Annual Compliance Report

24 June 2022 to 23 June 2023 – EPBC 2013/6866
Woodlinks Village – Master Planned Residential Community,
Collingwood Park, Queensland
Canberra Estates Consortium No. 36 Pty Ltd
19 September 2023

Job No: 7189 E

Document control

Document: Annual Compliance Report 24 June 2022 to 23 June 2023 EPBC 2013/6866, prepared by Saunders Havill Group for Canberra Estates Consortium No. 36 Pty Ltd.

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Prepared by

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Acronyms and abbreviations

ACR	Annual Compliance Report
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999*
ha	hectares
ICC	Ipswich City Council
km	kilometres
KMP	Koala Management Plan
OMP	Offset Management Plan
QFC	Queensland Fauna Consultancy
SHG	Saunders Havill Group

1. Introduction

Saunders Havill Group (SHG) were engaged by Canberra Estates Consortium No. 36 Pty Ltd to prepare an Annual Compliance Report (ACR) for the Woodlinks Project – Master Planned Residential Community granted under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) (EPBC ref 2013/6866). This ACR is specifically required by Condition 8 of the approval granted on 4 March 2014 (refer to **Appendix A**). The project is referred to in this report as *Woodlinks Village* which is the residential estate name.

The project area covers approximately 78 hectares (ha) and is located approximately 12 kilometres (km) by road east of Ipswich (refer to Figure 1).

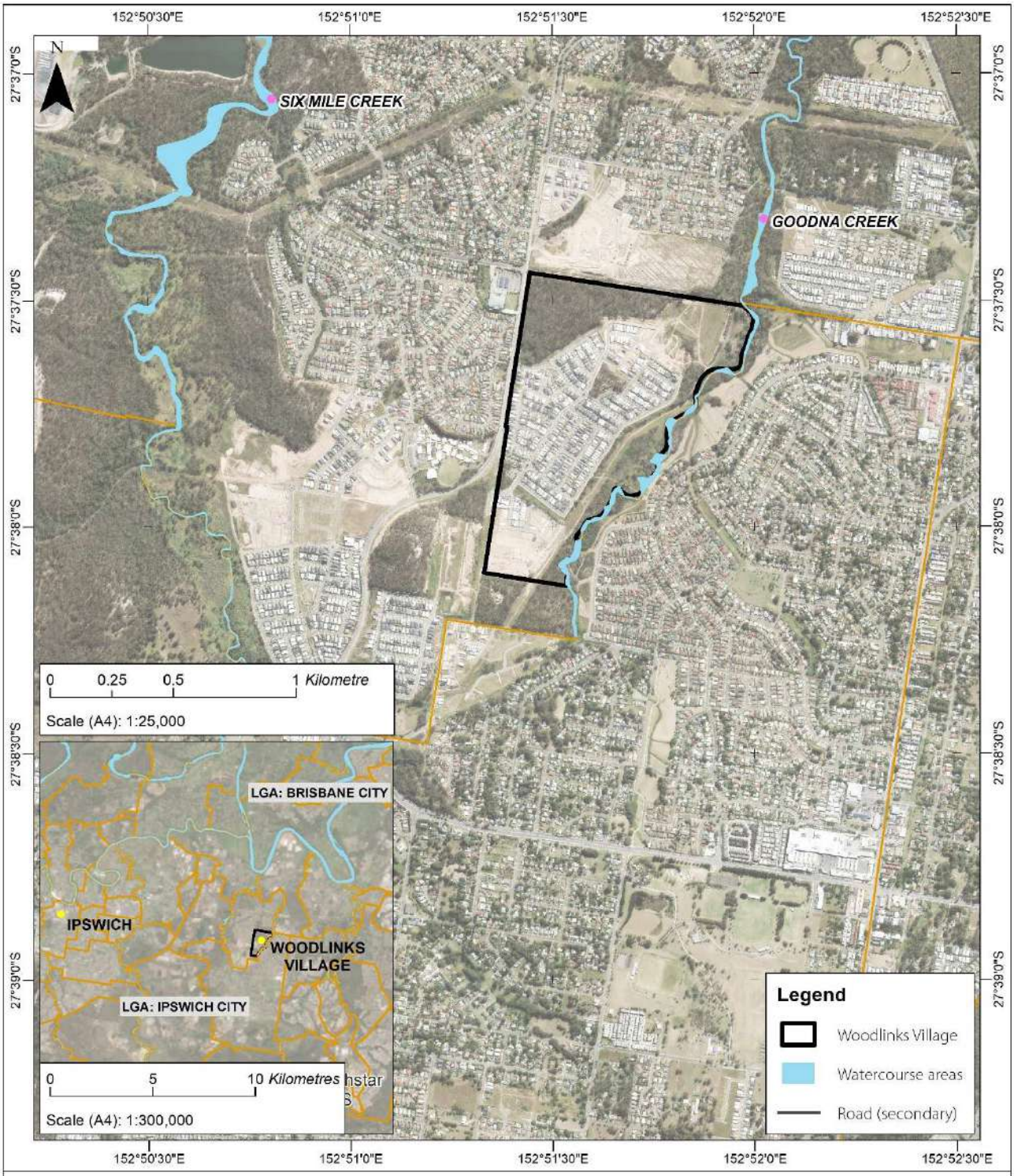
This report delivers an annual overview of the project's progression towards achieving the primary objective:

To create a self-sustaining system that provides habitat critical to the survival of the Koala while creating a locally significant corridor connecting habitat areas along Goodna Creek.

The project's progress and notable events during the reporting period are detailed in **Section 3**. The assessment of compliance with the approval conditions is presented in **Section 4**. This report is the seventh ACR for the approved action.

1.1. Approval summary

Department reference	EPBC 2013/6866
Approval holder	Canberra Estates Consortium No. 36 Pty Ltd
ACN	156 442 312
Approval date	4 March 2014
Expiry date of approval	31 January 2034
Approved action	To develop the Woodlinks residential community in Collingwood Park, Queensland
Controlling provision	Approved – listed threatened species and communities (sections 18 & 18A)
Reporting period	24 June 2022 to 23 June 2023
Address	246-326 Collingwood Drive, Collingwood Park
Local government area	Ipswich City Council



Woodlinks Village – Master Planned Residential Community
EPBC 2013/6866
Figure 1 - Project area locality
Prepared on 07 July 2023

File ref: 7189 E 01 A Project area locality

Coordinate System: GDA 1994 MGA Zone 56
Projection: Transverse MercatorDatum: GDA 1994
Data sources. © State of Queensland (Department of Natural Resources and Mines) 2023. © State of Queensland (Department of Transport and Main Roads) 2017. Imagery: Metromap 2023

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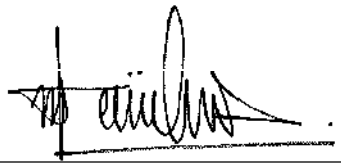
2. Declaration of accuracy

In making this declaration, I am aware that sections 490 and 491 of the EPBC Act make it an offence in certain circumstances to knowingly provide false or misleading information or documents. The offence is punishable on conviction by imprisonment or a fine, or both. I declare that all the information and documentation supporting this compliance report is true and correct in every particular. I am authorised to bind the approval holder to this declaration and that I have no knowledge of that authorisation being revoked at the time of making this declaration.

Signed	
Full name	Murray Saunders
Position	Director
Organisation	Saunders Havill Group (ABN 24 144 972 949)
Date	19 September 2023

3. Description of activities

Woodlinks Village is a residential community located in the suburb of Collingwood Park, Queensland. The development of residential land parcels and open space areas is under establishment, with approximately 526 houses constructed since the commencement of the action in 2015. As residential development advances, rehabilitation efforts with a focus on enhancing koala habitat in the adjoining Goodna Creek open space area continues to occur and be managed. Other open space areas providing local park facilities and general amenities in the development area have also been established.

Since the 23 June 2022, the following impact and offset activities have been completed:

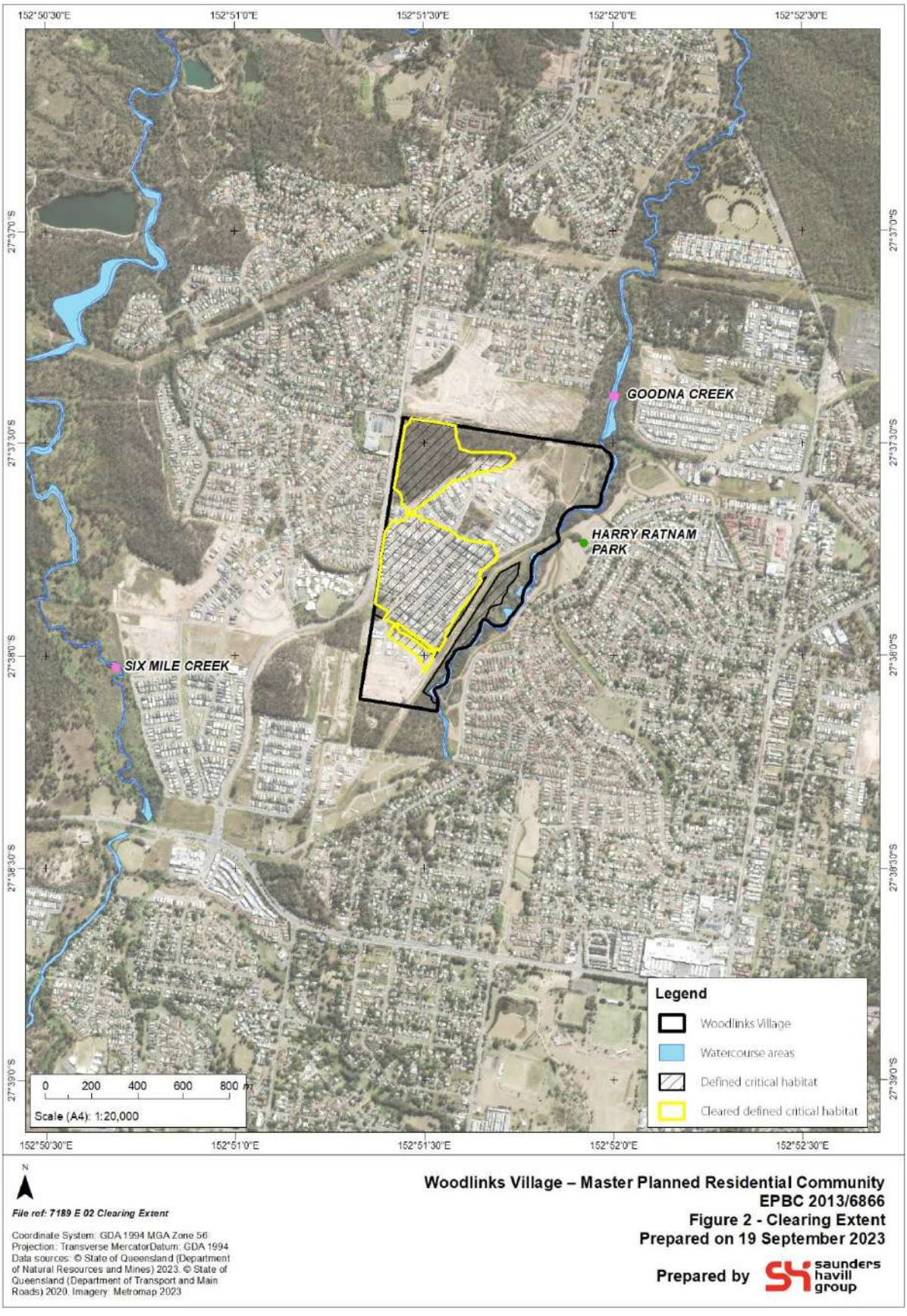
- Stage 20 vegetation clearing;
- earthworks for the establishment of residential allotments;
- landscaping and enhancement of on-site drainage and stormwater conveyance corridor; and
- offset area improvement works including broad revegetation works within Harry Ratnam Park.

