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Baseline extent of weed cover and feral animal surveys

Providence East - EPBC 2018/8347

Prepared for AW Bidco No. 6 Pty Ltd (Stockland)
13 December 2024

Job 9896

Background

The Environmental Management Division of **Saunders Havill Group** (SHG) was engaged by **AW Bidco No. 6 Pty Ltd** (Stockland) to complete baseline extent of weed cover and feral animal abundance surveys throughout the Conservation Area of the approved Ripley Valley Priority Development Area (RVPDA) Providence East development, located 5 km southeast of Ipswich Queensland.

The Ripley Valley PDA Providence East precinct (EPBC 2018/8347) was referred under the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) and subsequently declared a "Controlled Action" requiring assessment by "Preliminary Documentation" pursuant to section 18 and 18A (listed threatened species and communities) on the 1 April 2019. The trigger for the controlling provision was due to potential impacts on the vulnerable Koala (*Phascolarctos cinereus*), the vulnerable Grey-headed Flying-fox (GHFF) (*Pteropus poliocephalus*) and the vulnerable Greater Glider (*Petauroides volans*).

Following correspondence and meetings with the Department of Climate Change, Energy, the Environment and Water (DCCEEW) the following technical memorandum outlines the requirement of the Conservation Area, specifically to address Condition 9(a) and 9(b) of the EPBC approval (refer to **Figure 1** for Site Context and **Figure 2** for Site Aerial, refer **Attachment 1** for a full copy of the approval for EPBC 2018/8347).

Document Control

Document: Baseline extent of weed cover and feral animal surveys for Part of Lot 190 on S31349 (Conservation Area), Providence East under EPBC 2018/8347 prepared by Saunders Havill Group for AW Bidco No. 6 Pty Ltd (Stockland)

Document Issue

Issue	Date	Prepared By	Checked By
Issue A	13.06.2023	LB	MS
Issue B	19.08.2024	LB	AR
Issue C	13.12.2024	TC	LB

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Reports and plans by others may be included in this document.

1. Conditions under approval

The action was approved under the EPBC Act subject to conditions on 15 December 2022 with effect until 31 November 2050. Condition 9 of the approval requires that the approval holder must complete and provide the Department with the results and dates of the following surveys relating to the Conservation Area:

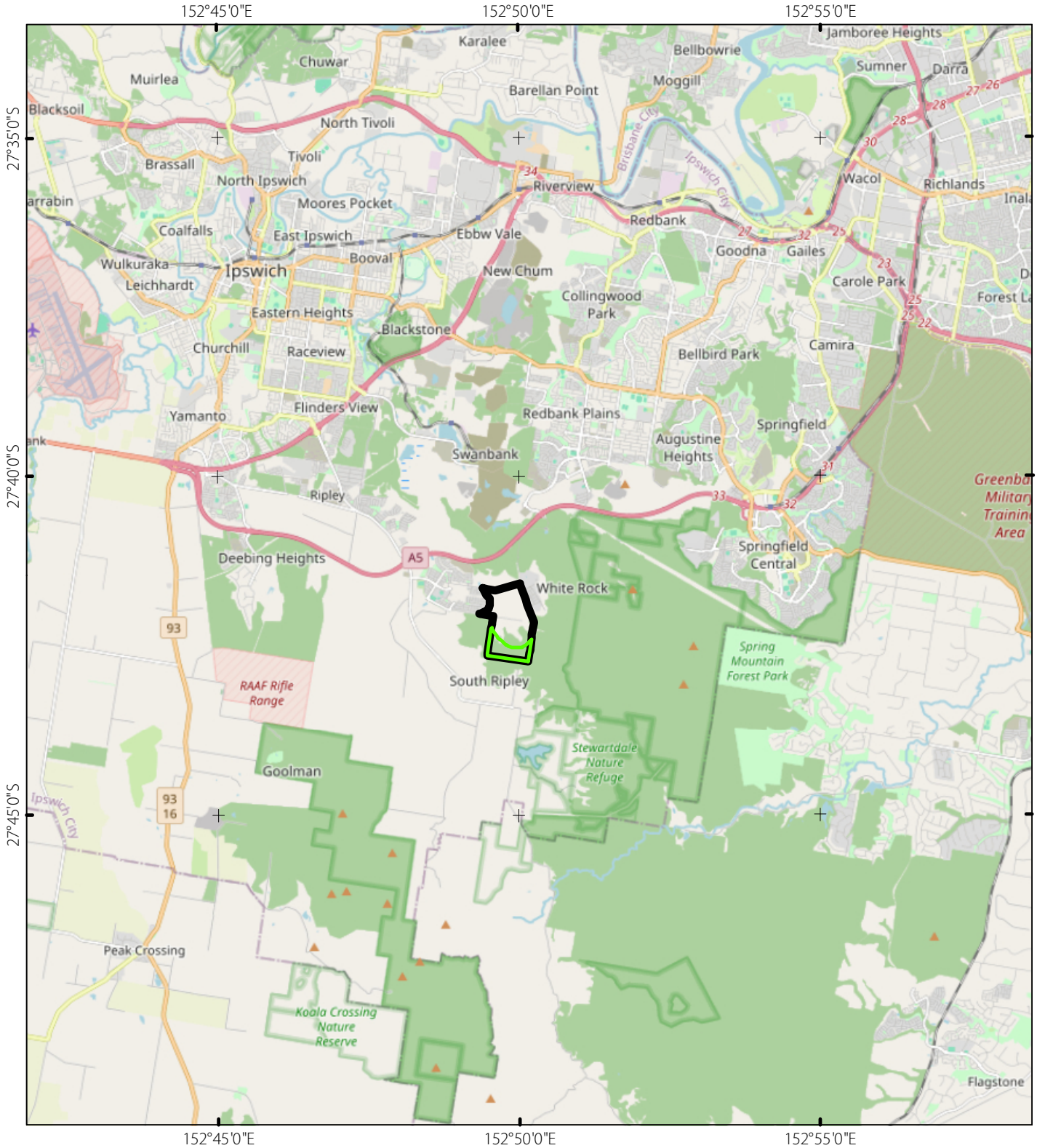
9. *For the protection of the **Koala, Greater Glider** and **Grey-headed Flying-fox** within the **development area**, within 6 months of this approval decision the approval holder must:*

a. *complete baseline **extent of weed cover** and **feral animal** abundance surveys throughout the **conservation area** in accordance with a scientifically valid, robust, and repeatable methodology.*

b. *submit the results of the baseline **extent of weed cover** and **feral animal** surveys required by 9(a) for the **department's** acceptance, and must make this information available on the website within 2 months of the report of the **extent of weed cover** and **feral animal** abundance surveys being accepted by the **department.***

The surveys must be conducted by a suitably qualified person, consistent with the Department's approved survey guidelines and designed to provide results that are representative of the entire areas of the conservation area.

This report has been prepared to satisfy the requirements of the conditions of approval.



Legend

- Providence East Referral Area
- Conservation Area

Figure 1

Site Context

Stockland

File ref. 9896 E Figure 1 Site Context B
Date 13/08/2024
Project Providence East

0 1 2 3 4 5 km

N

Scale (A4): 1:150,000 [GDA 1994 MGA Z56]

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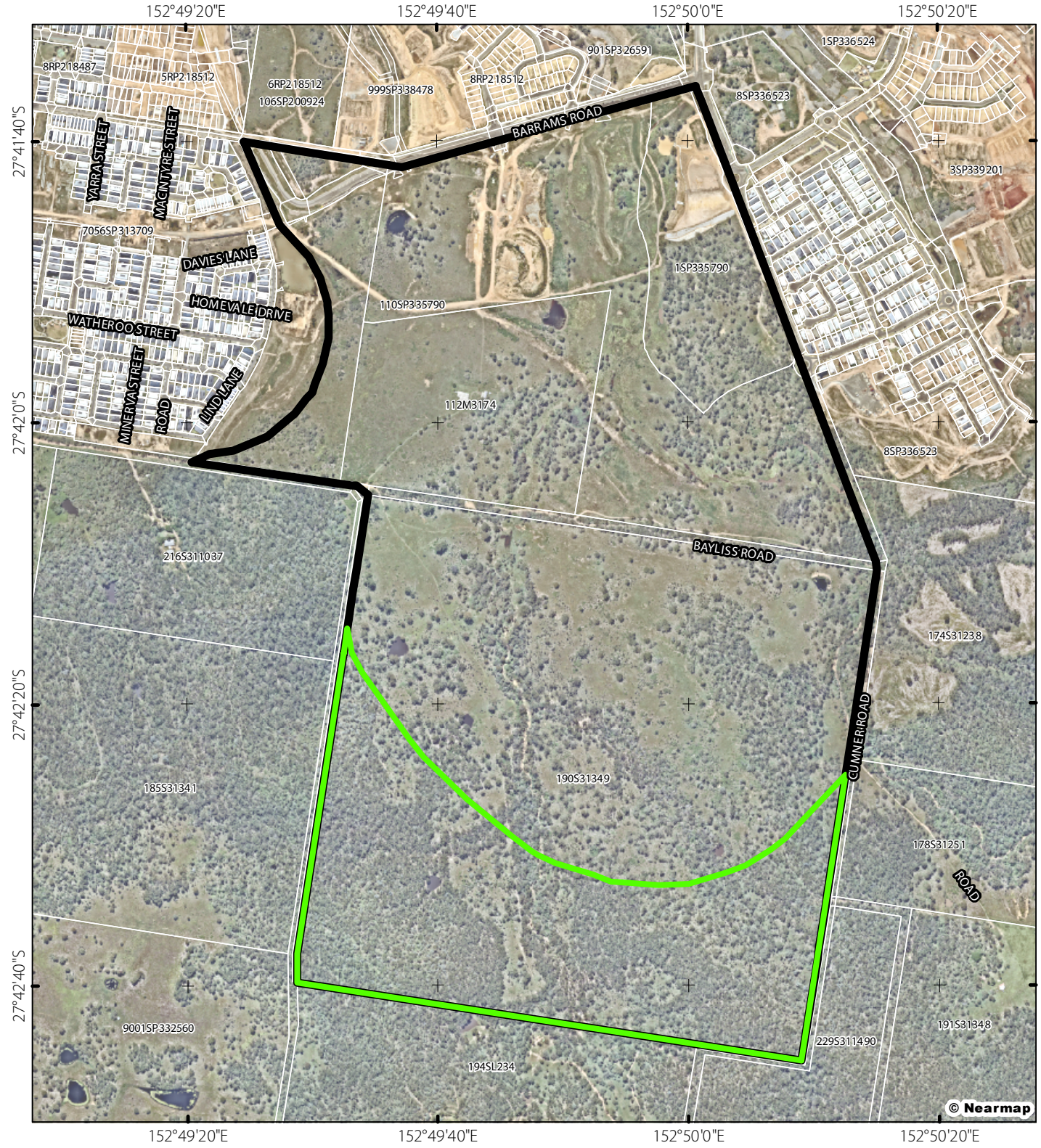

Legend

- Qld DCDB
- Providence East Referral Area
- Conservation Area

Figure 2

Site Aerial

Stockland

File ref. 9896 E Figure 2 Site Aerial B
Date 13/08/2024
Project Providence East

0 100 200 300 400 500 m

N

Scale (A4): 1:12,000 [GDA 1994 MGA Z56]

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Layer Source: © State of Queensland 2024

2. Baseline survey methodology

The following surveys have been carried out by suitable qualified experts within the Environmental Management Division of SHG. SHG are experienced environmental consultants with a specific expertise across South-East Queensland and RVPDA, with several active and complete projects in the area, refer **Attachment 2** for project team Curriculum Vitae.

Condition 9 states that within 6 months of the date of the approval (15 December 2022), the approval holder must complete baseline surveys of the **Conservation Area** in accordance with a scientifically valid, robust and repeatable methodology, to determine the:

a. ***extent of weed cover***, *and*

b. *abundance of* ***feral animals***.

The methodology of each survey detailed within the following sections incorporates the required baseline surveys outlined above. A summary of the surveys conducted is provided within **Table 1**.

Table 1: Survey Methodology Summary

Condition	Methodology	Date
9 (a) ***'Baseline extent of weed cover and feral animal abundance'***	Diurnal observations Motion camera traps (17 April – 3 May) Weed cover extent survey	17 April 2023 19 April 2023 20 April 2023 24 April 2023 3 May 2023

2.1. Diurnal observations

Diurnal observations of flora and fauna or signs of fauna activity were conducted simultaneously with all other surveys conducted throughout the surveying period and across the Conservation Area (detailed in following sections). Diurnal observations included the recording of weed species and feral animals observed across the Conservation Area.

2.2. Weed Cover Survey

A weed species as defined within the approval conditions (EPBC 2018/8347) is *'any weed species identified within the Weeds of National Significance and weed species listed under the Biosecurity Act 2014 (Qld).'* As per the DCCEEW definition, a review of current listed Weeds of Nation Significance (WONS) and weeds listed under the *Queensland Biosecurity Act 2014* were reviewed prior to the site assessment. Furthermore, a review of the City of Ipswich Biosecurity Plan 2018-2023 was reviewed for additional relevance.

2.2.1 Weeds of National Significance (WONS)

Under the National Weeds Strategy, thirty-two (32) introduced plants were identified as WONS. This list of 32 WONS was developed based on the following key criteria:

- invasive tendencies
- impacts
- potential for spread
- socioeconomic and environmental values.

National management strategies and manuals have been published for all of these species.

The strategies aim to:

- prevent spread and new infestations,
- reduce adverse impacts of existing infestations,
- establish and maintain national commitment,
- coordinate management at a national level
- increase community awareness.

2.2.2 Queensland - Biosecurity Act 2014

The Biosecurity Act 2014, which commenced on 1 July 2016, establishes a framework to regulate and control invasive plants and animals. Under the Biosecurity Act 2014, land owners are responsible for taking all reasonable and practical steps to minimise the risks associated with invasive plants and animals under their control. This is known as the general biosecurity obligation (GBO).

The Biosecurity Act 2014 categorises restricted matter (restricted plants and animals) into the following:

- Category 1: must be reported to an inspector within 24 hours (includes Red Imported Fire Ants, amongst others).
- Category 2: must be reported within 24 hours Biosecurity Queensland on 13 25 23.
- Category 3: must not be distributed either by sale or gift, or released into the environment.
- Category 4: must not be moved.
- Category 5: must not be kept.
- Category 6: must not be fed (animals).

- Category 7: must be euthanised (animals).

2.2.3 City of Ipswich Biosecurity Plan 2018-2023

The City of Ipswich Biosecurity Plan 2018-2023 details Prevention, Eradication and Containments strategies for restricted matters (i.e species listed under the Biosecurity Act 2014).

2.2.4 Weed Survey Methodology

Baseline survey justification

The Providence East precinct (inclusive of the impact area and Conservation Area) was surveyed several times as part of the EPBC approval process. Surveys were required to quantify vegetation value as it pertains to suitable habitat for Matters of National Environmental Significance (MNES) species. This assessment ultilised the 'Modified Habitat Quality Transects' (MHQA) as described under the Biocondition methodology (2015). A component of this assessment estimates the total non-native plant cover within transect areas which contributes to the overall habitat score.

For the purposes of this assessment, the MHQA methodology is not considered the most appropriate assessment to measure cover of specific weeds. The MHQA methodology is used to estimate total weed cover but does not provide the opportunity to calculate the percentage cover of separate weed species. Therefore, a more robust and targeted assessment was proposed for this assessment to capture more detail on weed cover.

Given these surveys are to obtain baseline results, it is important that any method utilised needs to be robust and easily repeatable. The method for determining weed cover is a two-stage approach. Firstly, the site is walked several times to identify weeds present and to delineate areas of infestation using a hand-held GPS by suitable qualified ecologists. Secondly, within each area of interest, the density of weeds needs to be calculated to determine abundance. *The Guidelines for Monitoring Weed Control and recovery of native vegetation* (Auld 2009) was utilised to develop the survey methodology. This guideline states that estimating the abundance of plants is often most conveniently done by measuring their ground cover which is the perpendicular projection of aerial parts of plants to the ground (refer **Insert 1**). Two methods are outlined in the guidelines to acquire this information, either by using a series of quadrats to estimate cover or by laying a transect tape and measuring cover along the tape. For the purpose of this assessment, measuring the aerial projection of plant along the tape was considered most appropriate. This method minimises user variability as cover calculations are not reliant on estimations, cover is instead accurately measured against the tape (typically 100 m long). This two-staged approach to weed mapping presents a percentage cover of the specific weed species as well as an area of infestation, therefore the total area of weed cover for each weed species can be calculated.

Future survey

The approval conditions (EPBC 2018/8347) states that '*for the remaining period of approval, the approval holder must ensure that the extent of weed cover does not increase with respect to the baseline.*' It is expected that active weed management will be carried out to reduce the overall area of weed cover. The *Guidelines for Monitoring Weed Control and recovery of native vegetation* (Auld 2009) recommends that transect locations selected as part of the baseline survey remain consistent and revisited. Auld 2009 states *'While there are statistical reasons for choosing new random points, revisiting fixed points provides greater confidence that changes have occurred*

over time rather than natural variation at the site.' The frequency of re-assessment will be detailed in the overarching Conservation Area Management Plan (CAMP) that will be completed following the approval of the baseline survey results. Future surveys for weed cover will repeat the two-staged mapping approach as detailed above. Re-mapping the extent of weed infestations using a GPS allows for comparisons against baseline readings to be determined. Should the extent of weed cover increase, into non-mapped areas, this will be evident during the re-mapping exercise. Fixed transects enable a percentage weed cover to be calculated which will be revisited during each mapping exercise to determine changes in weed cover. The benefit of this approach is that both the extent (in ha) and density (as a percentage) of weeds are assessed, and increases/decreases are easily recognised. Furthermore, while existing transect locations will be re-visited there is no reason why additional transects cannot be utilised in the future should the extent of weeds change. It is considered that this survey methodology is a valid, robust and repeatable method.

