Attachment 1

Ecological Constraints Analysis

JWA PTY LTD
Ecological Consultants
ABN 56 066 448 879

ECOLOGICAL CONSTRAINTS ANALYSIS

Mountain Ash Road, Gundary

A report prepared for
Windellama Road Pty Ltd & GTSMF Pty Ltd

OCTOBER 2021

JWA Pty Ltd

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ABBREVIATIONS

Abbreviation	Description
BAM	Biodiversity Assessment Method
BC Act	NSW Biodiversity Conservation Act 2016
BCR	Biodiversity Conservation Regulation 2017
BOS	Biodiversity Offset Scheme
BVM	Biodiversity Values Map
DAWE	Australian Government Department of Agriculture, Water and the Environment
DoPIE	Department of Planning, Industry and Environment
DotE	Department of the Environment
ECA	Ecological Constraints Analysis
EEC	Endangered Ecological Community
EPA Act	NSW Environmental Planning and Assessment Act 1979
EPBC Act	Environment Protection and Biodiversity Conservation Act 1999
GWC	Goulburn Mulwaree Council
GWLEP	Goulburn Mulwaree Local Environmental Plan 2009
GWLGA	Goulburn Mulwaree Local Government Area
Ha	Hectare
JWA Pty Ltd	JWA Ecological Consultants Pty Ltd
Km	Kilometre
LEP	Local Environmental Plan
LGA	Local Government Area
LLS Act	Local Land Services Act 2013
m	Metres
mm	Millimetres
MNES	Matters of National Environmental Significance
NSW	New South Wales
PKFT	Preferred Koala Food Tree
PMST	Protected Matters Search Tool
RU	Primary Production zoning
SEPP	State Environmental Protection Policy
TEC	Threatened Ecological Community
TSSC	Threatened Species Scientific Committee

1 INTRODUCTION

1.1 Background

JWA Pty Ltd was engaged by Windellama Road Pty Ltd & GTSMF Pty Ltd to complete an Ecological Constraints Analysis (ECA) of a parcel of land on Mountain Ash Road, Gundary, New South Wales (NSW) (hereafter referred to as the 'subject site').

The ECA involved a desktop review was undertaken to identify any Commonwealth, State and Local environmental constraints that may apply to the subject site. These include, but may not be limited to the following:

- the presence of any Commonwealth, State and/or Locally threatened vegetation / ecological communities;
- the presence of, or likelihood of occurrence of any Commonwealth, State and/or Locally threatened flora and fauna species; and
- habitat and corridor values at a local and regional scale.

Based on the outcomes of the ECA, any ecological constraints occurring on the subject site were identified to assist in planning for a proposed re-zoning for a rural residential development. Ecological constraints were allocated to a category ranging from high to low depending upon the following assessment criteria:

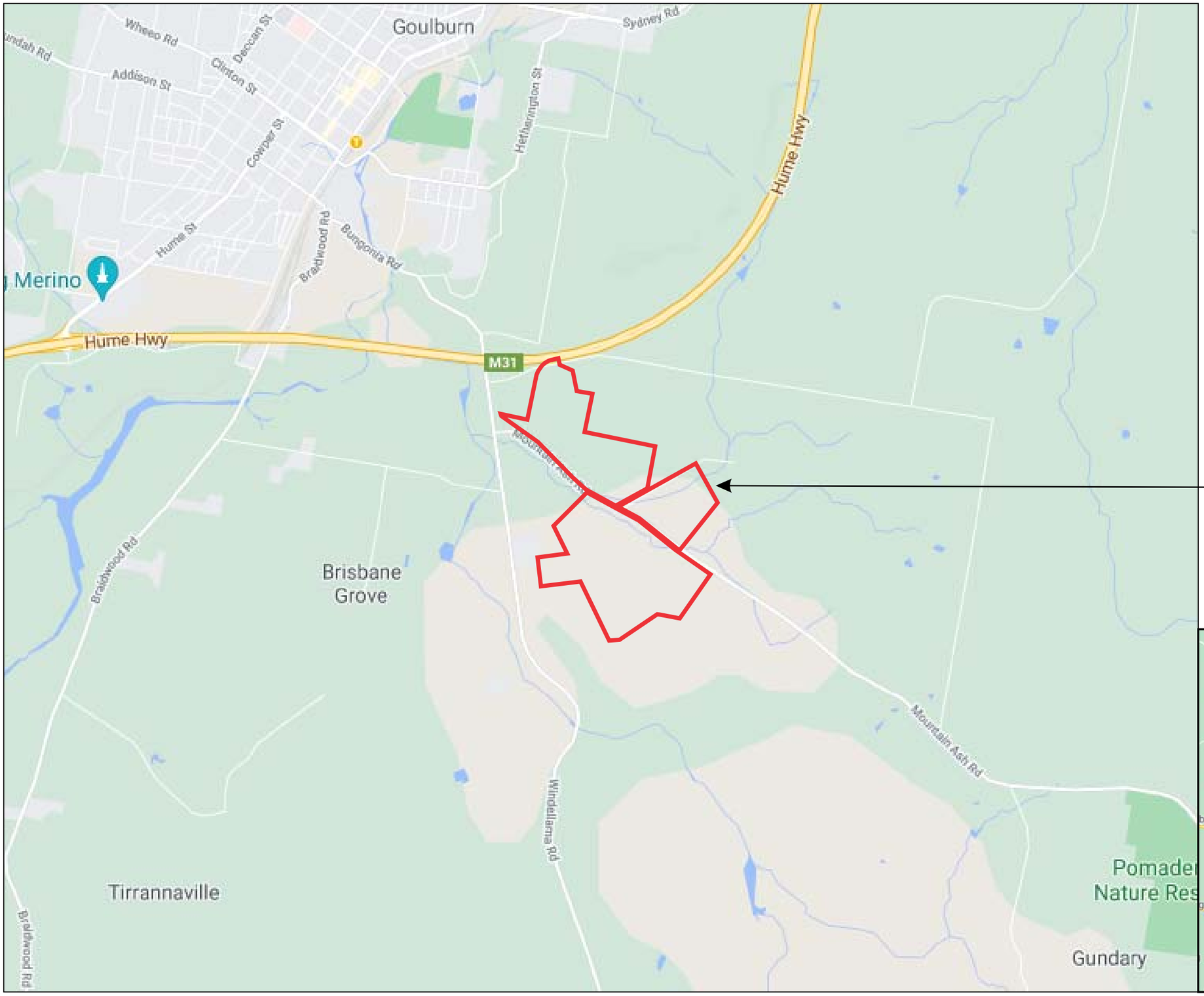
- Presence of significant flora species;
- Presence of significant vegetation communities/ecosystems;
- Presence of significant fauna species and/or their habitat; and
- Recognition of environmental values in planning and policy documents.

1.2 The subject site

The subject site is ~265 ha in size and is formally identified as the following (**FIGURE 1**):

- Lot 1 on DP779194
- Lot 1 on DP731427
- Lot 1 on DP853498
- Lot 103 on DP70346
- Lots 1, 2, 3, on DP835278
- Lots 22, 23, 24 on DP811954
- Lot 104, 105, 106 on DP126140

The subject site is located ~2-5 km to the south, southeast of regional city of Goulburn, NSW. The subject site is bounded entirely by a cleared and managed landscape utilised for rural residential, agricultural and/or grazing purposes. The Goulburn airport is ~1 km to the southwest of the subject site. An aerial photograph of the site is shown in **FIGURE 2**.



LEGEND
Subject Site

SUBJECT SITE

INSET NOT TO SCALE

0 1km
1 : 40 000

SOURCE: Google Maps

SCALE: 1 : 40 000 @ A3

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Ecological Constraints Analysis
Mountain Ash Road, Gundary NSW
Goulburn Mulwaree Council LGA

FIGURE 1

PREPARED: BW
DATE: 21 April 2021
FILE: N21007_Locality.cdr

TITLE

LOCALITY PLAN

N

LEGEND
Subject Site

0 500m
1 : 12 500

SOURCE: Google Earth Aerial dated Feb 2021

SCALE: 1 : 12 500 @ A3

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FIGURE 2

PREPARED: BW
DATE: 21 April 2021
FILE: N21007_Aerial.cdr

TITLE

AERIAL PHOTOGRAPH

The subject site is characterised by flat to slightly undulating terrain dominated by cleared and historical managed grassland, with minimal native forest cover. There are numerous stock dams present, along with watercourses / drainage lines traversing the subject site from Gundary Creek to the west.