The project has delivered 526 residential lots to the market since commencement. **Table 1** summarises the current status of the project. **Figure 2** illustrates the impacts to habitat critical to the survival of the koala, as defined in the EPBC approval and listed in **Table 1**, at the end of the reporting period. All vegetation clearing has been completed under the approval.

A site inspection was completed by SHG on 12th June 2023 to confirm the progress of the development and offset activities over the past year of works.

Table 1: Development details

Total dwellings (approved)	**800**
Dwellings under construction/constructed	526
Total defined critical habitat onsite	35.2 ha
Approved total clearing of defined critical habitat only	25.9 ha
Total current clearing of defined critical habitat only	25.9 ha
Total current clearing of non-critical habitat	30.39 ha
Total current clearing (critical and non-critical habitat)	56.29 ha


152°50'30"E
152°51'0"E
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152°52'0"E
152°52'30"E
27°37'0"S
27°37'30"S
27°38'0"S
27°38'30"S
27°39'0"S
GOODNA CREEK
HARRY RATNAM PARK
SIX MILE CREEK
0 200 400 600 800 m
Scale (A4): 1:20,000
Legend
Woodlinks Village
Watercourse areas
Defined critical habitat
Cleared defined critical habitat
N
File ref: 7189 E 02 Clearing Extent
Coordinate System: GDA 1994 MGA Zone 56
Projection: Transverse MercatorDatum: GDA 1994
Data sources: © State of Queensland (Department of Natural Resources and Mines) 2023. © State of Queensland (Department of Transport and Main Roads) 2020. Imagery: Metromap 2023
Woodlinks Village – Master Planned Residential Community
EPBC 2013/6866
Figure 2 - Clearing Extent
Prepared on 19 September 2023
Prepared by
saunders havill group

3.1. Impact area actions

3.1.1 Vegetation clearing

Additional vegetation clearing work associated with Stage 20 of the residential development located in the northern portion of the development area was undertaken in June 2023 (refer **Photo 1**). Queensland Fauna Consultancy (QFC) were the engaged fauna spotter catchers for this clearing tranche and were always present during clearing activities.

Prior to Stage 20 vegetation clearing, fauna spotter catchers completed a pre-clearance survey and accompanying report were to identify habitat values and fauna species present within the proposed clearing area and assign mitigation strategies. This survey was completed in the month preceding the clearing. Refer to **Appendix B** for the report. A post-clearing survey report was completed after the completion of vegetation clearing, summarising daily pre-clearance fauna checks, specific methodology in the event a koala is observed, felling procedures, and identified fauna values and species located during clearing. The post-clearing survey report is provided at **Appendix C**.

It is noted in the pre-clearance report that one koala was recorded within the proposed clearing area. The same koala was also recorded during clearing on multiple occasions on separate days. During each encounter, the tree was double flagged with an exclusion zone established and left to relocate overnight. No koalas were harmed during clearing works.

3.1.2 Sediment control measures

It was observed during the site inspection that sediment fencing, and coir logs are present along the earthwork and vegetation clearing boundaries. Previously a fauna friendly and erosion and sediment control fencing that was installed along the 2021-2022 clearing extent which was in place during vegetation clearing. This fixture remains intact during site validation survey were adjoining construction areas.

Photo1: Erosion and sediment control fencing on clearing extents post-earthworks.

3.1.3 Drainage and stormwater conveyance corridor

The establishment of a drainage and stormwater corridor located in an east-west direction within the development area was completed during the previous reporting period. The corridor extends from west of Mullins Street to the east towards the offset areas. During this reporting period, establishment of native flora within the ground layer of the drainage corridor was undertaken to promote regeneration and enhance ecosystem diversity. This corridor was inspected by SHG to assess the current condition and identify whether fauna may be utilising the corridor for movement.

In the previous report the field survey identified fauna species utilising the culvert underpass at Mullins Street in the form of an array of fauna tracks. This included diggings and tracks of Northern Brown Bandicoot, macropod species tracks, several bird species, and evidence of domestic cat usage. During this reporting period there were no indication that fauna species were utilising the culvert underpass. No tracks were observed during this reporting period; however, most drainage areas were dominated by *Typha orientalis* (Bulrush) which made it difficult to observe tracks if present.

Rehabilitation and assisted regeneration of native flora within the corridor has increased particularly within the ground layer. Native sedges and shrubs were observed, including *Callistemon viminalis* (Bottlebrush Red), *Acacia leiocalyx* (Early Flowering Wattle), *Imperata cylindrica* (Blady Grass), and *Themeda triandra* (Kangaroo Grass) (refer **Photo 2**). Canopy species retained as part of works and providing ongoing fauna habitat values are shown in **Photo 3**.

Photo 2: Native flora regeneration at the entry of the culvert underpass.

Photo 3: Vegetation within the drainage corridor.

3.1.4 Fauna exclusion measures

Fauna exclusion measures within the development area were inspected as part of the site inspection, particularly where adjoining the Goodna Creek corridor. Fencing types of the residential properties immediately adjacent to the Goodna Creek corridor were observed to be consistent with fauna exclusion, deterring native non-avian fauna from entering residential yards (refer **Photo Set 4**).

Photo Set 4: New build residence with fauna exclusion fencing adjacent to rehabilitated areas.

4. Offset area actions

As per the detailed Preliminary Documentation, the offset land is made up of two distinct areas:

1. **Open space dedications**

   New land created and improved along the Goodna Creek conservation corridor.

2. **Harry Ratnam Park**

   Improvement works for the establishment of new habitat within existing degraded Ipswich City Council (ICC) parkland.

As part of the EPBC Act approval process, it was determined that offset areas adjacent to Goodna Creek would be created, rehabilitated, and improved as koala habitat. The purpose of the offset was to bolster and enhance the existing local Koala corridor movement along Goodna Creek.

The Offset Management Plan (OMP) lodged under condition 4 of the EPBC approval, and approved by the Department on 15 October 2014, details the progressive works to occur throughout the area. Condition 3 of the approval outlines the need for the approval holder to implement "mechanisms" to provide enduring protection. For offset land adjoining Goodna Creek to the west, this involves the creation of parkland allotments and the dedication of the land to ICC for conservation purposes.

The process for completing this dedication and enduring protection includes the steps listed below.

1. The western parkland dedication area has been designated as three separate future allotments aligning to development staging:
   i. Lot 7000
   ii. Lot 7001
   iii. Lot 7002 and 7003 completed as one scope of works.
2. A detailed operational works drawing set must be completed and lodged for ICC approval.
3. Once approved the works are tendered and commissioned.
4. Improvement/rehabilitation works completed including weed removal, revegetation with Koala trees, rubbish removal and fixing of erosion issues.
5. At the completion of works, a thorough onsite inspection is completed by ICC and once satisfactory the area is accepted as "on-maintenance".
6. After 24 months, if the completed works continue to satisfy ICC during the regular inspections, the works are considered "off-maintenance".
7. Once the works are considered completed the created allotment can be registered with the Queensland Government titles office and dedicated to ICC.

There are two constraints which limit the timeframe for dedications of offset land:

1. The offset allotment is created as the development allotments are reconfigured. This occurs post approval of the stage adjoining the Goodna Creek conservation corridor.
2. The improvement works must have occurred prior to ICC accepting the dedicated land (ICC will not accept the land title prior to the developer completing all weed management and revegetation works).

The Harry Ratnam Park offset area, which makes up approximately 13.5 ha of the total offset area, is already under ICC ownership and is therefore secured and protected. As of March 2023, broad revegetation works have been completed within Harry Ratnam Park under ICC endorsement.

Collectively, the 32.8 ha koala offset area is made up of:

- created allotment 7000 (5.58 ha);
- created allotment 7001 (2.41 ha);
- created allotments 7002 and 7003 (8.5 ha);
- Goodna Creek watercourse allotments (2.8 ha); and
- Harry Ratnam Park allotments (13.5 ha).

4.1. Offset status

At seven years post commencement date, the approved offset has achieved the following status:

Lot 7000:

- Operational works permits achieved.
- Works tendered and complete.
- Plan parcel sealed.
- Off-maintenance with ICC.

Lot 7001:

- Operational works permits achieved.
- Works tendered and complete.
- Plan parcel sealed.

Lots 7002 and 7003:

- Operational works permits achieved.
- Works tendered and complete.

- Plan parcel sealed.
- Improvement works achieved practical completion stage on 2nd July 2019.
- Stages 15 / 17 rehabilitation works were confirmed off-maintenance with ICC on 13th October 2021.

Lot 7004:

- Operational works permits achieved.
- Works tendered and complete.
- Improvement works commenced June 2021.
- Improvement works were completed July 2021.
- Practical completion was formally awarded on 29th July 2021, then subject to ICC 12-week establishment period.
- Stage 18 rehabilitation works were confirmed to commence on-maintenance period on 28th October 2021. Subject to successful establishment, off-maintenance is scheduled to occur 24-months after the end of the establishment period being 28th October 2023).

Harry Ratnam Park:

- Full land access agreement in place and executed between approval holder and ICC.
- Preliminary weed management works completed by Jungle Busters.
- Broad revegetation works carried out by Jungle Busters following weed management which reached practical completion on 30th March 2023.
- Ongoing use and harvest of the koala harvest area.
- Monthly photo monitoring completed by SHG in March, April, and May within relevant reporting period (refer **Appendix D**).