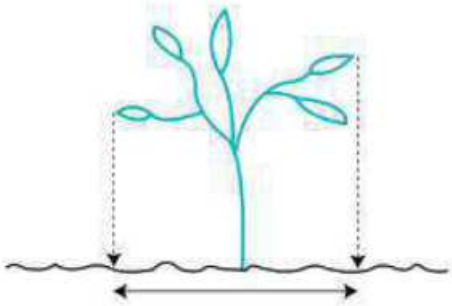


Figure 5. Ground cover of a plant indicated by the horizontal arrowed line.

Insert 1: Measuring ground cover (extract – Figure 5 and Figure 8: Auld 2009)

2.3. Feral Animal Abundance Survey

A feral animal is defined within the approval conditions (2018/8347) as *'non-native predators and non-native herbivores, including those known to predate on the Koala and/or Greater Glider, or with the potential to impact on vegetation habitat regeneration for protected matters.'*

2.3.1 Desktop Search

An initial desktop search was conducted for the Conservation Area and broader locality to determine feral species likely to be present. This result aided in designing and implementing the baseline survey methodology. A search of the Wildnet database under the Nature Conservation Act 1992, as well as other publicly available databases (ALA/Biomaps), for a 5km radius of the Conservation Area returned several feral/invasive fauna species. Feral mammal species within this search are shown in **Table 2** and **Attachment 2** for full search results. Several additional feral species of amphibian, birds and reptiles have been recorded in the area.

Table 2: Desktop Search of Feral species within a 5km radius of the Conservation Area

Species Name	Common Name	Status	Associated Impacts
Canis lupus familiaris	Wild Dog	Feral	Predation on native species including Koala
Vulpes vulpes	Red Fox	Feral	Predation on native species including Koala
Sus scrofa	Feral Pig	Feral	Dig/disturb ground modifying habitat
Felis catus	Feral Cat	Feral	Predation on native species including Koala
Dama dama/Cervus elaphus	Feral Deer	Feral	Graze on young native trees reducing new habitat
Lepus europaeus	European Brown Hare	Feral	Graze on young native trees reducing new habitat

2.3.2 Feral animal survey methodology

For successful monitoring of feral animal abundance, camera trapping is frequently utilised and remains the industry standard. Camera traps have the advantage of obtaining a wide range of significant information based on the set up. Automatic camera systems are triggered by an animal passing in front of a sensor that detects movement, changes in ambient light, or a thermal differential (Moen & Lindquist 2004). Cameras allow for the detection of species that are difficult to study due to their elusive or nocturnal habits (Mace *et al.* 2004). Camera deployment is less time consuming, less costly, and less invasive than long-term direct observation of animals. They are also beneficial in studying animals in inaccessible or difficult to access locations such as dens and nest cavities, or in rugged terrain (Mace *et al.* 1994). In addition, they enable the collection of valuable information about multiple species within any given community (Rosellini et al. 2008) and provide data that

is more permanent and less disputable than data gathered by direct observation. Furthermore, camera trapping allows consistent and repeatable surveys to be completed by placing the same cameras in the same locations using the same settings for the same length of time and set with the same bait. The repeatability of motion sensor camera trapping means it is an appropriate method to monitor changes of the abundance of feral animals over time.

The use of camera trapping and den count is considered to be an effective method in capturing, assessing and monitoring pest management. Camera trapping involves setting up a fixed motion-triggered infrared camera to capture images or video of animals which pass in front of camera or are lured by bait. This set-up identifies fauna activity beyond the scope of direct observational studies and in the absence of potential observer impacts. Infrared sensing cameras with an infrared flash were deployed, which use motion to trigger. Cameras were attached 50cm - 1m from the ground on a tree or post, and directed towards the bait station which is placed about 1.5 - 2m from the mounted camera.

The number of camera traps required for a specific survey area are dependent on the individual characteristics of the survey site (overall size and variety of vegetation communities) as well as the behaviours of the specific species being targeted (mobility/home range). The Conservation Area is 50 ha in size with a consistent, single, vegetation community across the entire area (being *Corymbia citriodora/Eucalyptus crebra* dominated woodland), refer **Section 3.1** for details. While multiple drainage lines are present within the Conservation Area, these are the upper extents of the waterways catchment and therefore do not demonstrate significant changes in vegetation and contain minimal riparian vegetation.

At present, DCCEEW does not have a published guideline for detecting feral animals. *The Survey Guidelines for Australia's Threatened Mammals* (2011) was reviewed as a published methodology for detecting mammals. However, this guideline recommends 10 remote cameras per ha as the focus is on threatened species which are highly cryptic and often have small home ranges. In contrast, feral animals are far less cryptic and significantly more mobile with larger home ranges than most native species.

The purpose of this assessment is to survey for feral animal abundance; therefore, *The Survey Guidelines for Australia's Threatened Mammals* is considered excessive and not practical for an area of this size. **Table 3** below outlines key feral animal present within the region and their associated home ranges. Several published papers outline the density of cameras required to monitor abundance of specific feral mammals. This is most conveniently done utilising a grid-based system which can be applied over the survey area. The grid-based system is a standard method of unbiased assessment with the purpose being that each camera is equidistant from the other. The literature recommends a grid based on at least 500 m x 500 m and frequently up to 1 km x 1 km. To ensure, the survey method provide suitable coverage, a 400 m x 400 m grid was applied to the survey area, well below the minimum recommended grid-based methods for all feral animals. Furthermore, the 50 ha Conservation Area is well within the home ranges of all feral animals targeted. Once the camera location had been determined within each 400 m grid, cameras were directed towards animal tracks to increase the chances of detection and identification, but the primary focus is to ensure an even spread of cameras across the site.

Table 3: Camera grid size justification

Target animal	Approx. Home Range	References	Grid recommendations
Dog	>250ha	• Department of Primary Industries, NSW Government (2018), Guidelines for camera trapping wild dogs, foxes and feral cats	• 1 km
		• Northern Territory Government (2015), A guide for the use of remote cameras for wildlife survey in northern territory	• 500 m
		• Contardo, J. E. (2017). Occupancy of free-ranging dogs in relation to infrastructure and habitat on Navarino Island, Cape Horn Reserve, Chile	• 700 m
		• Department of Industry, (2017). NSW Wild Dog Management Strategy 2022-2027	• 700 m
		• McNeill et al (2016), Dingoes at the Doorstep: Home Range Sizes and Activity Patterns of Dingoes and Other Wild Dogs around Urban Areas of North-Eastern Australia	• 700 m
Fox	500ha	• Department of Primary Industries, NSW Government (2018), Guidelines for camera trapping wild dogs, foxes and feral cats	• 1 km
		• Northern Territory Government (2015), A guide for the use of remote cameras for wildlife survey in northern territory	• 500 m
Pig	>200ha	• Department of Primary Industries, NSW Government (2018), Guidelines for camera trapping wild dogs, foxes and feral cats	• 1 km
		• Northern Territory Government (2015), A guide for the use of remote cameras for wildlife survey in northern territory	• 500m
Cat	Up to 800ha	• Department of Primary Industries, NSW Government (2018), Guidelines for camera trapping wild dogs, foxes and feral cats	• 1 km
		• Northern Territory Government (2015), A guide for the use of remote cameras for wildlife survey in northern territory	• 500 m
		• Johnson (2020), Caught out: Using camera traps to assess the effectiveness of feral cat baiting in north-western Australia	• 3 km

Target animal	Approx. Home Range	References	Grid recommendations
Deer	>200ha	• Victoria Government (2021), Guide to Monitoring Methods • Northern Territory Government (2015), A guide for the use of remote cameras for wildlife survey in northern territory	• 500 m • 500 m

In summary, several factors were considered when developing the methodology for monitoring feral animal abundance. A regularised grid-based system utilising 400m x 400m grids, coupled with a consistent vegetation community and relatively small overall area (50ha) resulted in the deployment of five (5) cameras. This method is considered appropriate for monitoring feral animals in lieu of specific survey guidelines published by DCCEEW. Future surveys for feral animals should repeat this technique ensuring the number of cameras, duration of deployment and bait used remain the same.

2.3.3 Motion-triggered infrared camera trap

Five (5) cameras were deployed across the Conservation Area, located throughout the site for 16 survey nights between 17 April and 3 May 2023.

The cameras were baited with peanut butter, oats and honey as this is considered the universal bait type. As the purpose of this assessment was to capture all feral animals, this bait selection was deemed most appropriate. The bait station utilised does not allow the target animal to consume the bait. Additionally, weather conditions were dry throughout the survey period, and therefore it was not necessary to replenish the bait (refer **Table 4** for details). The location, including coordinates, of each camera area shown in **Plan 1**).

Table 4: Camera Deployment details

Camera	Bait used	Bait replaced	Date deployed	Date collected	Total days
Camera 1 'Beetle'	Panut butter, oats and honey	Not required	17 April 2023	3 May 2023	16
Camera 2 'Bug'	Panut butter, oats and honey	Not required	17 April 2023	3 May 2023	16
Camera 3 'Crab'	Panut butter, oats and honey	Not required	17 April 2023	3 May 2023	16
Camera 4 'Iris'	Panut butter, oats and honey	Not required	17 April 2023	3 May 2023	16
Camera 5 'Tick'	Panut butter, oats and honey	Not required	17 April 2023	3 May 2023	16

2.3.4 Relative Abundance Index

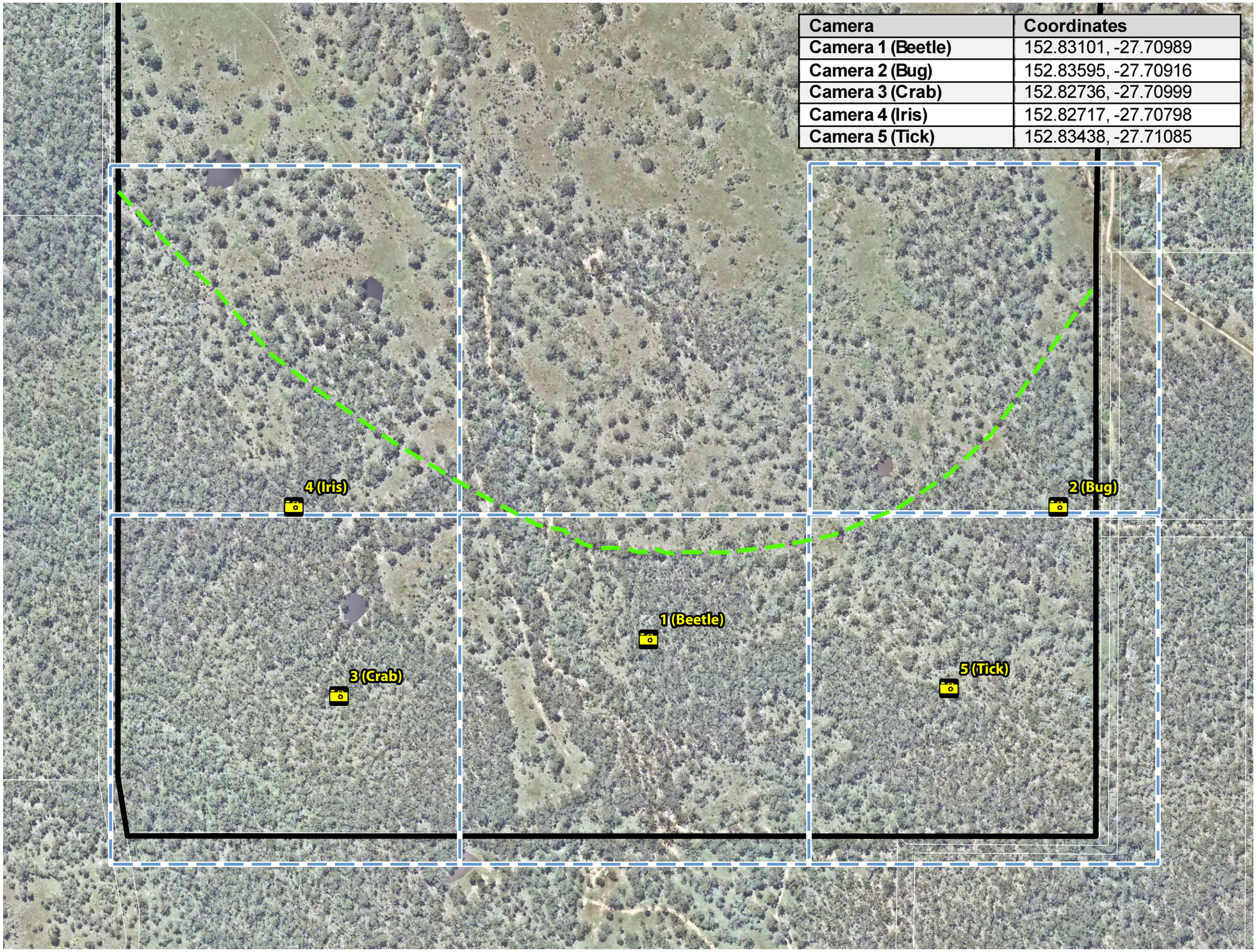
Camera data recording number of occurrences over days of camera deployment was utilised to provide relative abundance over the Conservation Area, reducing bias and increasing repeatability.

A relative abundance index (RAI) is then calculated for feral animal abundance, using the formula **RAI= D/TN x 100**, where D is numbers of detection and TN is the total number of camera-trap nights (all cameras combined). This is a frequently utilised surveying methodology for a range of ecological applications. This methodology ensures that the surveys are representative of the entire area and are repeatable for future monitoring requirements (O'Brien 2011).

Photo set 1: 1 of 5 camera set ups within the Conservation Area

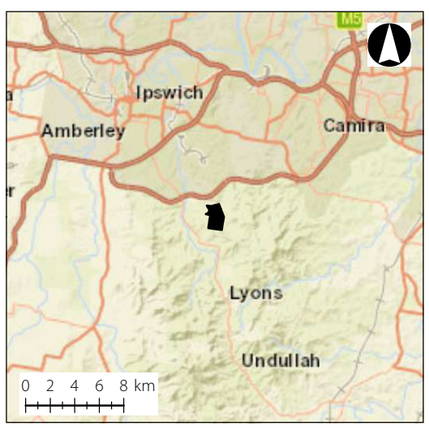
1. Conservation Area 400x400m Grid

Camera	Coordinates
Camera 1 (Beetle)	152.83101, -27.70989
Camera 2 (Bug)	152.83595, -27.70916
Camera 3 (Crab)	152.82736, -27.70999
Camera 4 (Iris)	152.82717, -27.70798
Camera 5 (Tick)	152.83438, -27.71085



Legend

- Qld DCDB
- Referral area
- Conservation area boundary
- 400x400m grid
- Camera trap location



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Providence East

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Transverse Mercator
GDA 2020 | Zone 56

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Issue	Date	Drawn	Checked
B	3/12/2024	TC	LB

3. Baseline Survey Results

3.1. Current vegetation state

The entire Conservation Area was traversed multiple times by SHG ecologists to provide data on the current state of vegetation. The Conservation Area consists of steep terrain which exhibits varying levels of disturbance. Dominant canopy species was *Corymbia citriodora* (Spotted Gum) with *Eucalyptus tereticornis* (Forest Red Gum) present on the lower slopes and *Eucalyptus crebra* (Narrow-leaved Ironbark) on the upper slopes. Canopy species are generally reflective of the dominant mapped RE's of 12.9-10.7 and 12.9-10.2. The shrub layer consists of largely recruiting canopy species and acacia species with weeds varying in density across the site. *Lantana camara* (Lantana) is the dominant weed species across the site with varying levels of *Lantana montevidensis* (Creeping Lantana), exotic grasses and vines, including *Passiflora suberosa* (Corky Passion) and *Melinis repens* (Red Natal Grass) where breaks in the canopy are present (refer **Photo set 2**).

Several drainage lines are present across the Conservation Area which were often weed infested. These drainage lines did not reflect true riparian features. Field surveys identified that majority of the canopy trees were of relatively small DBH and therefore often not containing hollows. At the time of assessment, it was evident that cattle are still grazing across the broader property due to grass cropping and scats observed.

Photo set 2: General condition of Conservation Area during site surveys

3.2. Extent of weed cover

Ecologists from SHG walked the Conservation Area several times and recorded all weed species (refer **Table 5**). Of the 13 weeds recorded, two species, *Lantana camara* (Lantana) and *Lantana montevidensis* (Creeping Lantana), are recognised as weeds under the DCCEEW definition. *Lantana camara* (Lantana) is a listed WONS and *Lantana montevidensis* (Creeping Lantana) is a listed restricted invasive plant under the Queensland Biosecurity Act 2015.

Table 5: Weed species recorded within the Conservation Area

Species Name	Common Name	Listing
Bidens pilosa	Cobbler's Pegs	-
Calyptocarpus vialis	Creeping Cinderella Weed	-
Chloris gayana	Rhodes Grass	-
Conyza sumatrensis	Tall Fleabane	-
Gomphocarpus physocarpus	Balloon Cotton Bush	-
Heliotropium amplexicaule	Blue Heliotrope	-
Lantana camara	Lantana	Weed of National Significance (WONS)
Lantana montevidensis	Creeping Lantana	Restricted invasive species – Biosecurity Act 2015
Megathyrsus maximus	Green Panic	-
Melinis repens	Red Natal Grass	-
Oxalis corniculata	Creeping Oxalis	-
Passiflora suberosa	Corky Passion Vine	-
Sida rhombifolia	Common Sida	-

On-ground surveys identified *Lantana camara* (Lantana) as being the dominant weed species across the Conservation Area. Areas of *Lantana camara* (Lantana) growth were traced using a hand-held GPS based on relative density (i.e low, moderate, high). Ground cover transects (100m) were then utilised, as per Auld 2008 methodology described in **Section 3.2.4**, to provide quantifiable data on density. The raw data captured within each 100m transect has been provided in **Section 4.2.1 - 4.2.5**. The locations and coordinates of each transect area shown on **Plan 2**.

The extent of weeds is illustrated on **Plan 2** and described in **Table 6**. The relative area of weed cover has been provided in **Table 7** based on percentage cover and area.

Table 6: Weed cover categories.