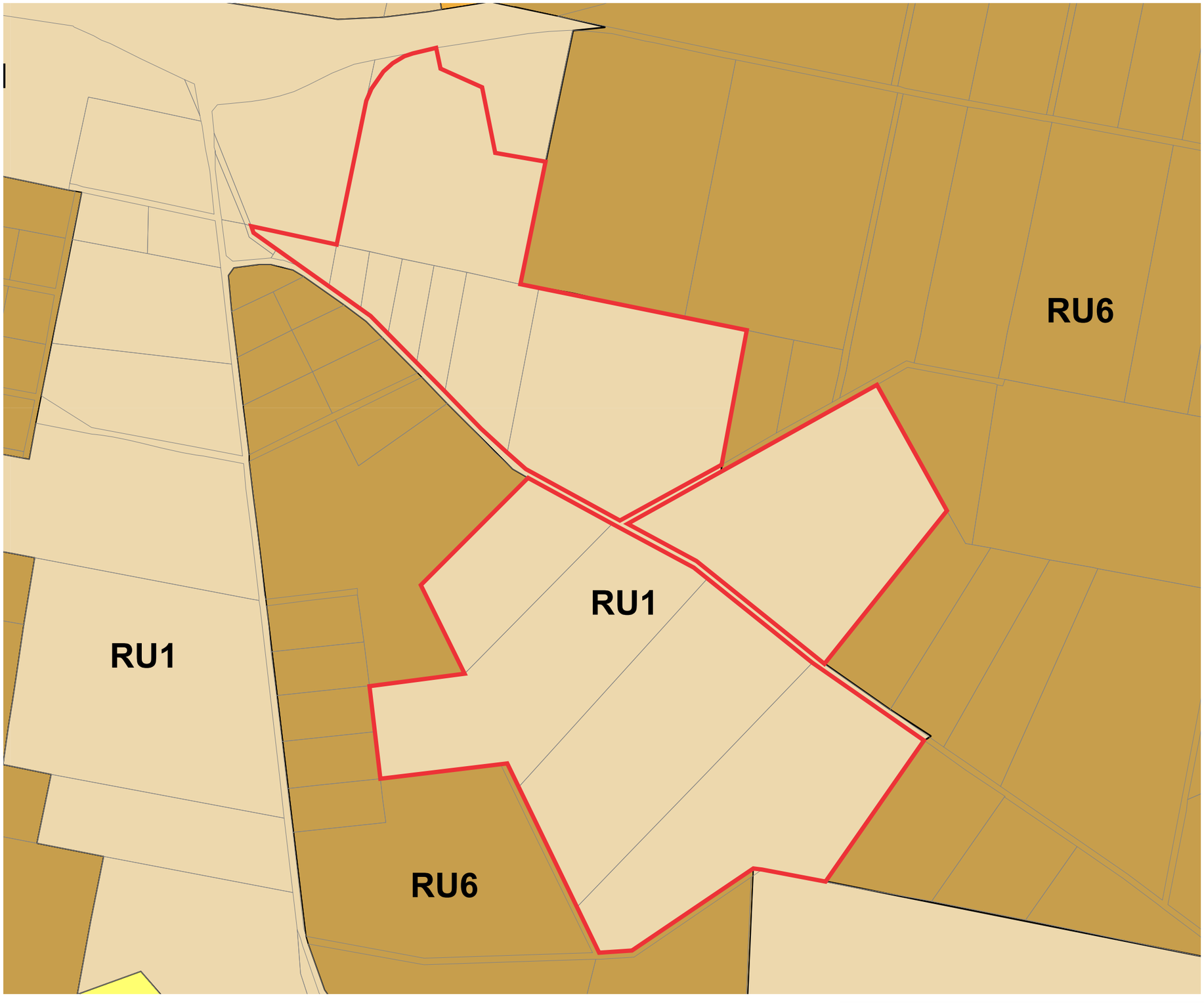
1.3 Planning context

The subject site is located within the Goulburn Mulwaree Local Government Area (GWLGA) and is zoned as Primary Production (RU1)[1] under the *Goulburn Mulwaree Local Environmental Plan 2012* (GWLEP) (GMC 2009) (**FIGURE 3**).

1.4 The proposed development

It is understood that the landowner is proposing to lodge a rezoning proposal for a rural residential subdivision of the subject site.

[1] Land zoning map – sheet LZN_004C



LEGEND

Subject Site

Goulburn Mulwaree LEP 2009

- E2 - Environmental Conservation
- RE1 - Public Recreation
- RU1 - Primary Production
- RU2 - Rural Landscape
- RU6 - Transition
- SP2 - Infrastructure (Airport)

0 500m

1 : 12 500

SOURCE: Goulburn Mulwaree LEP 2009
Land Zoning Map LZN_001

SCALE: 1 : 12 500 @ A3

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FIGURE 3

PREPARED: BW
DATE: 21 April 2021
FILE: N21007_Zoning.cdr

TITLE

ZONING MAP

2 DESKTOP ASSESSMENT

2.1 Introduction

A desktop assessment was completed to highlight any potential conservation significant vegetation communities, any potential habitat for threatened flora and fauna, and any ecologically sensitive areas on the subject site. The desktop assessment included a review of:

- State and Commonwealth databases;
- Commonwealth legislation;
- NSW plans, policies and legislation;
- Goulburn Mulwaree Council (GWC) plans and policies; and
- Scientific journal articles and botanical literature to assist with habitat suitability assessments.

2.2 Methods

2.2.1 Commonwealth Database Searches

The Protected Matters Search Tool (PMST) was used to generate a list of the following Matters of National Environmental Significance (MNES) protected under the Commonwealth *Environment Protection Biodiversity and Conservation Act 1999* (EPBC Act) that may occur within 10 km of the subject site:

- world heritage and national heritage areas;
- wetlands of international significance (Ramsar Wetlands);
- Commonwealth marine areas;
- threatened ecological communities;
- threatened species; and
- migratory species.

The PMST database incorporates information from a range of sources, including government agencies, research, and community organisations. It should be noted that there are limitations on the accuracy of some matters reported by the PMST. Database records of threatened and migratory species are based on their current known distribution and do not necessarily correlate to an actual observation. As a result, these records are an indicator of potential presence only and do not consider if suitable vegetation, geology, soil, climate, or habitat types are present to support the occurrence of a species or community.

2.2.2 State Database Searches

The NSW Department of Planning, Industry and Environment (DoPIE) BioNet online database is based on collated biodiversity data acquired by the NSW Government through a range of sources including specimen collections, research and monitoring programs, and community

wildlife groups. A BioNet database search was used to generate a list of threatened flora and fauna species listed under the NSW *Biodiversity Conservation Act* 2016 (BC Act) that may occur within 10 km of the subject site.

2.2.3 State government mapping

2.2.3.1 Background

The following relevant environmental mapping was reviewed as part of the desktop assessment:

- Biodiversity Values Map; and
- Native Vegetation Regulatory Map.

2.2.3.2 Biodiversity Values Map

The Biodiversity Values Map identifies land with high biodiversity value, as defined by clause 7.3(3) of the *Biodiversity Conservation Regulation 2017* (BCR). The Biodiversity Offsets Scheme applies to all clearing of native vegetation and other biodiversity impacts prescribed by clause 6.1 of the BCR (i.e. all local developments, major projects or the clearing of native vegetation where the Vegetation SEPP applies) on land identified on the map.

2.2.3.3 Native Vegetation Regulatory Map

The Native Vegetation Regulatory (NVR) Map was prepared by OEH under Part 5A of the amended *Local Land Services Act 2013* (LLS Act) and supporting regulation. The NVR Map is a tool to give landholders certainty when planning future management of their land.

The NVR Map generally covers rural land in NSW. It categorises land where management of native vegetation can occur without approval or where management of native vegetation may be carried out in accordance with Part 5A of the LLS Act.

2.2.4 Local government plans and mapping

The GMLEP was made under the *Environmental Planning and Assessment Act 1979*, and among other things, aims to achieve the following:

- *to protect and promote the use and development of land for arts and cultural activity, including music and other performance arts;*
- *to promote and co-ordinate the orderly and economic use and development of land in the area;*
- *to provide a framework for the Council to carry out its responsibility for environmental planning provisions and facilitate the achievement of the objectives of this Plan;*
- *to encourage the sustainable management, development and conservation of natural resources;*

- *to promote the use of rural resources for agriculture and primary production and related processing service and value adding industries;*
- *to protect and conserve the environmental and cultural heritage of Goulburn Mulwaree,*
- *to enhance and provide a range of housing opportunities in, and the residential and service functions of, the main towns and villages in Goulburn Mulwaree;*
- *to establish a framework for the timing and staging of development on certain land in Goulburn and Marulan;*
- *to provide a range of housing opportunities, including large lot residential development in the vicinity of the villages;*
- *to allow development only if it occurs in a manner that minimises risks due to environmental hazards, and minimises risks to important elements of the physical environment, including water quality;*
- *to provide direction and guidance as to the manner in which growth and change are to be managed in Goulburn Mulwaree; and*
- *to protect and enhance watercourses, riparian habitats, wetlands and water quality within the Goulburn Mulwaree and Sydney drinking water catchments so as to enable the achievement of the water quality objectives.*

Relevant environment constraints are mapped for the GMLEP under the NSW planning portal and native vegetation regulatory map.

