28ºS ENVIRONMENTAL

Proposed Residential Development at Bayliss Road, South Ripley QLD

MNES Report

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28 South Environmental Pty Ltd

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Document History and Status

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Approval for Issue

Name	Position	Date
MT	**Director**	**14/02/2025**

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Acronyms, Abbreviations & Definitions

[28 South] – 28 South Environmental

[the Proponent] - KDL Property Group Pty Ltd

[DCCEEW] – Department of Climate Change, Energy, the Environment and Water

[EPBC Act] –Commonwealth Environment Protection and Biodiversity Conservation Act 1999

['the Proposed Action'] –The proposed residential subdivision will entail the development of residential lots, roads, drainage basins and parkland.

['the Site] – Land described as 7-101 Bayliss Road, South Ripley Qld 4306 (Lot 80 on SP162940)

[ha] – hectare

[FURV] – Future Urban

[RVPDA] –Ripley Valley Priority Development Area

[ICC] - Ipswich City Council

[EDQ] – Economic Development Queensland

[CEMPs] - Construction Environmental Management Plans

[AHD] – Australian Height Datum

[EDQ] – Economic Development Queensland

[MNES] - Matters of National Environmental Significance

[MSES] - Matters of State Environmental Significance

[MLES] - Matters of Local Environmental Significance

[PMST] - Protected Matters Search Report

[NC Act] - Nature Conservation Act 1992

[TECs] - Threatened Ecological Community

[DETSI] - Queensland Department of Environment, Tourism, Science and Innovation

[CREVNT] –Critically Endangered, Endangered, Vulnerable and Near Threatened

[ALA] – Atlas of Living Australia

[SAT] – Spot Assessment Technique

[NJKHT] – Non-Juvenile Koala Habitat

[VSU] –Vegetation Structure Unit

[RVMM] –Regional Vegetation Management Map

[WONS] –Weeds of National Significance

[DBH] –diameter at breast height

[ESD] - Ecologically Sustainable Development

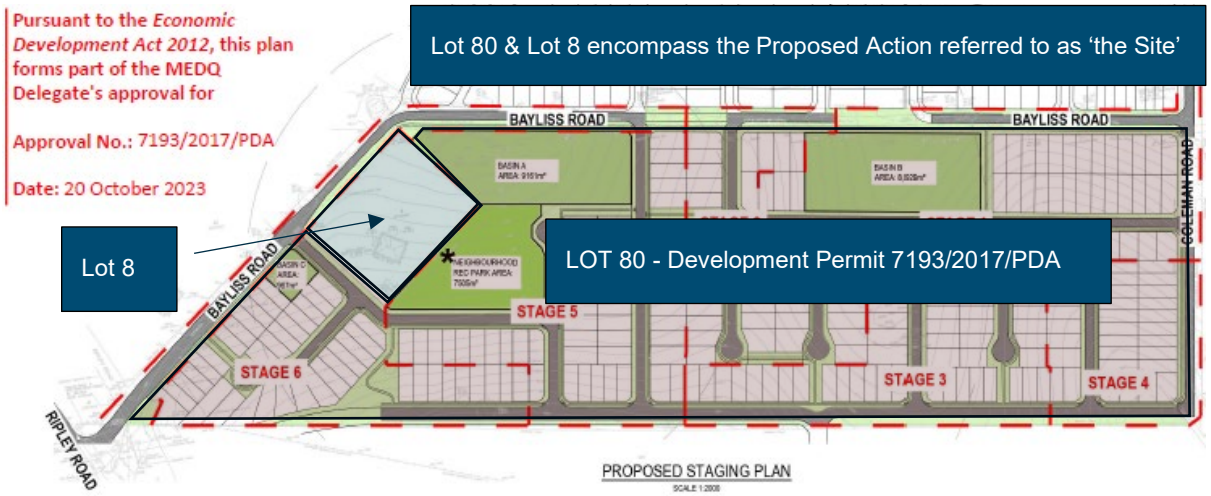
[RPEQ] – Registered professional Engineer Queensland

1. Introduction

1.1 Overview of Proposed Action

28 South Environmental (**28 South**) has been commissioned by KDL Property Group Pty Ltd (**the Proponent**), to develop a Matters of National Environmental Significance Report (**MNES Report**) regarding a proposed residential subdivision and development on Bayliss Road in South Ripley (the **Proposed Action**). This report is intended for submission to the Department of Climate Change, Energy, the Environment and Water (**DCCEEW**) to evaluate whether the Proposed Action should be classified as a **Controlled Action**, in accordance with the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (**EPBC Act**)(Environment Protection and Biodiversity Conservation Act 1999, 1999).

The proposed residential subdivision will entail the development of residential lots, roads, drainage basins and parkland (referred to herein as 'the **Proposed Action**'). The Proposed Action is located on land described as 7-101 and 25 Bayliss Road, South Ripley Qld 4306 (Lot 80 and 8 on SP162940) (see **Figure 1**). This area is hereafter referred to as 'the **Site**.' The Site is rectangular in configuration, made up of two lots. Encompassing a total area of 172300 square metres (17.23 hectare (**ha**)), Lot 80, the larger lot is devoid of any existing buildings or structures whilst Lot 8 contains a dwelling, shed, pool and other small urban structures (see **Figure 2**). Spatially the Site is bound by Bayliss and Ripley Road to its west, a recently constructed residential development to its north, the unsealed but trafficable Coleman Road to its east and cleared, open pastures to its south. The Proposed Action is limited in its scope to this location and is not anticipated to have any significant effects on areas beyond the confines of the Site (see **Inset 1**). See **Section 2.1** for a detailed summary of the Proposed Action.



Inset 1: Development footprint of the Proposed Action

The Proposed Action reflects a balanced approach to urban development. By integrating residential, environmental, and recreational needs, the plan demonstrates adherence to sustainable development principles. The strategic location and design of the Proposed Action are conducive to supporting urban growth, with minimal anticipated impact beyond its boundaries. The Proposed Residential Development at Bayliss Road, South Ripley, Queensland, is poised for progression, having already secured necessary approvals at both state and local government levels. This advancement positions the development as ready for immediate commencement, assuming the attainment of timely EPBC Act Approval. The developer stands prepared to promptly introduce affordable housing options into the market, effectively addressing the prevailing housing demand. This strategic readiness aligns with urgent regional needs, facilitating alleviation of housing pressures while ensuring compliance with environmental standards. The larger lot comprising the bulk of the Site (Lot 80) is the benefactor of an existing development permit (7193/2017/PDA) which, subject to approval under the EPBC Act presents a shovel ready housing project in a key growth area of south east Queensland.

2. Proposed Action

2.1 Summary of Proposed Action

The Proposed Action will encompass the total 17.23 ha of the Site on 7-101 (Lot 80) and 25 (Lot 8) Bayliss Road, South Ripley to develop the properties into a low-density residential lots (approximately 20-25 dwellings per ha) to meet in demand community housing needs in south east Queensland. Final development design and the number of lots developed are dependent on the acquisition of Lot 8 (see **Section 2.3**).

The following documentation elucidates the technical aspects of the Proposed Action, which entails the development of residential lots, stormwater detention lots and a recreation park.

The predominant environmental impact arises from the clearing of vegetation and the construction of built infrastructure. Key components of the development process are categorised as follows:

- Vegetation Clearance: Systematic clearing of existing flora to enable construction activities (see **Attachment 3**).
- Excavation and Filling: Extensive earthworks involving the cutting and filling of land to create suitable terrain for infrastructure (see **Attachment 4** and **5**).
- Noise and Light Emissions: Generation of noise and light because of construction activities.

To accomplish the Proposed Action, extensive use of mobile earthmoving equipment is imperative for conducting civil groundwork, establishing final landforms, and developing linear infrastructure.

To mitigate the environmental impacts associated with civil earthworks, the following strategies will be implemented where feasible:

- Arborist Assessment: Engage arborists to assess and manage tree conservation and removal.
- Fauna Management: Employ fauna spotter catchers to ensure wildlife is protected and relocated if necessary.
- Environmental Management Plans: Develop and implement Construction Environmental Management Plans (**CEMP**s) to guide Site activities.
- Erosion and Sediment Control: Establish Erosion and Sediment Control Plans to prevent soil erosion and manage sediment movement effectively (see **Attachment 6**).

These measures aim to minimise direct impacts on the environment, while ensuring that indirect effects such as dust, noise, and light are controlled during the construction phase.

The Proposed Action necessitates a balanced approach to construction and environmental stewardship. Through careful planning and the application of targeted mitigation strategies, adverse environmental impacts can be effectively reduced.

2.2 Proposed Action Details

More specifically, the Proposed Action involves the establishment of the following infrastructure following vegetation clearing and earthworks:

- Approximately 20-25 dwellings per ha 210 m^2 to 613 m^2 sized lots
- Courtyard, traditional, premium and deluxe style allotments
- Internal Access and Collector Roadways

- Access to the development is proposed via existing and planned roadways, facilitating connectivity within the area.

- Utility Services
  - The development is located near existing residential areas, providing accessibility to established utility infrastructures, such as water, sewerage, power, and communication lines.

- Local Neighborhood Recreation Park
  - The recreation area is designed to include diverse amenities: a play area, informal sports space, children's facilities, shaded seating, hydration stations, fitness installations for older age groups, walkways, and shaded tree zones.

- Stormwater/Detention Areas
  - Multiple detention facilities are strategically placed to optimize stormwater management and promote water quality improvement.

- Fencing/Landscaping
  - High-quality fencing and landscaping are planned along primary roadways to improve aesthetic and functional aspects.

2.2.1 Construction Approach

All land within the Site is projected to be impacted and undergo civil earthworks to create the required landform as part of the Proposed Action. Most trees on the Site are scheduled to be removed baring a stand of trees to be retained and incorporated as part of the Local Neighbourhood Recreation Park. Individual trees will also be retained where possible across the Site, except where their removal is required to achieve the Project's intent.

- Pre-Construction/Construction Activities:
  - Removal of vegetative elements within the designated Site.

- Civil Groundworks:
  - Execution of civil engineering tasks to shape the final landform and establish linear infrastructure.

- Erosion and Sediment Control Installation:
  - Implementation of measures to manage and mitigate erosion and sediment displacement.

- Utility and Services Installation:
  - Deployment of essential infrastructure, including sewerage, stormwater, electricity, and communication systems.

- Road and Pavement Construction:
  - Development of transport infrastructure, incorporating longitudinal and cross-drainage systems.

- Installation of Recreational and Landscaping Features:
  - Integration of landscaping, along with recreational amenities, such as playgrounds.

- Post-Construction Activities
  - Restoration of disturbed areas to their intended land use or ecological condition.

- Landscaping:

- Finalization of aesthetic and functional landscape installations.

2.2.2 Development Timeframe

The following timeframe is being targeted as part of the Proposed Action, with EPBC approval being the remaining development approval required:

- All approvals in place: Q2 2025
- Commencement of operational works, subject to EPBC approval: 01/07/2025

2.3 History of the Proposed Action

The Proponent has recently acquired Lot 80 and is currently seeking the acquisition of the adjoining, smaller allotment, Lot 8 and has included this allotment into the Proposed Action with the intention of extending local approvals for residential development over Lot 8. As such, it is acknowledged that various Management Plans prepared for the development permit over Lot 80 do not include Lot 8, (e.g. Stormwater Management Plan) however, these have no bearing over the assessment of the Proposed Action under the EPBC Act but have been included as attachments to this report for thoroughness.

In February 2025, the owner of Lot 8 initiated negotiations with the Proponent for the potential acquisition of the property. In light of these developments, the Proposed Action has been revised to incorporate and amalgamate Lot 8 with Lot 80 under the designation SP162940. Consequently, both lots are now included within the boundaries of the Site and form a consolidated aspect of the Proposed Action.

It is recognised that this expansion necessitates a reassessment and potential revision of existing Management Plans. These will require updates to ensure comprehensive coverage and management of the newly combined Site, which now includes Lot 8.

Lot 8 is considered to hold similar ecological values in the canopy as Lot 80, however the understory is residential manicured vegetation. With consideration to the manicured vegetation, past clearing, domestic animals and human activity Lot 8 is considered to hold minimal ecological value.

2.4 Location, boundaries and size of the Proposed Action

2.4.1 Locality and Setting

To the immediate north of the Site is the expansive Providence development, encompassing approximately 670 ha. This development is envisaged as a comprehensive new town, featuring a collection of neighbourhoods and villages, complemented by community facilities and a central town area. As observed, considerable progress has been made in constructing numerous residential lots and houses within this sector. The Proposed Action will seamlessly join with and share community resources with the development to the north.

2.4.2 Site Description

The Site encompasses two allotments with a total area of 17.23 ha. The Site's topography reveals a general descent towards Bayliss Road with a gradient ranging from 8% to 10%. A ridgeline traverses the central components of the Site (north/ south in orientation), effectively splitting the Site into two distinct catchments. The first comprises directs water flow towards Bundumba Creek in the north-west, while the second, facilities drainage northward.

According to ICC Interactive Mapping, the Site is not subject to any identified flooding risks. The elevation profile ranges from seventy-six metres to forty-eight metres Australian Height Datum (**AHD**), with a general slope inclining towards the northern boundary adjacent to Bayliss Road.

3. Planning Context

The Site resides within the Ipswich City Council (**ICC**) Local Government Area (**LGA**) with the ICC's 2006 Consolidated Ipswich Planning Scheme governing the Site's land use planning intent. Pursuant to the Planning Scheme, the Site is zoned in its entirety entirety as FURV (**Future Urban**) as designated by the 2006 Consolidated Ipswich Planning Scheme(Ipswich City Council, 2009).

The purpose of the Future Urban Zone is to:

a) The Future Urban Zone provides for integrated urban development on large and strategically located parcels of land.

b) The Future Urban Zone caters primarily for low density, sewered, urban residential uses and works.

c) Development occurs in accordance with comprehensive area planning and detailed site planning.

Additionally, the Proposed Action is situated within the Urban Living Zone of the Ripley Valley Priority Development Area (**RVPDA**) (see **Figure 6**). The Ripley Valley was designated as a Priority Development Area on 8 October 2012 (see **Section 3.1**). Spanning an extensive 4,680 ha, the PDA is strategically positioned approximately 5 km south-east of the Ipswich CBD and lies directly adjacent to the Cunningham Highway. The Ripley Valley is projected to accommodate approximately 50,000 dwellings, thereby supporting a community projected to reach 120,000 residents (Ripley Valley Priority Development Area, 2011).

Initially, the responsibility for the development assessment and administrative oversight within the Site, as governed by the *Economic Development Act 2012*, was held by Economic Development Queensland (**EDQ**). However, as of 30 September 2013, these responsibilities were formally transferred to ICC. Consequently, ICC now administers and reviews development applications in accordance with the regulatory requirements outlined in the RVPDA Development Scheme as mandated by the Act.

The Development Scheme delineates a comprehensive framework for development, aspiring to create a community that maintains a robust connection with its natural surroundings. It envisions Ripley Valley as a cohesive network of villages and neighbourhoods centred around an accessible town centre. This scheme also emphasises the enhancement of connectivity to the broader Ipswich area, enhancing access to regional employment opportunities.