The following documents are provided as supporting documentation to the current offset area status:

- Revised Harry Ratnam Park rehabilitation works status overview – *Goodna Creek & Harry Ratnam Park Revegetation and Rehabilitation* plan overview (refer **Appendix E**).
- Rehabilitation Plan – *Harry Ratnam Park Rehabilitation Works Plan, prepared by SHG* (refer **Appendix F**).
- In summary, all of the 32.8 ha offset area has been subject to rehabilitation works for improved koala ` area includes Lots 7000, 7001, 7002, 7003, future lot 7004 and Harry Ratnam Park.

4.2. Offset inspection

An inspection of improvement works across all rehabilitation allotments was completed by two Ecologists from SHG on 12th June 2023. Observations of rehabilitation areas are provided in the subsections below.

4.2.1 Harry Ratnam Park Rehabilitation observations

The preliminary weed management works, and broad revegetation was completed within Harry Ratnam Park on 30th March 2023. Plantings within the revegetated area showed successful establishment after 11 weeks into the 24-week establishment period. Inspection of the revegetated area indicated a high success rate with an estimated 90% or more of planted vegetation was successfully established (refer **Photo set 5**).

It is noted that Harry Ratnam Park is subject to monthly photo monitoring by SHG. During the reporting period, monthly photo monitoring was completed in March, April, and May.

Photo set 5: Successful planting establishment within rehabilitation area in Harry Ratnam Park.

4.2.2 Lots 7002,7003 and future Lot 7004 Goodna Creek Rehabilitation Observations

The rehabilitation works along Goodna Creek within lot 7002 and 7003 were accepted as 'off-maintenance' by ICC on 13th October 2021. At the time of the survey, it was noted that the rehabilitated areas along the banks of Goodna Creek showed evidence of weed incursion and brush cutter damage (refer **Photo set 6 and Photo set 7**). Remedial works will be completed to replace damaged or dead plantings. Further, Stage 18 which includes future Lot 7004 rehabilitation activities are scheduled to reach off-maintenance on 28th October 2023. Refer to **Photo set 8** for status of plantings, some of which have reached multiple metres in height.


Photo set 6: Brush cutter damage on tree sleeves and brush cutter damaging regenerated vegetation.


Photo set 7: Weeds dominating geofabric ground cover and inside tree protection sleeves in lot 7003.

Photo set 8: 'On-maintenance' rehabilitation area within future Lot 7004.

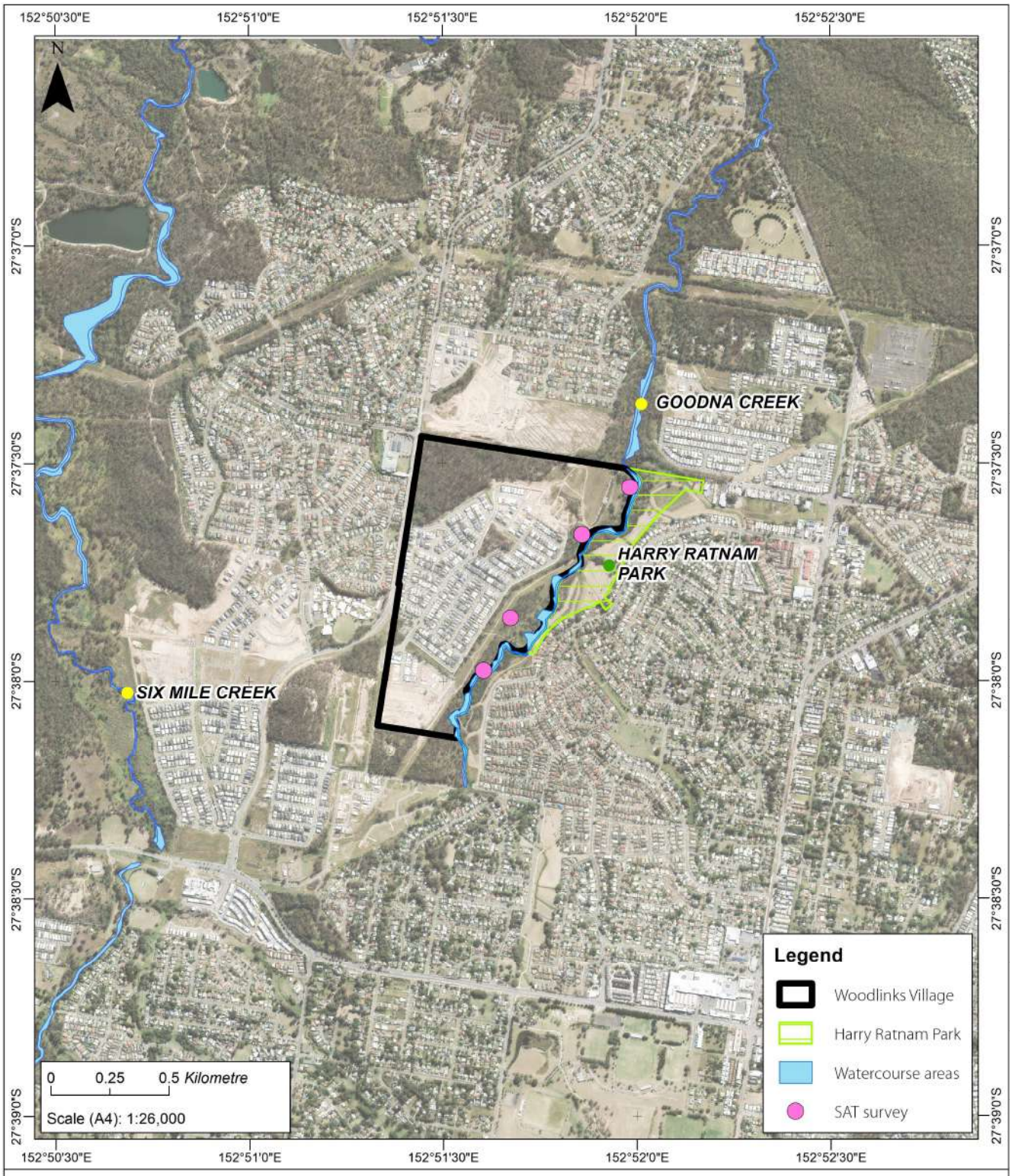
4.2.3 Fauna observations

A fauna assessment was completed across the Goodna Creek corridor site on 12th June 2023 to identify and describe on-ground habitat features (e.g., habitat trees, koala habitat), signs of fauna activity (e.g. scats, tracks, scratch marks on trees, nests etc.) and observations of species present within the area. Consideration was also given to the ecological significance of the site in the context of the utilisation of the site by the local koala population. No specific surveys for reptiles (e.g., pitfall traps) nor nocturnal animals (e.g., spotlighting) were completed.

The following observations have been made based on field survey:

- Four (4) SAT surveys for koala evidence were carried out within the corridor (refer to Figure 3).
- All 4 SAT surveys carried out across the site recorded 'Low use' using the Phillips and Callaghan (2011) Guide for '*The Spot Assessment Technique*' (East Coast med-high activity category).
- The majority of fauna observed on site were highly mobile bird species.
- Evidence in the form of tracks were recorded of macropod species in the offset area.

A thermal UAV survey to detect koalas along the Goodna Creek corridor was not undertaken during this reporting period.



Woodlinks Village – Master Planned Residential Community
EPBC 2013/6866
Figure 3 - Field Survey Effort
Prepared on 07 July 2023

File ref: 7189 E 03 A Field Survey Effort

Coordinate System: GDA 1994 MGA Zone 56
Projection: Transverse MercatorDatum: GDA 1994
Data sources: © State of Queensland (Department of Natural Resources and Mines) 2023. © State of Queensland (Department of Transport and Main Roads) 2019. Imagery: Metromap 2023

Prepared by saunders havill group

5. EPBC Act approval conditions compliance table

The EPBC Act approval conditions for the project are replicated in **Table 2** with a designation on compliance or non-compliance if the condition was applicable during the reporting period, and evidence and comments as necessary. A copy of the EPBC Act approval and conditions is provided in **Appendix A**.

Table 2: EPBC approval conditions compliance table

Condition number / reference	Condition	Is the project compliant with this condition?	Evidence/comments
1	The approval holder must not remove or fragment more than 25.9 hectares of habitat critical to the survival of the Koala. Impacts to habitat critical to the survival of the Koala must be limited to the project area shown in Attachment 1.	Compliant	All clearing of critical koala habitat within the approved clearing area has been completed (refer to Figure 2 clearing plan). Note: at the time of assessment and approval, habitat critical to the survival of the koala was defined in accordance with the interim advice note. Under this advice, only portions of the site achieved the criteria.
2	The approval holder must prepare a Koala Management Plan to address management measures to avoid and mitigate impacts to Koalas. a) The Koala Management Plan must be submitted to the Minister for approval no less than three months prior to its intended implementation. Once approved the Koala Management Plan must be implemented. b) The Koala Management Plan must be implemented prior to commencement of the action, or as otherwise directed in writing by the Minister. c) The Koala Management Plan must include, but not be limited to:	Compliant	On 15th October 2014 the Department approved the KMP and provided confirmation that the KMP met the requirements of condition 2. Implementation of the KMP is detailed in section 7 of this report and **Table 3**.

Condition number / reference	Condition	Is the project compliant with this condition?	Evidence/comments
	i. details of pre-clearance survey methods for Koalas within the project area to be undertaken prior to the commencement of the action, ii. details of measures to mitigate impacts to Koalas within the project area, including, but not limited to: 1. provision for a qualified fauna spotter-catcher to undertake surveys and handling of Koalas prior to and during commencement of the action; 2. construction and permanent fauna exclusion fencing; 3. implementation of appropriate vehicle speed limits; 4. utilisation of plant species in the project area that will not attract Koalas to the project area; 5. implementation of traffic calming awareness signage; and 6. provision of off-leash dog facilities, on-leash areas and dog prohibited areas. iii. details of methods for Koala relocation activities, to be undertaken prior to and during the commencement of the action including the identification and description of suitable recipient Koala habitat. iv. process for reporting results from pre-clearance surveys and relocation activities, including, but not be limited to: 1. identification of a website in which information would be made available to the public, 2. timing and frequency for providing reporting information to the Department,		

Condition number / reference	Condition	Is the project compliant with this condition?	Evidence/comments
	3. provision of the following details, at a minimum, to be recorded if any Koalas are captured during relocation activities: • sex • age class • time and date of capture • method of capture • location of capture (Global Positioning System (GPS)) • state of health • any veterinary intervention required • time held in captivity • location of release (GPS) and date 4. provision of the following details at a minimum to be recoded for incidents if any Koalas are injured or killed: • time, location (GPS) and nature of extent • details of Koalas (including sex and age class) • measures taken to address incident		
3	To offset the residual impacts to Koala, the approval holder must implement mechanisms to provide enduring protection, over a minimum of 27 hectares, to the offset site, referred to as 'Goodna Creek Offset and Rehabilitation Area' as shown in Attachment 1. The protection mechanisms implemented by the approval holder, including but not limited to, land access agreements, dedication of land title and zoning under the Ipswich Planning Scheme must be	Compliant	As described in *Section 4 Offset Actions*, dedication and enduring protection of the offset area is a sequential process and 19.3 ha of rehabilitated land which includes Lots 7000, 7001, 7002, 7003 and future Lot 7004. As detailed in Section 4.2, rehabilitation works have been completed within ICC's open space area referred to as Harry Ratnam Park in the last quarter of 2022 and first quarter of 2023 (refer **Appendix B**).