2.3 Results

2.3.1 Database searches

2.3.1.1 Threatened ecological communities (TECs)

Database searches using the Commonwealth PMST revealed that two TECs may occur within 10 km of the subject site:

- Natural temperate grassland of the south eastern highlands – critically endangered; and
- White box-yellow box-Blakely's red gum grassy woodland and derived native grassland – critically endangered.

The subject site is characterised by *"grassland with lightly scattered timber including remnant stands of Blakely's Red Gum (Eucalyptus blakelyi)"* (Mecone 2019) which has the potential to align with the critically endangered TEC white box-yellow box-Blakely's red gum grassy woodland and derived native grassland. However, as identified in Mecone (2019), "*preliminary ecological assessment was undertaken by Pat Guinane, a Senior Ecologist with Macrozamia Environmental (BAM Assessor Accreditation Number BAAS19018) in July 2019.* As part of this assessment, it was concluded that due to the highly modified nature the subject site did not contain any TECs.

2.3.1.2 Threatened flora species

Database searches identified 16 threatened species that may occur within 10 km of the subject site. These included 16 species identified using the Commonwealth PMST based on the availability of suitable habitats, of which three species were identified using the BioNet database. A compiled species list from both database searches is provided in **TABLE 1.**

TABLE 1
RECORDS OF LISTED THREATENED FLORA SPECIES WITHIN 10 KM OF THE SITE

Scientific Name	Common Name	EPBC Act	BC Act
Acacia bynoeana	Bynoe's wattle	V	
Caladenia tessellata	Thick-lipped spider-orchid	V	
Calotis glandulosa	Mauve burr-daisy	V	
Commersonia prostrata	Dwarf kerrawang	E	
Diuris aequalis	Buttercup doubletail	E	E
Dodonaea procumbens	Trailing hop-bush	V	
Eucalyptus aggregata	Black gum	V	
Lepidium hyssopifolium	Basalt pepper-cress	E	
Leucochrysum albicans subsp. tricolor	Hoary sunray	E	
Pomaderris delicata	Delicate pomaderris	CE	CE
Pomaderris pallida	Pale pomaderris	V	
Prasophyllum petilum	Tarengo leek orchid	E	
Rhizanthella slateri	Eastern underground orchid	E	
Rutidosis leptorhynchoides	Button wrinklewort	E	E
Swainsona recta	Small purple-pea	E	
Thesium australe	Austral toadflax	V	

EPBC Act - Commonwealth *Environment Protection Biodiversity and Conservation Act 1999*

BC Act – New South Wales *Biodiversity Conservation Act 2016*

Conservation status: CE - Critically endangered; E – Endangered; V – Vulnerable; NT – Near threatened

Note: conservation status is only listed for those species identified during the database search. As a result, some species not identified using one database may still be listed as threatened.

2.3.1.3 Threatened fauna species

Database searches identified 28 threatened species that may occur within 10 km of the subject site. These included 20 species identified using the Commonwealth PMST based on the availability of suitable habitats, and 11 species recorded using the BioNet database.

A compiled species list from both database searches is provided in **TABLE 2.** Species that rely heavily on large permanent waterbodies and will clearly not occur on the subject site have been omitted e.g. Macquarie perch (*Macquarie australasica*).

TABLE 2
RECORDS OF LISTED THREATENED FAUNA SPECIES WITHIN 10 KM OF THE SITE

Scientific Name	Common Name	EPBC Act	BC Act
Amphibians			
Litoria aurea	Green and gold bell frog	V	E
Birds			
Anthochaera phrygia	Regent honeyeater	CE	CE
Botaurus poiciloptilus	Australasian bittern	E	
Calidris ferruginea	Curlew sandpiper	CE	
Daphoenositta chrysoptera	Varied sittella		V
Falco hypoleucos	Grey falcon	V	
Falco subniger	Black falcon		V
Grantiella picta	Painted honeyeater	V	
Haliaeetus leucogaster	White-bellied sea-eagle		V
Hieraaetus morphnoides	Little eagle		V
Hirundapus caudacutus	White-throated needletail	V	
Lathamus discolor	Swift parrot	CE	
Polytelis swainsonii	Superb parrot	V	
Rostratula australis	Australian painted snipe	E	
Insects			
Synemon plana	Golden sun moth	CE	
Mammals			
Chalinobolus dwyeri	Large-eared pied bat	V	
Dasyurus maculatus (SE mainland population)	Spotted-tail quoll	E	
Falsistrellus tasmaniensis	Eastern false pipistrelle		V
Micronomus norfolkensis	Eastern coastal free-tailed bat		V
Miniopterus australis	Little bent-winged bat		V
Miniopterus orianae oceanensis	Large bent-winged bat		V
Petauroides volans	Greater glider	V	
Petrogale penicillata	Brush-tailed rock wallaby	V	
Phascolarctos cinereus	Koala	V	
Pseudomys novaehollandiae	New Holland mouse	V	
Pteropus poliocephalus	Grey-headed flying-fox	V	V
Reptiles			
Aprasia parapulchella	Pink-tailed worm-lizard	V	
Delma impar	Striped legless lizard	V	

EPBC Act - Commonwealth *Environment Protection Biodiversity and Conservation Act 1999*
BC Act – New South Wales *Biodiversity Conservation Act 2016*
Conservation status: CE - Critically endangered; E – Endangered; V – Vulnerable; NT – Near threatened
Note: conservation status is only listed for those species identified during the database search. As a result, some species not identified using one database may still be listed as threatened.

2.3.1.4 Migratory species

Database searches using the Commonwealth PMST identified 12 migratory species that may occur within 10 km of the subject site based on the availability of suitable habitat. Migratory species identified in database searches are listed in **TABLE 3**. Species that are heavily reliant on marine / large wetland environments and will clearly not occur on the subject site have been omitted.

TABLE 3
RECORDS OF COMMONWEALTH LISTED MIGRATORY SPECIES WITHIN 10 KM OF THE SITE

Scientific Name	Common Name	Status
Apus pacificus	Fork-tailed swift	-
Adrea alba	Great egret	-
Ardea ibis	Cattle egret	-
Haliaeetus leucogaster	White-bellied sea-eagle	-
Hirundapus caudacutus	White-throated needletail	V
Lathamus discolor	Swift parrot	CE
Merops ornatus	Rainbow bee-eater	-
Monarcha melanopsis	Black-faced monarch	-
Motacilla flava	Yellow wagtail	-
Myiagra cyanoleuca	Satin flycatcher	-
Pandion haliaetus	Osprey	-
Rhipidura rufifrons	Rufous fantail	-
Conservation status (EPBC Act): CE - Critically endangered, E - Endangered, V - Vulnerable		

2.3.2 State government mapping

2.3.2.1 Biodiversity Values Map

The site is not mapped on the Biodiversity Values Map.

2.3.2.2 Native Vegetation Regulatory Map

Th site is not mapped as containing regulated land on the NVR Map.