Development within Ripley Valley is driven by thematic principles that encapsulate and further the Scheme's overarching vision. These guiding themes include: promoting a vibrant community deeply connected to the Valley's essence; facilitating an array of transport modalities to ensure an accessible region; designing an environment where architecture and infrastructure harmoniously blend with the natural landscape; fostering economic prosperity and attracting investments that benefit the regional economy; ensuring the provision of services and utilities on par with global best practices; and the conservation and enhancement of the Valley's intrinsic natural assets.

The Proposed Action has been the subject of a Development Application for Lot 80 (7193/2017/PDA) for a Reconfiguring a Lot - One (1) Lot into Two Hundred and Ninety-Four (294) Residential Lots, Three (3) Detention Lots and One (1) Local Neighbourhood Recreation Park Lot and Material Change of Use. The Proposed Action has received its Endorsement of a Plan of Development by ICC on 20 October 2023 by ICC (Ipswich City Council, 2023). As such, the Proposed Action has received all necessary State and Local Government planning approvals and is a shovel ready residential project subject to approvals under the EPBC Act.

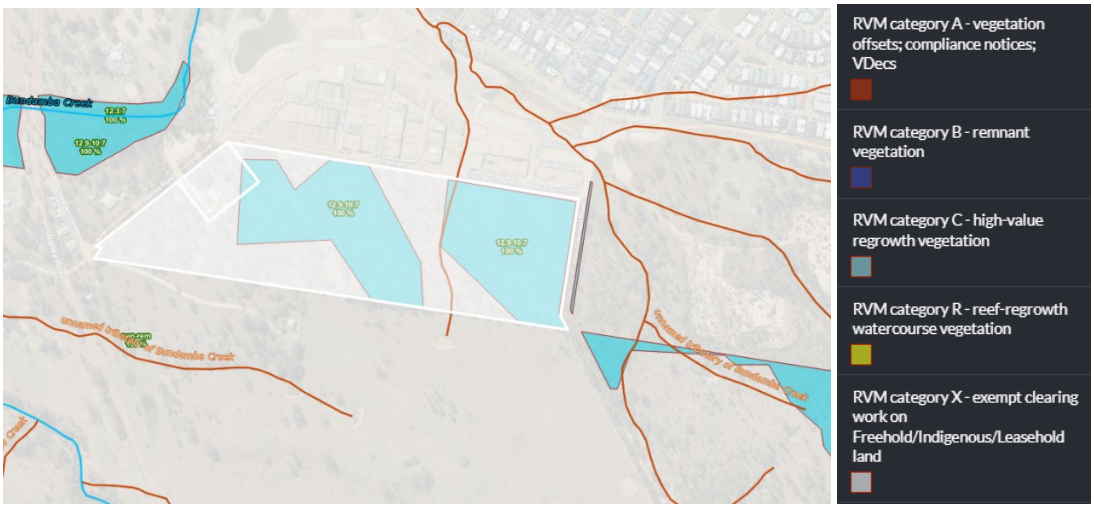
3.1 State Government

The Shaping SEQ South East Queensland Regional Plan 2023 has designated Ripley Valley as an area that will experience 'growth by expansion' (Department of State Development, 2023). The intent of this designation is to deliver high-quality, new and more complete communities that are well-planned and serviced, with Ripley Valley being one of the areas that will accommodate the largest proportion of the sub-region's planned expansion.

While falling within the ICC LGA, the Site is also located within the RVPDA. The RVPDA is in the south east Queensland strategic western growth corridor, one of the largest employment and industry growth areas in Australia. The RVPDA is located approximately 5 kilometres (**km**) south-east of the Ipswich Central Business District (**CBD**). The RVPDA is identified in the south east Queensland Regional Plan 2009-2031 as a Regional Development Area. The Regional Plan identifies a need for an additional 118,000 dwellings in the Ipswich LGA by 2031. The RVPDA has the potential to contribute approximately 50,000 dwellings to house a population of approximately 120,000 people. The RVPDA is strategically located for access to the existing and planned major employment generators in Ipswich CBD, Springfield, Swanbank Enterprise Park, Citiswich, Ebenezer Industrial Park and the Aerospace and Defence Support Centre at Amberley (see **Figure 3**) (Ripley Valley Priority Development Area, 2011). The Proposed Action if approved will aid in relieving the in-demand housing needs of the Ripley Valley and aligns with the State and Local Government planning goals for the region.

3.1.1 Regulated vegetation

The balance of the Site is mapped as Category X (generally exempt from the *Vegetation Management Act 1999*) or Category C high-value regrowth vegetation (**Inset 2**). The vegetation communities, Regional Ecosystem's (**RE**), that are mapped across the Site are limited to RE 12.9-10.7 (see **Section 4.1.1**) and (**Figure 5**).



Inset 2. Category C regulated vegetation

3.1.2 Protected plants

The State's flora survey trigger map indicates that the Site is **not** classified as high-risk for protected plant species. Pursuant to the *Nature Conservation Act 1992* (Nature Conservation Act 1992, 1992), it constitutes an offence to clear protected plants existing 'in the wild' unless an authorisation is obtained, or the clearing activity is classified as exempt (see **Section 4.0**).

3.1.3 Water features

A drainage feature, in accordance with the *Water Act 2000* (Water Act 2000, 2000) is mapped across the Site (see **Inset 3**). This feature is categorised as follows: Major non-perennial.

No Waterways for waterway barrier works are mapped across the Site, as designated under the *Fisheries Act 1994* (Fisheries Act 1994, 1994).

Inset 3. Drainage features

4. Desktop Assessment

To accurately inform the field survey requirements, a comprehensive desktop assessment was meticulously conducted. This assessment entailed a rigorous examination of contemporary and relevant databases and mapping resources concerning flora, fauna, ecological communities, waterways, and other Matters of National Environmental Significance (**MNES**), Matters of State Environmental Significance (**MSES**), and Matters of Local Environmental Significance (**MLES**) that are anticipated to be present within or adjacent to the designated Site. The primary objectives of the desktop assessment included refining a list of threatened species to be specifically targeted during ecological surveys and guiding the selection and implementation of appropriate survey methodologies.

The assessment incorporated an extensive review of current aerial photography alongside key Commonwealth, State, and Local government desktop databases and mapping resources. These resources were critically analysed to ensure a robust and accurate foundation for the planned surveys. The resources reviewed included the Commonwealth DCCEEW Protected Matters Search Report (**PMST**) (**Attachment 7**), as provided under the EPBC Act, and the Atlas of Living Australia for insights specific to MNES species. Other databases scrutinised included the National Flying-Fox Monitoring Map, compiled by DCCEEW, and a species list derived from the Queensland Government's WildNet database (**Attachment 8**). A radius of 5 km was used as a base line for MNES species however for highly mobile or species that are considered more likely to be in the area around the Site a wider radius of 25km was used.

Additionally, the review encompassed a Vegetation Management Report generated by the Queensland Department of Natural Resources and Mines, Manufacturing and Regional and Rural Development, along with Mapping of MSES as provided by Queensland Globe (**Attachment 9**). The evaluation also incorporated analysis of protected plant trigger mapping under the *Nature Conservation Act 1992* (Nature Conservation Act 1992, 1992). In conjunction with these resources, an extensive review of historical aerial photography, conducted via QImagery, was executed. This served to assist in the broad delineation of vegetation communities and to identify any historical trends in local vegetation patterns.

The execution of such a methodical and analytical desktop assessment is critical as it underpins the ecological survey designs and methodologies with precise and targeted objectives. The findings from this assessment provide a structured approach to field surveys, ensuring valuable data collection and contributing significantly to the conservation and management strategies concerning the Site's environmental significance. Such an approach fosters a deeper understanding of the Site-specific ecological characteristics and informs better decision-making processes aimed at environmental protection and sustainability.

4.1.1 Pre-clear Vegetation Communities

Queensland Herbarium pre-clear RE mapping shows that the Site historically would have accommodated RE 12.9-10.7 (Of Concern) across the entirety of the Site and surrounding areas (**Table 1**).

Table 1. Pre-clear regional ecosystems

Regional Ecosystem	Description
12.9-10.7	*Eucalyptus crebra* +/- E. *tereticornis*, *Corymbia tessellaris*, *Angophora* spp. and *E. melanophloia* woodland on sedimentary rocks

4.1.2 Current Vegetation

The Regulated Vegetation Management report (**Attachment 9**) identifies current Site conditions, revealing a vegetation mosaic mapped as both 'Category X' Regulated Vegetation and 'Category C' Regulated High-value

Regrowth Vegetation, as depicted in **Figure 5**. Notably, the 'Category C' areas consist of RE 12.9-10.7, classified as 'Of Concern'. These areas are documented in **Table 2**.

The Site features distinct sections of mapped Category C (RE 12.9-10.7) vegetation, partitioned by interspersed portions of Category X non-remnant vegetation. This fragmented configuration suggests potential ecological challenges, including habitat connectivity and biodiversity corridors. Surrounding environments primarily comprise Category X non-remnant areas, with isolated patches of RE 12.9-10.7 and RE 12.3.7/12.3.3 situated towards the northwest. Notably, the Site's southeastern perimeter aligns with broader expanses of RE 12.9-10.7, indicating a spatial relationship with larger regional ecosystems.

Desktop analyses indicate constrained connectivity of the Site to contiguous natural habitats. Predominantly bordered by Category X non-remnant vegetation alongside roads and residential developments to the north, west, and south, the Site's ecological isolation poses risks to native species movement and genetic exchange.

The presence of regulated vegetation intersecting a watercourse within the Site was also noted.

Table 2. Current regional ecosystems

Regional Ecosystem	Description	Area (ha)
12.9-10.7	*Eucalyptus crebra* +/- E. *tereticornis*, *Corymbia tessellaris*, *Angophora* spp. and *E. melanophloia* woodland on sedimentary rocks	8.91
Non-remnant	Category X	7.29

4.1.3 Historic Disturbance

The evolution of land use on the Site from 1958 to 2024 reflects broader regional trends. Initially characterised as a cleared rural property, the Site, along with its adjoining areas, aligns with the mid-20th century regional land use practices, which favoured agricultural and non-residential utilisation. Aerial imagery from 1971 corroborates ongoing clearing activities, highlighting a landscape marked by sparse tree distribution. By 2011, significant shifts are evident, with increased proliferation of rural residential housing and notable tree regrowth, signalling a transition towards a more residential profile while maintaining rural characteristics. Advancements in infrastructure, including improved roadways, further signify regional development. Despite these transformations, the primary Site itself remains unchanged.

Table 3. Historical aerial photography

Year	Historical Analysis
	In 1958, the Site is characterised as a cleared rural property, in alignment with the adjoining properties, which exhibit a similar level of clearance. Notably, there are no residential structures present on the Site. This pattern of land use is consistent with the broader regional practices of the period.

Year	Historical Analysis
	Aerial imagery from 1971 indicates ongoing clearing activities on the Site and its vicinity. The Site appears to have a sparse distribution of remaining trees scattered across the property.
	By 2011, the prevalence of rural residential houses had increased significantly in the area. Notably, there was evident regrowth of tree cover on both the Site and adjacent properties. Additionally, the roads had been improved from their previous gravel composition.
	By 2024, significant residential developments have been instituted across the locality. Despite these changes, the original Site has remained unchanged compared to previous years. Notable regrowth of tree cover has been observed on both the Site and neighbouring properties. To the north, new infrastructure, including Ripley Valley State Secondary College, Ripley Valley State School, and the Ripley Satellite Hospital, have been constructed, contributing to the locality's educational and healthcare services.

4.2 Likelihood of Occurrence Assessment

Following a review of relevant desktop resources, a likelihood of occurrence assessment was undertaken for species listed under the NC Act and EPBC Act that:

- Have verified occurrence records within 2 km of the Site according to the Queensland WildNet online database.
- Are considered 'known' or 'likely' to occur within 2 km of the Site according to the PMST.

To assess the likelihood of occurrence for these species, the habitat requirements for each species was reviewed and compared against the habitat types present within the Site. The results of the likelihood of occurrence assessment are provided in **Table 4**, **Table 5** and **Table 6**. A summary of the perceived probability for likelihood of occurrence based off desktop assessment is provided in **Table 4**.

Table 4. Likelihood of Occurrence Classifications (Ecosmart Ecology, 2015)

Assessment	Habitat Criteria	Local Record Criteria	Perceived Probability
Known	Habitat is considered moderately to good quality and is being utilised on site.	The species has been confirmed as present within the Site, and those records are unlikely to represent transient or vagrant individuals.	100%
Likely	Habitat is considered moderately to good quality and similar to other locations where the species is found	There is a number (~5 or greater) of local (≤ 10 km from the Site), contemporary (post 1980) records of the species; or there is strong evidence that a cryptic species (which may not be frequently recorded in databases) has anearby resident population(s).	>50%
Possible	Habitat is marginal to moderate	The species is known by a few local contemporary records and is not a transient species.	20-50%
Unlikely	The habitat is marginal	There are few, if any, local contemporary records.	1-19%
Highly unlikely	The habitat is unsuitable	There are no local contemporary records.	≤1%
Absent	No habitat present	There are no local historic or contemporary records (TEC only).	0%
Transient	The habitat is suitable, marginal or good quality	The species is highly mobile and vagrant. They may infrequently appear in the local area over a long timeframe but are never resident or frequent visitors (e.g. return migrants). These species are typically birds which, while having some probability of occurring, are unlikely rely on the Site for their lifecycle or maintaining populations.	N/A

4.2.1 Threated Ecological Communities

The PMST (**Attachment 7**) indicates the potential occurrence of MNES vegetation communities and species in the locality. An assessment of the likelihood of occurrence for each Threatened Ecological Community (**TECs**) has been undertaken as shown in **Table 5**. This assessment outlines the potential occurrence for each TECs presence both from the locality and Site. This has been based on database searches, Site attributes such as soils, locational context and known TEC bio-conditional requirements. Only those TECs known or likely to occur within the Site have been considered for further assessment in **Section 8** of this report. Analysis below in **Section 4.2.1** has concluded that TEC 's are **Unlikely** to occur on the Site.