Condition number / reference	Condition	Is the project compliant with this condition?	Evidence/comments
	consistent with the conditions of this approval and the principles of the EPBC Act Offsets Policy. Within three years of the date of the approval, the approval holder must provide written evidence to the Department demonstrating that the protection mechanisms have been implemented.		In total, 32.8 ha is currently protected (including Goodna Creek) and subject to rehabilitation. It is noted that project commencement occurred twelve months after the issuing of the approval. The Preliminary Approval overriding the planning scheme provides protection over the land.
4	The approval holder must prepare an Offset Management Plan to address significant residual impacts to Koalas as a result of the action: a. impacts to Koalas that must be offset include: i. the loss of 25.9 hectares of habitat critical to the survival of the Koala, and ii. injury and mortality of Koalas. b. the Offset Management Plan must include, but not be limited to: i. a detailed description of all affected values and the extent and likely timing of the impact/s on each, ii. the offset delivery mechanism(s) comprising land offsets and management, and maintenance of Koala population offset within the 'Goodna Creek Corridor' as shown in Attachment 1, iii. detailed descriptions of how enhanced conservation outcomes for the affected Koalas will be achieved in accordance with the EPBC Act Offsets Policy, iv. contribution of funding to the management and maintenance of the Offset Management Plan, v. timeframes and key milestones for implementation of offsets including, but not limited to, beginning to	Compliant	The Woodlinks Village OMP was approved by the Department on 15th October 2014 and the approval confirmed the OMP met the requirements of condition 4. Implementation of the OMP is described in section 8 of this report and **Table 4**.

Condition number / reference	Condition	Is the project compliant with this condition?	Evidence/comments
	implement the offset plan prior to commencement of the action, vi. discussion of the risks and uncertainties associated with proposed offsets, vii. mechanisms for monitoring and reporting viii. corrective actions and contingency measures to be implemented (including the timing of implementation of these) where monitoring of the offset area/s under the offset plan shows that offset strategies are not effectivity achieving a net benefit or key milestones are not being or unlikely to be met, and ix. include textual descriptions and maps clearly defining the locations and boundaries of offset areas. These must be accompanied by a shapefile. c. The Offset Management Plan must be developed in consultation with the Department and other relevant stakeholders, including but not limited to, the Ipswich City Council and Ipswich Koala Protection Society. d. The approval holder must give consideration to how offsets will contribute to programs or incentives that align with the broader strategies and programs for the conservation and protection of Koalas. e. The Offset Management Plan must be submitted to the Minister for approval no less than three months prior to its intended implementation. Once approved the Offset Management Plan must be implemented.		

Condition number / reference	Condition	Is the project compliant with this condition?	Evidence/comments
	The Offset Management Plan must be implemented prior to the commencement of the action, or as otherwise directed in writing by the Minister.		
5	The most recent approved version of the Koala Management Plan and Offset Management Plan must remain accessible to the public on the website of the approval holder for the duration of the action.	Compliant	The approved versions of the KMP and OMP are accessible to the public via the Woodlinks Village web page: https://woodlinksvillage.com.au/builders-resources/
6	Within ten days after the commencement of the action, the approval holder must advise the Department in writing of the actual date of commencement.	Compliant	The date of the commencement of the action was 24th June 2015 and the Department was notified on 25th June 2015.
7	The approval holder must maintain accurate records substantiating all activities associated with or relevant to the conditions of approval, including measures taken to implement the plans required by this approval, and make them available upon request to the Department or an independent auditor in accordance with section 458 of the EPBC Act, or used to verify compliance with the conditions of approval. Summaries of audits will be posted on the Department's website. The results of audits may also be publicised through the general media.	Compliant	The SHG records and holds all relevant information for this EPBC Act approval on behalf of the approval holder. Electronic records of all material are held collectively by the SHG and approval holder and will be made available upon request in accordance with section 458 of the EPBC Act, or if required to verify compliance with the conditions of approval.
8	Any potential or suspected non-compliance with these conditions of approval must be reported to the department in writing within 48 hours of the approval holder becoming aware of the potential or suspected non-compliance. Within three months of every 12 month anniversary of the commencement of the action, the approval holder must publish a report on their website addressing compliance with each of the conditions of this approval, including implementation of any plans as specified in the conditions. Documentary evidence providing proof of the date of publication must be provided to the Department at the same time as the compliance report is published.	Compliant	The anniversary of the commencement of the action is 24th June. The annual deadline for publishing the report addressing compliance with each of the conditions of the approval (*i.e.*, this ACR) is 23rd September. Documentary evidence providing proof of the date of publication will be provided to the Department when the report is published. Where the annual deadline is not a business day in Brisbane, the following business day is taken to be the due date. The 2023 ACR due date is Saturday 23rd

Condition number / reference	Condition	Is the project compliant with this condition?	Evidence/comments
			September 2023 and notification to the Department will be provided prior to this date. The approval holder and SHG are not aware of any potential or suspected non-compliance with the conditions during the reporting period.
9	Upon the direction of the Minister, the approval holder must ensure that an independent audit of compliance with conditions of approval is conducted and a report submitted to the Minister. The independent auditor must be approved by the Minister prior to the commencement of the audit. Audit criteria must be agreed to by the Minister and the audit report must address the criteria to the satisfaction of the Minister.	Not applicable	The Minister has not directed the approval holder to conduct an independent audit of compliance with the conditions of the approval.
10	If the approval holder wishes to carry out any activity otherwise than in accordance with a plan as specified in the conditions, the approval holder must submit to the Department for the Minister's written approval a revised version of that plan. The varied activity shall not commence until the Minister has approved the revised plan, that plan must be implemented in place of the plan originally approved.	Not applicable	The approval holder has not wished to carry out any activity that is not in accordance with the approved KMP and OMP.
11	If the Minister believes that it is necessary or convenient for the better protection of Koala to do so, the Minister may request that the approval holder make specified revisions to a plan specified in the conditions and submit the revised plan for the Minister's written approval. The approval holder must comply with any such request. The revised approved plan must be implemented. Unless the Minister has approved the revised plan, then the approval holder must continue to implement the plan originally approved, as specified in the conditions.	Not applicable	The Minister has not provided a direction to revise a plan specified in the conditions.

Condition number / reference	Condition	Is the project compliant with this condition?	Evidence/comments
12	If, at any time after five years from the date of this approval, the approval holder has not commenced the action, then the approval holder must not connective without written agreement of the Minister.	Not applicable	The action commenced on 24th June 2015.

6. Koala Management Plan

A review of the KMP commitments and implementation is provided in **Table 3**.

Table 3: Koala Management Plan implementation

No.	Commitment	Evidence/comments/status
KMP-1	**Awareness** To achieve the objectives of the KMP, it is important that site personnel (e.g. contractors and sub-contractors) are aware of the plan and the requirements pertaining to the protection of the Koala. As part of working on-site, the civil contractor is responsible for ensuring civil works personnel are aware of the KMP and impacts to the Koala are reported to the approval holder.	Throughout the clearing activities, site personnel (e.g. contractors and sub-contractors) were made aware of the KMP requirements and could readily access a copy via the Woodlinks Village website at all times. While on-site, the temporary site office displayed a copy of the KMP. Induction material, daily meetings and reporting captured information pertaining to fauna management while the civil contractor's undertook work at Woodlinks Village.
KMP-2	**Construction management - fauna** Engage a registered fauna spotter/catcher to protect wildlife from the impacts of clearing. This includes the preparation of management plans (e.g. Wildlife Protection and Management Plan (WPMP) and Wildlife and Habitat Impact Mitigation Plan (WHIMP)), attendance at key project milestones such as the pre-start meeting, pre-clearance reporting and post-works reporting. The fauna spotter/catcher management plans incorporate methods for relocating fauna during clearing activities.	Throughout clearing activities (including pre-clearance and post-clearance), QFC was engaged to provide fauna spotter/catcher services at Woodlinks Village. QFC reports include data on fauna encountered during clearing and are available at request. Reporting to the Department on clearing activities is undertaken in accordance with the approval conditions.
KMP-3	**Construction management - vegetation clearing** Clearing, rehabilitation and revegetation will occur in stages over the life of the project and pre-starts will be held with stakeholders. Vegetation clearing activities are supervised by suitably qualified person/s that adhere to current industry practices that protect the welfare of animals. These activities require demarcating the vegetation clearing limit prior to commencing clearing work. Subsequent reporting is made available to stakeholders and the public.	Clearing and civil works associated with Stage 10, Stage 11, Stage 12, Stage 13, stage 20, Stage 21, Stage 25, Stage 26, Stage 27 and Stage 28 occurred during this reporting period and aligned with the development of residential land. Prior to clearing, the works area was demarcated, and an on-site pre-start held with ICC. QFC supervised all vegetation clearing activities which included inspecting the demarcated boundary of the works area and ensuring clear paths for fauna to reach refuge locations were provided. QFC's Standard Operating

		Procedure detailed the processes employed to safely and effectively minimise the potential harm caused to fauna during vegetation clearance. QFC supervised all clearing work and their service reports are available at request.
KMP-4	**Construction management – vegetation clearing** All site trees will be mulched for re-use in on-site erosion and sediment control and revegetation.	All suitable site trees cleared during the reporting period were mulched for re-use in on-site erosion and sediment control and revegetation requirements wherever possible.
KMP-5	**Construction management – vegetation clearing – fencing** Prior to vegetation clearing, install a temporary fauna exclusion fence around the area of clearing works and maintain the fence until the completion of major civil works.	Clearing and civil works associated with Stage 10, Stage 11, Stage 12, Stage 13, stage 20, Stage 21, Stage 25, Stage 26, Stage 27 and Stage 28 during this reporting period and aligned with the development of residential land. Prior to clearing, the works area was demarcated, and the fencing was signed-off by ICC at the pre-start meeting. The fencing installed excluded fauna from entering the works area where required. Additionally, daily inspections of the fencing were completed by the contractor. A mix of fauna friendly and erosion and sediment control fencing was installed along the 2021-2022 works area.
KMP-6	**Operational management – general** Manage and protect the Goodna Creek open space area including: • undertake weed management and revegetation activities • install landscape furniture and ecological feature signage • establish a cat and dog restriction zone • disallowing pet friendly areas (e.g. open grassed areas) • providing a dog off-leash area outside the corridor • inform new residents of the corridor values and importance.	Weed management and landscape (*i.e.,* revegetation) works continue to be undertaken within the Goodna Creek open space area adjacent to the residential development area during this reporting period, with these works approved by ICC and currently under active management. Works in Harry Ratnam Park and rehabilitation activities (refer **Appendix E**) were completed in the last quarter of 2022 and first quarter of 2023. Corridor signage has been installed to inform the local residents of the restrictions relating to dogs, however, the power line easement is used as a thoroughfare historically by non-residents walking dogs who do not access the area via the development. This issue is the partly result of prior trespassing on the land pre-development. As the development expands and the vacant land is transitioned to housing, the trespassing will diminish.