2.3.3 Local government mapping

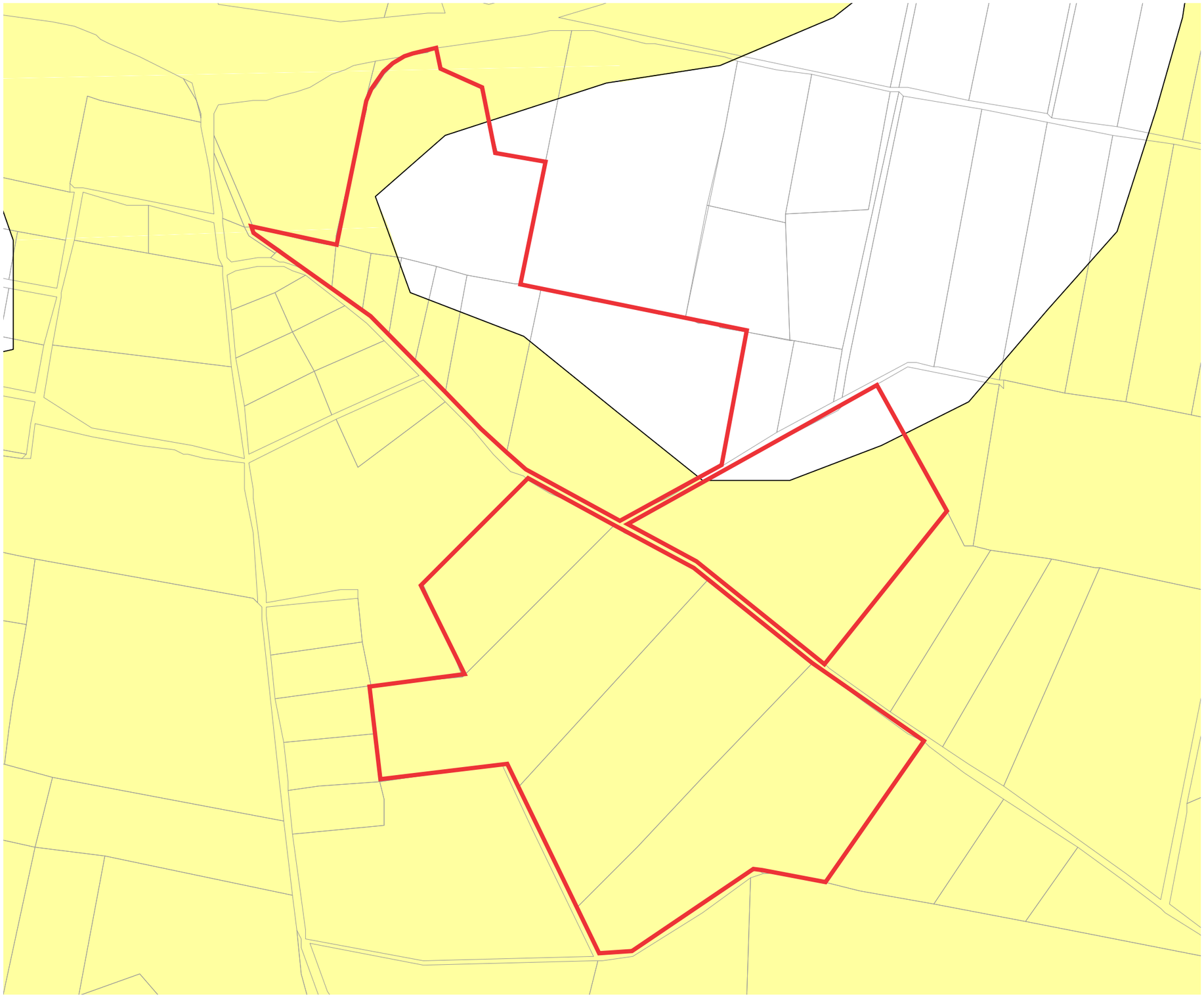
The subject site is zoned as Primary Production (RU1) under the GMLEP (**FIGURE 3**). Parts of the subject site are mapped as Terrestrial Biodiversity – Biodiversity under the GMLEP (**FIGURE 4**).

2.3.4 Habitat suitability assessments

2.3.4.1 Threatened flora

Sixteen (16) threatened flora species were identified in the database searches that are known to occur or considered possible occurrences within 10 km of the subject site. Based on further interrogation of geographic ranges and specific habitat requirements, five (5) species are considered to warrant further examination.

Habitat suitability assessments were completed and determined that four (4) of these species could possibly to occur within the subject site (**TABLE 4**). None of these species were previously recorded during site assessments (Mecone 2019).



LEGEND
Subject Site
Goulburn Mulwaree LEP 2009
Biodiversity

0 500m
1 : 12 500

SOURCE: Goulburn Mulwaree LEP 2009
Terrestrial Biodiversity Map BIO_001

SCALE: 1 : 12 500 @ A3

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Ecological Constraints Analysis
Mountain Ash Road, Gundary NSW
Goulburn Mulwaree Council LGA

FIGURE 4

PREPARED: BW
DATE: 21 April 2021
FILE: N21007_Bio Areas.cdr

TITLE
TERRESTRIAL BIODIVERSITY MAP

TABLE 4
HABITAT SUITABILITY ASSESSMENT FOR THREATENED FLORA SPECIES THAT HAVE THE POTENTIAL TO OCCUR ON THE SUBJECT SITE

Scientific name	Common name	Likelihood of occurring
Eucalyptus aggregata	Black gum	**Possible** Often grows in open woodland with a grassy ground layer, and on occasion is found as isolated paddock trees in modified native or exotic pastures (DoPIE 2020b). The subject site has the potential to support this species; however, there are no recorded from prior assessments (Mecone 2019).
Prasophyllum petilum	Tarengo leek orchid	**Unlikely** Has been recorded in open grassland sites, as well as grassy box-gum woodland (DoPIE 2020c). Despite this, the species is likely to be highly susceptible to grazing pressures. The latter makes the subject site very unlikely to be suitable to support this species.
Rutidosis leptorhynchoides	Button wrinklewort	**Possible** Has not previously been identified on the subject site (Mecone 2019); however, the species has been recorded in the Goulburn area growing in box-gum woodland, secondary grassland derived from box-gum woodland or in natural temperate grasslands (OEH 2012). The species also exhibits an ability to colonise disturbed areas (OEH 2012).
Swainsona recta	Small purple-pea	**Possible** Known to exist in the area and has a historical relationship with the grassy understorey of box-gum woodland, namely Blakely's red gum and yellow box (DoPIE 2018b). The species was not recorded on the subject site during prior assessments (Mecone 2019); however, the timing of surveys can be essential for this species (i.e. spring, with a peak in October).
Thesium australe	Austral toadflax	**Possible** Can occur in grassland and grassy woodland away from the coast, and often in association with kangaroo grass (*Themeda australis*) (DoPIE 2018c). Potentially suitable habitat is present on the subject site; however, the species was not recorded during previous assessments and is susceptible to grazing pressures.

2.3.4.2 Threatened fauna

Amphibians

The habitat requirements of most species are strongly influenced by factors such as climate, distance to water bodies, riparian vegetation, hydrological and morphological characteristics of water bodies and the availability of suitable micro-habitat for aestivation

and shelter. Stock dams and drainage lines present on the subject site are likely to provide suitable habitat for common and disturbance adapted amphibian species.

It is considered possible that the green and gold bell frog (*Litoria aurea*) would occur on the subject site due to the presence of stock dams that are unshaded and nearby grassy habitat (DoPIE 2017b).

Reptiles

Reptile distributions are strongly influenced by structural characteristics of the vegetation, climate and other factors affecting thermoregulation such as shade and availability of shelter and basking sites. Such habitat components characterise eucalypt forests and woodlands, where species diversity may be much higher, depending on disturbance factors. Open and disturbed grassland, like those consistent across the subject site, have the potential to support some common reptile species; however, a lack of suitable habitat features would mean that reptiles are largely absent.

Two (2) threatened reptile species were identified within 10 km of the subject site using database searches (**TABLE 5**), with one species considered a possible occurrence due to the presence of potential suitable habitat.

TABLE 5
HABITAT SUITABILITY ASSESSMENT FOR THREATENED REPTILE SPECIES THAT HAVE THE POTENTIAL TO OCCUR ON THE SUBJECT SITE

Scientific name	Common name	Likelihood of occurring
Aprasia parapulchella	Pink-tailed worm-lizard	**Unlikely** This species prefers sloping, open woodland areas that are well drained and contain rock outcrops (DoPIE 2017c). Some of the main identified threats to this species includes habitat loss and fragmentation, habitat degradation (including rock removal and stock grazing), and predation by cats and foxes (DoPIE 2017c). Key threats persist on the subject site, and no preferred habitat is available.
Delma impar	Striped legless lizard	**Possible** Is known to occur in the area and is a grassland specialist. All occupied sites have or had a grassy groundcover, often mixed with native and exotic perennial and annual species (DAWE 2000). The species has been recorded sheltering in grass tussocks, think ground cover, soil cracks, under rocks or timber, or in spider burrows (DAWE 2000). The subject site contains potentially suitable habitat for this species.

Birds

Thirteen (13) threatened bird species were identified that are known to occur or considered possible occurrences within 10 km of the subject site. Considering geographic ranges and given the disturbed and predominately cleared nature of the subject site, habitat suitability assessments determined that eight (8) of these species, including migratory species, could possibly occur. The presence of each species is likely to be related to traversing or forage purposes (**TABLE 6**).

