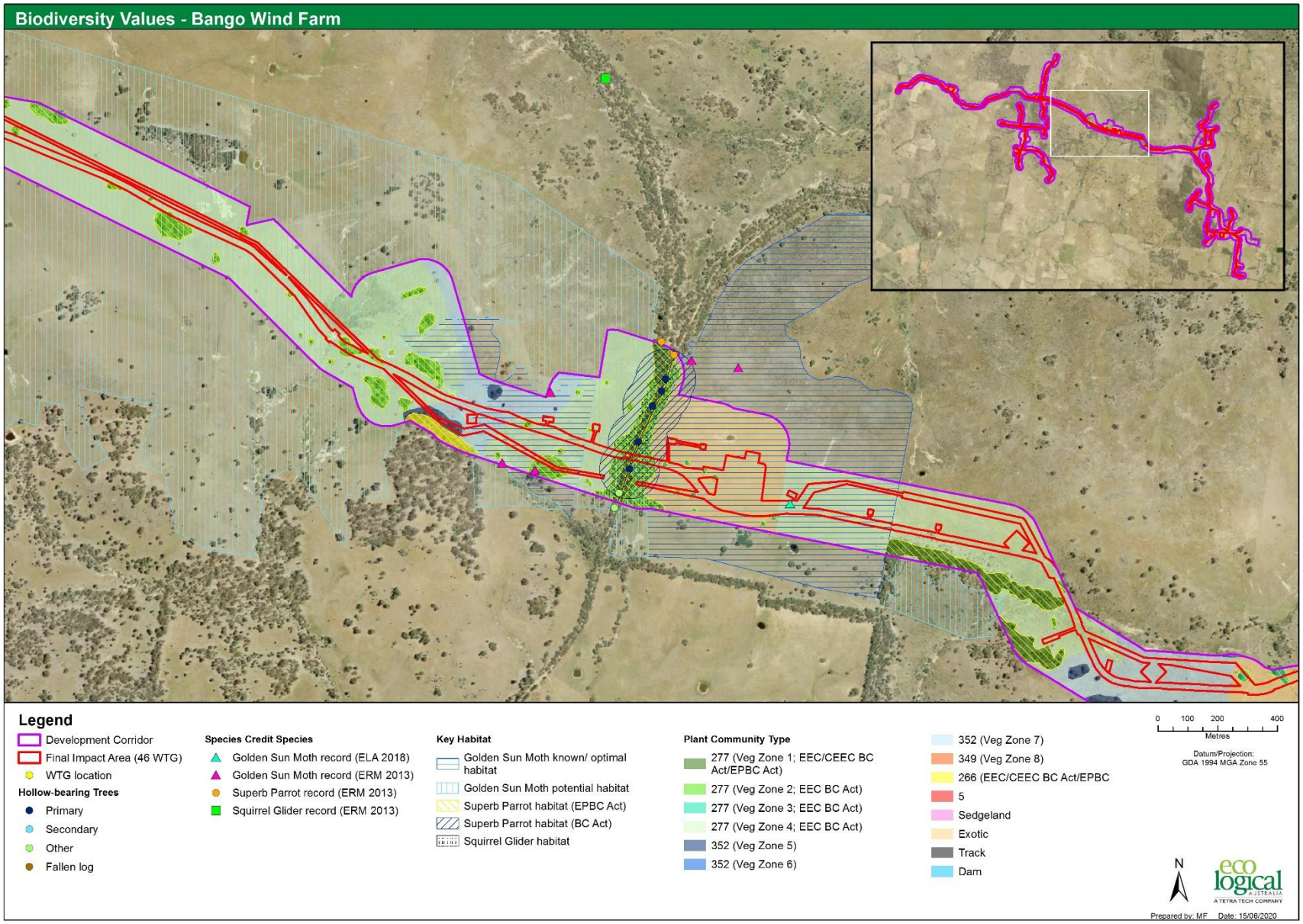
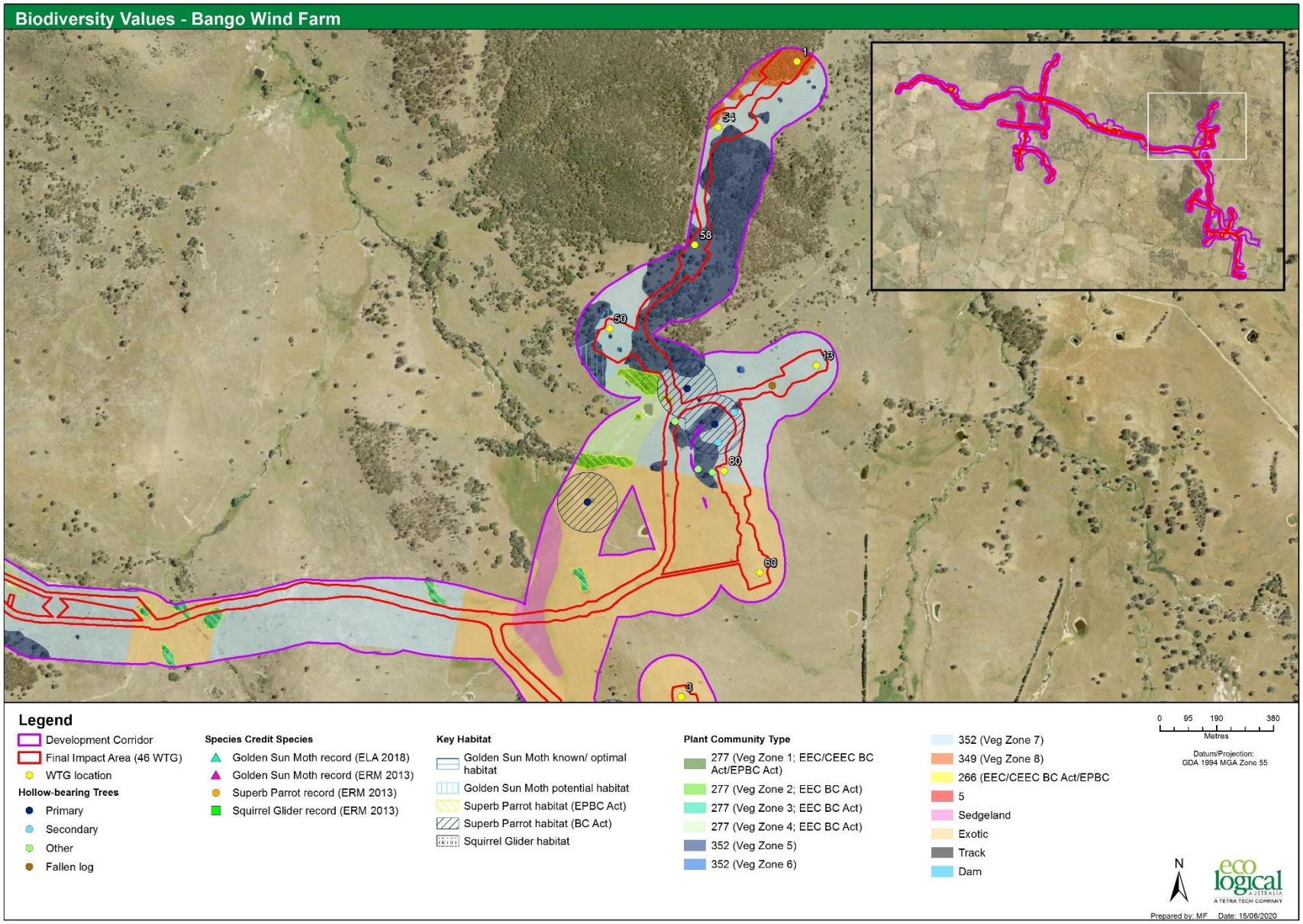
eco logical
A TETRA TECH COMPANY
Prepared by: MF Date: 15/06/2020


Biodiversity Values - Bango Wind Farm
Legend
Development Corridor
Final Impact Area (46 WTG)
WTG location
Hollow-bearing Trees
Primary
Secondary
Other
Fallen log
Species Credit Species
Golden Sun Moth record (ELA 2018)
Golden Sun Moth record (ERM 2013)
Superb Parrot record (ERM 2013)
Squirrel Glider record (ERM 2013)
Key Habitat
Golden Sun Moth known/ optimal habitat
Golden Sun Moth potential habitat
Superb Parrot habitat (EPBC Act)
Superb Parrot habitat (BC Act)
Squirrel Glider habitat
Plant Community Type