Table 5. Likelihood of occurrence of TECs potentially on or within 2km of the Site as per PMST

TEC	Threatened Status	Likelihood of Occurrence within 2km	Likelihood of Occurrence on Site	Potential for Significant Impact
Subtropical eucalypt floodplain forest and woodland of the New South Wales North Coast and south east Queensland bioregions	Endangered	Likely to occur within the area	The Subtropical Eucalypt Floodplain Forest and Woodland of the New South Wales North Coast and south east Queensland bioregions, exhibits a structural variability ranging from tall open forests to woodlands and scattered trees, particularly where clearing has occurred. This variability extends to denser closed forests or low forest formations. The tree canopy comprises species from the genera *Eucalyptus*, *Angophora*, *Corymbia*, *Lophostemon*, and *Syncarpia*, excluding *Eucalyptus robusta* (swamp mahogany). Frequently observed species include *Corymbia intermedia* (pink bloodwood), *Eucalyptus moluccana* (grey box), *Eucalyptus grandis* (flooded gum), *Eucalyptus siderophloia* (grey ironbark), and *Eucalyptus tereticornis* (Queensland blue gum), in addition to *Syncarpia glomulifera* (turpentine), *Eucalyptus resinifera* (red mahogany), and *Lophostemon* confertus (brush box). The canopy typically surpasses forty metres in height and maintains 40-60% crown cover when undisturbed, although these metrics may vary without compromising the identification of the TEC. A discernible sub-canopy featuring smaller trees from genera such as *Melaleuca* and *Leptospermum* is frequently present, complemented by a diverse understorey of grasses, forbs, ferns, sedges, and scramblers. Eighteen Queensland Regional Ecosystems (QLD REs) are associated with this TEC, namely 12.3.2, 12.3.2a, 12.3.3, 12.3.3a, 12.3.3b, 12.3.3d, 12.3.4a, 12.3.7, 12.3.7c, 12.3.7d, 12.3.10, 12.3.11, 12.3.11a, 12.3.11b, 12.3.12, 12.3.14a, 12.3.15, and 12.3.19. Geographically, the TEC stretches from north of Newcastle, New South Wales, near Raymond Terrace, to just north of Gladstone, Queensland. It is primarily situated on alluvial landforms, including floodplains, riparian zones of parent rivers and tributaries, alluvial flats, floodplain/alluvial terraces, and periodically inundated depressions. Its typical elevation is below 50 metres above sea level, although occurrences have been recorded up to 250 metres. Notably, the smallest patch size identifiable as this TEC is 0.5 hectares. Like other alluvial-based TECs, the Subtropical Eucalypt Floodplain Forest and Woodland of the New South Wales North Coast and south east Queensland bioregions is primarily defined by its occurrence on alluvial plains, classified under land zone three. The analysis of the Site under consideration highlights its alignment with land zones 9-10, found throughout south east Queensland, as established by the Desktop Assessment and the investigation of pre-clearance Regional Ecosystem mapping. Importantly, the absence of alluvial landforms on this Site strongly indicates the improbability of the presence of the Subtropical Eucalypt Floodplain Forest and Woodland of the New South Wales North Coast and south east Queensland bioregions TEC. Consequently, the occurrence of this TEC in the analysed location is deemed highly unlikely.	Highly Unlikely

4.2.2 Threatened Flora Species

The PMST illustrates the potential or occurrence of flora MNES within a 2 km search radius of the Site (**Attachment 7**). This desktop assessment is assisted through reference to the Queensland Department of Environment, Tourism, Science and Innovation (**DETSI**) Wildlife Online database, which provides verified records for some of the identified MNES (**Attachment 8**).

The PMST identified sixteen threatened flora species as potentially occurring within 2 km of the Site. The sixteen species that were listed in the PMST report are summarised in **Table 6**. Of these sixteen species, none were identified in the Wildlife Online data. The Wildlife Online data indicates confirmed records of Critically Endangered, Endangered, Vulnerable and Near Threatened (**CREVNT**) flora species in the locality. The conservation-significant species identified by these database searches formed a target for Site surveys.

An assessment of each flora species likelihood of occurrence has been undertaken (**Table 6**). This has been based on database searches, Site attributes such as soils, locational context, altitude and known species ecological requirements. Only those threatened flora species known or likely to occur within the Site have been considered for further assessment in **Table 6** and **Section 8** of this report. The residual matters listed in the PMST considered unlikely to occur within the Site or be impacted by the Proposed Action (e.g. rainforest species) have not been assessed given the highly unlikely nature of these occurring within or in proximity to the Site. Analysis below in Section 4.2.2 has concluded that MNES Flora species are Unlikely to occur on the Site.

Table 6. Likelihood of occurrence of Flora MNES potentially on or within 2km of the Site as per PMST.

Flora MNES	Threatened Status	Likelihood of Occurrence within 2km	Likelihood of occurrence on Site	Potential for Significant Impact
Coleus habrophyllus	Endangered	Likely to occur within the area	The occurrence of *Coleus habrophyllus* in the Site is considered Unlikely given the specific environmental conditions required for its growth. This species has been documented primarily on chert or sandstone outcrops, often within shaded open woodland environments near vine forests. Notably, there are seven recorded populations located within the Oxley Creek region of Greenbank, Oppossum Creek in Springfield, Woogaroo Creek, and Goodna. Furthermore, three additional populations have been identified within White Rock Conservation Park, inclusive of Six Mile Creek Conservation Park near Ormeau, positioned to the south of Beenleigh. Coleus habrophyllus is characterised by a preference for niche habitats involving rocky outcrops, minimal weed presence, and an undisturbed understorey in shaded locales. Data sourced from Queensland WildNet and the Atlas of Living Australia (**ALA**) cites eleven occurrences of the species within a 5-kilometre radius of the Site. These records correlate with the established population within the White Rock – Spring Mountain Conservation Estate, recognised for offering optimal habitat conditions. The Site in question has undergone substantial anthropogenic alteration, primarily due to historical land clearing activities for agricultural use. Such disturbances have drastically transformed the native vegetation cover. Consequently, the current ecological integrity of the Site is not aligned with the specific habitat requirements critical for supporting *Coleus habrophyllus*. Additionally, the Site is positioned outside the downslope regions of known populations, further diminishing its suitability for the species' establishment. Given the unfavourable habitat modifications and absence of conducive ecological conditions, the presence of *Coleus habrophyllus* at the Site is highly unlikely. The analysis indicates that the Site does not offer the necessary conditions such as undisturbed shaded understorey or rocky outcrops, thus precluding the establishment or survival of this species.	**Unlikely**
Cupaniopsis tomentella (Boonah Tuckeroo)	Vulnerable	Likely to occur within the area	The Boonah Tuckeroo is a species restricted to a geographical area situated between Boonah and Ipswich in south east Queensland. Its ecological preferences are characterised by its growth in vine thickets located on fertile clay soils. Such habitats have been extensively diminished over the last century and a half, primarily due to widespread agricultural activities and urban development. The species' occurrence overlaps with the "Brigalow (*Acacia harpophylla* dominant and co-dominant)" and the "Semi-evergreen vine thickets of the Brigalow Belt (north and south) and Nandewar Bioregions"—communities classified as TECs. Comprehensive analyses of existing data sources, such as Queensland WildNet and the ALA sighting records, reveal an absence of Boonah Tuckeroo within a 5 km radius of the area	**Highly Unlikely**

Flora MNES	Threatened Status	Likelihood of Occurrence within 2km	Likelihood of occurrence on Site	Potential for Significant Impact
			under consideration. The lack of documented occurrences is a critical indicator when evaluating the potential presence of this species in specific locales. Furthermore, the Site in question does not support the requisite vine thicket or Brigalow habitat that the Boonah Tuckeroo depends on for its growth and survival. This, combined with the absence of nearby records in trusted databases, strongly suggests that the likelihood of this species being present on-site is extremely low. Therefore, the available evidence underscores a negligible probability of encountering the Boonah Tuckeroo within the specified area, consistent with its historical and ecological constraints.	
Dichanthium setosum (bluegrass)	Vulnerable	Likely to occur within the area	The distribution range of the Bluegrass species spans from Toowoomba in the south to Lynd Junction in the north, with sporadic occurrences noted near the Palmer River on Cape York and within Lawn Hill National Park close to the Northern Territory boundary. This species typically thrives in environments characterised by heavy soils, specifically cracking clays or alluvium, frequently found in gilgai formations. These habitats are often located within woodland or open woodland ecosystems, dominated by Acacia species, such as brigalow, and/or various Eucalyptus species. The regional climate is tropical to subtropical, exhibiting pronounced seasonality, where periods of aridity are common. A review of the data from Queensland WildNet and the ALA reveals an absence of Bluegrass records within a 5 km radius of the Site. This absence of documented occurrences is a critical factor in assessing the potential presence of the species onsite. Furthermore, the specific environmental conditions that support Bluegrass viability, notably the presence of suitable heavy soil compositions and particular vegetative associations, do not appear to be replicated within the confines of the surveyed location. Given the lack of documented sightings in the immediate vicinity and the absence of habitat conditions conducive to sustaining Bluegrass populations, the probability of this species occurring onsite is decidedly low. The synthesis of habitat preference data and local sighting records substantiates the conclusion that the conditions necessary for the flourishing of Bluegrass are not present, negating the likelihood of its presence within the area under examination. In summary, the evaluated evidence strongly suggests that the environmental parameters of the Site and surrounding locale do not support the existence of Bluegrass. The absence of both favourable habitat characteristics and recorded sightings effectively preclude its presence, supporting a conclusion of highly unlikely occurrence in the target area.	**Highly Unlikely**

Flora MNES	Threatened Status	Likelihood of Occurrence within 2km	Likelihood of occurrence on Site	Potential for Significant Impact
Notelaea lloydii (Lloyd's Olive)	Vulnerable	Likely to occur within the area	The presence of the species *Notelaea lloydii* within the designated Site is assessed to be unlikely. This species typically inhabits undulating to hilly environments, favouring moist gullies or varied dry slopes but is seldom found on rocky outcrops. The prevailing soil types in its habitat are characterised by shallow, well-drained compositions, with a texture ranging from stony to highly rocky. As an ecotone species, *Notelaea lloydii* is usually observed at elevations between 80 and 480 m, residing in the transitional zones between open eucalypt forests and vine thickets. Associated tree species frequently recorded alongside this flora include Narrow-leaved Ironbark (*Eucalyptus crebra*), Spotted Gum (*Corymbia maculata*), and White Mahogany (*Eucalyptus acmenoides*), among others. The existing records of Lloyd's Olive, as identified through Queensland WildNet and ALA data, indicate sightings within the broader regional landscape, but the most proximate occurrence is noted at Ivory's Rock, which is situated over 6 km to the south/southwest of the Site, with the latest recorded observation dating back to 2020. Historically, the Site has undergone significant vegetation alteration due to agricultural activities, resulting in the substantial modification of native vegetative cover. Consequently, the Site is classified as category X vegetation, and RE 12.9-10.7. In previous ecological surveys on the Site, *Notelaea lloydii* has not been detected. The extensive history of land disturbance and the absence of recent sightings support the conclusion of a highly unlikely presence of this species on the Site.	**Unlikely**
Samadera bidwillii (Quassia)	Vulnerable	Likely to occur within the area	Quassia is a species typically found in lowland rainforest environments or on the peripheries of such ecosystems, often in association with *Araucaria cunninghamii*. It is a versatile species, adaptable to various forest types, including open forests and woodlands. Notably, Quassia thrives in proximity to both temporary and permanent watercourses up to altitudes of 510 metres. Commonly associated flora within open forests and woodlands includes species such as spotted gum (*Corymbia citriodora*), grey gum (*Eucalyptus propinqua*), and white mahogany (*E. acmenoides*), among others. The species exhibits a preference for diverse soil types ranging from lithosols and skeletal soils to loam, sands, silts, and clay-subsoiled sands. Current data from Queensland WildNet and the ALA indicate a notable absence of Quassia within a five-kilometre radius of the Site. This absence in local records highlights a distribution pattern that does not extend into the immediate vicinity, despite the apparent presence of potentially suitable habitats on-site. Considering these observations, it is assessed that while the physical environment on-site may provide viable conditions for Quassia, the species' absence in existing records within the surrounding locality significantly diminishes the likelihood of its occurrence. Consequently, it	**Unlikely**

Flora MNES	Threatened Status	Likelihood of Occurrence within 2km	Likelihood of occurrence on Site	Potential for Significant Impact
			is concluded that the presence of Quassia on this Site is unlikely, given the lack of supporting ecological or distributional evidence.	

4.2.3 Threatened Fauna Species

The PMST (**Attachment 7**) indicates the potential occurrence of MNES threatened fauna species in the locality of a 2 km radius. A desktop assessment of the likelihood of occurrence for each fauna species been undertaken as shown in **Table 7**. This assessment outlines the potential occurrence for each species presence from the Site. This has been based on database searches and only those species known, likely or possible to occur within the Site have been considered for further assessment in **Section 6.3** and subsequently **Section 8** of this report if the species is identified for further assessment. The radius used for each species was at a minimum 5 km, with a wider radius of 25 km used for highly mobile species. The residual matters listed in the PMST considered unlikely to occur within the Site or be impacted by the Proposed Action (e.g. marine species) have not been assessed any further due to the unlikely they would occur within or proximate the Site.

Table 7. Likelihood of occurrence of Fauna MNES potentially on or within 5 km of the Site as per PMST.

Fauna MNES	Threatened Status	Likelihood of Occurrence within 2km	Likelihood of occurrence on Site	Potential for Significant Impact
BIRDS				
Calyptorhynchus lathami lathami (south-eastern Glossy Black-Cockatoo)	Vulnerable	Likely to occur within the area	The south-eastern Glossy Black-Cockatoo (*Calyptorhynchus lathami lathami*) primarily inhabits woodland regions characterised by a dominance of she-oak (*Allocasuarina*), or open sclerophyll forests and woodlands with an understorey of *Allocasuarina* beneath trees from the *Eucalyptus*, *Corymbia*, or *Angophora* genera. Additionally, this species has been documented in mixed woodland assemblages comprising *Allocasuarina*, *Casuarina*, cypress (*Callitris*), and *Acacia harpophylla* (brigalow). In the south-east Queensland region, specifically west of the Great Dividing Range, the cockatoo has been noted feeding within remnant *Casuarina cristata* (belah) and *Allocasuarina luehmannii* (bulloak) forests. It is also observed utilising suitable remnant woodlands and isolated stands of *Allocasuarina* and Casuarina as feeding sites within urban locales. A Site evaluation reveals that the specific vegetative types preferred by the south-eastern Glossy Black-Cockatoo ***have not been identified within the Site***. Despite the Glossy Black-Cockatoo occurrence in the wider region, historical ecological studies over the Site, surrounding developments and properties have not substantiated evidence of their presence directly on this Site or surrounds. Data compiled from Queensland WildNet and the ALA indicate three recorded sightings within a 5 km radius, with the nearest observation approximately 3 km away, though lacking a specific date. The existing vegetation on the Site has been subjected to historical disturbances that have markedly reduced the availability of viable foraging habitats. Specifically, this pertains to areas that would typically contain the necessary foraging tree species, such as Casuarina or Allocasuarina, which are crucial for the south-eastern Glossy Black-Cockatoo. This reduction in suitable habitat is exacerbated by the absence of significant tree assemblages that offer nesting hollows appropriate for this species. The south-eastern Glossy Black-Cockatoo requires specific hollow dimensions for nesting purposes, necessitating hollows situated more than eight metres above the ground. These must have branches greater than 30 centimetres in diameter, positioned at no more than 45 degrees from vertical, and a minimum entrance diameter that exceeds 15 centimetres. Presently, the Eucalyptus species found within the Site are not of an age or condition conducive to the development of hollows that meet these stringent requirements. Consequently, the culmination of these factors—chiefly the lack of suitable feed trees as detailed in Attachment 11, the absence of appropriate hollow nesting trees, and the sparse record of sightings in the area—indicates that the likelihood of the south-eastern Glossy Black-Cockatoo utilising this Site is low. Moreover, given the lack of both foraging and nesting habitats, together with the urban	**Unlikely**