TABLE 6
HABITAT SUITABILITY ASSESSMENT FOR THREATENED BIRDS SPECIES THAT HAVE THE POTENTIAL TO OCCUR ON THE SUBJECT SITE

Scientific name	Common name	Likelihood of occurring
Apus pacificus	Fork-tailed swift	**Possible** Widespread and may forage above the subject site.
Adrea alba	Great egret	**Possible** Stock dams and grasslands on the subject site provide potentially suitable forage habitat.
Ardea ibis	Cattle egret	**Possible** Stock dams and grasslands on the subject site provide potentially suitable forage habitat.
Falco subniger	Black falcon	**Possible** The black falcon is widely distributed and can travel hundreds of kilometres (Marchant and Higgins 1993). The species may traverse over the subject site; however, the loss of large old trees is a primary threat due to a loss of nesting and hunting platforms (DoPIE 2017d).
Haliaeetus leucogaster	White-bellied sea-eagle	**Possible** The subject site contains potentially suitable terrestrial foraging habitat (i.e. grassland, woodland); however no suitable mature tall forests or trees would provide breeding or nesting sites (DoPIE 2019a).
Hieraaetus morphnoides	Little eagle	**Possible** Found throughout the Australian mainland excepting the most densely forested parts of the Dividing Range escarpment. Occupies open eucalypt forest, woodland, open woodland, She oak or Acacia woodlands, and riparian woodlands of interior NSW (DoPIE 2017e). The subject site does not provide suitable nesting habitat but may be traversed by this species will foraging.
Hirundapus caudacutus	White-throated needletail	**Possible** Widespread across the eastern Australia from October to April; however, more common in coastal areas (DoPIE 2021). The species may forage above the subject site.

Scientific name	Common name	Likelihood of occurring
Polytelis swainsonii	Superb parrot	**Possible** The subject site is unlikely to provide suitable nesting trees (e.g. large hollow-bearing trees). However, the species forages up to 10 km from nesting sites in box-gum woodlands in the understorey and on the ground (DoPIE 2017f)

Mammals

The cleared nature of the subject site, and lack of structural complexity and habitat diversity (including hollow-bearing trees, intact and preferred vegetation, rocky outcrops, caves) is likely to result in very limited nesting and foraging opportunities for threatened terrestrial or arboreal mammals. It is unlikely the subject site forms a critical home range component for the following threatened species:

- Koala (*Phascolarctos cinereus*)
    - e.g. Eucalypt woodland and forests containing preferred koala food trees (PKFTs)[2].
- Greater glider (*Petauroides volans*)
    - e.g. Old growth forest with large hollow-bearing trees (DAWE 2015)
- Brush-tailed rock wallaby (*Petrogale penicillata*)
    - e.g. Rocky escarpments, outcrops and cliffs (DoPIE 2019b)
- New Holland mouse (*Pseudomys novaehollandiae*)
    - e.g. heathland, woodlands and forests with a heathland understorey (DoPIE 2017g)
- Spotted-tailed quoll (*Dasyurus maculatus*)
    - e.g. forested areas with hollow-bearing trees, fallen logs, caves and rocky outcrops (DoPIE 2020d).

Insectivorous bats overlap considerably in diet and broad vegetation preferences (Hall 1981) but specialise in foraging in specific layers or substrates within the forest (Crome and Richards 1988). The subject site lacks suitable roosting (*i.e.* caves, tree hollows/crevices etc.) or forage habitat to be of value to threatened Microchiroptera species in the locality.

The grey-headed flying-fox (*Pteropus poliocephalus*) may traverse the subject site; however, a paucity in flowering native trees would provide a very limited forage resource when compared to the wide locality.

[2] PKFTs are a discrete suite of species in the Genus *Eucalyptus* which, as the term implies, are the subject of preferential utilisation (i.e. statistically significant levels of use by koalas when compared to the relative abundance of that tree species in the landscape being assessed) (Phillips 1999; Phillips et al. 2000; Phillips and Callaghan 2000; Phillips and Callaghan 2011).

3 CORRIDORS AND CONNECTIVITY

3.1 Background

The term 'connectivity' is used to describe the degree to which the landscape facilitates or impedes the movement of species among habitat areas (Bélisle 2005). The level of connectivity between habitat areas in the landscape can be described along a (high – medium – low – isolated) continuum.

Landscapes with high levels of connectivity form an unbroken expanse of habitat through which a wide range of the fauna species can easily move to or between high quality areas. Landscapes with low levels of connectivity are characterised by habitat areas that are bisected by wide gaps, and where the quality and quantity of remaining habitat is reduced (habitat fragmentation). Habitat fragmentation impedes the movement of species among remaining suitable habitat areas (Andrén 1994; Fahrig 2003) and generally restricts movement and increases threats to all but the most mobile of species.

At a broad landscape scale, maintaining habitat connectivity is necessary to maintain the long-term viability of species populations (Beier and Noss 1998). In fragmented landscapes, corridors of native vegetation (ecological corridors) can enhance landscape connectivity by (i) providing habitat for a range of species; and (ii) facilitating safe movement between larger, more suitable habitat areas.

Three broad types of corridors can be distinguished. These are:

- linear corridors - long, uninterrupted strips of vegetation, such as hedges, strips of forest, and the vegetation growing on banks of rivers and streams;
- steppingstone corridors - a series of small, non-connected habitats that are used to find shelter, food, or to rest; and
- landscape corridors - diverse, uninterrupted landscape elements that provide sufficient cover for safe movement from one core area to another.

3.2 Site assessment

No state or regional corridors are mapped on or in the vicinity the subject site. As part of a wider context, the subject site provides very little corridor value for fauna species in the locality beyond potential stepping stone habitat for highly-mobile and wide ranging species.

4 CONSIDERATION OF STATUTORY REQUIREMENTS

4.1 Introduction

This section includes an assessment of the likely impacts of the proposed development with regard relevant Commonwealth, State and local legislation as listed in **Section 2**.

Amelioration measures recommended to minimise and mitigate these impacts on the biodiversity and habitat values of the subject site have also been detailed where applicable. Detailed assessment of compliance with relevant legislative requirements is provided in the following sections.

4.2 EPBC Act (Commonwealth)

4.2.1 Background

The EPBC Act provides a mechanism for assessing the environmental impact of activities and development on MNES. A person must not, without an approval under the Act, take an action that has or will have, or is likely to have, a significant impact on any of the following MNES:

- world heritage properties or national heritage places.
- declared Ramsar wetlands.
- listed threatened species or ecological community.
- listed migratory species.
- Commonwealth marine area or Commonwealth land.

The Act also prohibits the taking, without an approval under the Act, of:

- a nuclear action; and
- an action in a Commonwealth marine area or on Commonwealth land that has or will have, or is likely to have, a significant impact on the environment.

MNES include:

- declared World Heritage areas.
- declared Ramsar wetlands.
- listed threatened species (Schedule 1 and 2 of the *Commonwealth Endangered Species Protection Act 1992*).
- listed ecological communities.
- listed migratory species (JAMBA and CAMBA).

An action includes a project, development, undertaking or an activity or series of activities. An action does not require approval if it is a lawful continuation of a use of land, sea or seabed that was occurring before the commencement of the Act. An enlargement, expansion or intensification of a use is not a continuation of a use.

The EPBC Act does not require Commonwealth approval for the rezoning of land; however, it does suggest that when rezoning land, planning authorities should consider whether to allow actions that could significantly affect MNES or environment of Commonwealth land.

A Commonwealth assessment will be required for proposed activities on the subject site if they affect a MNES. The Commonwealth Department of the Environment has prepared EPBC Act Policy Statements, including the *Matters of National Environmental Significance – Significant Impact Guidelines 1.1* (DotE 2013), which provides a self-assessment process to assist in determining whether an action should be referred to the Commonwealth for a decision on whether assessment and approval is required.

Where a project or action is believed to potentially cause a significant impact on a MNES, it is to be referred to the Australian Government Department of Agriculture, Water and the Environment (DAWE) for assessment as to whether the action is a 'controlled action' requiring Commonwealth approval for the proposed action. The proposed development has been considered against the Principal Significant Impact Guidelines for each of the MNES identified on the subject site. This assessment is provided in the following sections.

4.2.2 Declared world heritage areas

There are no declared World Heritage areas located on or near the subject site.

4.2.3 Declared Ramsar wetlands

There are no Ramsar wetlands near the subject site.

4.2.4 Commonwealth listed threatened flora and fauna species

4.2.4.1 Significant impact criteria

An action is likely to have a significant impact on a critically endangered, endangered, or vulnerable species if it results in the following:

- a long-term decrease in the size of a population;
- reduction in the area of occupancy of the species;
- fragments an existing population into two or more populations;
- adversely affect habitat critical to the survival of a species;
- disrupts the breeding cycle of a population;
- modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline;
- invasive species that are harmful to a critically endangered or endangered species becoming established in the endangered or critically endangered species' habitat;
- introduces disease that may cause the species to decline; or
- interferes with the recovery of the species.