277 (Veg Zone 1; EEC/CEEC BC Act/EPBC Act)
277 (Veg Zone 2; EEC BC Act)
277 (Veg Zone 3; EEC BC Act)
277 (Veg Zone 4; EEC BC Act)
352 (Veg Zone 5)
352 (Veg Zone 6)
352 (Veg Zone 7)
349 (Veg Zone 8)
266 (EEC/CEEC BC Act/EPBC
5
Sedgeland
Exotic
Track
Dam
0 100 200 400
Metres
Datum/Projection:
GDA 1994 MGA Zone 55
N
eco logical
AUSTRALIA
A TETRA TECH COMPANY
Prepared by: MF Date: 15/06/2020


Biodiversity Values - Bango Wind Farm
1
34
58
50
13
80
60
3
Legend
Development Corridor
Final Impact Area (46 WTG)
WTG location
Hollow-bearing Trees
Primary
Secondary
Other
Fallen log
Species Credit Species
Golden Sun Moth record (ELA 2018)
Golden Sun Moth record (ERM 2013)
Superb Parrot record (ERM 2013)
Squirrel Glider record (ERM 2013)
Key Habitat
Golden Sun Moth known/ optimal habitat
Golden Sun Moth potential habitat
Superb Parrot habitat (EPBC Act)
Superb Parrot habitat (BC Act)
Squirrel Glider habitat
Plant Community Type
277 (Veg Zone 1; EEC/CEEC BC Act/EPBC Act)
277 (Veg Zone 2; EEC BC Act)
277 (Veg Zone 3; EEC BC Act)
277 (Veg Zone 4; EEC BC Act)
352 (Veg Zone 5)
352 (Veg Zone 6)
352 (Veg Zone 7)
349 (Veg Zone 8)
266 (EEC/CEEC BC Act/EPBC
5
Sedgeland
Exotic
Track
Dam
0 95 190 380
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Datum/Projection:
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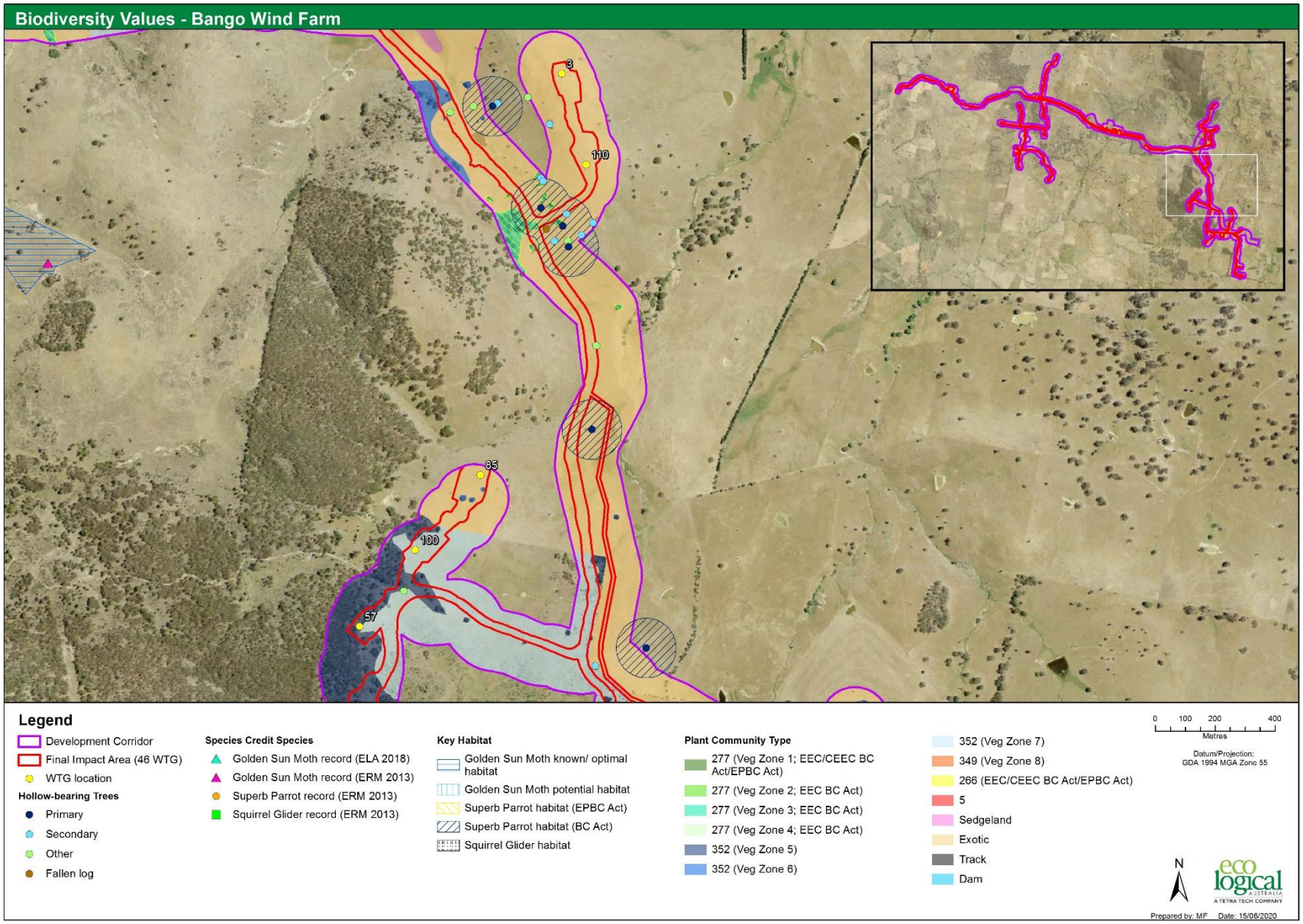