Fauna MNES	Threatened Status	Likelihood of Occurrence within 2km	Likelihood of occurrence on Site	Potential for Significant Impact
			settings that immediately surround the area, it is improbable that this species is present in the immediate locality.	
Erythrotriorchis radiatus (Red Goshawk)	Endangered	Likely to occur within the area	The Red Goshawk (*Erythrotriorchis radiatus*) is distributed sparsely, occupying approximately 15% of the coastal and sub-coastal regions of northern Australia. This expanse stretches from the western Kimberley Division to north-eastern New South Wales. Notably, there is evidence to suggest the breeding population has contracted northwards, resulting in its disappearance from the southern regions of its historical range, specifically southern Queensland and New South Wales. The habitat preference for this species includes coastal and sub-coastal tall open forests, woodlands, and tropical savannas, as well as the peripheries of rainforests and forested river areas. These environments provide extensive forested territories with a variety of open vegetation types. The proximity to large, forested watercourses or permanent water bodies is crucial for the species, as these areas are more fertile and thus support rich populations of birds and provide suitable nesting trees. Preference is typically shown for tall, open-canopied trees exceeding 20 metres in height for nesting purposes. Despite the availability of optimal habitats, the species maintains very low population densities. Estimated home ranges measure approximately 120 square kilometres for females and 200 square kilometres for males, indicating a wide territorial requirement. Upon examining the Site in question, there are no records of the Red Goshawk within a 5 5 km buffer according to the WildNet and ALA databases. In the context of the current study area, the absence of large tracts of remnant vegetation and the lack of significant riparian corridors suggest that the habitat requirements for this species are not met. Consequently, the likelihood of their presence within this specific region remains minimal, given the inadequacy of essential environmental features needed to support their population.	**Unlikely**
Falco hypoleucos (Grey Falcon)	Vulnerable	Likely to occur within the area	The Grey Falcon (*Falco hypoleucos*) inhabits the arid and semi-arid regions of Australia, including notable areas such as the Murray-Darling Basin, Eyre Basin, central Australia, and Western Australia. This species is typically associated with environments where the annual rainfall does not exceed 500 mm. In scenarios where a sequence of wet years is succeeded by drought conditions, the distribution of the Grey Falcon may become marginally more extensive. Nevertheless, its presence effectively remains confined to these arid and semi-arid zones year-round.	**Unlikely**

Fauna MNES	Threatened Status	Likelihood of Occurrence within 2km	Likelihood of occurrence on Site	Potential for Significant Impact
			A review of existing data has shown the absence of the Grey Falcon within a 5 km radius of the Site in question, as referenced by both the WildNet and the ALA databases. Given the current landscape characteristics and prevailing climatic conditions, the likelihood of encountering the Grey Falcon at the Site is significantly low. The Site in question does not exhibit the arid and semi-arid landscape features typically preferred by this species. Consequently, the potential for the Grey Falcon to occur within this region is deemed highly unlikely, further corroborated by the lack of recorded observations within the proximal 5 km buffer zone.	
Gallinago hardwickii (Latham's Snipe)	Vulnerable	Known to occur within area	Latham's Snipe (*Gallinago hardwickii*) typically inhabits both permanent and temporary wetlands, favouring open, freshwater ecosystems abundant with low, dense vegetation such as wet tussock grasslands. Observations of Latham's Snipe behaviours indicate a preference for roosting in grassy and weedy areas adjacent to water sources during daylight hours. Nocturnal activities often involve dispersion into wetter areas for foraging, with a tendency to roost near these feeding grounds. This migratory species occupies eastern Australia for its non-breeding season, spanning from August to February. The Site contains two dams that could serve as potential foraging habitats for Latham's Snipe, given the presence of water barring drought conditions. Consequently, these areas may offer suitable environments for transient feeding. Historical sightings within a 5 km radius, as documented by Queensland WildNet and the ALA, corroborate the likelihood of the species' presence in the local environs. The available data suggests a potential for Latham's Snipe using these dam areas particularly for foraging purposes. However, the habitat suitability for roosting and potential settlement on-site is influenced by the surrounding vegetation conditions. The maintenance or grazing of vegetation around these dams, and modification of vegetation, has compromise the ideal roosting habitat for the species. Therefore, the Site is less likely to be a viable foraging opportunity, and the modified nature of the vegetation may render it less conducive to sustaining or offering foraging to a Latham's Snipe population.	**Unlikely**
Hirundapus caudacutus (White-throated Needletail)	Vulnerable	Known to occur within area	The White-throated Needletail (*Hirundapus caudacutus*) is a widespread avian species found in the eastern and south-eastern regions of Australia. The species' recorded presence spans all coastal areas of Queensland and New South Wales, with its range extending inland to encompass the western slopes of the Great Dividing Range. There are occasional sightings on the adjacent inland plains. Primarily an aerial species, the White-throated Needletail is noted for its substantial altitude range, inhabiting airspace from below a metre up to more than 1,000 m above the ground. Most frequently observed above	**Unlikely**

Fauna MNES	Threatened Status	Likelihood of Occurrence within 2km	Likelihood of occurrence on Site	Potential for Significant Impact
			wooded terrains—including open forests and rainforests—these birds are also known to navigate below the canopy between trees or in clearings and have been documented over farmlands and coastal zones like beaches and mudflats, especially where updraughts are prominent. Current records sourced from reputable databases such as Queensland WildNet and the ALA verify the presence of the White-throated Needletail within a 5-kilometre radius of the Site in question. Despite these regional occurrences, the likelihood of this species being present on the Site is deemed improbable. The needletail's preference for high-altitude foraging does not correspond with the landscape of the Site, which lacks features that typically support substantial foraging opportunities. Consequently, considering the higher altitudinal habitat preferences and feeding behaviours of the species, it is unlikely they significantly use or frequent the area. Furthermore, the Site's current environmental status, characterised by its disturbed nature, alongside the scope of the Proposed Action, suggests minimal impact on the White-throated Needletail. Neither would the development cause a reduction in usable habitat nor alter the available resources for this species. Therefore, it remains reasonable to conclude that the Proposed Action will be unlikely to affect the White-throated Needletail's.	
Rostratula australis (Australian Painted Snipe)	Critically Endangered	Known to occur within area	The Australian Painted Snipe, a species adapted to specific wetland conditions, primarily inhabits shallow freshwater wetlands, which can occasionally be brackish. These environments encompass both ephemeral and permanent features such as lakes, swamps, and claypans, as well as inundated or waterlogged grasslands, saltmarshes, dams, rice paddies, sewage farms, and bore drains. This species prefers wetlands with substantial vegetative cover, including grasses, rushes, reeds, low scrub, lignum, open timber, or samphire. Occasionally, they use areas fringed with trees or scattered with fallen or washed-up timber. Critical breeding habitat for the Australian Painted Snipe includes shallow wetlands marked by bare, wet mud and areas with both upper structure and canopy cover. Historical nesting records indicate use of small islands within freshwater wetlands, with essential features comprising shallow water, exposed mud, dense low foliage, and sometimes tall dense vegetation (Rogers et al. 2005). According to Queensland WildNet data, there are no documented sightings of the Australian Painted Snipe within a 5-kilometre radius of the Site. However, two records have been noted within the same radius according to the ALA the nearest being approximately 4.5 km southeast, in proximity to the Bandamba Lagoon. Despite these records, the	**Unlikely**

Fauna MNES	Threatened Status	Likelihood of Occurrence within 2km	Likelihood of occurrence on Site	Potential for Significant Impact
			presence of the species in the immediate surrounding region is considered unlikely due to the absence of significant recent observations. The Site has experienced extensive habitat degradation, primarily due to past clearing activities, which has severely limited environments reflective of typical freshwater wetlands. Consequently, the remaining habitat exhibits features that are inconsistent with those required for sustaining the Australian Painted Snipe. The existing farm dams on the Site offer only marginal habitat suitability, with the surrounding vegetation failing to represent the optimal environment. Based on current data and habitat assessments, it is unlikely that the Australian Painted Snipe would occur on or be impacted significantly by the Proposed Action.	
Tringa nebularia (Common Greenshank)	Endangered	Likely to occur within the area	The Common Greenshank (*Tringa nebularia*) is a species noted for its adaptability across a diverse array of inland wetlands and sheltered coastal habitats exhibiting various salinity levels. Characteristically, this species forages at the periphery of wetlands, engaging with soft mud or mudflats. Its primary diet includes insects and their larvae (especially beetles), crustaceans, annelids, molluscs, amphibians, and small fish species such as mullet, clinids, and tilapia, with occasional consumption of rodents. The foraging behaviour of the Common Greenshank is notable for its diurnal and nocturnal activity; it employs techniques such as surface picking, probing, sweeping, and lunging within the mudflat margins or shallow waters. Additionally, these birds may traverse shorelines and actively chase prey in shallow water. Evidence supporting the presence of Common Greenshank's within the immediate locale is minimal, characterised by a mere four records within a 5 km radius of the Site, as per Queensland WildNet and ALA data. All sightings are concentrated at Bundamba Lagoon, located approximately 4.5 km southeast of the Site. This data indicates a limited presence of the Common Greenshank in the area, thus casting doubt on the species' regular occurrence at the Site. The Site's geographical disposition is significantly detached from the substantial waterways and marine environments conventionally associated with the Common Greenshank's habitat preferences. Consequently, the foraging resources provided by the small farm dams on the Site are deemed insufficient to meet the species' needs. Moreover, the absence of recent records further supports the inference that the locality is not a frequented habitat for the species.	**Unlikely**

Fauna MNES	Threatened Status	Likelihood of Occurrence within 2km	Likelihood of occurrence on Site	Potential for Significant Impact
			Therefore, the probability of the Common Greenshank occurring at the Site is assessed to be low. Moreover, the Proposed Action is unlikely to exert any detrimental impacts on the Common Greenshank or lead to the destruction of suitable habitat.	
Turnix melanogaster (Black-breasted Buttonquail)	Vulnerable	Likely to occur within the area	The Black-breasted Buttonquail is primarily located in south-eastern Queensland, extending geographically from near Byfield in the north to the rainforests of the Border Ranges in the south. This region is positioned eastward of the Great Dividing Range. However, there have been notable sightings of this species much further inland, reaching distances up to 300 km at locales such as Palm grove National Park and Barakula State Forest within Queensland. Within south-east Queensland, the ecological preferences of the Black-breasted Buttonquail often include vine thicket rainforests characterised by a predominantly closed canopy and a dense litter layer. These habitats typically receive an annual average rainfall ranging from 800 to 1200 mm. Additional suitable habitats comprise softwood scrubs within the Brigalow Belt, vine scrub regrowth, and mature hoop pine (*Araucaria cunninghamii*) plantations, particularly where lantana (*Lantana camara*) is present. The species is also occasionally found in dry sclerophyll forests adjacent to rainforests, as well as within *Acacia* and *Austromyrtus* scrubs located on sandy coastal soils. The Site does not contain the above habitat features decreasing the likelihood of the species occurring on the Site. An analysis of the current data within the immediate vicinity of the Site reveals a minimal presence of the Black-breasted Buttonquail. Queensland WildNet and ALA data document four records within a 5 km radius of the Site. Most sightings have been aggregated at Bundamba Lagoon, situated approximately 4.5 km southeast and further east of the Site. This concentration of sightings suggests a restricted distribution, casting uncertainty on the species' prevalence and regular occurrence within the immediate locale. Therefore, the probability of the Black-breasted Buttonquail occurring at the Site is assessed to be low. Moreover, the Proposed Action is unlikely to exert any detrimental impacts on the Species or lead to the destruction of suitable habitat.	**Unlikely**
MAMMALS				
Dasyurus maculatus maculatus (Spot-tailed Quoll)	Endangered	Likely to occur within the area	The Spotted-tailed Quoll (*Dasyurus maculatus*) is a carnivorous marsupial known for its diverse diet, which encompasses a broad spectrum of prey. It feeds on small to medium-sized mammals—those typically weighing less than 5 kg—as well as birds, reptiles, amphibians, fish, and invertebrates. Though primarily dependent on forest ecosystems, this	**Unlikely**

Fauna MNES	Threatened Status	Likelihood of Occurrence within 2km	Likelihood of occurrence on Site	Potential for Significant Impact
			species demonstrates ecological versatility by inhabiting a wide range of environments. These range from closed forests, such as temperate and sub-tropical rainforests, and tall eucalypt forests, to more open landscapes like woodlands and coastal heathlands. Notably, the Spotted-tailed Quoll exhibits peak population densities in both wet and dry forest habitats. By day, these marsupials find refuge in an array of aptly concealed locations, including fallen logs, boulder piles, burrows, tree hollows, and occasionally beneath human dwellings. A comprehensive assessment of the local habitat surrounding the proposed Site has revealed a minimal presence of the Spotted-tailed Quoll, with the absence of recorded sightings within a 5 km radius from ALA. Habitat features associated with the species such as fallen logs or geological formations likely to provide den habitat are absent from the Site, removed possibly for cattle grazing. Such data strongly suggest that the likelihood of the species occurring at the Site is low. Given these findings, it is reasonable to infer that the Proposed Action is unlikely to pose a threat to the Spotted-tailed Quoll population and their natural habitats.	
Petauroides volans (greater glider)	Endangered	Likely to occur within the area	The Site encompasses approximately 7.29 ha classified as Category X (non-remnant) under the VM Act 1999. Two segments of the Site are designated as Category C, specifically RE 12.9-10.7, marked as 'of concern.' The greater glider, a nocturnal arboreal marsupial, inhabits eucalypt forests and woodlands. Its diet comprises *eucalypt* leaves, supplemented occasionally with flowers, and it necessitates large trees with hollows for habitation. The presence of greater glider feed species is noted in the form of general eucalypt regrowth across the Site, including the classified Category C vegetation in the north-west. The ecological assessments of the Site have identified a no live, mature, hollow-bearing trees of a suitable size and dimension for greater glider occur on Site. This is a direct consequence of historical agriculture-related clearing and Site maintenance activities. This past disturbance significantly diminishes the likelihood of finding the mature, hollow-bearing trees favoured by the greater glider. In south east Queensland, the greater glider requires at least 2 to 4 live den trees per two hectares of suitable forest habitat, suggesting a requirement for 16 to 32 habitat trees for the entire Site. Current surveys document no suitably dimensioned, live habitat trees, leading to a classification of the habitat quality as poor for supporting the greater glider The assessment conducted on the Site indicates that the presence of the Greater Glider is unlikely due to a combination of insufficient habitat quality and the lack of connectivity to larger, suitable forested areas. Historical land clearing and agricultural practices have	**Possible / Unlikely**

Fauna MNES	Threatened Status	Likelihood of Occurrence within 2km	Likelihood of occurrence on Site	Potential for Significant Impact
			resulted in the loss of mature, hollow-bearing trees, which are critical for the greater glider as they provide essential nesting habitats. The absence of mature trees with the necessary hollows significantly reduces the Site's suitability. Furthermore, the existing fragmentation of the landscape due to surrounding urban development further isolates the Site from contiguous forest habitats, impeding potential colonisation or movement of Greater Gliders from broader regional populations. Although the greater glider has been observed within the White Rock – Spring Mountain Conservation Estate, there are few recent recorded sightings within a 5 km radius of the Site according to Queensland's WildNet and ALA data (see **Figure 8**). This paucity of local records, combined with i) the lack of detection during the substantial amount of ecological studies undertaken in the immediately locality to support development within the RVPDA; jj) the Site's suboptimal habitat conditions; and iii) the surrounding impacts creating substantive edge impacts resulting in lost habitat, corroborates the assessment of the Site as unsuitable for sustaining a greater glider population and they are unlikely. Nevertheless, the Site's provision of food resources and coupled with broader regional sightings, precludes the possibility of completely excluding the presence of the greater glider.	
Petaurus australis australis (Yellow-bellied Glider)	Vulnerable	Likely to occur within the area	A total of 7.29 ha of the Site is designated as Category X (non-remnant) under the provisions of the Vegetation Management Act 1999. Additionally, a portion in the northwest section of the Site is identified as Category C RE 12.9-10.7. These classifications suggest a landscape with limited natural vegetation succession and implications for habitat quality. The yellow-bellied glider is found in *eucalypt*-dominated woodlands and forests, encompassing both wet and dry *sclerophyll* types. The subspecies demonstrates a distinct requirement for mature, old-growth forests, which supply the necessary trees for both foraging and refuge. Essential habitat characteristics include areas with a significant presence of winter-flowering and smooth-barked eucalypts, as well as large, hollow-bearing trees that serve as dens during daylight hours. There are no recorded instances of the yellow-bellied glider within a 5 km radius of the site, according to data from Queensland WildNet and the ALA. The most recent documented observation dates to 1993 and is situated approximately 10 km east of the site, near the White Rock – Spring Mountain Conservation Estate. Historical aerial photographs indicate extensive past clearing for agriculture use, which suggests the Site currently lacks the optimal conditions to support yellow-bellied glider populations. While the Site's habitat quality is assessed to be suboptimal for the yellow-bellied glider due to the scarcity of hollow-bearing mature trees, the presence of food resources and	**Unlikely**