Weed cover category	Description
Low density Lantana	Areas where *Lantana camara* (Lantana) is the dominant weed species at a cover of 5% - 20%.
Moderate Density Lantana	Areas where *Lantana camara* (Lantana) is the dominant weed species at a cover of 20% - 50%.
Moderate Density Creeping Lantana	Areas where *Lantana montevidensis* (Creeping Lantana) is the dominant weed species at a cover of 20% - 50%
High Density Lantana	Areas where Lantana camara (Lantana) is the dominant weed species at a cover of >50%.
Predominantly native	Areas where native ground cover species are dominant and exotic/weed species total <5%

Table 7: Relative area of weed cover for each density category.

Weed cover category	Area (ha)	Percentage weed cover (based on transect results)	Relative area of weed cover (ha)
Low density Lantana	1.0	16%	0.16
Moderate Density Lantana	11.8	40.5%	4.78
Moderate Density Creeping Lantana	9.8	41%	4.01
High Density Lantana	1.9	66%	1.25
Predominantly native	25.8	0%	1.03
		Lantana	**6.19**
		Creeping Lantana	**4.01**
		Total	**10.20**

3.2.1 Low density Lantana

Areas defined as low density Lantana were categorised based on *Lantana camara* (Lantana) being the dominant weed species at a cover of 5% - 20%. These polygons were associated with relatively flat terrain in the northern extent of the Conservation Area. These thresholds were developed utilising ground cover transects across the Conservation Area, refer **Table 8** for raw data and **Photo set 3.**

Table 8: Transect data for low density Lantana areas

Transect 6 Start	End	Distance (m)	Ground Cover	Species
0	1.5	1.5	Native Grass	*Themeda triandra* (Kangaroo Grass), *Heteropogon contortus* (Black Speargrass)
1.5	2.6	1.1	Creeping lantana	*Lantana montevidensis* (Creeping lantana)
2.6	7.8	5.2	Native Grass	*Cymbopogon refractus* (Barbed wire grass), *Eragrostis brownii* (Brown's Lovegrass), *Aristida purpurea* (Threeawn Aristida), *Imperata cylindrica* (Blady Grass)
7.8	10.8	3	Lantana	*Lantana camara* (Lantana)
10.8	12.4	1.6	Native Grass	*Cynodon dactylon* (Common Couch), *Heteropogon contortus* (Black Speargrass), *Eragrostis brownii* (Brown's Lovegrass)
12.4	18.4	6	Lantana	*Lantana camara* (Lantana)
18.4	19.6	1.2	Native Grass	*Cynodon dactylon* (Common Couch)
19.6	25.5	5.9	Creeping lantana	*Lantana montevidensis* (Creeping lantana)
25.5	32.7	7.2	Native Grass	*Cynodon dactylon* (Common Couch), *Heteropogon contortus* (Black Speargrass), *Cymbopogon refractus* (Barbed wire grass)
32.7	36	3.3	Lantana	*Lantana camara* (Lantana)
36	40.6	4.6	Native Grass	*Heteropogon contortus* (Black Speargrass), *Cymbopogon refractus* (Barbed wire grass), *Aristida purpurea* (Threeawn Aristida)
40.6	50	9.4	Litter	N/A
50	52.6	2.6	Creeping lantana	*Lantana montevidensis* (Creeping lantana)

Transect 6 **Start**	**End**	**Distance (m)**	**Ground Cover**	**Species**
52.6	55.9	3.3	Litter	N/A
55.9	62	6.1	Native Grass	*Heteropogon contortus* (Black Speargrass), *Cymbopogon refractus* (Barbed wire grass), *Eragrostis brownii* (Brown's Lovegrass)
62	63.1	1.1	Litter	N/A
63.1	65	1.9	Native Grass	*Eragrostis brownii* (Brown's Lovegrass)
65	69.5	4.5	Litter	N/A
69.5	73	3.5	Native Grass	*Cynodon dactylon* (Common Couch), *Cymbopogon refractus* (Barbed wire grass)
73	76	3	Lantana	*Lantana camara* (Lantana)
76	79.6	3.6	Rock	N/A
79.6	81.4	1.8	Native Grass	*Eragrostis brownii* (Brown's Lovegrass)
81.4	82	0.6	Lantana	*Lantana camara* (Lantana)
82	100	18	Native Grass	*Cynodon dactylon* (Common Couch), *Heteropogon contortus* (Black Speargrass), *Cymbopogon refractus* (Barbed wire grass), *Eragrostis brownii* (Brown's Lovegrass)
Total Cover				
Native Grass	53%			
Litter	18%			
Rock	4%			
Total weed cover:	26%			
Lantana	16%			
Creeping Lantana	10%			

Photo set 3: Low density Lantana areas

3.2.2 Moderate density Lantana

Areas defined as moderate density Lantana were categorised based on *Lantana camara* (Lantana) being dominant weed species at a cover of 20% - 50%. Polygons of moderate density Lantana were the dominant category across the Conservation Area. These thresholds were developed utilising ground cover transects across the Conservation Area, refer **Table 9** for raw data and **Photo set 4**.

Table 9: Transect data for moderate density Lantana areas

Transect 5 Start	End	Distance (m)	Ground Cover	Species
0	6.6	6.6	Corky passion / Creeping lantana	*Passiflora suberosa* (Corky Passion Vine), *Lantana montevidensis* (Creeping lantana)
6.6	11	4.4	Lantana	*Lantana camara* (Lantana)
11	12	1	Corky passion / Creeping lantana	*Passiflora suberosa* (Corky Passion Vine), *Lantana montevidensis* (Creeping lantana)
12	15.7	3.7	Lantana	*Lantana camara* (Lantana)
15.7	18.4	2.7	Litter	N/A
18.4	22	3.6	Creeping lantana	*Lantana camara* (Lantana)
22	25	3	Native Grass	*Heteropogon contortus* (Black Speargrass), *Eragrostis brownii* (Brown's Lovegrass), *Aristida purpurea* (Threeawn Aristida)
25	26.2	1.2	Litter	N/A
26.2	29	2.8	Lantana	*Lantana camara* (Lantana)
29	34	5	Litter	N/A
34	37.7	3.7	Creeping lantana	*Lantana montevidensis* (Creeping lantana)
37.7	41.3	3.6	Lantana	*Lantana camara* (Lantana)
41.3	46	4.7	Native Grass	*Cymbopogon refractus* (Barbed wire grass), *Heteropogon contortus* (Black Speargrass), *Eragrostis brownii* (Brown's Lovegrass)
46	49.4	3.4	Lantana	*Lantana camara* (Lantana)
49.4	51.4	2	Litter	N/A
51.4	56	4.6	Lantana	*Lantana camara* (Lantana)
56	58.8	2.8	Corky passion / Creeping lantana	*Passiflora suberosa* (Corky Passion Vine), *Lantana montevidensis* (Creeping lantana)

Transect 5 **Start**	**End**	**Distance (m)**	**Ground Cover**	**Species**
58.8	66.5	7.7	Lantana	*Lantana camara* (Lantana)
66.5	70.7	4.2	Native Grass	*Heteropogon contortus* (Black Speargrass)
70.7	74.7	4	Lantana	*Lantana camara* (Lantana)
74.7	80	5.3	Native Grass	*Heteropogon contortus* (Black Speargrass)
80	82	2	Litter	N/A
82	87	5	Lantana	*Lantana camara* (Lantana)
87	88.9	1.9	Litter	N/A
88.9	96	7.1	Lantana	*Lantana camara* (Lantana)
96	100	4	Native Grass	*Cymbopogon refractus* (Barbed wire grass), *Heteropogon contortus* (Black Speargrass), *Eragrostis brownii* (Brown's Lovegrass)
Total Cover				
Native Grass	21%			
Litter	15%			
Total weed cover:	64%			
Lantana	46%			
Creeping Lantana	18%			

Transect 1 **Start**	**End**	**Distance (m)**	**Ground Cover**	**Species**
0	4.5	4.5	Lantana	*Lantana camara* (Lantana)
4.5	7	2.5	Native Grass	*Imperata cylindrica* (Blady Grass)
7	10.9	3.9	Native Grass	*Cynodon dactylon* (Common Couch), *Heteropogon contortus* (Black Speargrass)
10.9	18.5	7.6	Native Grass	*Imperata cylindrica* (Blady Grass)
18.5	31	12.5	Native Grass	*Cynodon dactylon* (Common Couch), *Heteropogon contortus* (Black Speargrass)
31	40.8	9.8	Lantana	*Lantana camara* (Lantana)

Transect 5 **Start**	**End**	**Distance (m)**	**Ground Cover**	**Species**
40.8	46.9	6.1	Native Grass	*Cynodon dactylon* (Common Couch), *Heteropogon contortus* (Black Speargrass)
46.9	50	3.1	Lantana	*Lantana camara* (Lantana)
50	53	3	Native Grass	*Cynodon dactylon* (Common Couch), *Heteropogon contortus* (Black Speargrass)
53	55.3	2.3	Lantana	*Lantana camara* (Lantana)
55.3	62.4	7.1	Native Grass	*Cynodon dactylon* (Common Couch), *Heteropogon contortus* (Black Speargrass)
62.4	65.1	2.7	Lantana	*Lantana camara* (Lantana)
65.1	68.1	3	Litter	N/A
68.1	69.6	1.5	Lantana	*Lantana camara* (Lantana)
69.6	72.4	2.8	Bare Ground	N/A
72.4	73	0.6	Native Grass	*Heteropogon contortus* (Black Speargrass)
73	74.4	1.4	Litter	N/A
74.4	75.4	1	Lantana	*Lantana camara* (Lantana)
75.4	77	1.6	Bare Ground	N/A
77	78.2	1.2	Lantana / Creeping lantana	*Lantana camara* (Lantana), *Lantana montevidensis* (Creeping lantana)
78.2	85.6	7.4	Native Grass	*Cynodon dactylon* (Common Couch), *Heteropogon contortus* (Black Speargrass), *Cymbopogon refractus* (Barbed wire grass)
85.6	89.3	3.7	Litter	N/A
89.3	98	8.7	Lantana	*Lantana camara* (Lantana)
98	100	2	Litter	N/A
Total Cover				
Native Grass	51%			
Litter	10%			
Bare Ground	4%			
Total weed cover:	35%			
Lantana	35%			

Photo set 4: Moderate density Lantana areas

3.2.3 Moderate density Creeping Lantana

Areas defined as moderate density Creeping Lantana were categorised based on *Lantana montevidensis* (Creeping Lantana) being dominant weed species at a cover of 20% - 50%. These areas were exclusively located in the south-west of the Conservation Area where steep rocky terrain is present, and the canopy is intact. These thresholds were developed utilising ground cover transects across the Conservation Area, refer **Table 10** for raw data and **Photo set 5**.

Table 10: Transect data for moderate density Creeping Lantana areas

Transect 2 Start	End	Distance (m)	Ground Cover	Species
0	3	3	Creeping Lantana	*Lantana montevidensis* (Creeping lantana)
3	8.7	5.7	Native Grass	*Heteropogon contortus* (Black Speargrass), *Cymbopogon refractus* (Barbed wire grass)
8.7	12.3	3.6	Creeping Lantana	*Lantana montevidensis* (Creeping lantana)
12.3	14.4	2.1	Native Grass	*Heteropogon contortus* (Black Speargrass), *Cymbopogon refractus* (Barbed wire grass)
14.4	18.9	4.5	Creeping Lantana	*Lantana montevidensis* (Creeping lantana)
18.9	31.6	12.7	Native Grass	*Heteropogon contortus* (Black Speargrass), *Cymbopogon refractus* (Barbed wire grass)
31.6	39.2	7.6	Lantana / Creeping lantana	*Lantana camara* (Lantana), *Lantana montevidensis* (Creeping lantana)
39.2	41.7	2.5	Litter	N/A
41.7	45.5	3.8	Native Grass	*Heteropogon contortus* (Black Speargrass), *Cymbopogon refractus* (Barbed wire grass)
45.5	47.4	1.9	Creeping Lantana	*Lantana montevidensis (Creeping lantana)*
47.4	51.2	3.8	Native Grass	*Cynodon dactylon* (Common Couch), *Heteropogon contortus* (Black Speargrass)
51.2	55.4	4.2	Litter	*N/A*
55.4	60.6	5.2	Creeping Lantana	*Lantana montevidensis (Creeping lantana)*

Transect 2 **Start**	**End**	**Distance (m)**	**Ground Cover**	**Species**
60.6	62.5	1.9	Native Grass	*Cynodon dactylon* (Common Couch), *Heteropogon contortus* (Black Speargrass)
62.5	64.4	1.9	Lantana	*Lantana camara* (Lantana)
64.4	69.7	5.3	Native Grass	*Cynodon dactylon* (Common Couch), *Heteropogon contortus* (Black Speargrass)
69.7	78	8.3	Creeping Lantana	*Lantana montevidensis (Creeping lantana)*
78	84.7	6.7	Litter	*N/A*
84.7	89.5	4.8	Creeping Lantana	*Lantana montevidensis (Creeping lantana)*
89.5	100	10.5	Native Grass	*Cynodon dactylon* (Common Couch), *Heteropogon contortus* (Black Speargrass)
Total Cover				
Native Grass	46%			
Litter	13%			
Total weed cover:	41%			
Creeping Lantana	39%			

Photo set 5: Moderate density Creeping Lantana areas

3.2.4 High density Lantana

Areas defined as high density Lantana were categorised based on *Lantana camara* (Lantana) being dominant weed species at a cover of >50%. These polygons were generally associated with the property boundaries where high levels of disturbance had taken place. These thresholds were developed utilising ground cover transects across the Conservation Area, refer **Table 11** for raw data and **Photo set 6**.

Table 11: Transect data for high density Lantana areas

Transect 4				
Start	**End**	**Distance (m)**	**Ground Cover**	**Species**
0	1.8	1.8	Native Grass	*Eragrostis brownii* (Brown's Lovegrass), *Cynodon dactylon* (Common Couch)
1.8	4.5	2.7	Lantana	*Lantana camara* (Lantana)
4.5	14.9	10.4	Native Grass	*Imperata cylindrica* (Blady Grass), *Heteropogon contortus* (Black Speargrass), *Eragrostis brownii* (Brown's Lovegrass)
14.9	22.6	7.7	Lantana	*Lantana camara* (Lantana)
22.6	25	2.4	Litter	N/A
25	45.2	20.2	Lantana	*Lantana camara* (Lantana)
45.2	50	4.8	Native Grass	*Imperata cylindrica* (Blady Grass)
50	65	15	Lantana	*Lantana camara* (Lantana)
65	69	4	Native Grass	*Imperata cylindrica* (Blady Grass)
69	72	3	Lantana	*Lantana camara* (Lantana)
72	75	3	Native Grass	*Imperata cylindrica* (Blady Grass)
75	78.2	3.2	Lantana	*Lantana camara* (Lantana)
78.2	80.5	2.3	Native Grass	*Imperata cylindrica* (Blady Grass)
80.5	82.5	2	Lantana	*Lantana camara* (Lantana)
82.5	88	5.5	Native Grass	*Imperata cylindrica* (Blady Grass), *Cynodon dactylon* (Common Couch)
88	100	12	Lantana	*Lantana camara* (Lantana)
Total Cover				

Transect 4				
Start	**End**	**Distance (m)**	**Ground Cover**	**Species**
Native Grass	32%			
Litter	2%			
Total weed cover:	66%			
Lantana	66%			

Photo set 6: High density Lantana areas

3.2.5 Predominantly Native

Areas defined as predominantly native were categorised based on the cover of weeds species being <5%. The balance of the Conservation Area consistent of a predominantly native understory with scattered isolated patches of weeds generally associated with disturbances. These thresholds were developed utilising ground cover transects across the Conservation Area, refer **Table 12** for raw data and **Photo set 7**.