		Communication between the approval holder and residents is facilitated using the Woodlinks Village website, the on-site sales village and letterbox pamphlets. These provide current information on the commitments to protecting and improving the Goodna Creek open space area and how residents can contribute to protecting koalas.
KMP-7	**Operational management – fencing and planting** Neighbourhood design will include road frontage between residential allotments and the Goodna Creek open space area. Additionally, landscape design will avoid planting known Koala food or shelter trees in areas outside of the Goodna Creek open space area to discourage Koalas from entering residential areas. Residents will be informed of the preference for planting non-Koala food and habitat trees on private land.	The residential layout constructed has provided road frontage to the open space area as an interface between the residential and open space land uses. Approved landscape works do not include koala trees in the species mix. Community awareness of the Goodna Creek corridor and function is an ongoing campaign and the fencing requirements required are strongly emphasised. Residential buyers are informed of the Koala management measures as part of the land purchasing process. Additional information and guidelines are provided on the Woodlinks Village website and letterbox pamphlets (refer to the lifestyle guidelines for Woodlinks Village in **Appendix G**). Fencing associated with completed houses was observed to be compliant with the Koala Management Plan residential allotment fencing controls.
KMP-8	**Operational management - traffic** Install traffic calming measures and signage to alert drivers to the potential presence of fauna. Install fauna exclusion fencing in areas of high traffic volume.	Construction of roads was ongoing during the reporting period. Speed limits within the estate are a maximum of 50 km/h and the existing traffic volume has not necessitated the installation of fauna exclusion fencing along roads. A road was established along the Goodna Creek esplanade and traffic awareness measures (*i.e.,* signage) installed during previous reporting periods. This includes fauna awareness signage targeted at Koala. The street is not a thoroughfare and traffic calming measures have not been implemented at this stage.

7. Offset Management Plan

A review of the OMP commitments and implementation is provided in **Table 4**.

Table 4: Offset Management Plan implementation

No.	Commitment	Evidence/comments/status
OMP-1	Implement a vegetation clearing and management plan.	Vegetation clearing and management was coordinated between QFC, ICC and the approval holder with guidance and reference to the approved OMP and KMP.
OMP-2	Engage a registered fauna spotter/catcher to protect wildlife from the impacts of clearing. Adhere to industry standards whereby construction activities work alongside, and under instruction from, fauna spotter/catcher personnel in order to avoid impacting wildlife.	Throughout clearing activities (including pre-clearance and post-clearance), QFC was engaged to provide fauna spotter/catcher services at Woodlinks Village. Consultant QFC provides fauna spotter catcher services in line with current industry standards and in accordance with permit requirements administered by the Queensland Government. QFC reporting includes data on fauna encountered during clearing and are available at request. Reporting to the Department on clearing activities is undertaken in accordance with the approval conditions.
OMP-3	Rehabilitate (i.e. weed removal and revegetation) the Goodna Creek corridor offset area.	As described in *Section 4 Offset Actions*, dedication and enduring protection of the offset area is a sequential process and thus far Lot 7000 on SP266998, Lot 7002 on SP307776 and Lot 7003 on SP317646 have been rehabilitated and dedicated to ICC. Future Lot 7004 is on-maintenance, with rehabilitation activities completed in 2021. Improvement works in Harry Ratnam Park were completed in the last quarter of 2022 and completed in March 2023. In total, 32.8 ha is currently protected and rehabilitated within the Goodna Creek corridor.
OMP-4	Improve access to the koala tree foliage harvest facility in Harry Ratnam Park.	The access upgrade infrastructure is part of the habitat improvement works to Harry Ratnam Park. The approval holder was not made aware of any access issues during the reporting period.

OMP-5	Commence offset area rehabilitation during stage 1 of the development with an on-maintenance period of 18 months. Each stage of rehabilitation is scheduled for completion within three years of stage commencement. After the completion of works, the proponent will maintain the offset area until is it ready for hand over and dedicated to Ipswich City Council.	Rehabilitation allotment 7000 and 7001 met scheduling targets during the 2017-2018 reporting period and were handed over to ICC for off-maintenance. Lot 7002 and 7003 (*i.e.,* Stages 15 / 17) were completed as one scope of works during the 2018-2019 reporting period and achieved practical completion on 2 July 2019. On-maintenance began on 24 September 2019 and rehabilitation works were confirmed off-maintenance with ICC on 13th October 2021. Further, Stage 18 (Lot 7004) rehabilitation works were confirmed to commence on-maintenance on 28th October 2021. Subject to successful establishment, off-maintenance is scheduled to occur 28th October 2023. In total, 32.8 ha is currently protected and rehabilitated within the Goodna Creek corridor. SHG Ecologists inspected the revegetation areas within the corridor during the 2022-2023 reporting year, confirming the successful establishment and ongoing survival of the plantings.
OMP-6	Publish the current OMP online.	The OMP was made available via the Woodlinks Village website at the below link: https://woodlinksvillage.com.au/builders-resources/
OMP-7	Monitor landscape works until the relevant area is handed over to Ipswich City Council. Monitoring will include the identification of corrective actions required to progress the works towards the objective of handing over to Ipswich City Council.	The approval holder engaged a landscaping contractor to undertake rehabilitation and regeneration works across Lots 7000, 7001, 7002, 7003 and 7004. These works were under active management by the contractor with periodic inspections by a registered landscape architect and ICC identifying the corrective actions. Corrective actions are issued to the contractor for remedying.
OMP-8	All upfront costs associated with the weed management and revegetation of Goodna Creek will be the responsibility of the proponent.	Costs associated with the weed management and revegetation of the Goodna Creek open space area were, and will continue to be, met by the approval holder.
OMP-9	The offset area will be transferred to Ipswich City Council as part of their larger conservation land holdings.	As described in Section 4 Offset Actions, the offset area is made up of newly created allotments, the Goodna Creek waterway and the existing Harry

		Ratnam Park (13.5 ha) managed by ICC. At this stage, Lots 7000, 7001, 7002, 7003 are now ICC assets, future Lot 7004 will become an ICC asset subject to ICC acceptance as off-maintenance scheduled on 28th October SHG Ecologists inspected the revegetation areas within the corridor during the 2022-2023 reporting year, confirming the successful establishment and ongoing survival of the plantings.
OMP-10	Ongoing monitoring and reporting of works to assess the success of weed removal and control, natural regeneration and new threats that may arise. Progress the landscape works through the on-maintenance and off-maintenance periods in order to transfer ownership to Ipswich City Council.	The protected Goodna Creek open space area where revegetation works are complete was regularly inspected by a registered landscape architect and ICC to review the success of works completed (refer to photo monitoring reports located at **Appendix D**). As part of this process, both parties provided advice and directions to the contractor on additional works required to achieve the off-maintenance objective. The success of new plantings, weed removal and control is an ongoing task for future Lot 7004. Improvement works in this area regularly inspected by a registered landscape architect and ICC to review the success of works completed. In addition, SHG Ecologists inspected the revegetation areas within the corridor in June of the 2022-2023 reporting year, confirming the successful ongoing establishment and survival of the plantings.
OMP-11	Inform the public on the progress of weed removal and control and landscape works in the Goonda Creek open space area in a timely manner.	This ACR delivers an assessment of the progress of landscape works (weed control and rehabilitation) for the project and will be made available on the Woodlinks Village website at the below link: https://woodlinksvillage.com.au/builders-resources/

8. Appendices

Appendix A

EPBC approval and conditions granted 30 October 2014

Appendix B

Stage 20 fauna spotter catcher pre-clearance survey report

Appendix C

Stage 20 fauna spotter catcher post-clearance survey report

Appendix D

Harry Ratnam Park monthly photo monitoring reports

Appendix E

Goodna Creek & Harry Ratnam Park revegetation and rehabilitation works status overviewHarry Ratnam Park Rehabilitation Works

Appendix F

Harry Ratnam Park Rehabilitation Works Plan, prepared by SHG

Appendix G

Lifestyle guidelines for Woodlinks Village

Appendix A

EPBC approval and conditions granted

30 October 2014

Australian Government
Department of the Environment

Approval

Woodlink Project – Master Planned Residential Community, Collingwood Park, QLD, (EPBC 2013/6866)

This decision is made under sections 130(1) and 133 of the *Environment Protection and Biodiversity Conservation Act 1999*.

Proposed action

person to whom the approval is granted	Canberra Estates Consortium No. 36 Pty Ltd
proponent's ACN (if applicable)	ACN: 156 442 312
proposed action	To develop the Woodlink residential community in Collingwood Park, Queensland [See EPBC Act referral 2013/6866].

Approval decision

Controlling Provision	Decision
Listed threatened species and communities (sections 18 & 18A)	Approve

conditions of approval

This approval is subject to the conditions specified below.

expiry date of approval

This approval has effect until 31 January 2034.

Decision-maker

name and position	Chris Murphy Acting Assistant Secretary Queensland and Sea Dumping Assessment Branch
signature	
date of decision	4. March 2014

Conditions attached to the approval

1. The **approval holder** must not remove or fragment more than 25.9 hectares of **habitat critical to the survival of the Koala**. Impacts to **habitat critical to the survival of the Koala** must be limited to the **project area** shown in Attachment 1.