Fauna MNES	Threatened Status	Likelihood of Occurrence within 2km	Likelihood of occurrence on Site	Potential for Significant Impact
			limited old-growth trees means the complete exclusion of the species cannot be conclusively determined.	
Phascolarctos cinereus (Koala)	Endangered	Known to occur within area	The Site encompasses approximately 7.29 ha, designated as Category X (non-remnant) pursuant to the Vegetation Management Act 1999, with two segments classified as Category C RE 12.9-10.7. Within the Site, there exists general eucalypt regrowth, which forms Koala habitat. Adjacent to these patches of regrowth, the land is characterised by cleared paddocks used for agricultural operations and scattered individual trees. Although the Site exhibits primarily fragmented ecological values, it is bordered by regrowth vegetation to the east. This surrounding vegetation is recognised as Category B remnant vegetation of the same RE type, augmenting the likelihood of transient Koalas inhabiting the area. The potential for Koala presence is substantiated by historical data, which indicates that Koalas are present within the locale. Queensland WildNet data and ALA records confirm sightings within a 5 km radius, with the nearest and most recent sighting approximately four hundred metres to the west of the Site (see **Figure 7**). While the vegetation on-site is non-remnant and thus exhibits limited capacity to sustain a stable Koala population, the noted proximity to remnant vegetation and recorded sightings suggests a moderate potential for Koalas to transiently use the Site. Despite the lack of significant mapped vegetation values within the Site itself, the presence of surrounding vegetation enhances the ecological connectivity. This connectivity potentially facilitates Koala movement across landscapes, increasing the possibility for transient visitations. The observed regrowth areas within the Site provide additional habitat support, potentially serving as temporary refuge and foraging grounds for Koalas. The Site's ability to support a permanent Koala population is constrained due to its fragmented nature, the adjacency to remnant vegetation zones and documented presence within the immediate vicinity indicates a moderate likelihood of Koala occurrences.	**Likely**
Pteropus poliocephalus (Grey-headed Flying-fox)	Vulnerable	Known to occur within area	The Site in question spans 7.29 ha and is classified as Category X (non-remnant) under the Vegetation Management Act 1999. Portions of the Site, however, are designated as Category C, specifically RE 12.9-10.7. Within this locale, potential foraging habitat for the Grey-headed Flying-fox is recognised, primarily within the fragments of remnant vegetation and general eucalypt regrowth dispersed across the Site. The Site is composed of fragmented ecological characteristics, with its periphery dominated by cleared paddocks used for agricultural activities, interspersed with isolated trees.	**Likely**

Fauna MNES	Threatened Status	Likelihood of Occurrence within 2km	Likelihood of occurrence on Site	Potential for Significant Impact
			Notably, the eastern boundary of the Site is adjacent to regrowth vegetative areas classified as Category B remnant vegetation, like the regional ecosystem present within the Site. This contiguous vegetation enhances the likelihood of Grey-headed Flying-fox individuals traversing the area. Despite the presence of potentially suitable habitat, there are no documented roosts on-site. The nearest confirmed roosts are situated approximately twelve kilometres south, at Peak Crossing, Flinders Peak. Data sourced from Queensland WildNet and ALA sightings indicate few occurrences of the species within a 5 km radius. The closest recorded sighting is a pair, located around 4.3 km northeast of the Site (see **Figure 9**). The Site's vegetation has experienced prior degradation; nonetheless, sections of *Eucalypt* regrowth present viable foraging habitat. Although the local ecological conditions have been compromised, the surrounding intact vegetation fosters a conducive environment for the Grey-headed Flying-fox to potentially visit, particularly in search of foraging opportunities.	
REPTILE				
Hemiaspis damelii (Grey Snake)	Endangered	Likely to occur within the area	The grey snake's distribution across Queensland shows a broad and dispersed pattern. The grey snake is recorded along the Macintyre and Condamine Rivers, extending across the floodplains of the southern Brigalow Belt from Goondiwindi and Dalby to the west of Glenmorgan. Records also indicate its presence on the Darling Downs, in the western Lockyer Valley, near Rockhampton on the central coast, and within the Darling Riverine Plains vicinity near Currawinya in south-western Queensland. Elevational distribution data reveal a range from seventy metres above sea level in the Lowbidgee region to 540 metres on elevated floodplains near Toowoomba, with most occurrences below the 300-metre mark. The grey snake's habitat in Queensland is characterised by Brigalow (*Acacia harpophylla*) and Belah (*Casuarina cristata*) woodlands, thriving on heavy, deep brown to black cracking clay soils. These landscapes are intricately associated with water bodies, where small gullies, ditches, and floodplain environments provide shelter beneath logs, rocks, and soil fissures. Additionally, the habitat extends to include grasslands, such as Queensland bluegrass (*Dichanthium sericeum*) and Mitchell grass (*Astrebla* spp.), on alluvial plains with similar soil conditions. An observation on the western downs highlights a strong affinity between the species and red sodosol soils, which feature a significant texture contrast that	**Unlikely**

Fauna MNES	Threatened Status	Likelihood of Occurrence within 2km	Likelihood of occurrence on Site	Potential for Significant Impact
			benefits the snake's ecology by offering ample foraging and sheltering opportunities within their course, crack-prone structures. The grey snake's ecological niche are the floodplains and ephemeral wetlands that form breeding grounds for its primary prey—frogs. The presence of these amphibians, coupled with the region's dense clay soils that develop the requisite cracks and crevices, facilitates the species' hunting strategies and offers protection. The Site classified as containing RE 12.9-10.7, it is noted that the habitat characteristics do not align with those typically supporting grey snake populations. Furthermore, no records from the ALA indicate the presence of the grey snake within a 5 km radius of this site. Consequently, the Proposed Action in this area is unlikely to exert any significant impact on the grey snake population.	

4.3 Other Matters of National Environmental Significance

4.3.1 World heritage areas

There is no mapped world heritage listed areas within the Site (2 km search) or buffer zone, no further assessment required (**Attachment 7**).

4.3.2 National heritage places

There is no mapped national heritage listed places within the Site (2 km search) or buffer zone, no further assessment required (**Attachment 7**).

4.3.3 Wetlands of international importance (listed under the Ramsar convention)

The PMST highlights that the Site falls 45-50 km upstream of the Ramsar wetland Moreton Bay. The Proposed Action will not impact on this wetland. The Site does not contain any wetland protection areas and there was no further assessment required. Further explained in **Section 6.4.**

4.3.4 Commonwealth marine areas

There are no mapped commonwealth marine areas within the Site (2 km search) or buffer zone, no further assessment required (**Attachment 7**).

4.3.5 Great barrier reef marine park

There is no mapped Great barrier reef park within the Site (2 km search) or buffer zone, no further assessment required (**Attachment 7**).

4.3.6 Nuclear actions (including uranium mines)

There are no mapped nuclear actions within the Site (2 km search) or buffer zone, no further assessment required (**Attachment 7**).

4.3.7 Water resources (that relate to coal seam gas development and large coal mining development).

There are no mapped water resources within the Site (2 km search) or buffer zone, no further assessment required (**Attachment 7**).

5. Ecological Survey Methods

Flora and fauna surveys have taken place between 2018 and 2025 by Litoria Consulting Pty Ltd (**Attachment 10**). and 28 South. Surveys consisted of a variety of flora and fauna assessment with determining habitat extent that will be or are likely to be significantly impacted by the Proposed Action. 28 South on the 28th of January 2025 obtained the most current Site survey information.

5.1 Flora Survey

Surveys have been conducted for a variety of purposes across this period, such surveys have included:

- Validation of existing Queensland Government remnant RE mapping.
- Target threatened flora species, and their habitats identified from database searches.
- The extent, type, diversity and integrity of vegetation communities present.
- Random meander surveys to check the veracity of the previous works.

The below provides a summary of the survey effort:

- The Site was surveyed in compliance with the *Methodology for Survey and Mapping of Regional Ecosystems and Vegetation Communities in Queensland, Version 7* (Neldner et al., 2017). Assessment sites were performed throughout the Site surrounding vegetated areas to thoroughly assess Queensland Government mapped remnant vegetation.
- Full tree survey, using differential GPS to <1 m accuracy.
- Tree condition / health assessment by a qualified arborist
- The validation and mapping of remnant vegetation was undertaken, multiple sites were conducted within each RE type.

5.2 Fauna Survey

Various fauna surveys have been conducted across the Site since 2018 by Litoria Consulting Pty Ltd and 28 South. Survey effort encompassed the entire Site and were guided by but not limited to the following methodologies:

- Survey guidelines for Australia's threatened bats (Survey Guidelines for Australia's Threatened Bats, 2010).
- Terrestrial Vertebrate Fauna Survey Guidelines (Queensland Herbarium and Biodiversity Science, 2022).
- Survey Guidelines for Australia's Threatened Mammals (Survey Guidelines for Australia's Threatened Mammals, 2011).
- EPBC Act referral guidelines for the endangered Koala (DCCEEW, 2024a).

Surveys have been conducted for a variety of purposes across this period, such surveys have included.

- Diurnal bird survey
- Nocturnal spotlight searches
- Call playback
- Opportunistic records

- Koala survey and habitat assessment

A range of field survey techniques were used as part of the ecological assessment for the Site. **Table 8** explains the purpose and description of each of the methods.

5.3 Habitat Assessment

Habitat surveys were conducted by teams of ecologists and botanists over the Site in 2018 and 2025. These surveys were detailed in nature and traversed the entirety of the Site. Surveys provided an insight into the ecological condition of vegetation communities within and adjoining the Site and potential for MNES fauna species or populations to occur within them. The purpose and description of each survey is provided in **Section 5.4**.

5.4 Field Survey Techniques

Table 8. Field Survey Techniques

Technique	Purpose	Description
Spotlighting	To determine the relative value of habitats for native fauna and compile a comprehensive fauna list.	Undertaken on foot through representative habitats, at a leisurely pace using hand-held spotlights and/ or head torches. This method samples nocturnal mammals (flying, arboreal and terrestrial), birds (owls and nightjars), reptiles (geckos) and amphibians.
Diurnal bird survey	To identify and compile a list of native bird species that may be using the Site.	Undertaken by meandering throughout the Site to ensure adequate spatial and temporal representation within 30 minutes of sunset and sunrise. Species identified by sight or sound.
Call playback	To identify arboreal species that are present on the Site.	Undertaken over two nights with calls broadcast from a speaker for approximately two minutes, followed by a period of three minutes of listening.
Koala survey and habitat assessment	To determine the extent of koala on the Site and assess the quality of habitat on Site.	Undertaken using the Koala Rapid Assessment Method developed by (Woosnam-Merchez et al., 2012). All trees on the Site were additionally assessed under the tree survey for the presence of koalas, koala scats and koala scratches.
Spot Assessment Techniques	The Spot Assessment Technique (SAT) was used to determine the localised level of use by koala.	Three SAT surveys were undertaken on Site in accordance with the methodology developed by the Australian Koala Foundation (Phillips & Callaghan, 2011). A Non-Juvenile Koala Habitat (**NJKHT**), which are known to be a food tree for koala, is identified within the Site and searched for the presence of koala, recording any identifiable koala scats.
Hollow Bearing Feature Analysis	To review the mature vegetation's hollow bearing features of the Site regarding the abundance, size and type of hollows supported within the Site.	All mature trees were inspected from the ground via binoculars to search for hollow bearing features and potential hollow bearing features. Trees were also observed for a longer period where avian activity (notably species reliant on hollows) was high and where early evening possum activity was high.
Opportunistic records	To add to the understanding of the ecological values of the Site.	Whilst visiting and traversing the Site opportunistic records were also recorded.

Technique	Purpose	Description
Random meander surveys	To check the veracity of the works conducted from 2018 to 2025	Undertaken from different starting points, the habitat is traversed in a random manner to maximise the coverage of habitat and the encounter rate of different species.

5.1 Survey Limitations

Ecological surveys are often deemed adequate for identifying MNES. However, conventional survey methodologies frequently fail to document the complete spectrum of flora and fauna species residing within a given area. This shortcoming arises from factors, including seasonal absences or reduced flowering, migratory patterns, cryptic behaviours, limited survey windows, and population dynamics. Consequently, certain ecologically significant or cryptic species may remain undetected during the typical brief survey periods.

The challenges inherent in standard ecological surveys are multifaceted. Seasonal variations can lead to the absence of specific species, either due to their migratory patterns or lifecycle stages that do not align with the survey period. Additionally, species exhibit cryptic behaviours or exist in low densities, making detection difficult within time limits. Population fluctuations further complicate obtaining a comprehensive understanding of the biodiversity present at any given time, as they can result in transient absences of otherwise locally present species.

To address these survey limitations, our assessment has incorporated an advanced evaluative level designed to enhance detection accuracy. This methodology involves predicting the presence of species not physically recorded during the survey. Such predictions are based on established distribution patterns, recent local records, and available habitats both within the Site and its immediate environs. This approach ensures that potentially undetected species, particularly those that are cryptic or occur sporadically, are considered within the ecological assessment framework.

6. Findings of the Site Assessment

6.1 Vegetation and Flora

The historical evaluation of the Site indicates extensive clearance of remnant vegetation, with palpable evidence of ongoing maintenance and grazing activities until agricultural activities on the Site were abandoned. Across the Site, pest species are prevalent, infiltrating the shrub and understory layers, often forming impenetrable thickets, suggesting a competitive exclusion of native species and potential alterations to ecosystem functionality.

6.1.1 Description of vegetation

The vegetation on the Site is categorised under a single Vegetation Structure Unit (**VSU**) and is comprised of native regrowth vegetation. The canopy layer, reaching heights between 15 to 30 m, is primarily composed of species such as *Eucalyptus crebra*, *Eucalyptus tereticornis*, *Eucalyptus melanophloia* and *Corymbia tessellaris*. Most trees on the Site are young regrowth, with a limited number of dead trees scatted on the Site. The bulk of the trees on the Site are too young to have developed hollows for animals to use as habitat and no hollows were identified during 28 South Site visits on the 28th of January 2025.