Table 12: Transect data for predominantly native areas

Transect 3				
Start	**End**	**Distance (m)**	**Ground Cover**	**Species**
0	0.5	0.5	Native Grass	*Eragrostis brownii* (Brown's Lovegrass)
0.5	1.4	0.9	Litter	N/A
1.4	4	2.6	Native Grass	*Cynodon dactylon* (Common Couch), *Cymbopogon refractus* (Barbed wire grass)
4	4.4	0.4	Litter	N/A
4.4	4.7	0.3	Native Grass	*Heteropogon contortus* (Black Speargrass)
4.7	5.4	0.7	Litter	N/A
5.4	5.6	0.2	Rock	N/A
5.6	6.3	0.7	Native Grass	*Cynodon dactylon* (Common Couch), *Cymbopogon refractus* (Barbed wire grass)
6.3	7.2	0.9	Litter	N/A
7.2	16.4	9.2	Native Grass	*Cynodon dactylon* (Common Couch), *Heteropogon contortus* (Black Speargrass), Cymbopogon refractus (Barbed wire grass), *Eragrostis brownii* (Brown's Lovegrass), *Aristida purpurea* (Threeawn Aristida)
16.4	16.6	0.2	Litter	N/A
16.6	28	11.4	Native Grass	*Heteropogon contortus* (Black Speargrass), *Aristida purpurea* (Threeawn Aristida)
28	30	2	Corky Passion / Litter	*Passiflora suberosa* (Corky Passion Vine)

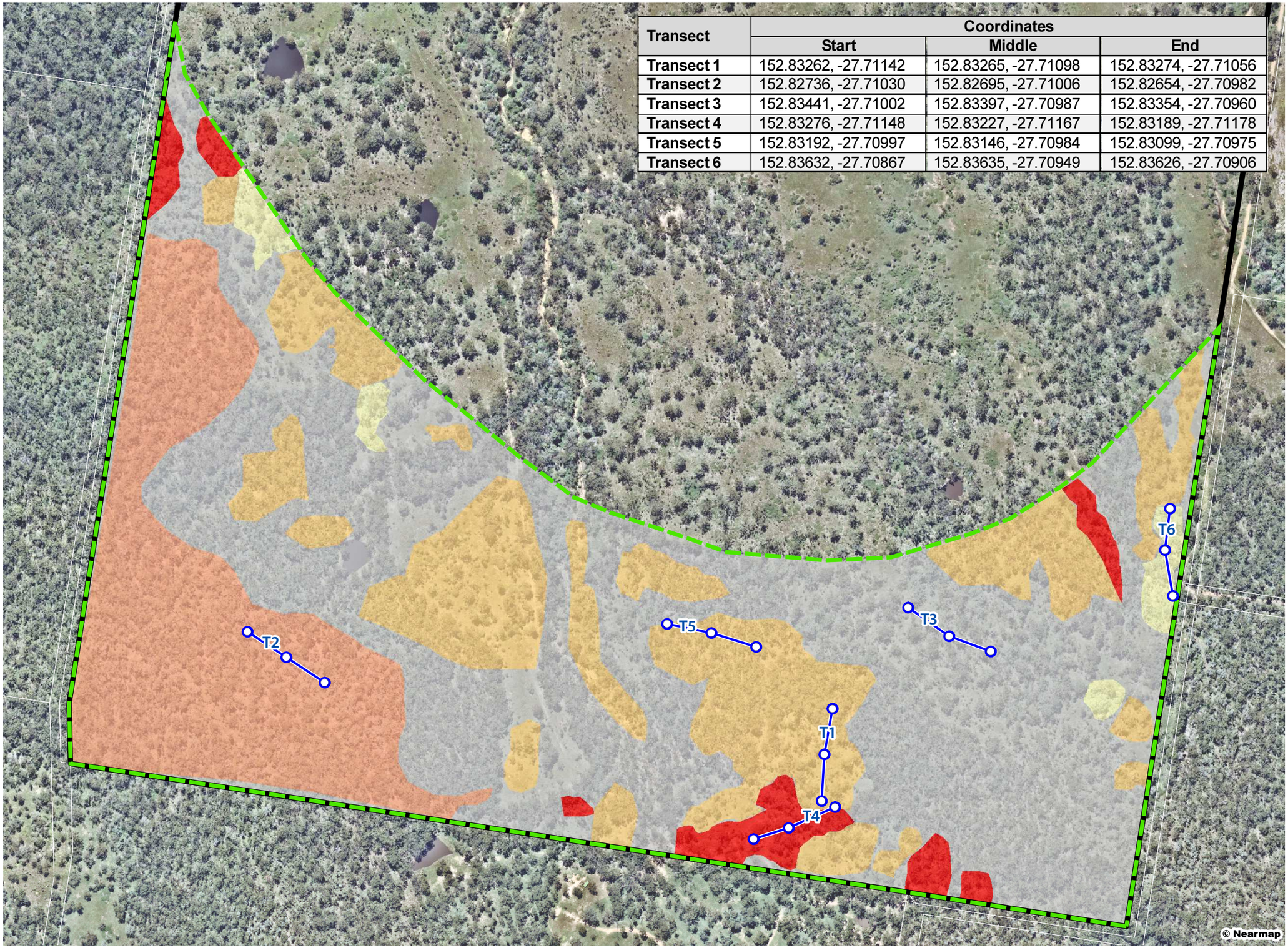
Transect 3 **Start**	**End**	**Distance (m)**	**Ground Cover**	**Species**
30	33.4	3.4	Native Grass	*Cynodon dactylon* (Common Couch), *Heteropogon contortus* (Black Speargrass), *Cymbopogon refractus* (Barbed wire grass), *Eragrostis brownii* (Brown's Lovegrass), *Aristida purpurea* (Threeawn Aristida)
33.4	35.8	2.4	Litter	N/A
35.8	42.2	6.4	Native Grass	*Heteropogon contortus* (Black Speargrass), *Eragrostis brownii* (Brown's Lovegrass)
42.2	42.8	0.6	Corky Passion / Litter	*Passiflora suberosa* (Corky Passion Vine)
42.8	54.6	11.8	Native Grass	*Heteropogon contortus* (Black Speargrass), *Aristida purpurea* (Threeawn Aristida), *Eragrostis brownii* (Brown's Lovegrass)
54.6	55.5	0.9	Litter	N/A
55.5	69.5	14	Native Grass	*Cynodon dactylon* (Common Couch), *Cymbopogon refractus* (Barbed wire grass), *Aristida purpurea* (Threeawn Aristida), *Heteropogon contortus* (Black Speargrass)
69.5	77.5	8	Litter	N/A
77.5	80.4	2.9	Native Grass	*Heteropogon contortus* (Black Speargrass)
80.4	82.9	2.5	Litter	N/A
82.9	96.9	14	Native Grass	*Cymbopogon refractus* (Barbed wire grass), *Eragrostis brownii* (Brown's Lovegrass
96.9	99	2.1	Litter	N/A
99	100	1	Corky Passion / Litter	*Passiflora suberosa* (Corky Passion Vine)
Total Cover				
Native Grass	77%			
Bare Ground	0%			
Litter	19%			
Total weed cover:	4%			

Transect 3				
Start	**End**	**Distance (m)**	**Ground Cover**	**Species**
Lantana	0%			
Creeping Lantana	0%			

Photo set 7: Predominantly native vegetation

02. Baseline Weed Mapping

Transect	Coordinates		
	Start	Middle	End
Transect 1	152.83262, -27.71142	152.83265, -27.71098	152.83274, -27.71056
Transect 2	152.82736, -27.71030	152.82695, -27.71006	152.82654, -27.70982
Transect 3	152.83441, -27.71002	152.83397, -27.70987	152.83354, -27.70960
Transect 4	152.83276, -27.71148	152.83227, -27.71167	152.83189, -27.71178
Transect 5	152.83192, -27.70997	152.83146, -27.70984	152.83099, -27.70975
Transect 6	152.83632, -27.70867	152.83635, -27.70949	152.83626, -27.70906



Notes:
This plan was prepared as a desktop assessment tool. The information on this plan is not suitable for any other purpose. Property dimensions, areas, numbers of lots and contours and other physical features shown have been compiled from existing information and may not have been verified by field survey. These may need verification if the development application is approved and development proceeds, and may change when a full survey is undertaken or in order to comply with development approval conditions. No reliance should be placed on the information on this plan for detailed design or for any financial dealings involving the land. Saunders Havill Group therefore disclaims any liability for any loss or damage whatsoever or howsoever incurred, arising from any party using or relying upon this plan for any purpose other than as a document prepared for the sole purpose of accompanying a development application and which may be subject to alteration beyond the control of the Saunders Havill Group. Unless a development approval states otherwise, this is not an approved plan.

Layer Sources
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Updated data available at
http://qldspatial.information.qld.gov.au/catalogue/
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Legend

- Qld DCDB
- Referral Area
- Conservation Area
- Weed Cover Transects

Baseline Weed Mapping

- Predominantly native (< 5%) - Scattered, isolated patches of *Lantana camara* (Lantana) + other weed species such as *Passiflora suberosa* (Corky Passion), *Melinis repens* (Red Natal Grass), and *Lantana montevidensis* (Creeping Lantana) - 25.8 ha
- Low density (5-20% Lantana) - 1.0 ha
- Moderate density (Lantana 20-50%) - 11.8 ha
- Moderate density (Creeping Lantana 20-50%) - 9.8 ha
- High density (>50% Lantana) - 1.9 ha

Issue	Date	Description	Drawn	Checked
B	3/12/2024	Coordinates added	TC	LB

0 20 40 60 80 100 m

Transverse Mercator | GDA 1994 | Zone 56 | 1:4,000 @ A3

saunders havill group

Stockland

Providence East

Address / RPD: Ripley

3/12/2024 | 9896 E 02 Weed Mapping B

3.3. Feral Animal Abundance Survey

Field surveys did not identify any evidence of Koala, Greater Glider or Grey-headed Flying-fox mortalities on-site during assessment.

Five (5) motion activated cameras were deployed across the Conservation Area, from 17 April to 3 May 2023. Surveys across the entire Conservation Area are relevant for the baseline surveys and future monitoring and management actions to be implemented following the approval of the Conservation Area Management Plan.

The Conservation Area cameras detected 11 species of fauna (9 native and 3 considered feral), (refer **Table 13** and **Photo set 8**). A total of thirty-one (31) individual sightings of feral animals over a total of eighty-five (85) survey nights (refer to **Table 14** and **Table 15**). For the purposes of this assessment, *Bos taurus* (Domestic Cow) was not considered a feral animal. Therefore, only feral animals *Canis lupus familiaris* (Dog) and *Vulpes vulpes* (Red Fox) were recorded. For the purposes of this study, any feral animal was recorded as a new individual if >1 hour had elapsed between sightings.

Table 13: All fauna species detected on camera traps during the survey period

Camera (number/name)	Species Name	Common Name	Feral/Native
Camera 1 (Beetle)	*Gymnorhina tibicen*	Australian Magpie	Native
	Trichosurus vulpecula	Common Brushtail Possum	Native
	Isoodon macrourus	Northern Brown Bandicoot	Native
	Bos taurus	Domestic Cow	N/A
	Macropus rufogriseus	Red-necked Wallaby	Native
	Macropus giganteus	Eastern Grey Kangaroo	Native
	Phascogale tapoatafa	Brush-tailed Phascogale	Native
Camera 2 (Bug)	*Gymnorhina tibicen*	Australian Magpie	Native
	Phascogale tapoatafa	Brush-tailed Phascogale	Native
	Trichosurus vulpecula	Common Brushtail Possum	Native
	Bos taurus	Domestic Cow	N/A
	Dacelo novaeguineae	Laughing Kookaburra	Native
	Rattus sp	Rat	Native
	Macropus giganteus	Eastern Grey Kangaroo	Native
Camea 3 (Crab)	*Macropus giganteus*	Eastern Grey Kangaroo	Native
	Trichosurus vulpecula	Common Brushtail Possum	Native
	Bos taurus	Domestic Cow	N/A

Camera (number/name)	Species Name	Common Name	Feral/Native
Camera 4 (Iris)	*Macropus giganteus*	Eastern Grey Kangaroo	Native
	Bos taurus	Domestic Cow	N/A
	Isoodon macrourus	Northern Brown Bandicoot	Native
	Phascogale tapoatafa	Brush-tailed Phascogale	Native
	Vulpes vulpes	**Red Fox**	**Feral**
	Macropus rufogriseus	Red-necked Wallaby	Native
	Podargus strigoides	Tawny Frogmouth	Native
Camera 5 (Tick)	***Canis lupus familiaris***	**Wild dog**	**Feral**
	Vulpes vulpes	**Red Fox**	**Feral**
	Macropus rufogriseus	Red-necked Wallaby	Native
	Phascogale tapoatafa	Brush-tailed Phascogale	Native
	Macropus giganteus	Eastern Grey Kangaroo	Native
	Bos taurus	Domestic Cow	N/A
	Trichosurus vulpecula	Common Brushtail Possum	Native

Using the methodology described in **Section 2.3.3** the formula **RAI = D/TN x 100** was used, where D is numbers of detection and TN is the total number of camera-trap nights (all cameras combined). This methodology ensures that the surveys are representative of the entire offset area and are repeatable for future monitoring requirements.

The Conservation Area Baseline RAI for, *Canis lupus familiaris* (Dog) *and Vulpes vulpes* (Red Fox) were both **5.88** (refer **Table 12** and **Table 13**). All other feral species were assigned a RAI of **0** as they were not recorded within the survey area.

Table 14: Survey Results Summary - *Canis lupus familiaris* (Dog)

Camera	Camera Name	Survey Duration (nights)	Species	Detection	RAI
1	'Beetle'	17	Nil	-	
2	'Bug'	17	Nil	-	
3	'Crab'	17	Nil	-	
4	'Iris'	17	Nil	-	
5	'Tick'	17	*Canis lupus familiaris* (Dog)	5	
Total		**85**		**5**	**5.88**

Table 15: Survey Results Summary - *Vulpes vulpes (Red Fox)*

Camera	Camera Name	Survey Duration (nights)	Species	Detection	RAI
1	'Beetle'	17	Nil	-	
2	'Bug'	17	Nil	-	
3	'Crab'	17	Nil	-	
4	'Iris'	17	*Vulpes vulpes* (Red Fox)	1	
5	'Tick'	17	*Vulpes vulpes* (Red Fox)	4	
Total		**85**		**5**	**5.88**

Photo set 8: Feral animals recorded across the conservation area, *Vulpes vulpes* (Red Fox) and *Canis lupus familiaris* (Wild Dog)

4. Conclusion of results

4.1. Weed cover

The area of weed cover, calculated as relative abundance, was **6.19 ha** of *Lantana camara* (Lantana) and **4.01 ha** of *Lantana montevidensis* (Creeping Lantana), **totalling 10.20 ha** overall. Notably, isolated patches of *Lantana camara* (Lantana), *Lantana montevidensis* (Creeping Lantana) and other weeds (not defined under the DCCEEW definition) were observed across the Conservation Area.

4.2. Feral animal abundance

The Conservation Area Baseline RAI for *Canis lupus familiaris* (Dog) *and Vulpes vulpes* (Red Fox) were both **5.88**. All other feral species were assigned a RAI of **0** as they were not recorded within the survey area.

Condition 10 of the (2018/8347) approval conditions sates *'For the remaining period of approval, the approval holder must ensure that the extent of weed cover and feral animal abundance does not increase with respect to the baseline documented by the extent of weed cover and feral animal surveys required by condition 9(a).'* The baseline results documented in this report will be used to determine compliance with this condition. Management measures implemented are to be documented in the accompanying Conservation Area Management Plan.

5. References

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Attachments

Attachment 1

Approved Conditions

Attachment 2

Suitably qualified project experts – CV

Attachment 3

Wildlife online species list

Attachment 1

Approved Conditions

Australian Government
Department of Climate Change, Energy, the Environment and Water

Notification of approval

Ripley Valley PDA Providence East and South, QLD (EPBC 2018/8347)

This decision is made under section 133(1) of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). Note that section 134(1A) of the EPBC Act applies to this approval. That provision provides, in general terms, that if the approval holder authorises another person to undertake any part of the Action, the approval holder must take all reasonable steps to ensure that the other person is informed of any conditions attached to this approval, and that the other person complies with any such conditions.

Proposed action

person to whom the approval is granted (approval holder)	Daleswan Pty Ltd
ABN of approval holder	94 105 650 075
Action	Development of the Ripley Valley PDA Providence East and South, located 5 km south east of Ipswich, Queensland [See EPBC Act referral 2018/8347]

Approval decision

approval decision	My decision on whether or not to approve the taking of the Action for the purposes of the controlling provision for the Action is as follows.	
	Controlling Provision	**Decision**
	Listed threatened species and communities (section 18 and section 18A)	Approved
period for which the approval has effect	This approval has effect until 31 November 2050.	
conditions of approval	The approval is subject to conditions under the EPBC Act as set out in Annexure A.	

Person authorised to make decision

name and position	Mark Say Acting Branch Head Environment Assessments Queensland and Sea Dumping Branch
signature	
date of decision	15 December 2022

Annexure A

Note: Words appearing in **bold** have the meaning assigned to them at PART C – DEFINITIONS.

Part A – Conditions specific to the Action

Development Area

1. The approval holder must not **clear** or **construct** outside of the **development area** as part of this Action.
2. The approval holder must not **clear** within the **development area** more than:
    a. 131.72 ha of **Koala habitat**
    b. 67.85 ha of **Greater Glider habitat**
    c. 67.85 ha of **Grey-headed Flying-fox foraging habitat**.
3. The approval holder must not **clear** or **construct** in or within 1 metre of the **conservation area** except as specified in the Conservation Area Management Plan, required under condition 11, approved by the **Minister**.
4. The approval holder must ensure that all **clearing** is undertaken with the supervision of an **independent suitably qualified field ecologist**, who is given sufficient authority to cease any **clearing** that the **independent suitably qualified field ecologist** considers may not be compliant with the requirements of conditions 1, 2 and 3.

    Note: The **independent suitably qualified field ecologist** can be the same person as the **fauna spotter catcher** provided that they can demonstrate they have the relevant qualifications and meet the criteria in the definition of '**independent**'.
5. If the **independent suitably qualified field ecologist** requires the cessation of **clearing**, then the approval holder must not re-commence **clearing** unless the **Minister** has provided approval in writing.

Impact mitigation

6. To minimise risk of injury or death to the **Koala**, **Greater Glider** and **Grey-headed Flying-fox** within the **development area**, the approval holder must:
    a. ensure that a suitably qualified **fauna spotter catcher**, who is given sufficient authority to delay and/or cease any **clearing** and/or **construction**, is present during all **clearing** and **construction** to identify **protected matters** (including in hollow bearing trees), to ensure

Koalas, Greater Gliders and **Grey-headed Flying-foxes** have safely vacated any area prior to **clearing** and **construction** occurring where it could injure animals in that area

b. if a **Koala, Greater Glider** or **Grey-headed Flying-fox** is spotted within 100 m of any area of **clearing** and **construction** within the **development area**, cease all **clearing** and **construction** within 100 m of the **Koala, Greater Glider** or **Grey-headed Flying-fox** until the **Koala, Greater Glider** or **Grey-headed Flying-fox** has moved on its own further than 100 m from the area of **clearing** and **construction**, or is translocated by the **fauna spotter catcher**

c. **clear** only in accordance with the **Nature Conservation (Koala) Conservation Plan 2017**, so as to allow **Koalas** to safely move out of the **clearing** area and into surrounding areas of **Koala habitat**, and implement all provisions for **sequential clearing**

d. install temporary **Koala exclusion fencing** around any area of proposed **construction** work, immediately after **clearing** and prior to the commencement of **construction** in that area, so as to prevent **Koalas** entering any area where **construction** is taking place

e. prohibit workers from bringing dogs into the **development area** and adjacent **Koala habitat**, **Greater Glider habitat** and **Grey-headed Flying-fox foraging habitat** during **clearing** and **construction.**

7. To minimise the risk of injury or death to the **Koala, Greater Glider** and **Grey-headed Flying-fox** within the **development area** from vehicle traffic, the approval holder must:

    a. only **construct** roads in accordance with **Queensland's Fauna Sensitive Road Design guidelines** to minimise the risks to **Koalas, Greater Glider** and **Grey-headed Flying-fox foraging habitat** of vehicle strike

    b. implement **safe movement solutions** and **local traffic management measures** to ensure that the speed of all vehicles on roads in the **development area** where **koalas** are likely to be present is no greater than 40 km/h at any time (except an emergency and until a government entity controls these roads), so as to minimise the risk to **Koala** from vehicle strike

    c. install prominent **Koala** awareness signage consistent with **Queensland's wildlife signing guidelines**, prior to opening to public motorists, any road where the presence of **protected matters** is likely.