A 'population of a species' is defined under the EPBC Act as an occurrence of the species in a particular area. In relation to critically endangered, endangered or vulnerable threatened species, occurrences include but are not limited to a geographically distinct regional population, or collection of local populations, or a population, or collection of local populations that occur within a particular bioregion.

An 'invasive species' is an introduced species, including an introduced (translocated) native species, which out-competes native species for space and resources or which is a predator of native species. Introducing an invasive species into an area may result in that species becoming established. An invasive species may harm listed threatened species or ecological communities by direct competition, modification of habitat or predation.

4.2.4.2 Relevance to the subject site

Habitat suitability assessments combining this ECA and information provided in Mecone (2019) determined that, albeit very conservative, four EPBC Act listed flora species could possibly to occur within the subject site (**TABLE 4**). None of these species were previously recorded during site assessments (Mecone 2019 infers); however, a targeted field assessment is warranted to confirm the presence or absence of this species during detailed planning stage.

Six threatened fauna species listed within schedules of the EPBC Act were considered a possibility to utilise habitat on the subject site. With this said, utilisation by five is most likely by wide-ranging species that may aerially traverse the subject site on occasion (e.g. white-throated needletail, black falcon, little eagle and grey-headed flying fox). No other threatened fauna species are considered a possible occurrence due to an absence of suitable habitat types and/or structural diversity.

A targeted field assessment is warranted to confirm the presence or absence of the green and gold bell frog due to the presence of suitable stock dams and nearby grassy habitat (DoPIE 2017b).

4.2.5 Listed ecological communities

4.2.5.1 Significant impact criteria

An action is likely to have a significant impact on a critically endangered or endangered ecological community if there is a real chance or possibility that it will:

- reduce the extent of an ecological community;
- fragment or increase fragmentation of an ecological community, for example by clearing vegetation for roads or transmission lines;
- adversely affect habitat critical to the survival of an ecological community;
- modify or destroy abiotic (non-living) factors (such as water, nutrients, or soil) necessary for an ecological community's survival, including reduction of groundwater levels, or substantial alteration of surface water drainage patterns;

- cause a substantial change in the species composition of an occurrence of an ecological community, including causing a decline or loss of functionally important species, for example through regular burning or flora or fauna harvesting;
- cause a substantial reduction in the quality or integrity of an occurrence of an ecological community, including, but not limited to:
    - assisting invasive species, that are harmful to the listed ecological community, to become established, or
    - causing regular mobilisation of fertilisers, herbicides or other chemicals or pollutants into the ecological community which kill or inhibit the growth of species in the ecological community, or
- interfere with the recovery of an ecological community.

4.2.5.2 Relevance to the subject site

The subject site is characterised by "*grassland with lightly scattered timber including remnant stands of Blakely's Red Gum (Eucalyptus blakelyi)*" (Mecone 2019) which has the potential to align with the critically endangered TEC white box-yellow box-Blakely's red gum grassy woodland and derived native grassland. However, as identified in Mecone (2019), "*preliminary ecological assessment was undertaken by Pat Guinane, a Senior Ecologist with Macrozamia Environmental (BAM Assessor Accreditation Number BAAS19018) in July 2019*". As part of this assessment, it was concluded that due to the highly modified nature the subject site did not contain any TECs.

4.2.6 Listed migratory species

4.2.6.1 Significant impact criteria

An action will require approval if the action has, will have, or is likely to have a significant impact on a listed migratory species. Note that some migratory species are also listed as threatened species. The significant impact criteria below are relevant to migratory species that are not threatened.

An action is likely to have a significant impact on a migratory species if there is a real chance or possibility that it will:

- substantially modify (including by fragmenting, altering fire regimes, altering nutrient cycles); or
- alter hydrological cycles, destroy, or isolate an area of important habitat for a migratory species; or
- result in an invasive species that is harmful to the migratory species becoming established in an area of important habitat for the migratory species; or
- seriously disrupt the lifecycle (breeding, feeding, migration or resting behaviour) of an ecologically significant proportion of the population of a migratory species.

An area of 'important habitat' for a migratory species is:

- habitat used by a migratory species occasionally or periodically within a region that supports an ecologically significant proportion of the population of the species; and/or
- habitat that is of critical importance to the species at life-cycle stages; and/or
- habitat utilized by a migratory species which is at the limit of the species range; and/or
- habitat within an area where the species is declining.

Listed migratory species cover a broad range of species with different life cycles and population sizes. Therefore, the definition of what an 'ecologically significant proportion' of the population is varies with the species (each circumstance needs to be evaluated). Some factors that should be considered include the species' population status, genetic distinctiveness, and species-specific behavioural patterns (for example, site fidelity and dispersal rates).

The term 'population' in relation to migratory species, means the entire population or any geographically separate part of the population of any species or lower taxon of wild animals, a significant proportion of whose members cyclically and predictably cross one or more national jurisdictional boundaries including Australia.

4.2.6.2 Relevance to the subject site

following four species may, on rare occasions, traverse over the subject site and/or forage in stock dams:

- Great egret;
- Cattle egret;
- Fork-tailed swift; and
- White-throated needletail.

Despite this, it is considered unlikely that breeding habitat occurs on site for any of these species, and therefore these species would not be significantly impacted by any future development.

4.3 BC Act (NSW)

4.3.1 Background

The BC Act commenced on the 25th August 2017. The BC Act, together with the *Biodiversity Conservation Regulation 2017* (BCR), outlines the framework for addressing impacts on biodiversity from development and clearing. It establishes a framework to avoid, minimise and offset impacts on biodiversity from development through the Biodiversity Offsets Scheme (BOS).

The BOS creates a transparent, consistent, and scientifically based approach to biodiversity assessment and offsetting for all types of development that are likely to have a significant

impact on biodiversity. It also establishes biodiversity stewardship agreements, which are voluntary in-perpetuity agreements entered into by landholders, to secure offset sites.

There are five key steps to participating in the BOS for developers or landholders ('proponents') who want to undertake development or clearing.

- Step 1 – The proponent determines whether the BOS applies.
- Step 2 – An accredited assessor applies the Biodiversity Assessment Method and offsetting rules to the activity.
- Step 3 – The consent authority assesses the application and determines whether to approve or refuse the application.
- Step 4 – The consent authority determines the application and sets the offset obligation.
- Step 5 – The proponent satisfies its credit obligation and can begin the approved activity.

Step 1 of this process has been completed (in the following sections) as part of this ECA to determine if the BOS applies to the proposed development. Additional steps (if required) will be completed separately, and in addition, to this ECA report.

4.3.2 Biodiversity Offsets Scheme (BOS)

4.3.2.1 Background

The BOS applies to:

1. local development assessed under Part 4 of the *Environmental Planning and Assessment Act 1979* (EP & A Act) that triggers the BOS threshold or is likely to significantly affect threatened species based on the test of significance in section 7.3 of the BC Act;
2. state significant development and state significant infrastructure projects, unless the Secretary of the Department of Planning and Environment and the Chief Executive of OEH determine that the project is not likely to have a significant impact;
3. biodiversity certification proposals;
4. clearing of native vegetation in urban areas and areas zoned for environmental conservation that exceeds the BOS threshold and does not require development consent;
5. clearing of native vegetation that requires approval by the Native Vegetation Panel under the *Local Land Services Act 2013* (LLS Act); and
6. activities assessed and determined under Part 5 of the EP & A Act (generally, proposals by government entities), if proponents choose to 'opt in' to the BOS.

Point 1 above applies to the proposed development.

4.3.2.2 The BOS threshold

The BOS Threshold is a test used to determine when is necessary to engage an accredited assessor to apply the Biodiversity Assessment Method (BAM) to assess the impacts of a proposal.

It is used for local developments (development applications submitted to councils) and clearing that does not require development consent in urban areas and areas zoned for environmental conservation *i.e.* under the SEPP (Vegetation in Non-Rural Areas) 2017 (Vegetation SEPP).

The BCR sets out threshold levels for when the BOS will be triggered. The threshold has two elements:

1. whether the amount of native vegetation being cleared exceeds a threshold area set out below; and
2. whether the impacts occur on an area mapped on the Biodiversity Values Map (BVM) published by the Minister for the Environment.

If clearing and other impacts exceeds either trigger, the BOS applies to the proposed development including biodiversity impacts prescribed by clause 6.1 of the BCR.

Area clearing threshold

The area threshold varies depending on the minimum lot size (shown in the lot size maps made under the relevant LEP), or actual lot size (where there is no minimum lot size provided for the relevant land under the LEP) as shown in **TABLE 7** below.