The distribution of canopy species and their relative abundance changes spatially with elevation and soil micro-habitats within the area. Where gullies, water and drainage features transect the Site, and alluvial soils locally dominate, forest red gum (*Eucalyptus tereticornis*) dominated the canopy. Conversely along ridge lines and mid-slope locations on soils more in line with the land zone described in the RE description, including fine grained sedimentary rocks and coarse-grained sedimentary rocks, the silver leaved iron barks (*Eucalyptus melanophloia*) exhibit patchy dominance within a matrix largely dominated by narrow-leaved ironbark (*Eucalyptus crebra*) across the Site. The narrow-leaved ironbark (*Eucalyptus crebra*) was the dominant canopy species across the majority of the Site. These differences in canopy vegetation and soil are so small in scale that functionally the vegetation can all be classified as the single VSU, RE 12.9-10.7. Additionally the species within the Site are all mentioned within the RE description further supporting the single RE classification within the site.

A notable characteristic of the current vegetational structure is the absence of a mid-storey layer, which is often crucial for supporting biodiversity and providing habitat complexities. The tall shrub layer, with heights ranging from 6 to 10 m, along with lower shrubs measuring 2 to 6 m, presents a distribution varying from sparse to moderately dense patches. These patches primarily consist of canopy recruits, various *Acacia* species including black wattle (*Acacia leocaylx*) and hickory wattle (*Acacia disparrima*), *Dodonaea triquetra*, along with exotic species such as *Lantana camara*.

The presence of dense lantana thickets over expansive areas within the Site at Bayliss Road, South Ripley, effectively creates virtually unpassable barriers. This phenomenon occurs due to Lantana camara's invasive nature, where it forms impenetrable, dense, rambling thickets that dominate landscapes, particularly in disturbed environments. Such growth not only excludes native flora through competition for resources but also hinders the natural regeneration of indigenous species, leading to reduced biodiversity and altered ecosystem dynamics.

The understory vegetation demonstrates moderate disturbance, dominated by a mixture of native and exotic herbaceous and grass species. This disturbance is indicative of anthropogenic pressures and soil degradation dynamics.

6.1.2 Threatened Ecological Communities

The comprehensive surveys conducted on-site have not identified any TEC's under the EPBC Act. The in-field assessments have determined that the arboreal species present on the Site reflect characteristics typical of native regrowth vegetation.

In-depth analysis of field assessment outcomes, coupled with an understanding of the known distribution patterns, as well as the ecological and biophysical requirements of TECs as listed, indicates the absence of any TECs on-site. Furthermore, projections for future ecological developments suggest that the Site will not support TECs at any

forthcoming point on the timeline. Consequently, it is determined that the Proposed Actions on the Site will not impact any TEC's.

6.1.3 Threatened Flora Species

The likelihood of occurrence assessment conducted for threatened species, in alignment with the methodology detailed in **Section 4.2.2**, is encapsulated in **Table 6** of this report. The findings of this assessment concerning threatened flora signify that no species of conservation importance are anticipated to be present within the Site or surrounding landscape. Ground-truthing of flora species within the Site was executed through field surveys, as delineated in **Section 5.1**. These field surveys did not reveal the presence of any threatened flora species categorised as MNES under the EPBC Act. The composition of tree species within the Site corresponds with the Regional Vegetation Management Map (**RVMM**).

The analysis of in-field assessment outcomes, coupled with an understanding of the known distribution and ecological or biophysical requirements of the identified flora species, substantiates the conclusion that no threatened flora currently inhabit the Site or would be likely to into the future. Considering these findings, the Proposed Action will not adversely impact any flora MNES.

6.1.4 General Flora Species

As detailed in **Sections 4.2.1** and **4.2.2**, a comprehensive summary has been conducted of MNES potentially located on or within a 2 km radius of the Site. An assessment of the flora species constituting the overall biodiversity of the Site, or potentially present within its boundaries, has been completed.

The findings from the botanical assessment have been compiled into a detailed flora species list, included as **Attachment 11**. This document represents the species identified on Site through established assessment methodologies, revealing a total of 835 trees. Notably, out of these, 792 were native and endemic to south east Queensland, while forty-three were classified as exotic.

6.1.5 Weeds

The Site exhibits a substantial presence of weeds, which occupy the understory and shrub layers. The presence of these weeds in such significant numbers indicates potential alterations in the Site's ecological balance and suggests a competitive environment where native flora may be increasingly marginalised. Notably, the Site harbours species classified as Weeds of National Significance (**WONS**), including Lantana camara.

6.2 Fauna Values

6.2.1 Connectivity

The Site and its environs have experienced considerable historical alterations attributed to extensive deforestation (refer **Table 3**) with the majority of the Site being cleared throughout the late 1900s, agricultural practices, and urbanisation. These changes were propagated not only by agricultural expansion but also by the growing demand for rural residential developments, which have contributed to a significant transformation of the landscape. The historical context reveals a gradual transition from natural landscapes to more anthropogenically influenced areas.

Moreover, the development of transportation infrastructure has played a pivotal role in altering the Site. The introduction of roads and other forms of transport links has not only facilitated accessibility but has also been a catalyst for further urban expansion and land-use changes. This infrastructure development has intertwined with both agricultural and residential expansions, creating a complex matrix of environmental shifts over time, all of which have left a lasting imprint on the ecological and socio-economic fabric of the area.

The expansion of housing developments to the north of the Site has resulted in significant alterations to the ecological connectivity of the region. As urban expansion continues to fragment the landscape, it disrupts these

existing corridors, impeding the movement of species and reducing habitat availability. In turn, this fragmentation may lead to isolated faunal populations, diminish genetic flow, and potentially jeopardise species survival.

The surrounding current and future developments, including those which have required EPBC referral as part of the RVPDA will continue to reduce the Sites ecological connectivity. Providing all planned developments proceed, the Site will eventually be isolated on all sides and bordered by housing estates (see **Figure 3**). It is noted that while residential development continues within the RVPDA, vast tracts of land are protected within the RVPDA and connected through large riparian corridors which will be the subject to extensive ecological restoration works.

6.2.2 Fauna Habitat Assessment

The surveys delineated in **Section 5.2** were methodically conducted to identify and spatially map NJKHTs within the designated Site. During the spatial mapping process of NJKHTs, each tree underwent a visual inspection to detect the presence of fauna as well as any indicative evidence, such as scratches and scats.

The Site encompasses koala habitat trees, which collectively present a moderate-quality habitat context for koalas. Contributing factors to this classification include the past vegetation clearing of the Site and roads along boundaries, which impedes the ease of koala movement where there are interruptions in the canopy. Such barriers, combined with gaps in canopy cover, present a tangible limitation to the otherwise natural scansorial pathways used by koalas.

The current environmental and spatial context of these habitats positions koalas at an elevated risk of adverse interactions. Koalas may experience prolonged periods on the ground as they traverse between shelter trees, a situation deleterious to their wellbeing particularly in contrast with environments with interlocking canopies and richer densities of shelter trees.

A crucial limiting factor observed at the Site is the absence of mature hollow-bearing trees and surrounding edge effects (residential, road and cleared grazed paddocks). Greater gliders are arboreal marsupials that heavily depend on these hollows for nesting and shelter. The lack of such ecological features severely diminishes the potential of the Site to serve as a viable habitat. Further, the Site is enveloped by hard edges creating lost habitat within the Site through edge effects. Therefore, despite the presence of eucalypt species, the Site does not meet the criteria for supporting a critical habitat for the greater glider as outlined further in **Section 6.3.2**.

6.2.3 General Fauna Species

In accordance with **Section 4.2.3**, a comprehensive evaluation was conducted on the threatened fauna MNES located on or within a radius of 2 km from the designated Site. To elucidate the non-threatened and general flora species in the surrounding region, data was requisitioned from the WildNet database. This data includes all native and introduced species records since 1980, regardless of conservation status, and the findings are compiled in **Attachment 8**.

It is pertinent to note that the list intentionally excludes fish species, given the absence of adequate aquatic habitats within the Site to support a sustainable fish population, particularly those which hold conservation significance, aside from isolated specimens that may have been introduced into dams. The species catalogue primarily comprises highly mobile avian fauna and mammals, which are believed to use the Site intermittently in a stochastic manner.

The application of Avoidance, Mitigation, and Management Measures, as detailed in **Section 7**, extends to these transient species to mitigate potential environmental impacts to the greatest extent achievable. Such measures ensure that any incidental developments or ecological disruptions in the area adhere to the principles of sustainable management and biodiversity conservation. The ongoing assessment and strategic response exemplify a commitment to maintaining ecological integrity and compliance with environmental regulations.

6.3 Threatened Fauna Species

The likelihood of occurrence assessment completed for threatened fauna in accordance with the methodology outlined in **Section 4.2.3** is provided in **Table 7**. Likelihood of occurrence of fauna MNES potentially on or within 2 km of the Site as per the PMST.

Fauna surveys have not directly identified the presence of any specific MNES species within the Site. However, species may potentially use the area in various capacities. Notably, the koala may use Site, highlighting its role in the broader landscape. Despite the absence of direct sightings or confirmed habitation by koala, the possibility of occasional use cannot be discounted.

Upon examination of the survey data, it is evident that the likelihood of the greater glider utilizing the Site as habitat is unlikely. This conclusion is primarily attributable to the current developmental stage of the regrowth trees on the Site coupled with the historical broad scale clearing of the Site and surround landscape removing connectivity for gliders between the Site and important, intact habitats where populations occur. Further trees within the Site have not matured sufficiently to form hollows, a critical element of the habitat required by greater gliders for nesting and shelter(DCCEEW, 2022a). Consequently, the absence of these features; coupled with i) the lack of detection during the substantial amount of ecological studies undertaken in the immediately locality to support development within the RVPDA; jj) the Site's suboptimal habitat conditions; and iii) the surrounding impacts creating substantive edge impacts resulting in lost habitat diminishes the viability of the Site as a suitable habitat for the species in question.

The grey-headed flying-fox is likely to overfly and forage around the Site. It is not believed that this species is reliant on in situ habitat values of the Site. Consequently, it is not expected for the grey-headed flying-fox to be significantly impacted by the Proposed Action. The Proposed Action will however result in the removal of foraging resources (blossoming eucalypts) for grey-headed flying-fox.

6.3.1 Koala

6.3.1.1 Habitat requirements

The koala is an arboreal marsupial primarily characterised by its unique dietary specialisation on leaves, consuming with crepuscular and nocturnal feeding behaviours. Its primary dietary source is the foliage of *Eucalyptus* species, but it can also consume leaves from closely related genera such as *Corymbia*, *Angophora*, and *Lophostemon*. Furthermore, the koala's diet may occasionally include foliage from other species like *Leptospermum* and *Melaleuca* genera.

Despite their potential exposure to as many as 120 different eucalypt species throughout Australia, however specific species preferences vary locally depending on the narrow suite of species prevalent in their immediate environment. These dietary preferences can vary significantly depending on geographic locations or seasonal conditions, thereby underscoring the importance of evaluating habitat quality based on the availability and preference of local forage species. Koalas demonstrate both interspecies and intraspecies tree preferences, suggesting a complexity within species selection. Studies indicate that chemical anti-feedants may play a role in deterring koalas from consuming foliage that might otherwise be chosen, further complicating these preferences.

This variability introduces challenges in accurately assessing habitat quality and food tree availability. The nutritional environment available to koalas is marked by a noteworthy degree of patchiness. Consequently, when habitat assessments rely solely on species presence, there is a risk of overestimating the availability of high-quality habitats and essential food resources. This underscores the necessity for nuanced and localised evaluations of koala habitats, as illustrated in recent analyses (DCCEEW, 2022b).

6.3.1.2 Findings

Koalas were not directly observed during a survey throughout the Site. No evidence of koala, such as scats or scratches were found on the Site. The Proposed Action in relation to the Development Footprint and mapped NJKHTs is shown in **Attachment 1**.

Significant impact assessments have been conducted, in reference to the *Matters of National Environmental Significance: Significant impact guidelines 1.1*, for the MNES species that have potential to occur on Site, being the koala (**Section 8.1**).

The Commonwealth provides guidance on the assessment of Koala habitat (DCCEEW, 2022b) and 28 South has adopted the methodology described in the recent publication by the Australian National University (Youngentob, 2021).

Table 9: Applicable Koala habitat assessment criteria (Youngentob, 2021).

Section of the Report	Habitat assessment criteria	Relevance to Proposed Action
3.2	Locally important Koala tree The document states "The combination of koala occurrence and LIKT provides a strong indication that an area is koala habitat. However, it is important to recognise that the absence of koalas does not mean that an area with LIKT is not potential koala habitat."	The Proposed Action includes LIKTs. The Proposed Action is noted as being the whole 17.23 ha of the Site. Vegetation community values that support the species are described in **Section 6.1.1**
3.2	Ancillary habitat The document states "In some areas, the availability of certain tree species and other vegetation types not commonly recognised as important food may still be essential for koala survival due to the shelter or other resources they provide"	The Proposed Action includes Ancillary Habitat. Vegetation community values that support the species are described in **Section 6.1.1**
4	Open ground The document states "…the ground itself forms an essential component of koala habitat"	The Site is comprised of areas of 'Open Ground'. The Proposed Action is noted as being the whole 17.23 ha of the Site, which is made up of vegetated areas and is also comprised of 'Open Ground'.

Significant impact assessments have been conducted, in reference to the *Matters of National Environmental Significance: Significant impact guidelines 1.1*, for the MNES species that have potential to occur on Site, being the koala (**Section 8.1**).

6.3.2 Greater Glider

6.3.2.1 Habitat requirements

The greater glider, a nocturnal and arboreal species, inhabits eastern Australia, ranging from the Windsor Tableland in north Queensland to central Victoria's Wombat State Forest. Its elevation range extends from sea level to 1,200 m above sea level. Predominantly residing in *Eucalyptus* woodlands and forests, this species primarily feeds on *Eucalyptus* leaves, with occasional consumption of flowers. Greater gliders are chiefly located in tall, moist eucalypt forests characterised by older trees and abundant hollows (DCCEEW, 2022a). These habitats favour larger trees for both foraging and denning, with trees greater than 30 cm diameter at breast height (**DBH**) preferred for foraging and those over 50 cm DBH for denning (T. Eyre et al., 2022). The presence and density of greater gliders correlate positively with the prevalence of larger trees.

In Queensland, greater gliders are more prevalent in moist Eucalypt forests than in drier forest types. This preference may be attributed to the increased Site productivity, enhanced leaf nutrient status, and reduced foliar toxin concentrations found in these environments (T. J. Eyre, 2006a). The tree species most used by greater gliders for foraging include *Corymbia citriodora*, *C. intermedia*, *Eucalyptus fibrosa, E. moluccana,* and *E. portuensis*. As an arboreal folivore, the greater glider relies heavily on large tree hollows for shelter and breeding, the loss of which

has been significantly associated with their population decline (Comport et al., 1996; Hofman et al., 2022; Jensen et al., 2015; R. Kavanagh & Lambert, 1990; Smith et al., 2007a).

Tree hollows, a critical limiting factor for greater glider populations, exhibit a mean entrance diameter of 181 ± .6 mm, with a size range of 80 to 350 mm (Kehl & Borsboom, 1984). Most den trees feature DBHs from 300 mm to 1,930 mm, with a sizeable portion exceeding 500 mm DBH (R. P. Kavanagh & Wheeler, 2004; Smith et al., 2007b). It is documented that in southern Queensland, greater gliders necessitate at least 2–4 live den trees within every two hectares of suitable habitat to thrive (T. J. Eyre, 2002). The species' abundance is notably related to the quantity of live, hollow-bearing trees, ranging from 0.7 gliders per three hectares with one hollow-bearing tree per hectare to 2.3 gliders with eight such trees (T. J. Eyre, 2006b).