2. The **approval holder** must prepare a Koala Management Plan to address management measures to avoid and mitigate impacts to Koalas.
    a. The Koala Management Plan must be submitted to the **Minister** for approval no less than three months prior to its intended implementation. Once approved the Koala Management Plan must be implemented.
    b. The Koala Management Plan must be implemented prior to **commencement of the action**, or as otherwise directed in writing by the **Minister**.
    c. The Koala Management Plan must include, but not be limited to:
        i. details of pre-clearance survey methods for Koalas within the **project area** to be undertaken prior to **commencement of the action**.
        ii. details of measures to mitigate impacts to Koalas within the **project area**, including, but not limited to:
            1. provision for a **qualified fauna spotter-catcher** to undertake surveys and handling of Koalas prior to and during **commencement of the action**;
            2. construction of temporary and permanent fauna exclusion fencing;
            3. implementation of appropriate vehicle speed limits;
            4. utilisation of plant species in the **project area** that will not attract Koalas to the **project area**;
            5. implementation of traffic calming and awareness signage; and
            6. provision of off-leash dog facilities, on-leash areas and dog prohibited areas.
        iii. details of methods for Koala **relocation activities,** to be undertaken prior to and during **commencement of the action** including the identification and description of suitable recipient Koala habitat.
        iv. process for reporting results from pre-clearance surveys and **relocation activities**, including, but not be limited to:
            1. identification of a website in which information would be made available to the public;
            2. timing and frequency for providing reporting information to the **Department**;
            3. provision of the following details, at a minimum, to be recorded if any Koalas are captured during **relocation activities**:
                - sex
                - age class
                - time and date of capture
                - method of capture

- location of capture (Global Positioning System (GPS))
- state of health
- any veterinary intervention required
- time held in captivity
- location of release (GPS) and date

4. provision of the following details, at a minimum, to be recorded for incidents if any Koalas are injured or killed:
   - time, location (GPS) and nature of incident
   - details of Koalas (including sex and age class)
   - measures taken to address incident.

3. To offset the residual impacts to Koala, the **approval holder** must implement mechanisms to provide enduring protection, over a minimum of 27 hectares, to the offset site referred to as 'Goodna Creek Offset and Rehabilitation Area' as shown at Attachment 1.

The protection mechanisms implemented by the **approval holder**, including but not limited to, land access agreements, dedication of land title and zoning under the Ipswich Planning Scheme must be consistent with the conditions of this approval and the principles of the **EPBC Act Offsets Policy**.

Within three years of the date of the approval, the approval holder must provide written evidence to the **Department** demonstrating that the protection mechanisms have been implemented.

4. The **approval holder** must prepare an Offset Management Plan to address significant residual impacts to Koalas as a result of the action.

a. Impacts to Koalas that must be offset include:
   i. the loss of 25.9 hectares of **habitat critical to the survival of the Koala**, and
   ii. injury and mortality of Koalas.

b. The Offset Management Plan must include, but not be limited to:
   i. a detailed description of all affected values and the extent and likely timing of the impact/s on each;
   ii. the offset delivery mechanism(s) comprising land offsets and management, and maintenance of Koala population offset within the 'Goodna Creek Corridor' as shown at Attachment 1;
   iii. detailed descriptions of how enhanced conservation outcomes for the affected Koalas will be achieved in accordance with the **EPBC Act Offsets Policy**;
   iv. contribution of funding to the management and maintenance of the Offset Management Plan;
   v. timeframes and key milestones for implementation of offsets including, but not limited to, beginning to implement the offset plan prior to **commencement of the action**;
   vi. discussion of the risks and uncertainties associated with proposed offsets;
   vii. mechanisms for monitoring and reporting of offset milestones and

outcomes, including timing and frequency of monitoring and reporting;

viii. corrective actions and contingency measures to be implemented (including the timing of implementation of these) where monitoring of the offset area/s under the offset plan shows that offset strategies are not effectively achieving a net benefit or key milestones are not being or are unlikely to be met; and

ix. include textual descriptions and maps clearly defining the locations and boundaries of offset areas. These must be accompanied by a **Shapefile**.

c. The Offset Management Plan must be developed in consultation with the **Department** and other relevant stakeholders, including but not limited to, the Ipswich City Council and the Ipswich Koala Protection Society.

d. The **approval holder** must give consideration to how offsets will contribute to programs or incentives that align with the broader strategies and programs for the conservation and protection of Koalas.

e. The Offset Management Plan must be submitted to the **Minister** for approval no less than three months prior to its intended implementation. Once approved the Offset Management Plan must be implemented.

f. The Offset Management Plan must be implemented prior to **commencement of the action**, or as otherwise directed in writing by the **Minister**.

5. The most recent approved version of the Koala Management Plan and Offset Management Plan must remain accessible to the public on the website of the **approval holder** for the duration of the action.

6. Within ten days after the **commencement of the action**, the **approval holder** must advise the **Department** in writing of the actual date of commencement.

7. The **approval holder** must maintain accurate records substantiating all activities associated with or relevant to the conditions of approval, including measures taken to implement the plans required by this approval, and make them available upon request to the **Department**. Such records may be subject to audit by the **Department** or an independent auditor in accordance with section 458 of the **EPBC Act**, or used to verify compliance with the conditions of approval. Summaries of audits will be posted on the **Department**'s website. The results of audits may also be publicised through the general media.

8. Any potential or suspected non-compliance with these conditions of approval must be reported to the department in writing within 48 hours of the **approval holder** becoming aware of the potential or suspected non-compliance. Within three months of every 12 month anniversary of the **commencement of the action**, the **approval holder** must publish a report on their website addressing compliance with each of the conditions of this approval, including implementation of any plans as specified in the conditions. Documentary evidence providing proof of the date of publication must be provided to the **Department** at the same time as the compliance report is published.

9. Upon the direction of the **Minister**, the **approval holder** must ensure that an independent audit of compliance with the conditions of approval is conducted and a report submitted to the **Minister**. The independent auditor must be approved by the **Minister** prior to the commencement of the audit. Audit criteria must be agreed to by the **Minister** and the audit report must address the criteria to the satisfaction of the **Minister**.

10. If the **approval holder** wishes to carry out any activity otherwise than in accordance with a plan as specified in the conditions, the **approval holder** must submit to the **Department** for the **Minister**'s written approval a revised version of that plan. The varied activity shall not commence until the **Minister** has approved the varied plan in writing. If the **Minister** approves the revised plan, that plan must be implemented in place of the plan originally approved.
11. If the **Minister** believes that it is necessary or convenient for the better protection of Koala to do so, the **Minister** may request that the **approval holder** make specified revisions to a plan specified in the conditions and submit the revised plan for the **Minister**'s written approval. The **approval holder** must comply with any such request. The revised approved plan must be implemented. Unless the **Minister** has approved the revised plan, then the **approval holder** must continue to implement the plan originally approved, as specified in the conditions.
12. If, at any time after five years from the date of this approval, the **approval holder** has not **commenced the action**, then the **approval holder** must not **commence the action** without the written agreement of the **Minister**.

Definitions:

Approval holder: means the person to whom the approval is granted.

Commencement of the action/commence(d) the action: means any works involved in the construction phase of the project, including clearing vegetation, the erection of any onsite temporary structures and the use of heavy duty equipment for the purpose of breaking the ground for buildings or infrastructure. This excludes the erection of signage, fences, barriers or bunting for the purposes of excluding areas containing listed threatened species.

Department: the Australian Government Department responsible for the *Environment Protection and Biodiversity Conservation Act 1999.*

EPBC Act: means the *Commonwealth Environment Protection and Biodiversity Conservation Act 1999.*

EPBC Act Offsets Policy: means the *Environment Protection and Biodiversity Conservation Act 1999 Environmental Offsets Policy* (October 2012) or any subsequent revisions.

Habitat critical to the survival of the Koala: Koala habitat that is considered to be important for the species' long-term survival and recovery. An impact area that scores five or more using the habitat assessment tool for the Koala in Table 3 of the *Draft EPBC Act referral guidelines for the vulnerable koala (combined populations of Queensland, New South Wales and the Australian Capital Territory)* contains habitat critical to the survival of the Koala.

Minister: The Minister responsible for administering the *Environment Protection and Biodiversity Conservation Act 1999* (Cth).

Offset attributes: means an '.xls' file capturing relevant attributes of the offset site, including the EPBC Act reference ID number, the physical address of the offset site, coordinates of the boundary points in decimal degrees, the EPBC Act protected matters that the offset compensates for, any additional EPBC Act protected matters that are benefitting from the offset, and the size of the offset site in hectares.

Project area: refer to '*Woodlink development / works area incl. parks & vegetation corridor areas'* at Attachment 1: Development and Offset / Rehabilitation Areas.

Qualified fauna spotter-catcher: must be licensed under relevant state legislation, and have demonstrated experience in surveying for and identifying listed threatened species, including Koala.

Shapefile: means an ESRI Shape file containing '.shp', '.shx' and '.dbf' files and other files capturing attributes of the offset site, including the shape, EPBC reference ID number and EPBC protected matters present at the relevant site. Attributes should also be captured in '.xls' format.

Suitable recipient Koala habitat: means an area that:

- is known to contain, or has historically contained Koalas;
- contains **Koala habitat** which is the same in type to the habitat in the project area, or is known to be able to support Koalas proposed to be translocated and contains appropriate and sufficient sources of food;
- is of sufficient size to allow for dispersal of individuals from the point of release, and
- is not at maximum carrying capacity for Koalas and translocated individuals are not considered likely to have significant impacts on resident Koalas.

Relocation activities: means any human-mediated activity involved in the capture and release of Koalas from the project area into suitable recipient **Koala habitat** within the offset area, including trapping, handling, holding in captivity, veterinary treatment, transportation and release.

Attachment 1:

Legend

- Woodlinks Project Area
- Woodlink development / works area incl. parks & vegetation corridor areas
- Goodna Creek offset & rehabilitation area

Figure 1 *Development and Offset / Rehabilitation Areas*

File ref. *6177 E Figure 1 - Site Development Area A*
Date *24.09.13*
Project *Woodlinks*

0 50 100 200 300 m
Scale (A4): 1:8,500 [GDA 1994 MGA Z56]

N

saunders havill group

Layer Sources DCDB (DNRM 2013), Aerial (Google 2013)