Biodiversity Values - Bango Wind Farm
3
110
85
100
57
Legend
Development Corridor
Final Impact Area (46 WTG)
WTG location
Hollow-bearing Trees
Primary
Secondary
Other
Fallen log
Species Credit Species
Golden Sun Moth record (ELA 2018)
Golden Sun Moth record (ERM 2013)
Superb Parrot record (ERM 2013)
Squirrel Glider record (ERM 2013)
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277 (Veg Zone 4; EEC BC Act)
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352 (Veg Zone 6)
352 (Veg Zone 7)
349 (Veg Zone 8)
266 (EEC/CEEC BC Act/EPBC Act)
5
Sedgeland
Exotic
Track
Dam
0 100 200 400
Metres
Datum/Projection:
GDA 1994 MGA Zone 55
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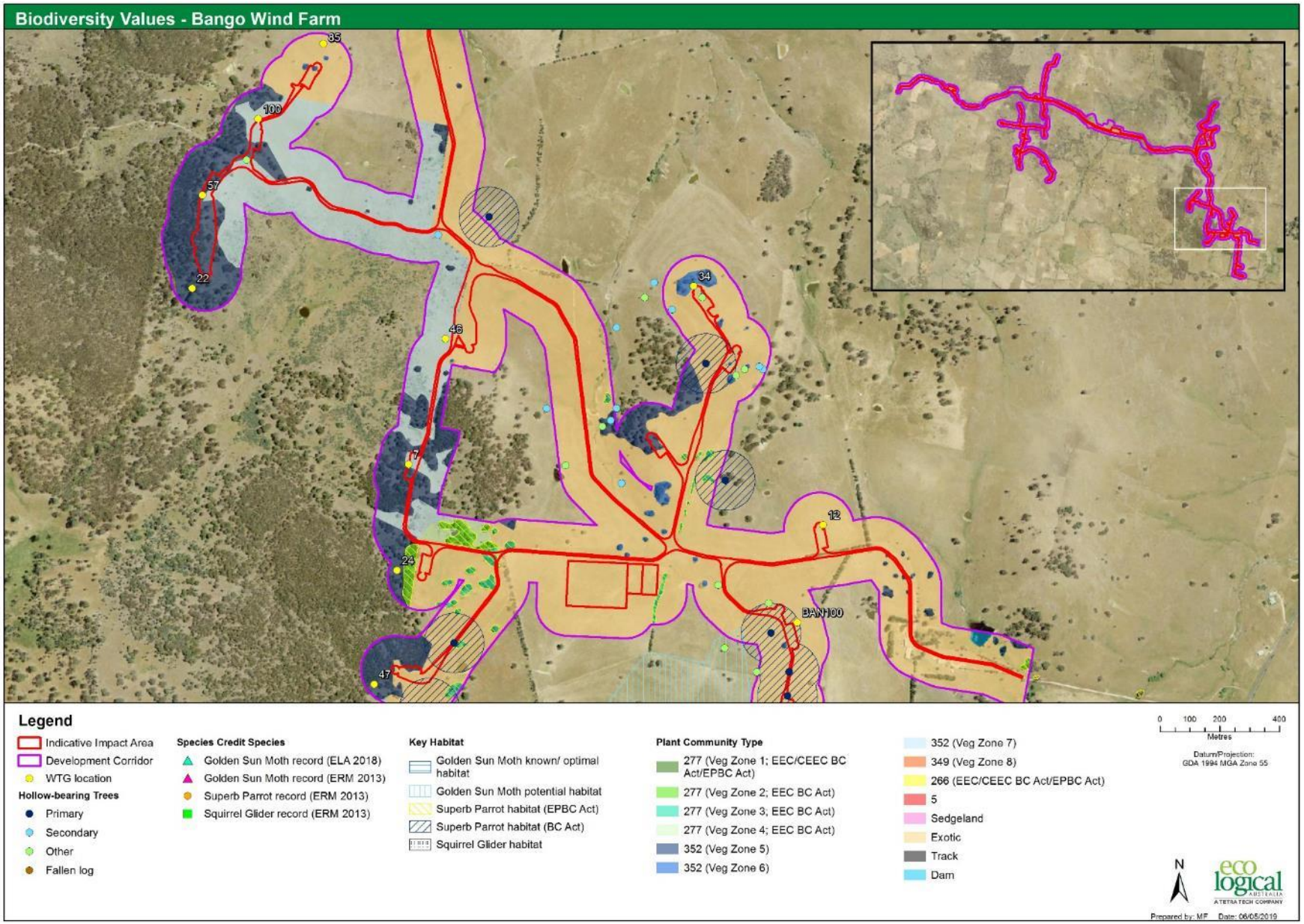