Greater gliders have a propensity to inhabit hollows in ecologically mature live trees (Comport et al., 1996; R. P. Kavanagh & Wheeler, 2004; Smith et al., 2007a). Older and larger trees therefore offer a higher probability of possessing numerous, frequently large hollows, due to prolonged hollow-forming processes (Mackowski, 1984). The limited dispersal capability and patchy habitat utilisation of greater gliders make it challenging for them to sustain populations in small or isolated forest stands. Essential habitats for their survival include extensive contiguous eucalypt forests with mature hollow-bearing trees and preferred food species, smaller patches that ensure connectivity for dispersal and recolonisation, cool microclimatic areas, climate change refuges, and areas offering post-fire sanctuary (T. Eyre et al., 2022).

6.3.2.2 Findings

The likelihood of occurrence assessment of the greater glider outlined that this species is not likely to occur within the surrounding locality. In-field surveys indicated only two suitable live hollow-bearing trees within the Site. The trees on Site are young, having regrown from past clearing and suppression due to agricultural grazing. There has not been the required time for these trees to develop suitable hollows for the greater glider as this process occurs in mature trees. This demonstrates the lack of suitable habitat of the Site, as such hollows are critical habitat components for a variety of species such as the greater glider. The surveys conducted did not identify any presence of the greater glider directly, nor has this species been detected during extensive level of ecological assessments undertaken to support development across the broader RVPDA.

The historical deforestation and agricultural practices have already significantly altered the landscape, reducing its ecological connectivity. As the surrounding area continues to develop, these effects are likely to exacerbate, creating isolated patches of habitat that hinder the movement and genetic flow of species such as the greater glider. The greater glider depends on mature, hollow-bearing trees for shelter, which are absent on the Site due to previous land clearing. This absence, coupled with the lack of connectivity to contiguous forests, severely limits the potential of the Site to support a greater glider population or for greater glider to access the Site for foraging purposes. Without access to critical habitat features, the fragmentation caused by development and agricultural pursuits becomes a significant barrier, impeding the dispersal and survival of the species. As the Site becomes increasingly surrounded by urban developments and cleared paddocks, the ecological corridors necessary for species movement are disrupted, further isolating faunal populations and potentially leading to a decline in biodiversity.

To comprehensively evaluate the habitat value of the Site and its significance for the greater glider, a detailed assessment was conducted by juxtaposing the Site's attributes with the criteria outlined in the Conservation Advice's definition of 'habitat critical to the survival' of the greater glider. This process involved a meticulous comparison against documented qualitative and quantitative parameters for suitable greater glider habitat, as specified in the *Guide to Greater Glider Habitat in Queensland* (T. Eyre et al., 2022).

For clarity and analytical integrity, the relevant findings and provisions from the aforementioned documents are systematically organised and presented in **Table 10**, respectively. These tables serve as a structured representation of how the Site aligns or deviates from established habitat guidelines for the greater glider.

Table 10: Habitat critical to the survival of greater glider assessment

Habitat Definition	**Relevance to Site**	**Conclusion**
Large contiguous areas of *eucalypt* forest, which contain mature hollow-bearing trees and a diverse range of the species' preferred food species in a particular region.	The Site and surrounding locality have been subject to historical clearing (refer **Table 3**). The Site contains scattered, mostly regrowth *eucalypts* with limited preferred feed tree species. Suitably large hollow bearing trees are absent within the Site.	Upon conducting a thorough evaluation of the Site, no presence of the greater glider was observed (nor has the species been observed during extensive ecological studies undertaken across the RVPDA). While the existence of *eucalypt* species, which serve as a food source for the greater glider, initially suggests a potential habitat, this is contradicted by the absence of mature hollow-bearing trees and lack of connectivity to large tracts or remnant vegetation supporting known populations. Larger patch size of intact vegetation and hollow bearing trees are critical for the greater glider's nesting requirements and sustaining populations. Consequently, the lack of such trees and lack of connectivity significantly diminishes the likelihood of the Site providing habitat essential to the greater glider's survival. It is also noted the surrounding urban and agricultural edges create impacted / lost habitats within the Site.
Smaller or fragmented habitat patches connected to larger patches of habitat, that can facilitate dispersal of the species and/or that enable recolonization	The Site and its environs have undergone extensive historical modifications. Housing expansions to the north have disrupted ecological connectivity by fragmenting landscapes. The Site's neighbouring properties to the south and east illustrate considerably altered landscapes; the southern property has been entirely cleared, and the eastern property demonstrates significant fragmentation. Both neighbouring areas have obtained DAs, further indicating impending modifications that will likely exacerbate habitat fragmentation. Such disruptions compromise the ecological corridors vital for sustaining various fauna, particularly arboreal species like the greater glider. The absence of contiguous vegetation and the anticipated continuation of development in these areas will further isolate remnant patches of habitat, limiting the opportunity for fauna movement and diminishing the viability for population recolonization. The Site's isolation from significant habitat resources raises critical concerns about its ability to maintain ecological function, specifically in terms of connectivity for species whose survival is contingent upon uninterrupted habitat networks.	The Site's connectivity is severely compromised due to fragmentation caused by surrounding housing developments. This fragmentation significantly restricts habitat continuity, which is essential for the movement and dispersal of the greater glider. Despite the presence of certain pathways that might theoretically allow movement towards the Site, these connections are insufficient in providing the necessary ecological corridors for effective species dispersal. The lack of adequately connected habitat patches poses a substantial barrier, limiting the ability of the greater glider to maintain genetic diversity and access essential resources. As a result, the Site cannot be considered to host well-connected patches of habitat suitable for sustaining a robust population of the greater glider.

6.3.3 Grey-headed Flying-fox

6.3.3.1 Habitat requirements

The grey-headed flying-fox, a species prominently found in the coastal lowlands and slopes of southeastern Australia, ranging from Bundaberg to Geelong, occupying altitudes lower than two hundred metres. These flying-foxes can also be found inland, extending to the tablelands and western slopes in northern New South Wales, as well as the tablelands in southern Queensland (C. R. Tidemann, 1998).

Critical to the survival of the grey-headed flying-fox is the presence of a consistent sequence of productive foraging habitats. These habitats must be interconnected by migration corridors or stopover habitats and should include suitable roosting areas within a nightly commuting distance from the foraging sites. Such characteristics define habitats essential to the species' persistence. Current understanding indicates that foraging habitats fulfilling any of the following criteria can be categorised as vital to the survival of grey-headed flying-foxes: natural foraging spaces that are productive during food shortage periods in winter and spring; areas supporting more than 30,000 individuals within a 50 km radius; or those productive throughout critical reproductive phases from gestation to conception (September to May). Additionally, these habitats may be vital during the final stages of fruit maturation, particularly affecting commercial crops, or where they support a continuously occupied camp (DCCEEW, 2024c; Eby & Lunney, 2002).

Roosting habitat for the grey-headed flying-fox involves large aggregations in the exposed branches of canopy trees, with camps typically maintaining their locations over time—some for over a century. These camps serve as significant resting, social interaction, and refuge sites during crucial annual cycles, including birth, lactation, and conception phases. Roosting habitats critical to the survival of this species are defined by criteria such as their use as camps either continuously or seasonally for more than half the year, historical use since at least 1995 where population numbers exceeded 10,000, or support for over 2,500 individuals, notably including reproductive females at critical reproductive stages.(Birt et al., 1998; C. Tidemann & Vardon, 1997; Van der Ree et al., 2005)

6.3.3.2 Findings

There were no observations recorded on the grey-headed flying-fox on the Site during the ecological surveys. The species does not use the Site as a camp however the Site does have several camps within a 30 km radius. The presence of native trees across the Site, and the extensive number of grey-headed flying-fox recorded throughout the greater Brisbane region, it is possible that the species may use the Site for foraging activities. Significant impact assessments have been conducted, in reference to the *Matters of National Environmental Significance: Significant impact guidelines 1.1*, for the MNES species that have potential to occur on Site, being the grey-headed flying fox (**Section 8.3**).

6.4 Other Matters of National Environmental Significance

The PMST highlights that the Site falls 45-50 km upstream of the Ramsar wetland Moreton Bay which is on the coastline. The Proposed Action will not have impact on this value. The Proposed Action is not expected to result in:

- Destruction or substantial modification of the wetland.
- Substantial or measurable change in the hydrological regime of the wetland.
- Impact to the habitat or lifecycle of native species that occupy the wetland.
- Substantial and measurable change in the water quality of the wetland; and
- Invasive species that is harmful to the ecological character of the wetland.

Consequently, the Proposed Action is not expected to result in a significant impact to the Moreton Bay Ramsar Wetland, per the *Significant impact guidelines 1.1* (DCCEEW, 2013). Therefore, the potential impacts of the Proposed Action on the Ramsar wetland are not considered any further in this Report. There are no other MNES places, properties, or areas within proximity to the Site.

7. Avoidance, Mitigation and Management Measures

The mitigation hierarchy is a tool that is used to limit the amount of damage an action, such as a development, will have on the environment. There are three steps, being 'Avoid', 'Mitigate' and 'Offset'. Each step must be followed in order and to the greatest extent possible before moving on to the next. This section provides discussion on the measures that have been adopted to avoid, in the first instance, then minimise potential impacts to MNES and their habitat.

7.1 Ecologically Sustainable Development

The principles of Ecologically Sustainable Development (**ESD**), as defined by section 3A of the EPBC Act, are:

a) decision-making processes should effectively integrate both long-term and short-term economic, environmental, social and equitable considerations.

b) if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.

c) the principle of inter-generational equity—that the present generation should ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations.

d) the conservation of biological diversity and ecological integrity should be a fundamental consideration in decision-making; and

e) improved valuation, pricing and incentive mechanisms should be promoted.

Discussion on how the Proposed Action aligns with these five overarching principles of ESD is provided below.

7.1.1 Principal (a)

The south east Queensland region is currently undergoing rapid population growth, with projections indicating an increase to six million residents by 2046 (Department of State Development, 2023). The surge in population directly correlates to an escalated demand for housing, necessitating the expansion of residential areas and the supporting infrastructure that accompanies such developments.

The Proposed Action includes provision of approximately 20-25 dwellings per ha to support the population growth in the area in an affordable means, providing opportunities for first home buyers and low-income earners. An objective outlined in the State Regional Plan focuses on addressing the need for increased housing development. The Queensland Government is committed to establishing definitive targets for both social housing and affordable housing. This strategy aims to provide clarity to federal, state, and local governments, as well as industry stakeholders, regarding the necessary measures and collaborations required to enhance housing supply in south east Queensland (Department of State Development, 2023).

7.1.2 Principal (b)

This report delineates the conducted investigations aimed at discerning the intrinsic environmental values inherent to the Site, as well as its function within the wider landscape context. The investigations undertaken are comprehensive and grounded in scientific rigor, ensuring that findings are robust and dependable. Methodical approaches have been employed to gather and analyse data, adhering to contemporary scientific standards and protocols.

In instances where minor uncertainties have been identified within the data or conclusions, the precautionary principle has been prudently applied. This ensures that environmental integrity is maintained by pre-emptively addressing potential risks or ambiguities. The application of this principle underscores a commitment to environmental stewardship and sustainable management.

7.1.3 Principal (c)

The Proposed Action uses the 'Offset' principle of the mitigation hierarchy and represents a development outcome that will provide a better ecological outcome for the MNES of relevance.

7.1.4 Principal (d)

The conservation of biological diversity and ecological integrity is a primary focus of the design of the Proposed Action and the assessment thereof. Making a well-informed referral application ensures DCCEEW, as a decision-maker, can ensure an appropriate balance of biodiversity and ecological conservation is upheld.

7.1.5 Principal (e)

The costs for addressing biodiversity impacts arising from the Proposed Action are imposed solely on the Proponent.

7.2 Impact Avoidance

7.2.1 Alternative Sites

The Site is located within the FURV area designated by Planning Scheme, earmarked to support future residential development. This designation is reinforced by adjacent urban growth because of nearby projects and the to the north. As a result, the Proposed Action aligns seamlessly with the future development objectives for the wider area, and no alternative sites were deemed necessary for consideration.

7.2.2 Impact Avoidance Through Design

The development approach incorporates a series of measures intended to mitigate potential adverse effects effectively. While direct avoidance of environmental impacts is not possible, the proposal demonstrates an initiative-taking commitment to minimize harm through enhanced landscape integration and sustainable construction practices. These initiatives underscore a conscientious effort to harmonize development goals with ecological stewardship, ensuring that while impact avoidances were not feasible, responsible design considerations remain integral to the project.

The planning framework underscores an examination of environmental outcomes through strategic land use planning, accentuating the Site holistically for residential development. The approach pivots on integrating ecological considerations throughout the planning phases, aiming to generate a balanced melding of human habitation with the natural environment. This entails a comprehensive analysis of existing ecological conditions, enabling the identification of critical conservation areas and the formulation of a development strategy that integrates biodiversity preservation with urban growth. By prioritising the Site as a whole, the development plan avoids ecological disturbances to more valuable areas, thereby enabling continuity of natural habitats and reducing disruption to local wildlife.

7.3 Impact Minimisation Through Mitigation

The following mitigation measures will be implemented to ensure that impacts to MNES and their habitat that cannot be avoided are minimised to the greatest extent possible:

- Development and implementation of a CEMP to outline relevant environmental requirements for undertaking the works.
- Hours of work will be limited to Monday to Saturday between 6:30 am to 6:30 pm, excluding public holidays, thereby avoiding potential nighttime disturbance from noise, vibration and lighting.

- An Erosion and Sediment Control Plan will be developed, certified by a Registered professional Engineer Queensland (**RPEQ**) or an accredited professional in erosion and sediment control, and implemented.
- Implementation of weed management and controls across the Site and reestablishment of native grasses.
- The extent of permissible clearing will be clearly demarcated by an ecologist prior to the commencement of construction works to prevent clearing more than the approved footprint of works.
- Felled trees will be mulched on-site for use in rehabilitation works. Other habitat features (e.g. boulders, logs etc.) will be retained and reinstated across the disturbed footprint as part of Site rehabilitation works.
- A licensed Wildlife Spotter/Catcher under the *Nature Conservation Act 1992* is to undertake a survey of the Site to identify any fauna or habitat features (e.g. nests, tree hollows) and certify that any necessary fauna protection measures or relocation procedures have been implemented.

7.4 On Site Compensation

The Proposed Action, pertaining to the development at Bayliss Road, South Ripley, does not incorporate direct compensation on-site through its design.

8. Assessment against Significant Impact Guideline 1.1

8.1 Koala

The koala is an Endangered species under the EPBC Act and therefore the significance of impact on this matter has been assessed against the significant impact criteria for 'Critically endangered and endangered species in the MNES Significant impact guidelines 1.1 (DCCEEW, 2013).

8.1.1 Avoidance and Mitigation

The Proposed Action will result in the permanent development of 17.23ha of the Site currently offering foraging and movement habitat for koala. This area is composed of a mix of foraging resources and 'open ground' movement habitat areas.

8.1.2 Significant Impact Assessment

A significant impact assessment for koala is presented in **Table 11**.