Appendix B

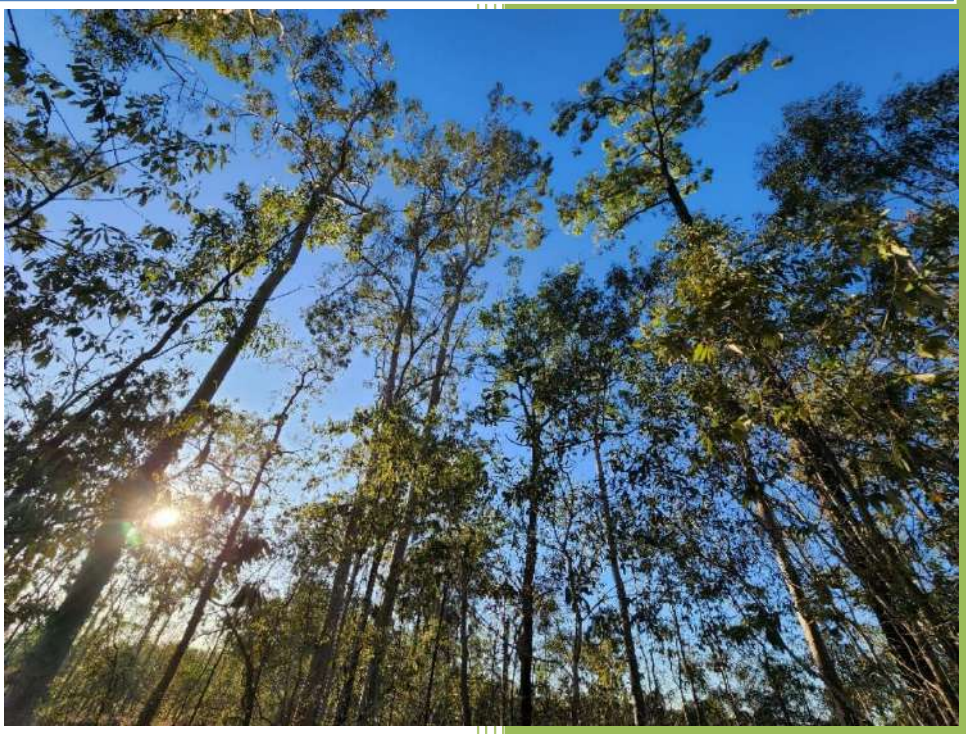
Stage 20 fauna spotter catcher pre-clearance survey report

May 2023

Fauna Spotter Catcher Pre-clearance and Habitat Values Survey

Woodlinks (Stage 20 & Future Stages)
Neumann Drive, Collingwood Drive, Queensland

Report prepared for Shadforth Civil Pty Ltd



Report prepared by

QLD Fauna Consultancy Pty Ltd

Phone: (07) 3376 9780

Email: fauna@qfc.com.au

Date:	10/05/2023
Title:	Fauna Spotter Catcher Pre-clearance and Habitat Values Survey Woodlinks (Stage 20 & Future Stages) - Neumann Drive, Collingwood Drive, Queensland
Author/s:	Jasmine Zeleny, Bryan Robinson
Reviewed by:	Bryan Robinson
Field personnel:	Jasmine Zeleny
Status:	Final Report
Filed as:	QFC FHA Shadforth Collingwood Park May 2023.docx

Contents

1. Introduction

1.1 Project Background

Queensland Fauna Consultancy Pty Ltd has been engaged by Shadforth Civil Pty Ltd to conduct a Fauna Spotter Catcher Pre-clearance and Habitat Values Survey and present a subsequent report for Woodlinks (Stage 20 & Future Stages) - Neumann Drive, Collingwood Drive, Queensland. The site location is presented in Map 1.

The objective of this report is to summarise the existing fauna values present and assign mitigatory strategies applicable to probable species likely to be encountered during the clearing of identified habitats throughout or within specific localities of the site. Fauna species both common and of elevated conservation value have been considered within the parameters of onsite investigations and, where provided to QFC, include review of current fauna and floristic reports that may influence the assemblages expected to utilise the micro habitats evident within the site.

This review encompasses species identified under the provisions of the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* and the Queensland *Nature Conservation Act 1992*. Further consideration is given, where applicable, to species of iconic, cultural and/or regional significance identified under commonwealth, state or local planning instruments aimed at the persistence of biodiversity values within the area.

Map 1: **Locality Plan**

Source: Queensland Globe (2023)

1.2 Current Permits and Authorities

All activities conducted during the site investigations were implemented under the provisions of several permits issued to Queensland Fauna Consultancy Pty Ltd by the Department of Environment and Science (DES), and the Department of Agriculture and Fisheries (DAF). These permits and additional authorities are listed in Table 1.

Table 1: **Current Permits and authorities issued to QFC**

Permit/Authorisation	Permit Number	Expiry Date
Damage Mitigation Permit	WA0047114	31st October 2025
Rehabilitation Permit	WA0026789	16th September 2023
Scientific Purposes Permit	WA0032325	3rd March 2026
Scientific User Registration	Registration Number 589	27th February 2025
Animal Ethics	CA 2022/01/1569	27th February 2025
General Fisheries Permit	262922	10th May 2026

These permits and approvals enable QFC to conduct the investigation, observation and relocation of protected animals exposed to disturbance due to infrastructure expansion resulting in the destruction of natural and artificial habitats.

2. Methodology

A site inspection was carried out on 8th May 2023 by Qld Fauna Consultancy. A standard set of observational techniques aimed at maximising the detection of fauna and the probable habitats they may occupy were employed to ascertain and identify the current fauna values throughout the project area. Where species of elevated conservation significance where foreseen as potentially present targeted searches were instigated to further evaluate individual species habitat.

Due to the habitat variability expressed across the development site the composition of investigations may include a range of features that entail specific components indicative of the presence of particular species or faunal groups. This may include where evident, observation of activity or signs of both historical and current use.

These may include but are not limited to the following:

- Identification of terrestrial microhabitats such as ground hollows, rock, burrows, leaf litter, stands of heavy vegetation, fallen branches and bark exfoliations;
- Identification of arboreal micro habitats including basal, trunk and limb hollows, tree fissures, bark exfoliates and arboreal termitaria;
- Identification of constructed arboreal micro habitats including bird nests and Ringtail Possum dreys;
- Artificial habitats including but not limited to ornamental gardens, discarded rubbish, human dwellings and other infrastructure;
- Observation and investigation of aquatic habitats including dams, soaks, creeks, rivers and seasonally inundated vegetation communities. Artificial aquatic habitats may include constructed drains and culverts. Further components of interest include bank profiles and undercuts, submerged and/or exposed timber and rock, immediate aquatic and riparian vegetation, surfacing animals, nesting and/or feeding birds;
- Direct observation of active or exposed fauna within terrestrial, aquatic and arboreal habitats;
- Identification of scats, tracks and scratchings to determine fauna potentially present or to have historically utilised the site for either transient or longer-term life history purposes.

2.1 Specific methodology for Koalas *Phascolarctos cinereus*

Due to specific requirements and the cryptic nature of the Koala the following techniques were employed to assist in ascertaining the current and historical presence/absence status of the species at the site:

- Use of binoculars to inspect the crown, forks and trunk of trees for individuals currently occupying the site;
- 'Drip zone' searches at the base of known food trees for the presence of scats to a radius equal to that of the crown of individual trees;
- Inspection of trunks for scratchings indicative of use by Koalas.

3. Findings

The findings endeavor to demarcate the existing habitat profiles and the features present into three distinct groups: terrestrial, arboreal and aquatic. All habitat features present onsite are noted, however it is probable additional features will be present with these being accounted for during the Fauna Spotter Catcher process to be applied to all vegetation clearing across the site.

3.1 Terrestrial Habitat Features

The terrestrial fauna values of the site consist of a variety of different components and microhabitat features. This includes an open low-level understorey of Eucalypt, *Acacia*, and Soap Tree *Alphitonia excelsa* regrowth (Figure 1), with sections exhibiting dense cover provided by dense grass (Figure 2) and weed species such as Blue Billygoat Weed *Ageratum houstonianum* (Figure 3) and Lantana *Lantana camara* (Figure 4). These features represent a moderate terrestrial fauna habitat value for numerous common reptile, amphibian and small mammal species.

Dense leaf litter and bark exfoliations also feature on site being present in abundance and at variable depths (Figure 5 to Figure 8), providing both refugial opportunities and microhabitat connectivity that can be exploited by a number of different native terrestrial vertebrate and invertebrate species.

Further the site exhibits woody debris (Figure 9 to Figure 11), timber stockpiles (Figure 12), hollow logs (Figure 13 to Figure 15), rock outcrops (Figure 16 and Figure 17,) and scattered surface rock (Figure 18) that may provide habitat opportunities for reptiles, amphibians, and small mammals. Artificial debris is also present in the locality, adding to its potential habitat value for resident and transient fauna (Figure 19 to Figure 22).

Terrestrial termite mounds of various sizes and condition are also present on site (Figure 23 and Figure 24), with one mound exhibiting excavations that are likely indicative of Short-beaked Echidna *Tachyglossus aculeatus* foraging activities (Figure 25).

Mammal assemblages may comprise both native and introduced species. Macropod presence within the clearance zone was indicated by scat (Figure 26 and Figure 27), as well as several sightings of Red-necked Wallbies *Notamacropus rufogriseus*. Bandicoot activity within the clearing area was evident in the form of diggings (Figure 28).

These features collectively contribute to the potential presence of a wide variety of native fauna species utilising the area for refugial, foraging and other resources. Probable species include the Wall Skink *Cryptoblepharus pulcher*, Lively Rainbow Skink *Carlia vivax*, Robust Velvet Gecko *Nebulifera robusta,* Dubious Dtella *Gehyra dubia,* Eastern Bearded Dragon *Pogona barbata* (sighted during inspection – Figure 29), Common Tree Snake *Dendrelaphis punctulatus,* Yellow-faced Whip Snake *Demansia psammophis*, and Coastal Carpet Python *Morelia spilota mcdowelli.*

GPS coordinates for identified terrestrial habitat features are shown in Table 2.

Table 2: **Localities for identified terrestrial habitat features**

Number	Habitat Feature	GPS Coordinates (Latitude, Longitude)
1	Artificial Debris	-27.6249944,152.8631725
2	Artificial Debris	-27.6249326,152.8626096
3	Artificial Debris	-27.6238755,152.8590022
4	Artificial Debris	-27.6248461,152.860506
5	Artificial Debris	-27.6244849,152.8605634
6	Artificial Debris	-27.6245057,152.8604335
7	Artificial Debris	-27.6245153,152.8599732
8	Artificial Debris	-27.6242573,152.8597355
9	Artificial Debris	-27.6244158,152.8593497
10	Artificial Debris	-27.6242256,152.8589403
11	Artificial Debris	-27.6247202,152.8589834
12	Artificial Debris	-27.6240635,152.8581824
13	Artificial Debris	-27.625866,152.8566266
14	Hollow Log	-27.6247945,152.8628177
15	Hollow Log	-27.6249801,152.8624865
16	Hollow Log	-27.6255318,152.8621108
17	Hollow Log	-27.6248632,152.8604952
18	Hollow Log	-27.624907,152.858896
19	Hollow Log	-27.6257966,152.8593591
20	Hollow Log	-27.6256624,152.8582392
21	Hollow Log	-27.6262618,152.8588148
22	Hollow Log	-27.626549,152.8584062
23	Terrestrial Termitaria	-27.6252487,152.8627527
24	Terrestrial Termitaria	-27.6248727,152.8632627
25	Terrestrial Termitaria	-27.6251397,152.8624858
26	Terrestrial Termitaria	-27.6246835,152.8620082