Conservation Area

8. For the protection of **Koalas**, **Grey-headed Flying-foxes** and **Greater Gliders** in the **conservation area**, the approval holder must implement measures, including signage, fencing, monitoring and enforcement, to effectively prevent any **unauthorised persons** from entering, and to prevent any persons leaving rubbish or bringing animals or vehicles into the **conservation area.**

9. For the protection of the **Koala**, **Greater Glider** and **Grey-headed Flying-fox** within the **development area**, within 6 months of this approval decision the approval holder must:

    a. complete baseline **extent of weed cover** and **feral animal** abundance surveys throughout the **conservation area** in accordance with a scientifically valid, robust, and repeatable methodology

    b. submit the results of the baseline **extent of weed cover** and **feral animal** surveys required by 9(a) for the **department's** acceptance, and must make this information available on the **website** within 2 months of the report of the **extent of weed cover** and **feral animal** abundance surveys being accepted by the **department**

c. prepare and submit a Conservation Area Management Plan for the approval by the **Minister**, with demonstration that it has been developed in consultation with the Council and relevant stakeholders, which specifies the methods, dates and results of the surveys required under condition 9(a), and the methods and intervals for monitoring to achieve the requirements of condition 10.

10. For the remaining period of approval, the approval holder must ensure that the **extent of weed cover** and **feral animal** abundance does not increase with respect to the baseline documented by the **extent of weed cover** and **feral animal** surveys required by condition 9(a).

11. Within 1 year of the date of this approval decision, the approval holder must **legally secure** the **conservation area**. Within 20 **business days** of **legally securing** this area, the approval holder must provide the **department** with written evidence demonstrating that the **conservation area** has been **legally secured**.

12. For the ongoing protection of **Koala, Grey-headed Flying-fox** and **Greater Glider habitat** within the **conservation area**, the approval holder must manage the **conservation area** for the life of the approval, until and unless the approval holder provides written confirmation from the **Council** that the **Council** will implement the Conservation Area Management Plan (required under condition 9(c)) and manage the **conservation area** for **conservation purposes**.

Environmental Offset Requirements

13. To compensate for impacts of up to 131.72 ha of **Koala habitat** and up to 67.85 ha of **Grey-headed Flying-fox foraging habitat**, the approval holder must:

    a. **Legally secure** a minimum of 183 ha of land within the **Avonvale and Cherry Gully Offset Area** prior to **commencement of the action**.

    b. Within 20 **business days** of **legally securing** the **Avonvale and Cherry Gully Offset Area**, provide the **department** with:

        i. Written evidence demonstrating that the **Avonvale and Cherry Gully Offset Area** has been **legally secured**

        ii. **Shapefiles** and **offset attributes** of the **Avonvale and Cherry Gully Offset Area.**

    c. Achieve the **habitat quality uplift.**

14. For the protection of **Koala Habitat**, the approval holder must, by the end of **Year 1**, provide written confirmation to the **department** that all livestock has been permanently excluded from the **Avonvale and Cherry Gully Offset Area**.

Offset management plan for Koalas and Grey-headed Flying-foxes

15. Within 3 months from the date of this approval, the approval holder must have a **suitably qualified field ecologist** and **suitably qualified mammal ecologist** complete baseline surveys in accordance with a scientifically valid, robust, and repeatable methodology of the entire **Avonvale and Cherry Gully Offset Area** to determine the:

    a. **vegetation condition attributes** for each **regional ecosystem**

    b. location of weeds and **extent of weed cover**

    c. **seasonal feral animal** abundance

    d. rate of **Koala** mortality attributable to **feral animals**.

Note: The **independent suitably qualified field ecologist** can be the same person as the **suitably qualified mammal ecologist** provided that they can demonstrate they have the relevant qualifications and meet the criteria in the definition of '**independent**'.

16. Within 2 months of completion of the baseline surveys required under condition 15, the approval holder must submit to the **department** for approval by the **Minister** an Offset Management Plan for the **Avonvale and Cherry Gully Offset Area**.

17. The Offset Management Plan must, to the satisfaction of the **Minister**, meet the requirements of the **Environmental Offsets Policy** and the **Environmental Management Plan Guidelines** and meet the requirements specified in Attachment H.

18. If the Offset Management Plan for the **Avonvale and Cherry Gully Offset Area** has not been approved by the **Minister** in writing within 12 months of the date on which it was submitted to the **department**, the approval holder must cease all **clearing** and **construction** within the **development area** immediately. The approval holder must not recommence any **clearing** or **construction** unless the **Minister** has approved the Offset Management Plan for the **Avonvale and Cherry Gully Offset Area** in writing.

19. The approval holder must not **clear** or **construct** within **Area B** until the Offset Management Plan for the **Avonvale and Cherry Gully Offset Area** has been approved by the **Minister** in writing. The approval holder must implement the Offset Management Plan approved by the **Minister** for the remainder of the approval.

Offsets for Greater Glider

Offset Strategy

20. Prior to **commencement of the action**, the approval holder must have a **suitably qualified Greater Glider ecologist** complete surveys to map the distribution, quantify the area, and measure the quality of all **Greater Glider habitat** within the **development area,** in accordance with a scientifically valid, robust, and repeatable survey methodology peer reviewed by an **independent suitably qualified Greater Glider ecologist**.

21. To compensate for all impacts to the **Greater Glider** and for 82 ha of **Greater Glider habitat**, the approval holder must submit to the **department,** within 3 months of this approval decision, a Greater Glider Offsets Strategy (GGOS) for the approval of the **Minister**. The GGOS must meet the requirements of the **Environmental Offsets Policy** to the satisfaction of the **Minister** and:

    a. Specify the methods, effort, timing and results of the surveys required by condition 20.

    b. Contain all peer review comments and recommendations made by the **independent suitably qualified Greater Glider ecologist** and a statement from the **independent suitably qualified Greater Glider ecologist** that they are **independent** and carried out the peer review to evaluate the adequacy of the survey methodology required by condition 20.

    c. Identify a suitable environmental offset(s) for the residual significant impacts on the **Greater Glider**.

    d. Include summary information on the impacted areas and detailed baseline information on the proposed offset(s) and commit to achievable ecological benefits, and timeframes for their achievement, for the proposed offset(s).

    e. Describe the monitoring program(s) to be implemented that will determine progress towards, attainment of and maintenance of the ecological benefits for **Greater Glider habitat** at the proposed offset(s).

f. Specify how and at what frequency offset(s) management outcomes, monitoring program findings and assessments of ecological benefits will be reported to the **department** and the public.

g. Detail how the offset(s) will be protected and **legally secured**, and ecological benefits maintained, in perpetuity.

22. If the GGOS is approved by the **Minister**, the approval holder must:

    a. implement the GGOS approved by the **Minister** for the remainder of the period of this approval,

    b. provide written evidence to the **department** demonstrating that the offset(s) specified in the GGOS has been **legally secured** within 20 **business days** of the offset(s) being **legally secured**, and

    c. provide the **department** with **shapefiles** and **offset attributes** of the offset(s) specified in the GGOS within 20 **business days** of the offset(s) being **legally secured**.

Note: Legal security requirements for the GGOS do not apply if the approved offset for **Greater Glider**, as required under condition 21, is the same as that required for **Koala** and **Grey-headed Flying-fox** as per condition 13.

23. If the GGOS has not been approved by the **Minister** in writing within 6 months of the date that the GGOS was submitted to the **department**, the approval holder must cease all **clearing** and **construction** within the **development area** immediately. The approval holder must not recommence any **clearing** or **construction** unless the **Minister** has approved the GGOS in writing.

Offset Area Management Plan(s)

24. The approval holder must, within 3 months of the date of the **Minister's** approval of the GGOS, submit to the **department** a Greater Glider Offset Management Plan (GGOMP) for any offset(s) specified in the approved GGOS for approval by the **Minister**. The GGOMP must meet the requirements of the **Environmental Offsets Policy, Environmental Management Plan Guidelines** and the requirements of Attachment H to the satisfaction of the **Minister**.

25. The approval holder must implement the GGOMP approved by the **Minister** for the remainder of the period of this approval. The approval holder must achieve all ecological benefits and improvements in **habitat quality** specified in the approved GGOMP in the timeframes specified in the approved GGOMP.

26. If the GGOMP has not been approved by the **Minister** in writing within 12 months of the date on which it was submitted to the **department**, the approval holder must cease all **clearing** and **construction** within the **development area** immediately. The approval holder must not recommence any **clearing** or **construction** unless the **Minister** has approved the GGOMP in writing.

27. The approval holder must not **clear** or **construct** within **Area B** until and unless the GGOMP has been approved by the **Minister** in writing.

Monitoring

28. Within three months prior to the end of each of **Year 5**, **Year 10** and **Year 15**, the approval holder must have an **independent expert** undertake an assessment as to whether the outcomes required by condition 13 and the habitat quality improvements specified in the approved GGOMP for the particular period for which the assessment is undertaken have been, or are likely to be, achieved. The findings of each assessment must be published on the **website** within six months of the end of the particular period for which the assessment is undertaken, remain published on the **website** for

the remainder of the duration of this approval, and each be provided to the **department** within 5 **business days** of first being published.

29. If, at any time during the period of effect of the approval, the **Minister** is not satisfied that any of the requirements or outcomes required under condition 13 and the habitat quality improvements specified in the approved GGOMP have been or are likely to be achieved or maintained, the **Minister** may require the approval holder to submit a revised Offset Management Plan or GGOMP to the **department** for approval by the **Minister**, specifying new requirements to implement corrective actions and/or to monitor, manage, avoid, mitigate, offset, record and/or report on, impacts to the **Koala, Grey-headed Flying-fox** and **Greater Glider**.

30. The **Minister** may specify a timeframe in which the approval holder must submit the revised Offset Management Plan or GGOMP to the **department** and may specify that the revised Offset Management Plan or GGOMP must be prepared or reviewed by an **independent expert**.

31. If the **Minister** writes to the approval holder stating that he/she considers that the revised Offset Management Plan or GGOMP is not likely to achieve the outcomes required under condition 13 and the habitat quality improvements specified in the approved GGOMP, then the approval holder must not register any title for any property in the **development area** until such time as a revised Offset Management Plan or GGOMP has been approved by the **Minister** in writing.

32. The approval holder may, at any time, apply to the **Minister** for a variation to an action management plan approved by the **Minister** or as subsequently revised in accordance with these conditions, by submitting an application in accordance with the requirements of section 143A of the **EPBC Act**.

33. If the **Minister** approves a revised **plan** then, from the date specified, the approval holder must implement the approved revised **plan** in place of the previous version of that **plan**.

SUBMISSION AND PUBLICATION OF PLANS

34. The approval holder must submit all **plans** required by these conditions electronically to the **department** and notify the local authority.

35. Unless otherwise agreed to in writing by the **Minister**, the approval holder must publish each **plan** on the **website** within 15 **business days** of the date:

    a. of this approval, if the version of the **plan** to be implemented is specified in these conditions; or

    b. the **plan** is approved by the **Minister** in writing, if the **plan** requires the approval of the **Minister**.

36. The approval holder must keep all published **plans** required by these conditions on the **website** until the expiry date of this approval.

37. The approval holder is required to exclude or redact **sensitive ecological data** from **plans** published on the **website** or otherwise provided to a member of the public.

38. If **sensitive ecological data** is excluded or redacted from a **plan** in accordance with condition 37, the approval holder must notify the **department** in writing what exclusions and redactions have been made in the version published on the **website**.

Part B – Administrative conditions

NOTIFICATION OF DATE OF COMMENCEMENT OF THE ACTION

39. The approval holder must notify the **department** electronically of the date of **commencement of the Action**, within 5 **business days** of **commencement of the Action**.

40. If the **commencement of the Action** does not occur within 5 years from the date of this approval, then the approval holder must not **commence the Action** without the prior written agreement of the **Minister**.

COMPLIANCE RECORDS

41. The approval holder must maintain accurate and complete **compliance records**.

42. If the **department** makes a request in writing, the approval holder must provide electronic copies of **compliance records** to the **department** within the timeframe specified in the request.

Note: **Compliance records** may be subject to audit by the **department**, or by an independent auditor in accordance with section 458 of the **EPBC Act**, and/or be used to verify compliance with the conditions. Summaries of the results of an audit may be published on the **department**'s website or through the general media.

43. The approval holder must ensure that any **monitoring data** (including **sensitive ecological data**), surveys, maps, and other spatial and metadata required under the conditions of this approval are prepared in accordance with the *Guidelines for biological survey and mapped data*, Commonwealth of Australia 2018, or as otherwise specified by the **Minister** in writing.

44. The approval holder must ensure that any **monitoring data** (including **sensitive ecological data**), surveys, maps, and other spatial and metadata required under the conditions of this approval are prepared in accordance with the *Guide to providing maps and boundary data for EPBC Act projects*, Commonwealth of Australia 2021, or as otherwise specified by the **Minister** in writing.

ANNUAL COMPLIANCE REPORTING

45. The approval holder must prepare a **compliance report** for each 12-month period following the date of this approval, or as otherwise agreed to in writing by the **Minister**.

46. Each **compliance report** must be consistent with the *Annual Compliance Report Guidelines*, Commonwealth of Australia 2014.

47. Each **compliance report** must include:

    a. Accurate and complete details of any **monitoring data** required by this approval.

    b. Accurate and complete details of compliance and any non-compliance with the conditions and the plans, and any incidents.

    c. One or more **shapefile** showing all **clearing** of any **protected matters**, and/or their habitat, undertaken within the 12-month period at the end of which that **compliance report** is prepared.

    d. A schedule of all **plans** in existence in relation to these conditions and accurate and complete details of how each **plan** is being implemented.

48. The approval holder must:

    a. Publish each **compliance report** on the **website** within 60 **business days** following the end of the 12-month period for which that **compliance report** is required.

b. Notify the **department** electronically, within 5 **business days** of the date of publication that a **compliance report** has been published on the **website.**

c. Provide the weblink for the **compliance report** in the notification to the **department**.

d. Keep all published **compliance reports** required by these conditions on the **website** until the expiry date of this approval.

e. Exclude or redact **sensitive ecological data** from **compliance reports** published on the **website** or otherwise provided to a member of the public.

f. If **sensitive ecological data** is excluded or redacted from the published version, submit the full **compliance report** to the **department** within 5 **business days** of its publication on the **website** and notify the **department** in writing what exclusions and redactions have been made in the version published on the **website**.

Note: **Compliance reports** may be published on the **department's** website.

REPORTING NON-COMPLIANCE

49. The approval holder must notify the **department** electronically, within 2 **business days** of becoming aware of any **incident** and/or potential non-compliance and/or actual non-compliance with the conditions or commitments made in a **plan**.

50. The approval holder must specify in the notification:

    a. Any condition or commitment made in a **plan** which has been or may have been breached.

    b. A description of the **incident** and/or potential non-compliance and/or actual non-compliance.

    c. The location (including co-ordinates), date, and time of the **incident** and/or potential non-compliance and/or actual non-compliance.

Note: If the exact information cannot be provided, the approval holder must provide the best information available.

51. The approval holder must provide to the **department** in writing, within 12 **business days** of becoming aware of any **incident** and/or potential non-compliance and/or actual non-compliance, the details of that **incident** and/or potential non-compliance and/or actual non-compliance with the conditions or commitments made in a **plan**. The approval holder must specify:

    a. Any corrective action or investigation which the approval holder has already taken

    b. The potential impacts of the **incident** and/or non-compliance and/or non-compliance

    c. The method and timing of any corrective action that will be undertaken by the approval holder.

INDEPENDENT AUDIT

52. The approval holder must ensure that an **independent audit** of compliance with the conditions is conducted for every three-year period following the **commencement of the Action** until this approval expires, unless otherwise specified in writing by the **Minister**.

53. For each **independent audit**, the approval holder must:

    a. Provide the name and qualifications of the nominated **independent** auditor, the draft audit criteria, and proposed timeframe for submitting the **audit report** to the **department** prior to commencing the **independent audit**.

b. Only commence the **independent audit** once the nominated **independent** auditor, audit criteria and timeframe for submitting the **audit report** have been approved in writing by the **department**.

c. Submit the **audit report** to the **department** for approval within the timeframe specified and approved in writing by the **department.**

d. Publish each **audit report** on the **website** within 15 **business days** of the date of the **department's** approval of the **audit report**.

e. Keep every **audit report** published on the **website** until this approval expires.

54. Each **audit report** must report for the three-year period preceding that audit report.

55. Each **audit report** must be completed to the satisfaction of the **Minister** and be consistent with the *Environment Protection and Biodiversity Conservation Act 1999 Independent Audit and Audit Report Guidelines*, Commonwealth of Australia 2019.

COMPLETION OF THE ACTION

56. The approval holder must notify the **department** electronically 60 **business days** prior to the expiry date of this approval, that the approval is due to expire.

57. Within 20 **business days** after the **completion of the Action**, and, in any event, before this approval expires, the approval holder must notify the **department** electronically of the date of **completion of the Action** and provide **completion data**.

Part C - Definitions

Area B means the whole of the area represented in Attachment B by the areas with blue hatching and enclosed by the blue dashed lines designated 'Area B'.

Audit report means a written report of compliance and fulfilment of the conditions attached to this approval, objectively evaluated against the audit criteria approved by the **department**.

Avonvale and Cherry Gully Offset Area means the whole of the area represented in Attachment C by the zones enclosed by the red lines designated 'EPBC 2018/8347 OFFSET AREA'. The **Avonvale and Cherry Gully Offset Area** is located on Littles Road, Toogoolawah, Queensland.

Business day means a day that is not a Saturday, a Sunday or a public holiday in the state of Queensland.

Clear, **Clearing**, **Clearance** or **Cleared** means the cutting down, felling, thinning, logging, removing, killing, destroying, poisoning, ringbarking, uprooting or burning of native trees and shrubs.

Commence the action or **Commencement of the action** means the first instance of any specified activity associated with the action including **clearing** and **construction**. **Commencement of the action** does not include minor physical disturbance necessary to:

a. undertake pre-clearance surveys or monitoring programs

b. install signage and /or temporary fencing to prevent unapproved use of the **development area**

c. protect environmental and property assets from fire, **weeds** and pests, including installation of temporary fencing, and use of existing surface access tracks

d. install temporary site facilities for persons undertaking pre-commencement activities so long as these are located where they have no impact on the **protected matters**.