Table 11. Significant impact assessment for koala

Criteria	Proposed Action Response
An action is likely to have a significant impact on a critically endangered or endangered species if there is a real chance or possibility that it will:	
Lead to a long-term decrease in the size of a population	The removal of trees will not immediately affect the regional koala population size. However, it will temporarily diminish the occupancy area for this species.
Reduce the area of occupancy of the species	The Proposed Action will require permanent development the Site, which is 17.23 ha, of which is regarded as currently offering foraging and movement habitat for koala.
Fragment an existing population into two or more populations	The removal of vegetation at the Site will not cause fragmentation of the existing koala population. The Site is contiguous with a significant koala habitat on only one side, while the surrounding areas to the south, west, and north provide minimal habitat. Koalas have very restricted movement potential from the east through the Site in other directions, which in time will be developed for residential purposes (See **Figure 3**).
Adversely affect habitat critical to the survival of a species	The koala, classified as an endangered species, requires all its habitats to be deemed critical for its survival. The Department highlights that even minimal habitat destruction, such as the loss of one hectare, can have considerable repercussions. The Proposed Action will entail the removal of 720 NJKHTs. While this action is not anticipated to significantly alter or disrupt breeding cycles, or restrict movement opportunities, the removal of these trees may still adversely affect the koala in accordance with the conservation advice provided by the DCCEEW.
Disrupt the breeding cycle of a population	The Proposed Action is not expected to interfere with the breeding cycle of the koala. A comprehensive analysis of the environmental conditions and species present on the Site indicates that the habitats critical to the species' reproductive processes will not be negatively impacted. The activity will proceed with adherence to established conservation guidelines to ensure no interference with breeding patterns. As a result, the breeding cycles of local koala populations are anticipated to remain unchanged by the development.

Criteria	Proposed Action Response
Modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	The Proposed Action will encompass a footprint of 17.23 ha over regrowth vegetation, leading to a marginal decrease in the potential habitat area for the species. Given the limited and isolated nature of the Proposed Action, it is unlikely to contribute to any decline in the species population.
Result in invasive species that are harmful to a critically endangered or endangered species becoming established in the endangered or critically endangered species' habitat	The implementation of measures to prevent the introduction and spread of invasive species is planned. It is improbable that there will be any change in the domestic animal population, such as dogs, within the nearby remaining species habitat from the Proposed Action.
Introduce disease that may cause the species to decline	The Proposed Action is unlikely to introduce or increase the prevalence of a disease that is harmful to koala, e.g. Chlamydia.
Interfere with the recovery of the species	The Proposed Action is not expected to interfere with, nor assist in the recovery of the species.
Conclusion:	
The Proposed Action will likely impact koala foraging resources and is likely to be considered a Significant Impact under the DCCEEW MNES *Significant impact guidelines 1.1* (DCCEEW, 2013). This will be due to the clearing of habitat and foraging resources for the koala.	

8.2 Greater Glider

The greater glider is an Endangered species under the EPBC Act and therefore the significance of impact on this matter has been assessed against the significant impact criteria for 'Critically endangered and endangered species in the MNES *Significant impact guidelines 1.1* (DCCEEW, 2013).

8.2.1 Avoidance and Mitigation

Survey (including the substantial level of surveys across the RVPDA) has determined that the Site and adjoining area does not have suitable habitat characteristics defined by the Guide to greater glider habitat in Queensland (T. Eyre et al., 2022). Greater glider has not been detected on Site or surrounding properties and is considered an unlikely occurrence on the Site. This is due to the lack of suitable habitat hollows found on the Site as the vegetation present is too young to have developed suitable nesting hollows that could be used by the greater glider. The greater glider is particularly sensitive to habitat fragmentation and edge effects. Edge effects occur when the boundary between different land uses or ecosystems creates environmental changes that extend into the habitat. In this instance, residential development to the north and west and cleared paddocks to the south introduce significant edge effects, resulting is 50 metres edge effects into the Site. These edge environments tend to exhibit altered microclimates, such as increased wind exposure, temperature variability, and reduced humidity, which can adversely affect the greater glider's habitat. Additionally, edges often facilitate increased human disturbance, exacerbate the risk of predation, and promote the invasion of non-native species. Such conditions not only diminish the quality of the habitat but also provoke shifts in the gliders' foraging behaviour, potentially leading to nutritional stress. The penetration of these anthropogenic edges by 50 metres into the Site would likely exacerbate these issues, fragmenting the habitat and adversely impacting the population viability of the greater glider within the Site. While the vegetation at the Site can be categorised as suitable foraging for the greater glider; the lack of suitable nesting hollows, lack of connectivity and paucity of records despite substantive surveys in the locale it is considered that greater glider are unlikely to be present or utilise the Site to forage.

8.2.2 Significant Impact Assessment

Table 12. Significant impact assessment for greater glider

Criteria	Proposed Action Response
An action is likely to have a significant impact on a critically endangered or endangered species if there is a real chance or possibility that it will:	
Lead to a long-term decrease in the size of a population	The removal of feed trees will not immediately affect the regional greater glider population size given it is unlikely to be present, utilise or access the Site.
Reduce the area of occupancy of the species	While the Proposed Action will remove potential foraging resource, it is considered unlikely that greater glider is unlikely to reside or gain access to the Site's vegetation. Further, the vegetation present is too young to have developed suitable nesting hollows that could be used by the greater glider. Despite the presence of regrowth foraging habitat, it considered unlikely that the greater glider would gain access to the Site due to significant impediments beyond the Site's boundaries.
Fragment an existing population into two or more populations	The Site's direct connection to significant greater glider habitat is limited to one small bottlenecked edge of the Site, with the southern, western, and northern areas providing no habitat value or movement opportunities and presenting significant ecological barriers. The potential for greater glider movement through the Site from the east is highly restricted, requiring gliders to traverse highly fragmentated rural paddocks with scattered trees. Additionally, there are no documented populations of greater gliders in the locality, and no recent records indicate their presence despite substantial ecological studies being undertaken across the RVPDA. The vegetation removal at the Site is not expected to disrupt the existing greater glider population.
Adversely affect habitat critical to the survival of a species	The greater glider, an endangered species, necessitates the designation of its habitats as critical for its survival. The Proposed Action involves the development of 17.23 ha of potential foraging habitat. Vegetation present within the Site is too young to have developed suitable nesting hollows that could be used by the greater glider however it may still be used as a food source. The greater glider is profoundly dependent on mature eucalypt forests, which provide essential nesting hollows and a consistent food supply. The assessment of the Site indicates a marked deficiency in suitable habitat, primarily due to historical land clearing practices and ongoing agricultural activities which have inhibited the natural succession of mature, hollow-bearing trees. Consequently, this severely limits the Site's capacity to support the greater glider. In particular, the absence of such trees directly impedes the provision of necessary nesting sites, while the fragmented nature of the regrowth vegetation offers minimal foraging or movement opportunities noting the species susceptibility to edge effects. Furthermore, the development's potential to exacerbate existing habitat connectivity issues poses additional threats to the species. As urbanisation continues to encroach upon natural landscapes, the resultant fragmentation both isolates' populations and reduces genetic flow, thereby increasing the vulnerability of the greater glider by limiting its access to viable habitats and corridors essential for dispersal and recolonisation. The Proposed Action is not expected to adversely affect habitat critical to the survival of a species.
Disrupt the breeding cycle of a population	The Proposed Action is not anticipated to disrupt the breeding cycle of the greater glider. Consequently, the breeding cycles of local greater glider populations are expected to remain unchanged by the development.
Modify, destroy, remove, isolate or decrease the availability or	The Proposed Action will cover an area of 17.23 ha across regrowth vegetation, resulting in a slight reduction in the potential habitat for the species in the region. This vegetation present is too young to have

Criteria	Proposed Action Response
quality of habitat to the extent that the species is likely to decline	developed suitable nesting hollows that could be used by the greater glider. While the vegetation aligns with noted foraging resources it is unlikely it provides utility to the species due to the significant fragmentation and non-habitat areas that surround the Site, causing much of the Site to be considered 'lost habitat'. . With the isolated scope of the Proposed Action, it is improbable that it will cause any decline in the species population.
Result in invasive species that are harmful to a critically endangered or endangered species becoming established in the endangered or critically endangered species' habitat	Measures to prevent the introduction and spread of invasive species are scheduled for implementation. The Proposed Action is unlikely to affect the domestic animal population, including dogs, within the adjacent habitats of the greater glider.
Introduce disease that may cause the species to decline	The Proposed Action is unlikely to introduce or increase the prevalence of a disease that is harmful to greater glider.
Interfere with the recovery of the species	The Proposed Action is not expected to interfere with, nor assist in the recovery of the species.
Conclusion:	
Based on Site survey data, paucity of records despite substantial surveys over the RVPDA, assessment of the Site and the Proposed Action values with reference to relevant guidelines, it is considered that the Proposed Action would not result in a Significance Residual Impact to greater glider. The vegetation currently present is insufficiently mature to have developed appropriate nesting hollows for utilisation by the greater glider. The greater glider is heavily reliant on mature eucalypt forests, which are essential for providing both nesting hollows and a steady supply of food. An assessment of the Site reveals a significant shortage of suitable habitat, attributable to historical land clearing and persistent agricultural activities that have disrupted the natural progression towards mature, hollow-bearing trees. As a result, the Site's ability to sustain the greater glider is critically constrained. Specifically, the absence of these trees directly hinders the availability of necessary nesting sites, while the fragmented character of the regrowth vegetation offers scant foraging options. Moreover, the development has the potential to intensify existing habitat connectivity challenges, thereby posing additional risks to the species. As urbanisation persistently encroaches upon natural landscapes, the resulting fragmentation not only isolates populations but also impairs genetic exchange. Such fragmentation increases the susceptibility of the greater glider by restricting its access to viable habitats and essential corridors for dispersal and recolonisation. The species does not utilise the Site and will not be affected by the Proposed Action.	

8.3 Grey-headed Flying-fox

Grey-headed flying-fox is a Vulnerable species under the EPBC Act and therefore the significance of impact on this matter has been assessed against the significant impact criteria for 'Vulnerable' species is in the MNES *Significant impact guidelines 1.1 (DCCEEW, 2013).*

8.3.1 Avoidance and Mitigation

The survey conducted on the Site and its surrounding areas indicates an absence of roosting sites for the grey-headed flying-fox. Despite no sightings during in-field surveys, the species is likely to visit the Site. This is due to its mobility and known presence in the region, especially when foraging resources, such as flowering eucalyptus, are available.

8.3.2 Significant Impact Assessment

Table 13. Significant impact assessment for grey-headed flying-fox

Criteria	Proposed Action Response
An action is likely to have a significant impact on a critically vulnerable species if there is a real chance or possibility that it will:	
Lead to a long-term decrease in the size of an important population of a species	The Proposed Action will lead to the removal of 17.23 ha of foraging resources for this species. While this reduction does not directly impact an important regional population size of the grey-headed flying-fox, it will result in a temporary decrease in available foraging resources. It is important to note that these resources remain common and abundant within the local and regional context.
Reduce the area of occupancy of an important population	Field surveys conducted on the Site did not identify any grey-headed flying-fox individuals. The closest known camps are situated 7 km to the north and 10 km to the south. Given the high mobility of the species, the availability of foraging resources, and multiple camps within the locality, the Proposed Action is unlikely to diminish the occupancy of the species in the area. Flying-fox camps are accessible within 10 km of the Site, as indicated by the (DCCEEW, 2024b).
Fragment an existing important population into two or more populations	During field surveys, no grey-headed flying-fox individuals were observed at the Site. The closest documented camps are positioned 7 km to the north and 10 km to the south. Considering the species' high vagility, local abundance of foraging resources, and the presence of camps within a 10 km radius, the Proposed Action is unlikely to fragment the species' population in the area. This assessment is supported by data from the (DCCEEW, 2024b).
Adversely affect habitat critical to the survival of a species	The Proposed Action will not affect existing or potential roosting habitats of the grey-headed flying-fox. Recognised as vital to the species' survival, spring foraging resources are documented (Department of Environment (DoE), 2001). The designated clearing area includes winter and spring flowering species such as *Eucalyptus*, *Melaleuca*, and *Banksia*, occupying 17.23 ha. This area may meet the criteria for the species' habitat. Nonetheless, the overall impact of the Proposed Action does not extend to habitats critical for the species' survival.
Disrupt the breeding cycle of an important population	The Site lacks any breeding habitats and is not situated near known breeding or roosting sites. The closest camp is located seven kilometres to the north and ten kilometres to the south.
Modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	The Proposed Action entails the removal of 17.23 ha of patchy vegetation, which serves as a foraging resource for the grey-headed flying-fox. This will result in a minor reduction in available foraging habitat, though such resources are prevalent and widespread in the area. Given the small and isolated scope of the Proposed Action, it is anticipated that there will be no decline in the species' population. Importantly, no camps are affected, indicating that the population will remain stable despite the habitat alteration.
Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat	Scheduled for implementation are measures aimed at preventing the introduction and proliferation of invasive species. The Proposed Action is assessed to have minimal impact on the domestic animal population, such as dogs, within the neighbouring habitats of the grey-headed flying-fox.
Introduce disease that may cause the species to decline, or	The Australian Bat Lyssavirus, Bat Paramyxovirus, and Menangle Pig Virus are identified as potential threats to the grey-headed flying-fox, though the extent or severity of their impact remains uncertain. Data indicates a low incidence of Australian Bat Lyssavirus within the species, while approximately 25% of wild flying-foxes

Criteria	Proposed Action Response
	possess antibodies to the Menangle Pig virus. It is anticipated that the Proposed Action will neither introduce nor increase the prevalence of any of these pathogens.
Interfere substantially with the recovery of the species.	The Proposed Action is not expected to interfere with, nor assist in the recovery of the species.
Conclusion:	
The survey results indicate that the Site and surrounding areas do not support a roosting habitat for the grey-headed flying fox, and no individuals of this species were detected during the survey periods. Nevertheless, it remains plausible that the species could occur at the Site in the future, as blossoming vegetation presents a potential foraging habitat. The area in question comprises marginal habitat, limited in winter-flowering species, covering a total of 17.23 ha. It is not anticipated that the Proposed Action will significantly impact the grey-headed flying fox. This conclusion is based on the species' high mobility, the local abundance of alternative foraging resources, and the presence of established camps within a 10 km radius.	

9. Summary and Conclusion

This report aims to facilitate a referral to the DCCEEW to decide whether the Proposed Action warrants classification as a Controlled Action under EPBC Act. The Proposed Action entails a residential development on Bayliss Road, South Ripley, designed to accommodate the growing housing demands of the community. The development aligns with established urban planning principles and infrastructure requirements, underpinning sustainable growth in the region.

To evaluate the potential environmental impacts, both desktop assessments and comprehensive Site surveys were conducted to ascertain the presence and vulnerability of MNES relative to the Proposed Action. From these evaluations, it has been determined that a MNES, specifically the koala classified as Endangered, is likely to be affected. As detailed in **Sections 8.1**, the area expected to impact these species is approximately 17.23 ha.

Further assessment of the Site against other MNES reveals either limited to non-existent habitats within the development area, or that the Proposed Action will not significantly impact these matters, as elaborated in **Sections 4.2** and **4.3**. Moreover, application of the *Significant Impact Guidelines 1.1* (DCCEEW, 2013) indicates a high likelihood of substantial impact on the koala. Given these considerations, it is probable that the Proposed Action will be deemed a Controlled Action by the Minister for the Environment.

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