eco logical
AUSTRALIA
A TETRA TECH COMPANY
Prepared by: MF Date: 15/06/2020


Biodiversity Values - Bango Wind Farm
85
100
57
22
46
34
7
24
12
BAN100
47
Legend
Indicative Impact Area
Development Corridor
WTG location
Hollow-bearing Trees
Primary
Secondary
Other
Fallen log
Species Credit Species
Golden Sun Moth record (ELA 2018)
Golden Sun Moth record (ERM 2013)
Superb Parrot record (ERM 2013)
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277 (Veg Zone 2; EEC BC Act)
277 (Veg Zone 3; EEC BC Act)
277 (Veg Zone 4; EEC BC Act)
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352 (Veg Zone 6)
352 (Veg Zone 7)
349 (Veg Zone 8)
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5
Sedgeland
Exotic
Track
Dam
0 100 200 400
Metres
Datum/Projection:
GDA 1994 MGA Zone 55
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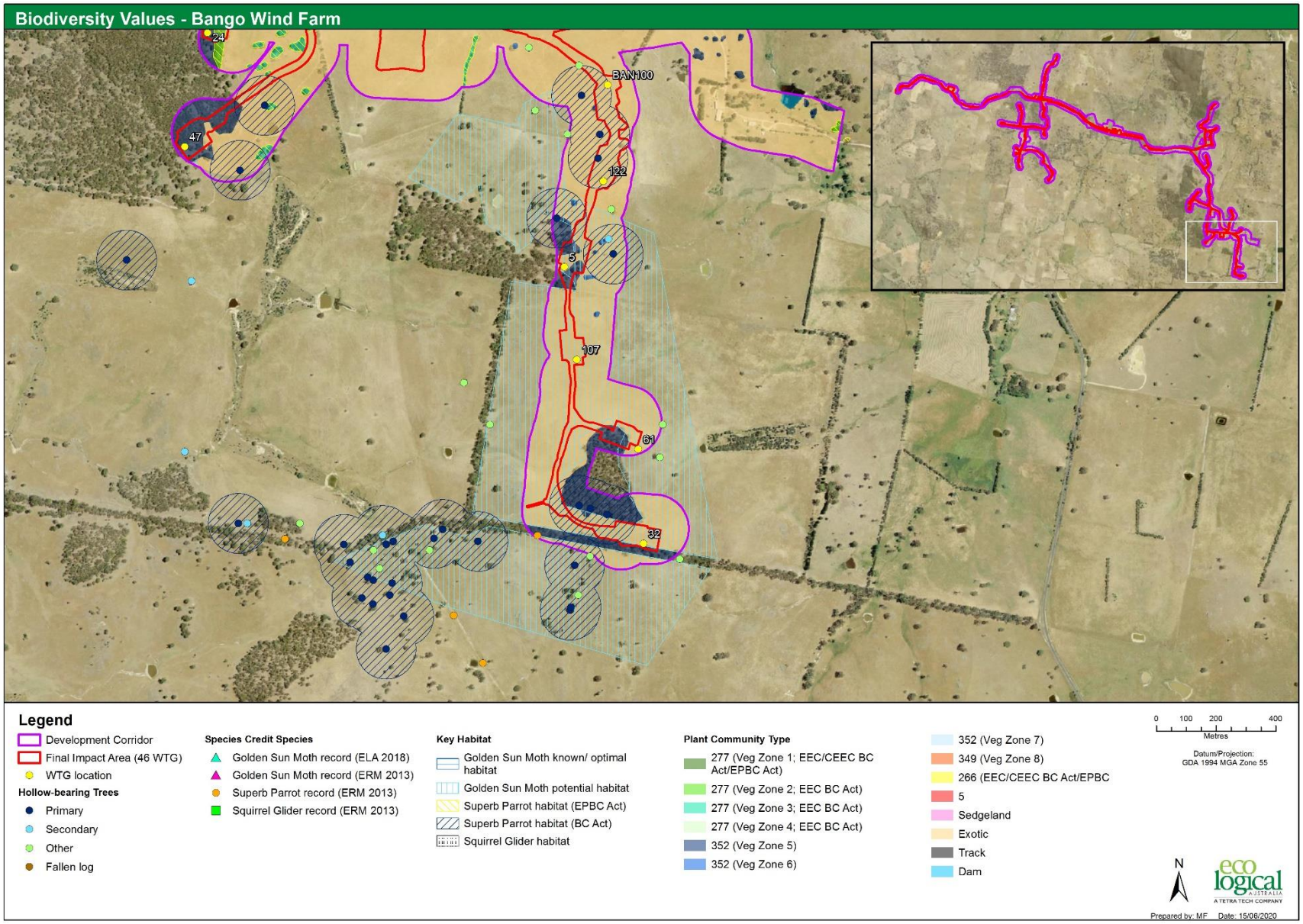
eco logical
AUSTRALIA
A TETRA TECH COMPANY
Prepared by: MF Date: 06/05/2019


Biodiversity Values - Bango Wind Farm
24
47
BAN100
122
5
107
61
32
Legend
Development Corridor
Final Impact Area (46 WTG)
WTG location
Hollow-bearing Trees
Primary
Secondary
Other
Fallen log
Species Credit Species
Golden Sun Moth record (ELA 2018)
Golden Sun Moth record (ERM 2013)
Superb Parrot record (ERM 2013)
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