The area threshold applies to all proposed native vegetation clearing associated with a proposal, regardless of whether this clearing is across multiple lots. In the case of a subdivision, the proposed clearing must include all future clearing likely to be required for the intended use of the land after it is subdivided.

TABLE 7
BOS AREA CLEARING THRESHOLD

Minimum lot size associated with the property	Threshold for clearing, above which the BAM and offsets scheme apply
Less than 1 ha	0.25 ha or more
1 ha to less than 40 ha	0.5 ha or more
40 ha to less than 1000 ha	1 ha or more
1000 ha or more	2 ha or more

The minimum lot size associated with the subject property is 10 ha. An area clearing threshold of 0.5 ha or more therefore applies for entry into the BOS.

If the proposed development will result in the removal of more than 0.5 ha (5,000 m^2) of native vegetation from the subject site, entry into the BOS may triggered by the area clearing threshold.

Biodiversity Values Map (BVM) threshold

The BVM identifies land with high biodiversity value, as defined by clause 7.3(3) of the BCR. The BOS applies to all clearing of native vegetation and other biodiversity impacts prescribed by clause 6.1 of the BCR on land identified on the map.

The subject site does not occur within an area of high biodiversity value on the BVM. Entry into the BOS is therefore not triggered by the BVM threshold.

Test of Significance

In addition to the Biodiversity Offsets Scheme Threshold, proponents are also required to carry out a 'test of significance' for all local development proposals. The test of significance is set out in section 7.3 of the BC Act 2016 and is used to determine if a development or activity is likely to significantly affect threatened species or ecological communities, or their habitats.

4.3.3 Section 7.3 of the Biodiversity Conservation Act (2016)

4.3.3.1 Background

In accordance with Section 7.3 of the *Biodiversity Conservation Act (2016)*, a 'test for determining whether proposed development or activity likely to significantly affect threatened species or ecological communities, or their habitat' has been undertaken for all listed species/EECs recorded on the site, including threatened fauna predicted to occur over time **(SECTION 3.3)**.

In determining the nature and magnitude of an impact, it is important to consider matters such as:

- Pre-construction, construction and occupation/maintenance phases;
- All on-site and offsite impacts, including location, installation, operation and maintenance of auxiliary infrastructure and fire management zones;
- All direct and indirect impacts;
- The frequency and duration of each known or likely impact/action;
- The total impact which can be attributed to that action over the entire geographic area affected, and over time;
- The sensitivity of the receiving environment; and
- The degree of confidence with which the impacts of the action are known and understood.

Recovery and threat abatement plans, priorities action statements and threatened species profiles may provide further guidance on whether an action/activity is likely to be significant.

Application of the precautionary principle requires that a lack of scientific certainty about the potential impacts of an action does not itself justify a decision that the action is not

likely to have a significant impact. If information is not available to conclusively determine that there will not be a significant impact on a threatened species, population or ecological community, or its habitat, then it should be assumed that a significant impact is likely.

4.3.3.2 Threatened Flora

Based on a lack of suitable habitat and the highly disturbed nature of the subject site, no threatened flora species listed within schedules of the BC Act are considered possible occurrences.

4.3.3.3 Endangered Ecological Communities (EECs)

No EECs have been recorded from the subject site or are considered a possible occurrence.

4.3.3.4 Fauna

No threatened fauna species listed within schedules of the BC Act are considered possible occurrences due to an absence of suitable habitat types and/or structural diversity.

4.3.4 Summary

The BOS threshold test has determined that the proposed development may trigger entry into the BOS based on the area clearing threshold.

To determine if a test of significance (5-part test) test is required for ecological communities, a targeted field assessment should be undertaken to confirm the presence and extent of the EEC '*White Box-Yellow Box-Red Gum Grassy Woodland*' on the subject site during detailed planning stages.

Targeted field surveys should be conducted to determine that no threatened flora or fauna species listed under the BC Act occur on the subject site. A 5-part test is not considered necessary at this stage; nevertheless, this can be addressed at a later planning stage.

4.4 Goulburn Mulwaree Local Environmental Plan 2009 (*current version 19th February 2021*)

4.4.1 Background

The GMLEP was made under the *Environmental Planning and Assessment Act 1979*, and among other things, relevant environment constraints are mapped for the GMLEP under the NSW planning portal and native vegetation regulatory map.

4.4.2 Summary

No regulated vegetation is mapped on the subject site; however, parts of the subject site are mapped as Terrestrial Biodiversity – Biodiversity under the GMLEP (**FIGURE 4**). As per Part 7, Section 7.2 Terrestrial biodiversity of the GMLEP, the following constraints may apply:

Terrestrial biodiversity

(1) The objectives of this clause are to protect, maintain or improve the diversity of the native vegetation, including—

(a) protecting biological diversity of native flora and fauna, and

(b) protecting the ecological processes necessary for their continued existence, and

(c) encouraging the recovery of threatened species, communities or populations and their habitats.

(2) This clause applies to development on land that is identified as "Biodiversity" on the Terrestrial Biodiversity Map.

(3) Development consent must not be granted to development on land to which this clause applies unless the consent authority has considered a report that addresses the following matters—

(a) identification of any potential adverse impact of the proposed development on any of the following—

(i) a native vegetation community,

(ii) the habitat of any threatened species, population or ecological community,

(iii) a regionally significant species of plant, animal or habitat,

(iv) a habitat corridor,

(v) a wetland,

(vi) the biodiversity values within a reserve, including a road reserve or a stock route, and

(b) a description of any proposed measures to be undertaken to ameliorate any such potential adverse impact.

(4) Development consent must not be granted to development on land to which this clause applies unless the consent authority is satisfied that the development is consistent with the objectives of this clause and—

(a) the development is designed, sited and managed to avoid the potential adverse environmental impact, or

(b) if a potential adverse impact cannot be avoided, the development—

(i) is designed and sited so as to have minimum adverse impact, and

(ii) incorporates effective measures so as to have minimal adverse impact, and

(iii) mitigates any residual adverse impact through the restoration of any existing disturbed or modified area on the site.

5 CONSTRAINTS ANALYSIS

5.1 Introduction

A constraints analysis plan (**FIGURE 5**) has been prepared for the subject site with consideration of the information contained in **Sections 2 - 4**. This plan has identified areas of the subject site of conservation and/or habitat significance based on:

- Presence of significant plant species;
- Presence of significant vegetation communities/remnant ecosystems;
- Presence of significant fauna species and/or their habitat; and
- Recognition of environmental values in planning and policy documents.

5.2 Constraints analysis key

A number of criteria were considered for the constraints analysis, including:

- Commonwealth, State and Local government plans and policies;
- Occurrence of threatened flora and fauna;
- Habitat for threatened or significant fauna and flora;
- Vegetation and ecosystem value including diversity, species composition and structure;
- Protected areas; and
- Corridors and connectivity.

Each of the habitats or communities occurring on the subject site has been allocated to a constraint category ranging from high to low depending upon the satisfaction of the above criteria as summarised in **TABLE 8** below.

TABLE 8
KEY TO CONSTRAINTS ANALYSIS

Constraints category	Environmental attributes
High	• World heritage areas • National heritage places • RAMSAR wetlands • Endangered species or endangered species habitat • Endangered populations • Endangered Ecological Communities (EEC)
Moderate-High	• Areas containing habitat for a threatened species (other than endangered) • Areas of high biodiversity value (Biodiversity Values Map)
Moderate	• Wildlife corridors of regional importance • Wetland buffer areas

Constraints category	Environmental attributes
	• Major waterways or waterbodies
Low-Moderate	• Wildlife corridors of local significance • Minor waterways or waterbodies
Low	• Exotic vegetation • Cleared areas

5.3 Site constraints analysis

5.3.1 Highly constrained areas

Areas mapped as high ecological constraint are generally not considered to be suitable for development. These areas should be retained, rehabilitated, and buffered as much as practicable. Where impacts cannot be avoided, biodiversity offsets are likely.

Based on the results of this assessment, there are currently no areas of the site considered to be highly constrained. However, the following should be noted:

- If confirmed, the presence of the EEC '*White Box-Yellow Box-Red Gum Grassy Woodland*' would represent highly constrained areas on the subject site. Additionally, an assessment of condition can confirm the extent of this constraint.
- There are three endangered species that are considered possible on the subject site (i.e. green and gold bell frog, button wrinklewort and small purple pea). The importance and suitability of habitat on the subject site, and its relevance as highly constrained areas, will be guided by targeted surveys and confirmation of species presence/absence.