Completion data means an environmental report and spatial data clearly detailing how the conditions of this approval have been met. The **department**'s preferred spatial data format is **shapefile**.

Completion of the action means the date on which all specified activities associated with the action have permanently ceased.

Compliance records means all documentation or other material in whatever form required to demonstrate compliance with the conditions of approval in the approval holder's possession or that are within the approval holder's power to obtain lawfully.

Compliance reports means written reports:

a. providing accurate and complete details of compliance, **incidents**, and non-compliance with the conditions and the **plans**

b. consistent with the *Annual Compliance Report Guidelines*, Commonwealth of Australia 2014

c. include a **shapefile** of any **clearance** of any **protected matters**, or their habitat, undertaken within the relevant 12 month period

d. annexing a schedule of all **plans** prepared and in existence in relation to the conditions during the relevant 12 month period.

Conservation Area means the retained area of at least 50 ha containing mixed remnant and regrowth vegetation within the **development area**, represented by the zone shaded dark green labelled 'Conservation' in Attachment A.

Conservation benefit means measures which maintain or improve the quality of the habitat for **protected matters**. **Conservation benefit** measures may include rehabilitation works, low intensity mosaic burning, installation of educational signage as outlined in the Conservation Area Management Plan, **weed** removal and associated management/maintenance access tracks.

Construct or **Construction** means the erection of any building or structure that is or is to be fixed to the ground and wholly or partially fabricated on-site; the alteration, maintenance, repair or demolition of any building or structure; preliminary site preparation work which involves breaking of the ground (including pile driving); the laying of pipes and other prefabricated materials in the ground, and any associated excavation work but excluding construction on sold lots or roads managed by **Council**, and the installation and maintenance of temporary fences and signage, and works necessary for **conservation benefit** in the **Conservation Area.**

Council means the local government authority responsible for the local government area encompassing Ripley Valley Priority Development Area, currently Ipswich City Council, Queensland.

Department means the Australian Government agency responsible for administering the **EPBC Act**.

Development area means the location of the Action, the 210 ha area represented on Attachment A by the zone enclosed by the bold black line labelled 'Referral Area' which passes through the numbered waypoints representing the coordinates of the **development area** as specified in the table titled 'Coordinates (GDA94 MHA Zone 56)' in Attachment A.

Environmental Management Plan Guidelines means the *Environmental Management Plan Guidelines*, Commonwealth of Australia 2014.

Environmental Offsets Policy means the *Environment Protection and Biodiversity Conservation Act 1999 Environmental Offsets Policy*, Commonwealth of Australia 2012.

EPBC Act means the *Environment Protection and Biodiversity Conservation Act 1999* (Cth).

Expert means one or more professional having the qualifications and experience specified in the following defined terms that are specifically relevant to the requirements of the condition that requires the engagement of an **expert**:

a. **Suitably qualified field ecologist**

b. **Suitably qualified Greater Glider ecologist**

c. **Suitably qualified mammal ecologist**.

Extent of weed cover means the proportion (expressed as a percentage) of the total land area in which any square metre contains a non-native plant species known to restrict the movement of **Koala** and/or degrade the quality of **Koala habitat, Greater Glider habitat** and **Grey-headed Flying-fox foraging habitat** or reduce their ability to regenerate.

Fauna spotter catcher means a person licenced under the *Nature Conservation Act 1992* (Qld) to detect, capture, care for, assess, and release wildlife disturbed by vegetation **clearance** activities who have at least three years' experience undertaking this work with **Koalas** and **Greater Gliders**.

Feral animals means non-native predators and non-native herbivores, including those known to predate on the **Koala** and/or **Greater Glider**, or with the potential to impact on vegetation habitat regeneration for **protected matters**.

Greater Glider means the **EPBC Act** listed threatened species *Petauroides volans* (southern and central).

Greater Glider habitat means:

a. habitat critical to the survival of **Greater Glider**, as described in page 8 of *Conservation Advice for Petauroides volans (greater glider (southern and central))*, Commonwealth of Australia 2022

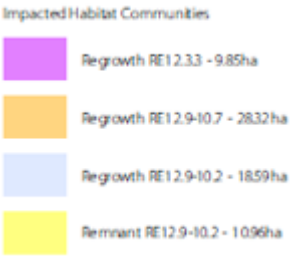
b. areas represented in Attachment B and D identified as follows:

Grey-headed Flying-fox means the **EPBC Act** listed threatened species *Pteropus poliocephalus*.

Grey-headed Flying-fox foraging habitat means the following:

a. habitat critical to the survival of **Grey-headed Flying-fox**, as described in pages 14 and 15 of *National Recovery Plan for the Grey-headed Flying-fox Pteropus poliocephalus*, Commonwealth of Australia 2021

b. areas represented in Attachment B and E, identified as follows:



Habitat quality is the measure of the overall capacity and ongoing viability of a site to support the relevant **protected matter(s)**, determined with respect to site condition, site context and species stocking rate and/or composition.

Habitat quality uplift means, at **Avonvale and Cherry Gully Offset Area**, to:

a. exceed the 'baseline score' for 'site condition', 'site context' and 'species stocking rate' scores for the **Koala** as specified in Attachment F, and achieve or exceed all scores specified in Attachment F in the 'Year 5' column by the end of **year 5**, in the 'Year 10' column by the end of **year 10**, in the 'Year 15' column by the end of **year 15** and in the 'Year 20' column by the end of **year 20** and

b. exceed the 'AU Score' for 'site condition', 'site context' and 'species stocking rate' for the **Grey-headed Flying-fox** as specified in Attachment G, and achieve or exceed all scores specified in Attachment G in the 'Year 5 Score' column by the end of **year 5**, in the 'Year 10' column by the end of **year 10**, in the 'Year 15' column by the end of **year 15** and in the 'Year 20' column by the end of **year 20**.

Incident means any event which has the potential to, or does, impact on one or more **protected matter**. Any death or injury of a **Koala, Grey-headed Flying-fox** or **Greater Glider** as a result of the Action is an **incident**.

Independent means a person(s) or firm that does not have an individual, or by employment or family affiliation, any conflicting or competing interests with the approval holder, the approval holder's staff, the approval holder's consultants involved in the referral of this Action, representatives or associated persons; or the project, including any personal, financial, business or employment relationship, other than receiving payment for undertaking the role for which the condition requires an independent person.

Independent audit means an audit conducted by an independent and **suitably qualified person** as detailed in the *Environment Protection and Biodiversity Conservation Act 1999 Independent Audit and Audit Report Guidelines*, Commonwealth of Australia 2019.

Koala means the **EPBC Act** listed threatened species *Phascolarctos cinereus* (combined populations of Queensland, New South Wales and the Australian Capital Territory).

Koala exclusion fencing means fencing which safely prevents the movement of **Koalas** from one area to another. Suitable examples are found in the *Koala Sensitive Design Guideline: A guide to koala sensitive designed measures for planning and development activities*, Version 2.0, The State of Queensland 2020.

Koala habitat means the following:

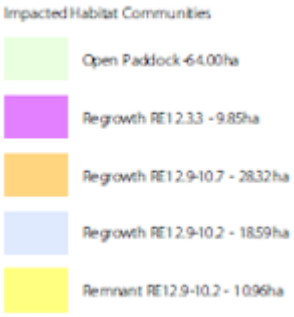
a. any area that provides or is likely to provide the essential life cycle requirements of the **Koala**, including dispersal, foraging and or breeding habitat as described in:

   i. *Conservation Advice for* Phascolarctos cinereus *(Koala) combined populations of Queensland, New South Wales and the Australian Capital Territory*, Commonwealth of Australia 2022

   ii. *National Recovery Plan for the Koala* Phascolarctos cinereus *(combined populations of Queensland, New South Wales and the Australian Capital Territory)*, Commonwealth of Australia 2022

   iii. *A review of koala habitat assessment criteria and methods,* Youngentob, K.N, Marsh, K.F., Skewes, J. 2021

b. areas represented in Attachment B and D identified as follows:



Legally secure/secured/securing means to provide ongoing conservation protection, on the title of the land, under an enduring protection mechanism, such as a voluntary declaration under the *Vegetation Management Act 1999* (Qld) or as a nature refuge under the *Nature Conservation Act 1992* (Qld), or another enduring protection mechanism agreed to in writing by the **Minister**.

Local traffic management measures means devices that reduce the speed and/or volume of traffic, for example, road closures, chicanes, crosswalks, lighting, signage and rumble strips, as described in **Queensland's fauna sensitive road design guidelines**.

Minister means the Australian Government Minister administering the **EPBC Act** including any delegate thereof.

Monitoring data means the data required to be recorded under the conditions of this approval.

Nature Conservation (Koala) Conservation Plan 2017 means the *Nature Conservation (Koala) Conservation Plan 2017*, The State of Queensland, 2022.

Offset attributes means an '.xls' file capturing relevant attributes of the offset area, including:

a. **EPBC Act** reference number

b. Physical address of the offset area

c. Coordinates of the boundary points in decimal degrees

d. **Protected matters** that the offset compensates for

e. Any additional **protected matters** that are benefiting from the offset

f. Size of the offset in hectares.

Queensland's fauna sensitive road design guidelines means *Fauna Sensitive Road Design - Volume 2: Preferred Practices*, The State of Queensland 2010.

Queensland's wildlife signing guidelines means *Traffic and Road Use Management, Transport and Main Roads Volume 3 – Signing and Pavement Marking*, *Part 8: Wildlife Signing Guidelines*, The State of Queensland.

Plan means any action management plan or strategy that the approval holder is required by these conditions to implement.

Protected matter means a matter protected under a controlling provision in Part 3 of the **EPBC Act** for which this approval has effect.

Regional ecosystem means any of the following vegetation communities in a bioregion that is consistently associated with a particular combination of geology, landform and soil as classified by the Queensland Government under the *Vegetation Management Act, 1999*: RE 12.3.3, 12.9-10.7, and 12.9-10.2.

Safe movement solutions means measures to minimise the risk of injury or deaths of **Koalas** from vehicle strike, specifically including **Koala exclusion fencing**, fauna underpasses or overpasses, and/or bridges as described in **Queensland's fauna sensitive road design guidelines.**

Seasonal means measured separately for each season (summer, autumn, winter and spring).

Sensitive ecological data means data as defined in the Australian Government Department of the Environment (2016) *Sensitive Ecological Data – Access and Management Policy V1.0.*

Sequential clearing means implementing the provisions specified in *Sequential clearing in Koala district A or B* under the **Nature Conservation (Koala) Conservation Plan 2017** under the *Nature Conservation Act 1992* (Qld). These include provisions for the area which may be **cleared** in any one stage, periods of non-**clearing** between stages, maintaining habitat links and restrictions on **clearing** trees containing **Koalas**.

Shapefile means location and attribute information of the action provided in an Esri shapefile format. Shapefiles must contain '.shp', '.shx', '.dbf' files and a '.prj' file that specifies the projection/geographic coordinate system used. Shapefiles must also include an '.xml' metadata file that describes the shapefile for discovery and identification purposes**.**

Suitably qualified field ecologist means a person who has professional qualifications and at least three (3) years of work experience designing and implementing surveys for **regional ecosystems**, and can give an authoritative assessment and advice on the type and quality of **regional ecosystems**

present, including management and restoration of the **regional ecosystems** using relevant protocols, standards, methods and/or literature.

Suitably qualified Greater Glider ecologist means a person who has professional qualifications and at least three (3) years of work experience designing and implementing surveys for the **Greater Glider**, and can give an authoritative assessment and advice on **Greater Glider** presence, habitat type and quality, and habitat management and restoration measures for the **Greater Glider** (and its habitat) using relevant protocols, standards, methods and/or literature.

Suitably qualified mammal ecologist means a person who has professional qualifications and at least three (3) years of work experience designing and implementing surveys for **Grey-headed Flying-foxes** and **Koalas** and can give an authoritative assessment and advice on **Grey-headed Flying-fox** and **Koala** presence, habitat type and quality, and habitat management and restoration measures for the **Grey-headed Flying-fox** and **Koala** (and their habitat) using relevant protocols, standards, methods and/or literature.

Suitably qualified person means a person who has professional qualifications, training, skills and/or experience related to the nominated subject matter and can give authoritative independent assessment, advice and analysis on performance relative to the subject matter using the relevant protocols, standards, methods and/or literature.

Unauthorised person means a person who has not been approved by the approval holder to access and enter the **conservation area** for the purposes of undertaking conservation management, inspecting the condition of the **conservation area** or undertaking scientific study for conservation purposes. **Unauthorised person** does not include any person authorised by the Australian Government, the Queensland Government or the City of Ipswich, who enters the **conservation area** in the necessary course of administering or enforcing legislation in respect of which they are authorised to act. **Unauthorised person** does not include any representative of the Australian Government, Queensland Government or the City of Ipswich who is required to enter the **conservation area** in the normal discharge of their lawful responsibilities.

Vegetation condition attributes means the quantitative values within BioCondition benchmarks that define a **regional ecosystem.**

Website means a set of related web pages located under a single domain name attributed to the approval holder and available to the public.

Weed means any weed species identified within the Weeds of National Significance and weed species listed under the *Biosecurity Act 2014* (Qld).

Year 1 means the period within 12 months from the date of this approval.

Year 5 means the period within five years from the date of this approval.

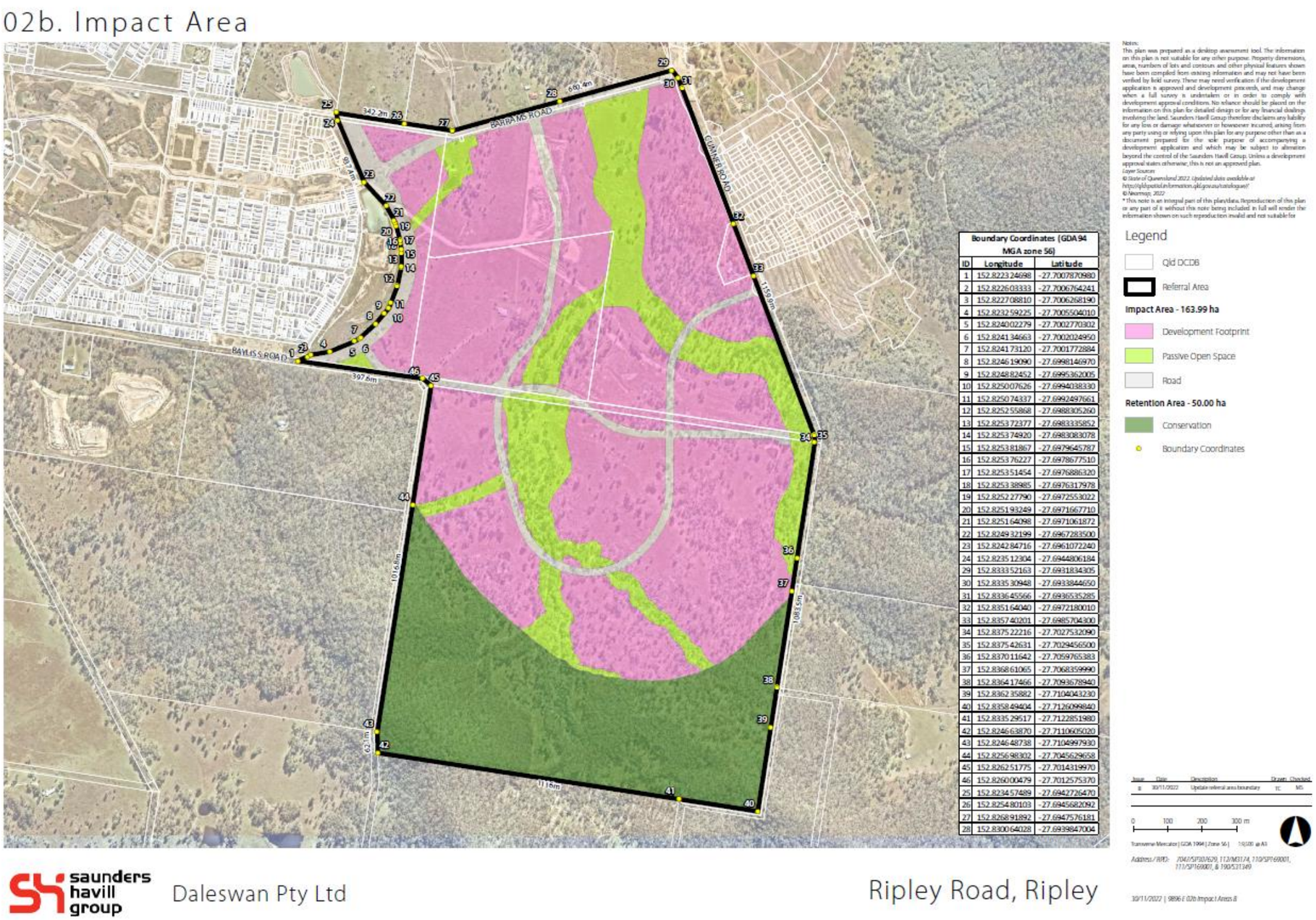
Year 10 means the period within ten years from the date of this approval.

Year 15 means the period within fifteen years from the date of this approval.

Year 20 means the period within twenty years from the date of this approval.

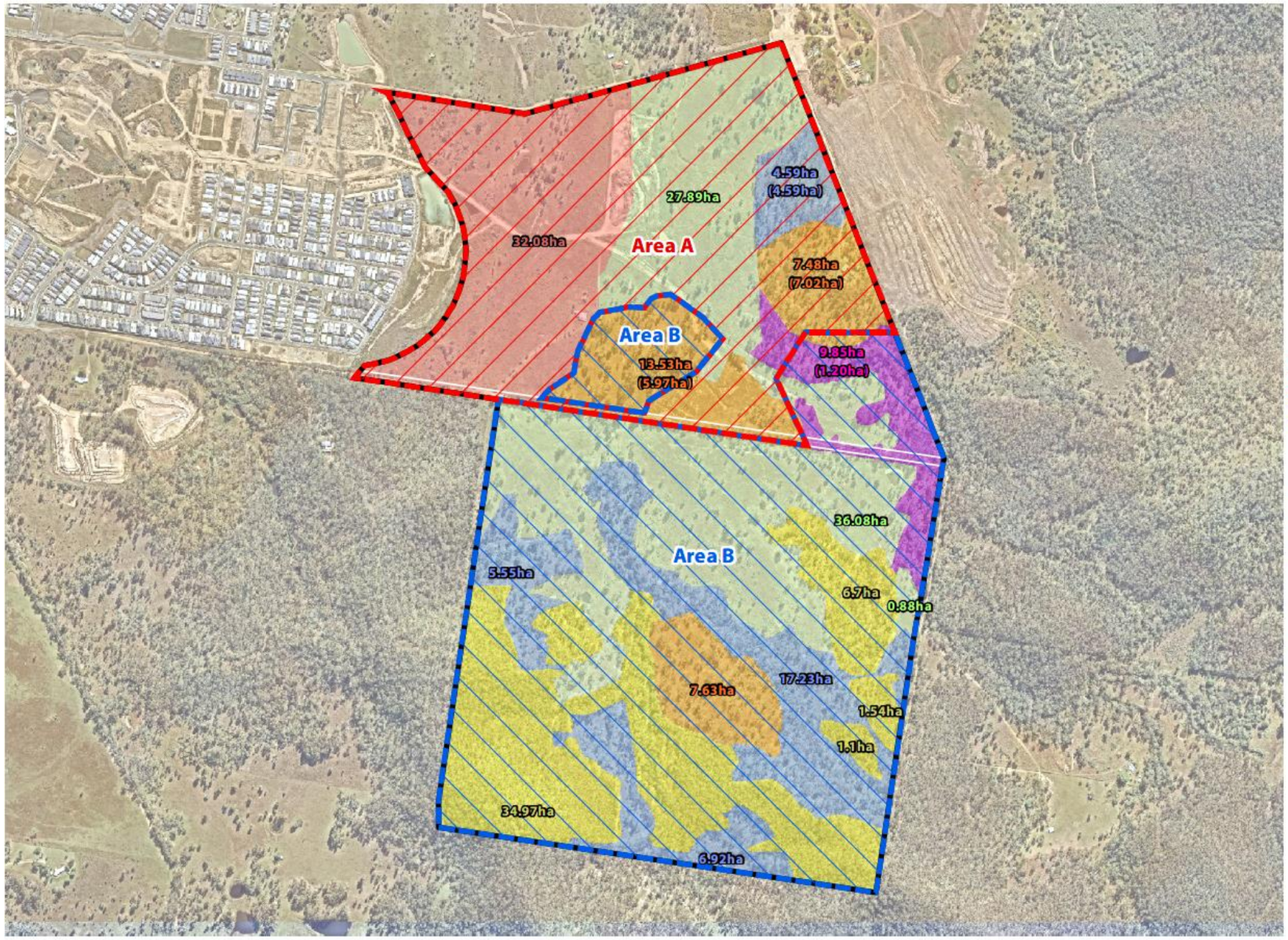
ATTACHMENTS

Attachment A: Development Area



Attachment B: Staged clearing

Plan 2B



Notes:
This plan was prepared as a desktop assessment tool. The information on this plan is not suitable for any other purpose. Property dimensions, areas, numbers of lots and contours and other physical features shown have been compiled from existing information and may not have been verified by field survey. These may need verification if the development application is approved and development proceeds, and may change when a full survey is undertaken or in order to comply with development approval conditions. No reliance should be placed on the information on this plan for detailed design or for any financial dealings involving the land. Saunders Havill Group therefore disclaims any liability for any loss or damage whatsoever or howsoever incurred, arising from any party using or relying upon this plan for any purpose other than as a document prepared for the sole purpose of accompanying a development application and which may be subject to alteration beyond the control of the Saunders Havill Group. Unless a development approval states otherwise, this is not an approved plan.
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Legend
- Project boundary
- Road reserve

Development Areas
- Area A
- Area B

Vegetation communities
- Open Paddock [64.84ha]
- Regrowth RE12.3.3 [9.85ha]
- Regrowth RE12.9-10.7 [28.63ha]
- Regrowth RE12.9-10.2 [34.28ha]
- Remnant RE12.9-10.2 [44.31ha]
- Non Habitat [32.08ha]

Issue	Date	Description	Drawn	Checked
B	19/10/2022	RFI	LS	JG

0 100 200 300 m
Transverse Mercator | GDA 2020 | Zone 56 | 1:6,548 @ A3

Address / RPD | 7047/SP307629, 112/M3174, 110/SP169001, 111/SP169001, & 190/S31349
19/10/2022 | 9896 E 2B Proposed Development B

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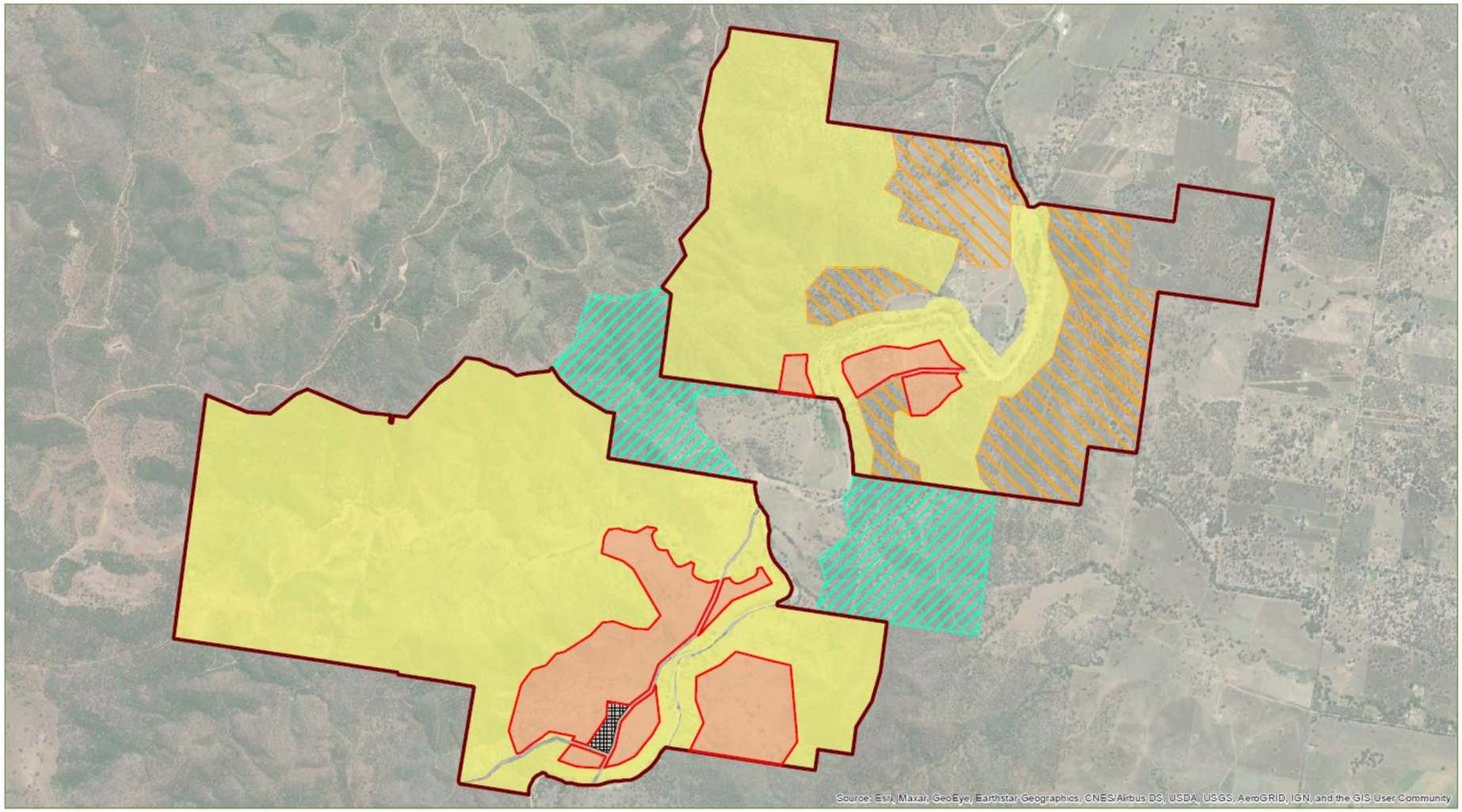
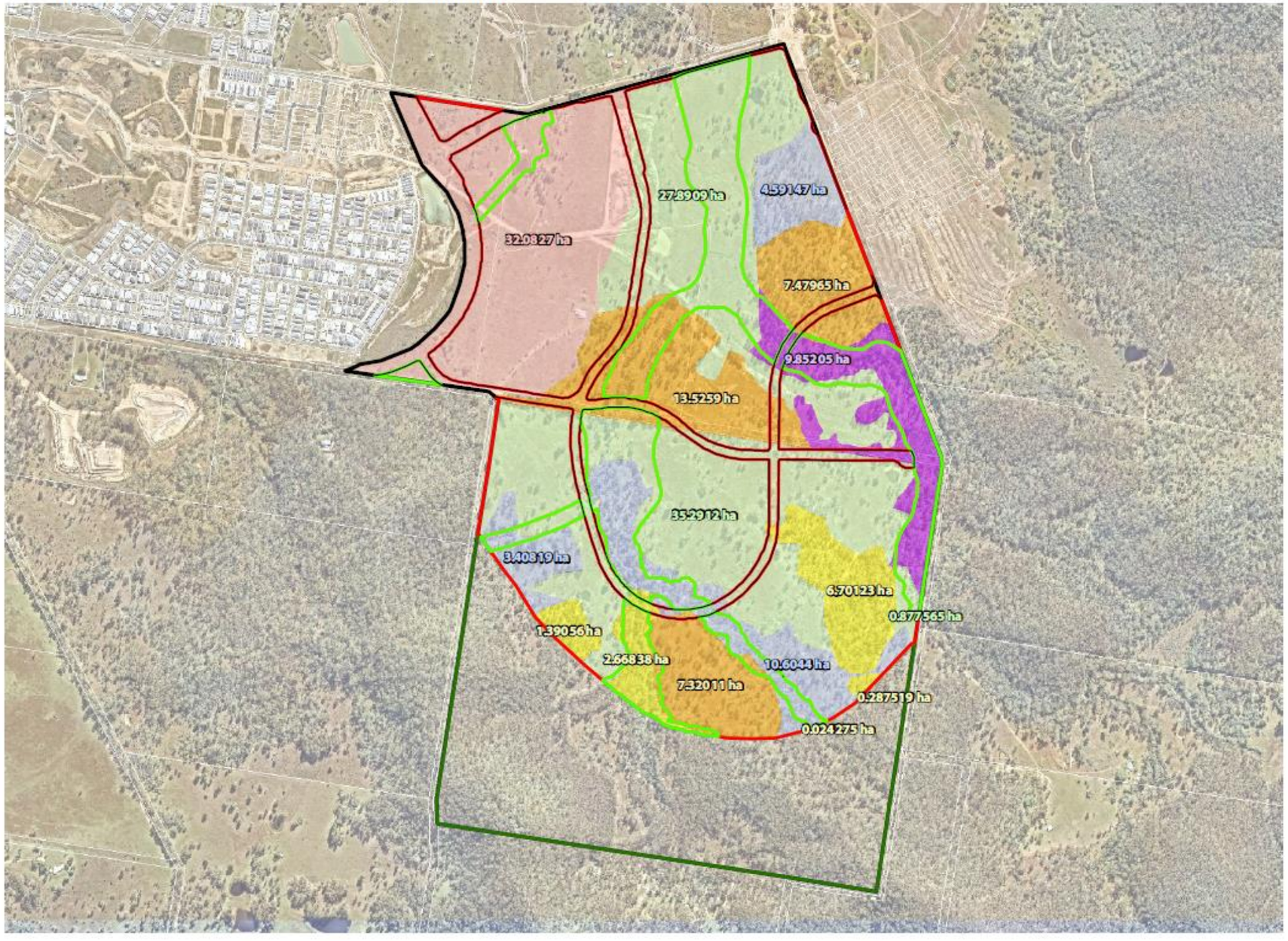
<u>Attachment C</u>: Avonvale and Cherry Gully Offset Area



<u>Attachment D</u>: Koala Impact Plan

A4. Impacted Koala Vegetation Communities



Notes:
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Legend

- Qld DCDB
- Referral Area

Impacted Vegetation Communities

Koala Habitat - 131.91 ha

- Open Paddock - 64.06 ha
- Regrowth RE12.3.3 - 9.85 ha
- Regrowth RE12.9-10.7 - 28.33 ha
- Regrowth RE12.9-10.2 - 18.60 ha
- Remnant RE12.9-10.2 - 11.07 ha

Non-Koala Habitat - 32.08

- Non-habitat - 32.08 ha

Proposed Development

- Conservation
- Development Footprint
- Passive Open Space
- Road

Issue	Date	Description	Drawn	Checked
A	5/09/2022	Preliminary	LS	JD

0 50 100 150 200 250 m

Transverse Mercator | GDA | 1994 | Zone 56 | *Plot size: @ A3*

Address / RPD: 7047/SP307629, 112/RP53174, 110/SP169001, 111/SP169001, & 190/SP153189

*5/09/2022 | 9886 E 04 Impacted Vegetation Communities A_*

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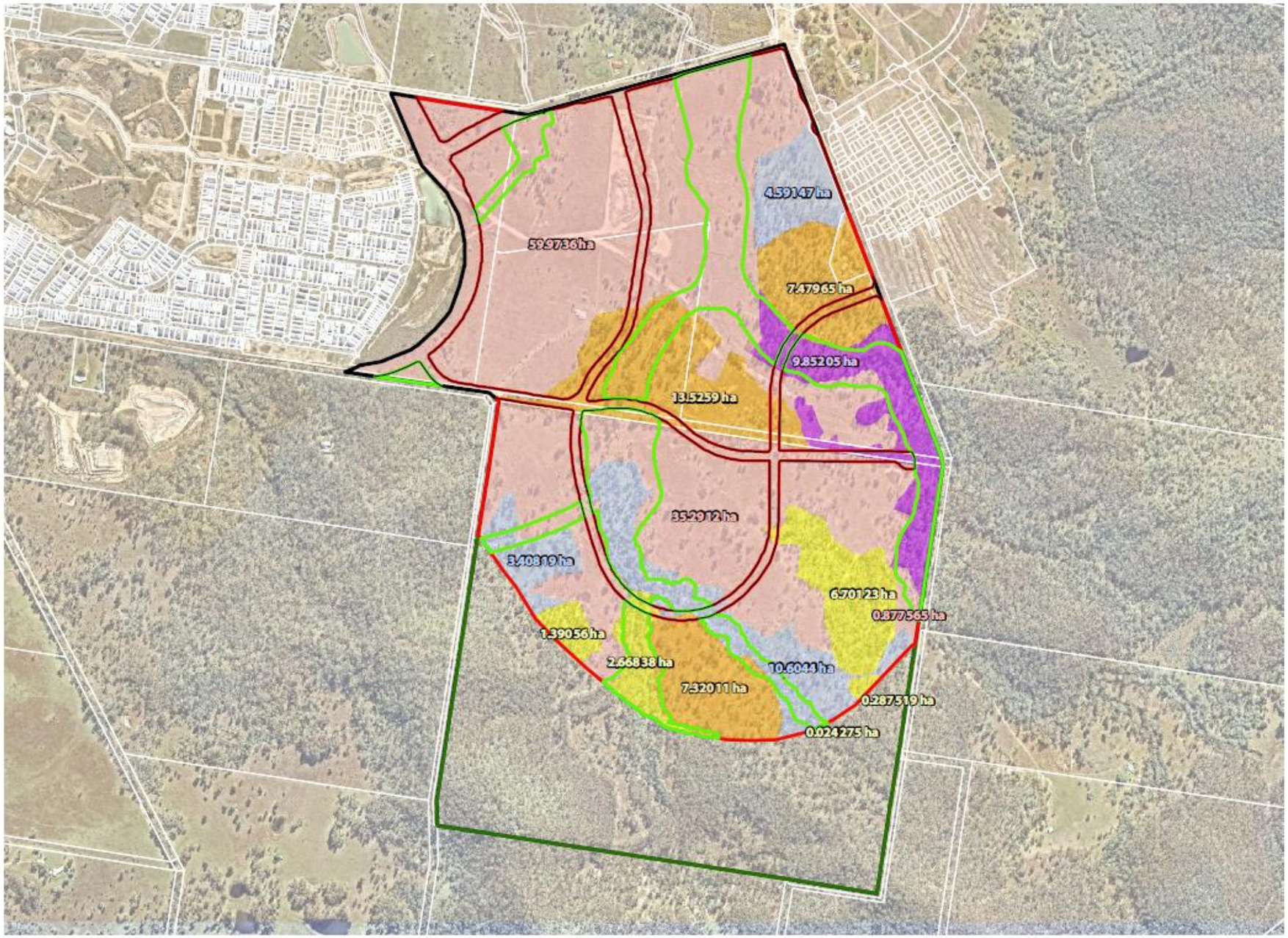
<u>Attachment E</u>: Grey-headed Flying-fox Impact Plan

A5. Impacted Grey-headed Flying-fox Vegetation Communities



Notes:
This plan was prepared as a development assessment tool. The information on this plan is not suitable for any other purpose. Property dimensions, areas, numbers of lots and contours and other physical features shown have been compiled from existing information and may not have been verified by field survey. These may need verification if the development application is approved and development proceeds, and may change when a full survey is undertaken or in order to comply with development approval conditions. No reliance should be placed on the information on this plan for detailed design or for any financial dealings involving the land. Saunders Havill Group therefore disclaims any liability for any loss or damage whatsoever or howsoever incurred, arising from any party using or relying upon this plan for any purpose other than as a document prepared for the sole purpose of accompanying a development application and which may be subject to alteration beyond the control of the Saunders Havill Group. Unless a development approval states otherwise this is not an approved plan.