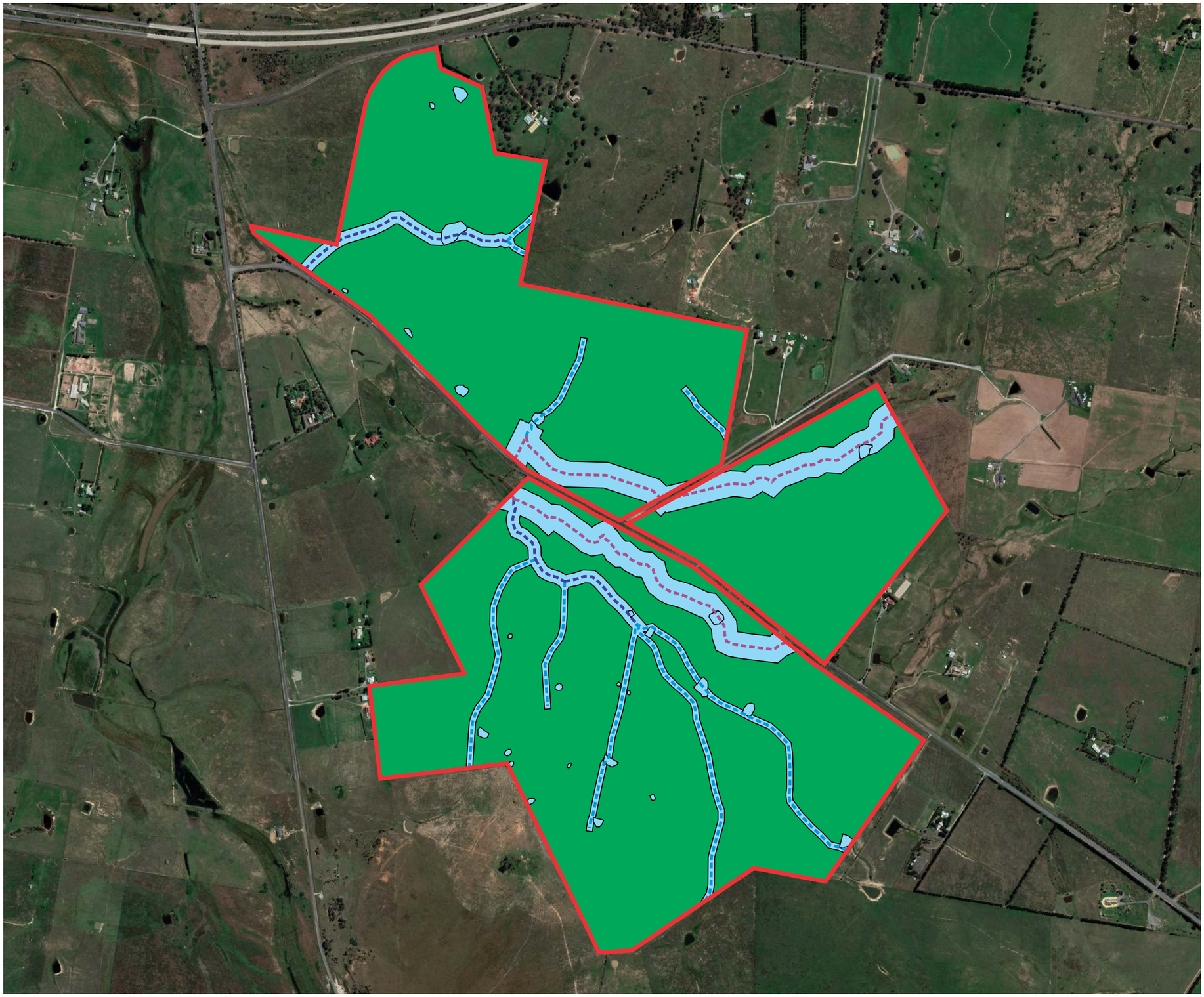
5.3.2 Moderately-highly constrained areas

Based on the results of this assessment, there are currently no areas of the site considered to be moderately-highly constrained. However, the following should be noted:

- There are six vulnerable species that are considered possible on the subject site (i.e. black gum, Austral toadflax, white-throated needletail, superb parrot, pink-tailed worm-lizard, and striped legless lizard). The importance and suitability of habitat on the subject site, and its relevance as moderately-highly constrained areas, will be guided by targeted surveys and confirmation of species presence/absence.

5.3.3 Moderately constrained areas

The constraints analysis has indicated that no moderately constrained areas are present on the subject site.



LEGEND

Subject Site

Waterways

1st Order Waterway

2nd Order Waterway

4th Order Waterway

Ecological Constraints

Low - Moderately Constrained Areas

Areas of Low Constraint

0 500m

1 : 12 500

SOURCE: NSW Govt. Water Management (General) Regulations 2018 Hydroline Spatial Data 1.0 (accessed 21/05/21); Google Earth Aerial dated Feb 2021

SCALE: 1 : 12 500 @ A3

JWA PTY LTD
Ecological Consultants

CLIENT
Design Build Instruct Pty Ltd

PROJECT
Ecological Constraints Analysis
Mountain Ash Road, Gundary NSW
Goulburn Mulwaree Council LGA

FIGURE 5

PREPARED: BW
DATE: 21 May 2021
FILE: N21007_Constraints.cdr

TITLE

CONSTRAINTS ANALYSIS

5.3.4 Low-moderately constrained areas

Stock dams and associated 1st and 2nd order watercourses / drainage lines on the subject site represent areas that may be considered low-moderately constrained areas. The importance of these can be guided by threatened species surveys (i.e. green and gold bell frog). Regardless, from a development planning perspective, consideration for relevant setbacks/buffers from watercourses/drainage lines (i.e. 10m buffers to 1st order watercourses; 20m buffers to 2nd order watercourses and 40m buffers to 4th order watercourses) are likely to be required.

5.3.5 Areas of low constraint

Apart from the 'possible' EEC, stock dams, and associated watercourses / drainage lines, most of the subject site is comprised of cleared areas dominated by exotic grasses. These areas are consistent with a category of low environmental constraint.

6 SUMMARY AND RECOMMENDATIONS

JWA Pty Ltd was engaged by Windellama Road Pty Ltd & GTSMF Pty Ltd to complete an ECA of a parcel of land on Mountain Ash Road, Gundary, NSW. The subject site is located ~5 km to the south, southeast of regional city of Goulburn, NSW, and is bounded entirely by a cleared and managed landscape utilised for rural residential, agricultural and/or grazing purposes.

It is understood that the client is proposing to lodge a rezoning proposal for ~320 rural residential allotments on the subject site. This ECA uses current database and site information to review and update (where applicable) ecological constraints identified by Mecone in 2019.

The subject site has been characterised as containing "*grassland with lightly scattered timber*" that has the potential to align with the EEC 'White Box–Yellow Box–Red Gum Grassy Woodland'. As identified in Mecone (2019), due to the highly modified nature the subject site this community is unlikely to meet the criteria for the EEC under the EPBC Act.

Based on interrogation of geographic ranges and specific habitat requirements, habitat suitability assessments combining this ECA and information provided in Mecone (2019) determined that, four (4) EPBC Act / BC Act listed flora species could possibly occur within the subject site. None of these species were previously recorded during site assessments; however, a targeted field assessment is warranted to confirm the presence or absence of these species, and the relevance of areas that may therefore be ecologically constrained.

Six (6) threatened fauna species listed within schedules of the EPBC Act and/or BC Act were considered a possibility to utilise habitat on the subject site. With this said, utilisation by five (5) is most likely by wide-ranging bird species that may aerially traverse the subject site on occasion. No other threatened fauna species are considered a possible occurrence due to an absence of suitable habitat types and/or structural diversity. A targeted field assessment is warranted to confirm the presence or absence of the green and gold bell frog due to the presence of suitable stock dams and nearby grassy habitat.

With consideration of commonwealth, state, and local legislation and mapping, no other environmental constraints are applicable to the subject site. No state or regional corridors are mapped on or in the vicinity the subject site. As part of a wider context, the subject site provides no corridor value for fauna species in the locality.

At this stage, and subject to further confirmation, the primary constraint to the proposed development is stock dams and narrow 1st and 2nd order watercourses/drainage lines that represent potential habitat for endangered and/or vulnerable flora and fauna species. In the event that threatened species are not recorded, these areas are likely to require consideration for setbacks/buffers from a development planning perspective (i.e. 10m buffers to 1st order watercourses; 20m buffers to 2nd order watercourses and 40m buffers to 4th order watercourses).

Outside of the areas mentioned above, the remainder of the subject site is comprised of cleared areas dominated by exotic grasses, all of which are consistent with a category of low environmental constraint.

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