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Legend

- Qld DCDB
- Referral Area

Impacted Vegetation Communities

Grey-headed Flying-fox Habitat - 67.85 ha

- Regrowth RE12.3.3 - 9.85 ha
- Regrowth RE12.9-10.7 - 28.32 ha
- Regrowth RE12.9-10.2 - 18.60 ha
- Remnant RE12.9-10.2 - 11.07 ha

Non-Grey-headed Flying-fox Habitat - 96.14 ha

- Non-habitat - 96.14 ha

Proposed Development

- Conservation
- Development Footprint
- Passive Open Space
- Road

Issue	Date	Description	Drawn	Checked
A	5/09/2022	Preliminary	LS	JG

0 50 100 150 200 250 m

Transverse Mercator | GDA 1994 | Zone 56 | Layout @ A3

Address / RPD: 704/SP307629, 112/863174, 1105/P169001, 111/SP169001, & 1905/31349

*5/09/2022 | 9896 E 05 Impacted GHFF Communities A_*

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Attachment F: EMZ 1 interim and final uplift, Koala

Table 12: MHQA Completion Criteria Assessment Unit - Regional Ecosystem	EMZ 1 - Open Grazing Country												
	RE12.11.14	Transect 1	Transect 2	Transect 3	Transect 4	Transect 5	Average of Transect(s)	% Benchmark	Baseline Score	Year 5	Year 10	Year 15	Year 20
SITE CONDITION													
Recruitment of woody perennial species	100	0	0	33	0	50	16.60	16.60	0	0	3	3	5
Native plant species richness - trees	6	1	1	3	0	2	1.40	23.33	0	5	5	5	5
Native plant species richness - shrubs	7	0	0	0	0	1	0.20	2.86	0	0	2.5	2.5	2.5
Native plant species richness - grasses	8	5	5	4	4	6	4.80	60.00	2.5	2.5	2.5	2.5	2.5
Native plant species richness - forbs	23	2	3	3	4	4	3.20	13.91	0	0	2.5	2.5	2.5
Tree canopy height (Canopy)"	25	0	12	0	0	12	4.80	19.20	0	0	3	3	5
Tree canopy height (Sub-canopy)"	13	6	0	8	0	6	4.00	30.77	3	3	3	3	5
							"Average tree canopy height		0	1.5	3	3	5
Tree canopy cover (Canopy)""	40	0	0	0	0	0	0	0.00	0	0	2	5	5
Tree canopy cover (Sub-canopy)""	21	0	0	0	0	0	0.00	0.00	0	0	2	5	5
							""Average tree canopy cover		0	0	2	5	5
Shrub canopy cover	4	0	0	0	0.7	0	0.14	3.50	0	5	5	5	5
Native grass cover"	45	84.8	45	93.4	100	89	82.44	183.20	5	5	5	5	5
Organic litter"	30	0	0.5	0	0	2	0.50	1.67	0	3	3	3	5
Large trees (euc plus non-euc) (per ha)	33	0	0	0	0	0	0.00	0.00	0	0	0	0	0
Coarse woody debris (per ha)	260	10.5	1.8	12.4	23.4	32	16.02	6.16	0	5	5	5	5
Non-native plant cover	0	40	25	35	30	28	31.60	6.33	5	5	10	10	10
Quality and availability of food and forag	NA	1	1	1	1	1	1.00	-	1	1	5	10	10
Quality and availability of shelter	NA	1	1	1	1	1	1.00	-	1	1	5	10	10
							Site Condition Score (/100)		14	34	58.5	71.5	77.5
							Overall Site Condition Score - out of 3		0.42	1.02	1.76	2.15	2.33
SITE CONTEXT									Baseline Score	Year 5	Year 10	Year 15	Year 20
Size of patch	10	10	10	10	10	10	10		10	10	10	10	10
Connectedness	5	4	4	4	4	4	4		4	4	4	4	4
Context	5	4	4	4	4	4	4		4	4	4	4	4
Ecological Corridors	6	6	6	6	6	6	6		6	6	6	6	6
Role of site location to species overall p	5	5	5	5	5	5	5		5	5	5	5	5
Threats to the species	15	1	1	1	1	1	1		1	15	15	15	15
Species mobility capacity	10	4	4	4	4	4	4		4	4	4	4	7
							Site Context Score (/56)		34	48	48	48	51
							Overall Site Context Score - out of 3		1.82	2.57	2.57	2.57	2.73
SPECIES STOCKING RATE													
Koala Stocking Rate (utilising SSR & SSR Supplementary Table(s)	70	5	5	5		5	5		5	5	30	30	30
							Species Stocking Rate Score (/70)		5.00	5	30	30	30
							Overall Species Stocking Rate Score - out of 4		0.29	0.29	1.71	1.71	1.71
Overall Assessment Unit Score									2.53	3.88	6.04	6.43	6.77

Species Stocking Rate (SSR)						Baseline	Year 5	Year 10	Year 15	Year 20
Presence detected on or adjacent to site (neighbouring property with connecting habitat)	Score	0		5	10					
		No		Yes - adjacent	Yes - on site	5	5	5	5	10
Species usage of the site (habitat type & evidenced usage)	Score	0	5	10	15					
		Not habitat	Dispersal	Foraging	Breeding	0	0	0	0	10
Approximate density (per ha)	Score	0	10	20	30					
		0%	low	med	high	0	0	0	0	10
Role/importance of species population on site*	Score (*Total from*	0	5	10	15					
		0	5 - 15	20 - 35	40 - 45	0	0	0	0	0
Total SRR score (out of 70)		5								
SRR Score (out of 4)	0.285714286									

<u>Attachment G</u>: EMZ 1 interim and final uplift, Grey-headed Flying-fox

Table 13: GHFF FHA Completion Criteria												
Assessment Unit – Regional Ec	AU 1 – non-remnant RE12.9-10.2											
Site Reference	Transect 1 Raw Data	Transect 2 Raw Data	Transect 3 Raw Data	Transect 4 Raw Data	Transect 5 Raw Data	Average Score	AU Score	Year 5 Score	Year 10	Year 15	Year 20	OUT OF (X/X)
Vegetation Condition	cat X	cat X	cat X	cat X	cat X	5	5	5	5	10	10	20
Species Richness	1	1	3	0	2	1.40	5	10	10	20	20	20
Flower Score	0	0	0	0	0	0.71	8	8	8	8	8	10
Timing of Biological Shortages	All transects: Due to the juvenile and sparse nature of the vegetation, none of the biological shortages are covered.					10	10	10	10	10	10	10
Quality of Foraging Habitat	0	0	0	0	0	1	5	10	10	20	20	20
Non-native Plant Cover	40%	25%	35%	30%	28%	37.58%	5	10	20	20	20	20
Site Condition Score							38	53	63	88	88	X
MAX Site Condition Score							100	100	100	100	100	X
Site Condition Score – out of 4							1.52	2.12	2.52	3.52	3.52	X
Size of patch	Patch size	Patch size >200ha	Patch size >200ha	Patch size >200ha	Patch size >200ha	10	10	10	10	10	10	10
Connectedness	All transects have 4-6 active camps within 20km					0	0	0	0	0	6	10
Context	31-75%	31-75%	31-75%	31-75%	31-75%	6	6	6	6	6	6	10
Ecological Corridors	Within	Within	Within	Within	Within	6	6	6	6	6	10	10
Role of site location to species overall population in the state	All transects have 1-3 active level 3 GHFF camps within 20km					0	0	0	0	0	5	10
Threats to the species	10	10	10	10	10	10	10	10	10	10	10	10
Site Context Score							32	32	32	32	47	X
MAX Site Context Score							60	60	60	60	60	X
Site Context Score – out of 3							1.60	1.60	1.60	1.60	2.35	X
GHFF Foraging Tree Density	0	0	0	0	0	0	1	1	2	5	5	10
Species Stocking Rate Score							1	1	2	5	5	X
X Species Stocking Rate Score							10	10	10	10	10	X
Stocking Rate Score – out of 3							0.30	0.30	0.60	1.50	1.50	X
Total							3.42	4.02	4.72	6.62	7.37	

RE12.11.14	
Score	Stem Density Results (T1 and
1	0 – 200 stems per hectare
2	201 – 250 stems per hectare
5	251 – 300 stems per hectare
7	301 – 325 stems per hectare
10	326 – 350 stems per hectare
7	351 – 375 stems per hectare
5	376 – 400 stems per hectare
4	401 – 450 stems per hectare
2	450 + stems per hectare

Attachment H: Offset Management Plan Requirements

In addition to any requirements of the conditions of approval, an offset management plan submitted for approval by the **Minister** must:

a. Include a reference to the **EPBC Act** approval conditions (and state or local government approval conditions) to which the Offset Management Plan refers

b. Specify referenced plans, including revegetation and rehabilitation plans, and how these can be accessed.

c. Include detailed information on the residual impacts to **protected matters** that will be offset. This must include the area(s) of habitat for **protected matters** and its condition and quality at all impact sites which the offset is to address

d. Identify a suitable environmental offset(s) for the impacts on **protected matters**, and provide detailed baseline information on the proposed offset(s) and commit to achievable and measurable ecological benefits, and timeframes for their achievement, for the proposed offset(s)

e. Detail how the offset(s) will be protected, and ecological benefits maintained, in perpetuity

f. Include a table of commitments to achieve the ecological benefits for relevant **protected matters**, and a reference to where the commitments are detailed in the Offset Management Plan

g. Include timebound management actions that will be implemented to achieve the measurable ecological benefits for relevant **protected matters**

h. Include an assessment of risks to achieving the ecological benefit(s) and what risk management strategies will be applied to address these

i. Include reporting and review mechanisms, and documentation standards to inform others annually regarding compliance with management and environmental commitments, and attainment and maintenance of ecological benefits, as specified in the Offset Management Plan

j. Propose corrective actions to ensure ecological benefits for the **protected matters** are attained or maintained, if trigger values are reached or performance indicators not attained

k. Include a monitoring program for the full duration of the proposed offset management period, which must include:

    i. measurable performance indicators to monitors progress towards, attainment of the ecological benefits for the **protected matters**

    ii. a randomisation of monitoring within the offset area to ensure ecological benefits reflect the whole offset site(s)

    iii. trigger values and timing of corrective actions

    iv. the timing and frequency of monitoring to detect trigger values and changes in the performance indicators.

Attachment 2

Suitably qualified project experts – CV

David Havill - Principal Ecologist

David Havill has significant practical experience in the areas of ecological site assessments (flora and fauna), weed management programs, large scale revegetation projects, wetland rehabilitation and waterway restoration. He has a strong understanding of the intricate workings of the Vegetation Management Act 1999 and the complex codes and policies which influence site vegetation constraints. David's expertise relates to the on-site identification and spatial mapping of fauna and flora species including endangered, rare and vulnerable plants and animals. He has an accurate understanding of site survey processes and standards developed by the State and Commonwealth Governments. This provides the ability to challenge the various inaccuracies that occur within broad scale vegetation mapping developed by these Government agencies. David works closely with our in-house team of GIS, environmental planning, and landscape rehabilitation specialists to document findings of ecological survey and prepare targeted restoration and rehabilitation strategies. He has a strong understanding of construction techniques associated with development projects and has the ability to prepare practical flora and fauna management plans to assist in guiding the construction process within sensitive areas.

Qualifications
– Diploma of Arboriculture, Training for Trees Pty Ltd, #04453
– Bachelor of Applied Science (Natural Systems and Wildlife Management), The University of Queensland

Dr Andrew Ridley - Principle Environmental Scientist

Andrew has extensive field experience gained while working as an ecological research scientist with the Department of Agriculture and Fisheries. Andrew comes to Saunders Havill Group with documented expertise in data acquisition, analysis and project delivery having published scientific articles in peer reviewed journal and presented at international conferences.

At Saunders Havill Group, Andrew uses his ecological expertise to assess sites against a variety of biodiversity overlays. He has a strong understanding of the science driving assessment methodologies and knowledge of Queensland flora and fauna.

Andrew's experience within the academic area provides him with the 'know how' to maintain data integrity through the project flow path.

His skills are applicable across the entire spectrum of project requirements at SHG, from instigation and formulation through development and production to client delivery.

Qualifications
- Bachelor of Science (Honours), The University of Queensland
- Doctor of Philosophy, The University of Queensland

Liam Brzezinski - Senior Ecologist

Liam has extensive field experience throughout SEQ and the broader Queensland state in his role as a Senior Ecologist with a Bachelor Degree in Environmental Management, Majoring in Natural Systems and Wildlife from the University of Queensland.

Liam has five (5) years environmental consultancy experience that ranges from local through to state and federal processes. Liam has worked on a variety of projects in a support and leadership capacity including due diligence, ecological assessment reports, state applications and EPBC referrals and Preliminary documentations. Liam has developed strong technical report writing skills and continues to build on his project management capabilities

Qualifications

- Bachelor of Environmental Management (Hons), Major in Natural Systems and Wildlife, The University of Queensland

Kirstyn Ball – Senior Ecologist

Kirstyn Ball graduated from Griffith University with a Bachelor of Science (Ecology and Conservation Biology) minoring in Wildlife Management in 2016.

After graduating from university, Kirstyn worked for a bush regeneration company based on of the Gold Coast. Kirstyn was supervising bush regeneration teams over a variety of sites in South East Queensland, where she developed her flora and fauna identifications skills as well as obtaining her Cert III in Conservation and Land Management. Her previous experience is bush regeneration has led to an in depth understanding of rehabilitation techniques as well as fauna and flora identification for field surveys.

Since starting at Saunders Havill Group, Kirstyn has gained experience in various flora and fauna survey methodologies ensuring that the relevant survey guidelines by State and Commonwealth Governments are adhered to. She has worked closely with the more senior staff, assisting on a variety of reports, ranging from Due Diligence and Local Government EARs to Federal EPBC Referrals and Preliminary Documentations. Kirstyn has developed strong technical report writing skills with an understanding of local, state and commonwealth environmental legislation, codes and requirements.

Qualifications

- Certificate III in Conservation and Land Management
- Bachelor of Science in Ecology and Conservation Biology, Griffith University

Attachment 3

Wildlife online species list

Queensland Government

WildNet species list

Search Criteria: Species List for a Specified Point
Species: All
Type: Introduced
Queensland status: All
Records: Confirmed
Date: Since 1980
Latitude: -27.7019
Longitude: 152.8309
Distance: 5
Email: liambrzezinski@saundershavill.com
Date submitted: Friday 09 Jun 2023 08:14:44
Date extracted: Friday 09 Jun 2023 08:20:02

The number of records retrieved = 32

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	amphibians	Bufonidae	*Rhinella marina*	cane toad	Y			3
animals	birds	Columbidae	*Columba livia*	rock dove	Y			1
animals	birds	Columbidae	*Spilopelia chinensis*	spotted dove	Y			3
animals	birds	Sturnidae	*Acridotheres tristis*	common myna	Y			2
animals	birds	Sturnidae	*Sturnus vulgaris*	common starling	Y			2
animals	mammals	Canidae	*Vulpes vulpes*	red fox	Y			1
animals	mammals	Felidae	*Felis catus*	cat	Y			1
animals	mammals	Leporidae	*Lepus europaeus*	European brown hare	Y			2
animals	mammals	Muridae	*Rattus rattus*	black rat	Y			1
animals	mammals	Suidae	*Sus scrofa*	pig	Y			1
animals	reptiles	Gekkonidae	*Hemidactylus frenatus*	house gecko	Y			1
plants	land plants	Apiaceae	*Ammi majus*	bishop's weed	Y			1/1
plants	land plants	Apiaceae	*Daucus carota*	wild carrot	Y			1/1
plants	land plants	Apocynaceae	*Catharanthus roseus*	pink periwinkle	Y			1/1
plants	land plants	Asteraceae	*Ageratina adenophora*	crofton weed	Y			1/1
plants	land plants	Asteraceae	*Ageratum houstonianum*	blue billygoat weed	Y			1/1
plants	land plants	Asteraceae	*Erigeron karvinskianus*		Y			1/1
plants	land plants	Asteraceae	*Senecio madagascariensis*	fireweed	Y			2/2
plants	land plants	Asteraceae	*Symphyotrichum subulatum*		Y			1/1
plants	land plants	Boraginaceae	*Heliotropium amplexicaule*	blue heliotrope	Y			1/1
plants	land plants	Hyacinthaceae	*Ledebouria petiolata*		Y			1/1
plants	land plants	Iridaceae	*Sisyrinchium rosulatum*		Y			1/1
plants	land plants	Leguminosae	*Lotononis bainesii*	lotononis	Y			1/1
plants	land plants	Leguminosae	*Macrotyloma axillare var. axillare*		Y			1/1
plants	land plants	Malvaceae	*Sida cordifolia*		Y			1/1
plants	land plants	Malvaceae	*Urena lobata*	urena weed	Y			1/1
plants	land plants	Passifloraceae	*Passiflora suberosa subsp. litoralis*		Y			1/1
plants	land plants	Plantaginaceae	*Scoparia dulcis*	scoparia	Y			1/1
plants	land plants	Poaceae	*Eragrostis curvula*		Y			1/1
plants	land plants	Poaceae	*Paspalum distichum*	water couch	Y			1/1
plants	land plants	Solanaceae	*Solanum linnaeanum*	apple of Sodom	Y			1/1
plants	land plants	Verbenaceae	*Lantana montevidensis*	creeping lantana	Y			1/1

CODES

I - Y indicates that the taxon is introduced to Queensland and has naturalised.

Q - Indicates the Queensland conservation status of each taxon under the *Nature Conservation Act 1992.*
The codes are Extinct (EX), Extinct in the Wild (PE), Critically Endangered (CR), Endangered (E), Vulnerable (V), Near Threatened (NT), Special Least Concern (SL) and Least Concern (C).

A - Indicates the Australian conservation status of each taxon under the *Environment Protection and Biodiversity Conservation Act 1999.*
The values of EPBC are Extinct (EX), Extinct in the Wild (XW), Critically Endangered (CE), Endangered (E), Vulnerable (V) and Conservation Dependent (CD).

Records - The first number indicates the total number of records of the taxon (wildlife records and species listings for selected areas).
This number is output as 99999 if it equals or exceeds this value. A second number located after a / indicates the number of specimen records for the taxon.
This number is output as 999 if it equals or exceeds this value.