27	Terrestrial Termitaria	-27.625152,152.8618597
28	Terrestrial Termitaria	-27.6252892,152.8606117
29	Terrestrial Termitaria	-27.6254652,152.8602224
30	Terrestrial Termitaria	-27.6254888,152.8602469
31	Terrestrial Termitaria	-27.6247818,152.8598862
32	Terrestrial Termitaria	-27.6256836,152.8595067
33	Terrestrial Termitaria	-27.6256619,152.8595476
34	Terrestrial Termitaria	-27.6255608,152.8575268
35	Timber Stockpile	-27.625383,152.8617648
36	Woody Debris	-27.6311005,152.8659876
37	Woody Debris	-27.6248838,152.8631301
38	Woody Debris	-27.6247979,152.8629892
39	Woody Debris	-27.6248831,152.8630125
40	Woody Debris	-27.6252079,152.8626217
41	Woody Debris	-27.6251869,152.8619268
42	Woody Debris	-27.624813,152.8619937
43	Woody Debris	-27.6250758,152.8617181
44	Woody Debris	-27.6246363,152.861661
45	Woody Debris	-27.6247877,152.861596
46	Woody Debris	-27.6259459,152.8656199
47	Woody Debris	-27.6250557,152.8614094
48	Woody Debris	-27.6245964,152.8612683
49	Woody Debris	-27.624844,152.8611262
50	Woody Debris	-27.6253692,152.8611957
51	Woody Debris	-27.6250131,152.8610198
52	Woody Debris	-27.6311005,152.8659876
53	Woody Debris	-27.6256651,152.8626787
54	Woody Debris	-27.624572,152.8605201
55	Woody Debris	-27.6244646,152.8601243

56	Woody Debris	-27.6248147,152.8598471
57	Woody Debris	-27.625334,152.8599362
58	Woody Debris	-27.6255615,152.8601128
59	Woody Debris	-27.6255381,152.8598682
60	Woody Debris	-27.6254604,152.8596701
61	Woody Debris	-27.6252037,152.8595253
62	Woody Debris	-27.6246312,152.8592284
63	Woody Debris	-27.6255453,152.8597148
64	Woody Debris	-27.6256618,152.8595478
65	Woody Debris	-27.6256433,152.8595494
66	Woody Debris	-27.6250791,152.8592786
67	Woody Debris	-27.6248131,152.8590657
68	Woody Debris	-27.6242099,152.8588354
69	Woody Debris	-27.6243461,152.8587985
70	Woody Debris	-27.62435,152.8587955
71	Woody Debris	-27.6247255,152.8589641
72	Woody Debris	-27.6247537,152.8588872
73	Woody Debris	-27.6255596,152.8591585
74	Woody Debris	-27.6259259,152.859352
75	Woody Debris	-27.625837,152.8591708
76	Woody Debris	-27.6255595,152.8589813
77	Woody Debris	-27.6252274,152.8588531
78	Woody Debris	-27.6252203,152.8588429
79	Woody Debris	-27.624854,152.8587145
80	Woody Debris	-27.6246476,152.8585607
81	Woody Debris	-27.6246462,152.8585597
82	Woody Debris	-27.6241526,152.8582506
83	Woody Debris	-27.6241507,152.8582498
84	Woody Debris	-27.6246095,152.8582721

85	Woody Debris	-27.6248191,152.85841
86	Woody Debris	-27.6248774,152.8585233
87	Woody Debris	-27.6253745,152.8588463
88	Woody Debris	-27.625732,152.8585545
89	Woody Debris	-27.6254076,152.8583193
90	Woody Debris	-27.6250858,152.8583024
91	Woody Debris	-27.6249047,152.8583268
92	Woody Debris	-27.6248953,152.8583183
93	Woody Debris	-27.6250202,152.857915
94	Woody Debris	-27.6251988,152.8580302
95	Woody Debris	-27.6259229,152.8585963
96	Woody Debris	-27.625915,152.8585921
97	Woody Debris	-27.6259497,152.8582505
98	Woody Debris	-27.6243051,152.8576532
99	Woody Debris	-27.6245666,152.8576848
100	Woody Debris	-27.6249073,152.857448
101	Woody Debris	-27.6253879,152.8576217
102	Woody Debris	-27.6255609,152.8573726
103	Woody Debris	-27.625827,152.857555
104	Woody Debris	-27.6261347,152.8575212
105	Woody Debris	-27.6265153,152.8574278
106	Woody Debris	-27.6266901,152.8575493
107	Woody Debris	-27.6265851,152.8565279
108	Woody Debris	-27.6268541,152.8580336

Figure 1: Understorey – *Acacia* and Soap Tree *Alphitonia excelsa* regrowth

Figure 2: Dense grass

Figure 3: Blue Billygoat Weed *Ageratum houstonianum*

Figure 4: Lantana *Lantana camara*

Figure 5: Dense leaf litter

Figure 6: Bark exfoliations

Figure 7: Bark exfoliations

Figure 8: Bark exfoliations

Figure 9: Woody debris

Figure 10: Woody debris

Figure 11: Woody debris

Figure 12: Timber stockpile

Figure 13: Hollow log

Figure 14: Hollow log

Figure 15: Hollow log

Figure 16: Rock outcrops

Figure 17: Rock outcrops

Figure 18: Surface rock

Figure 19: Artificial debris

Figure 20: Artificial debris

Figure 21: Artificial debris

Figure 22: Artificial debris

Figure 23: Terrestrial termite mound

Figure 24: Terrestrial termite mound

Figure 25: Terrestrial termite mound with excavation

Figure 26: Macropod scat

Figure 27: Macropod scat

Figure 28: Bandicoot digging

Figure 29: Eastern Bearded Dragon *Pogona barbata*

3.2 Arboreal Habitat Features

The clearance site consists predominantly of regrowth Eucalypt woodland with some remnant vegetation (Figure 30 to Figure 33). Onsite trees exhibit potential feeding and nesting resources for a number of bird and mammal species, with a number of gums flowering at the time of the inspection (Figure 34). The intermittent contiguous canopy structure within some of the vegetation represented may be facilitative of arboreal progression for species such as Common Brushtail Possum *Trichosurus vulpecula*, Common Ringtail Possum *Pseudocheirus peregrinus* and Squirrel Glider *Petaurus norfolcensis* (Figure 35).

Hollow-bearing trees, stag trees, and hollow tree stumps are present in the clearance area (Figure 36 to Figure 44), which may provide habitat opportunities for arboreal mammals, reptiles, and birds. Exfoliating bark on tree trunks may provide refugial opportunities for reptile species including skinks and geckos (Figure 45 and Figure 46).

Arboreal termite mounds are also present across the site in high numbers (Figure 47 and Figure 48), with numerous mounds exhibiting excavations (Figure 49 to Figure 51). A number of suitable mounds were located with the potential for use as egg deposition and incubation sites by species such as the Lace Monitor *Varanus varius,* Laughing Kookaburra *Dacelo novaeguineae,* and Sacred Kingfisher *Todiramphus sanctus.* Mammals have also been known to utilise these features for shelter where hollows are not readily available. A Common Brushtail Possum *Trichosurus vulpecula* was found occupying an arboreal termite mound at the time of the inspection (Figure 52).

A native stingless bee-hive *Tetragonula sp.* was identified within a tree trunk (Figure 53), with recommendations made to salvage and relocate the hive during the clearing process where practicable. A Paper Wasp *Ropalidia romandi* nest was also identified on the branch of a *Corymbia citriodora* and will require mitigation during clearing activities (Figure 54).

Twelve avian stick nests were located during the inspection but did not appear active at the time of the survey (Figure 55 to Figure 60). However, further inspections are recommended immediately prior to clearing commencement. A pair of Tawny Frogmouths *Podargus strigoides* were also observed roosting in an Ironbark during the inspection and will require mitigation during clearing (Figure 61). A list of avian species observed utilising the site at the time of the inspection (foraging or perching) are presented in Table 4.

No Possum dreys were located during the inspection, however, the dense vegetation structure in some areas may have concealed visibility and further inspections are recommended immediately prior to clearing commencement. In addition to the sighting of a Common Brushtail Possum *Trichosurus vulpecula* occupying an arboreal termite mound, possum activity was also evident in the form of scratchings on several tree trunks (Figure 62), as well as scat (Figure 63).

Black She-oak *Allocasuarina littoralis*, a favoured food tree of the Glossy Black-Cockatoo *Calyptorhynchus lathami,* also occurs throughout the site and was fruiting at the time of the inspection (Figure 64). No chewed cones (orts) were found during 'Drip zone' searches at the base these trees indicating recent use by Glossy Black-Cockatoos. Suitable vegetation communities containing both feeding and roosting resources for the Grey-headed Flying-Fox *Pteropus poliocephalus* occur on and adjacent to the clearance site.

Koala food trees located in the clearance area include *Eucalyptus tereticornis, E. moluccana, E. propinqua, E. fibrosa, E. siderophloia, E. acmenoides, E. carnea, Corymbia citriodora, C. henryi, C. intermedia, Angophora leiocarpa,* and *Lophostemon suaveolens.* A single Koala was sighted within the clearing area during the inspection (Figure 65 and Figure 66) and characteristic scratchings were common on tree trunks across the site (Figure 67). A Koala habitat values map for the clearance area is presented in Appendix A.

GPS coordinates for identified arboreal habitat features are shown in Table 3.

Table 3: **Localities for identified arboreal habitat features**

Number	Habitat Feature	GPS Coordinates (Latitude, Longitude)
1	Arboreal Termitaria	-27.625237,152.8628281
2	Arboreal Termitaria	-27.6248087,152.8631084
3	Arboreal Termitaria	-27.6248142,152.8631746
4	Arboreal Termitaria	-27.624806,152.8628076
5	Arboreal Termitaria	-27.6249241,152.8624835
6	Arboreal Termitaria	-27.6259459,152.8656199
7	Arboreal Termitaria	-27.6248239,152.8619917
8	Arboreal Termitaria	-27.6246765,152.8620125
9	Arboreal Termitaria	-27.625025,152.8618294
10	Arboreal Termitaria	-27.624662,152.8616897
11	Arboreal Termitaria	-27.6246388,152.8616832
12	Arboreal Termitaria	-27.6246389,152.8616835
13	Arboreal Termitaria	-27.6251928,152.8615892
14	Arboreal Termitaria	-27.6250458,152.8614179
15	Arboreal Termitaria	-27.6247286,152.8613643
16	Arboreal Termitaria	-27.6246009,152.8611807
17	Arboreal Termitaria	-27.6249965,152.8610103
18	Arboreal Termitaria	-27.624704,152.8606011
19	Arboreal Termitaria	-27.6245829,152.8604074
20	Arboreal Termitaria	-27.6254257,152.8601634
21	Arboreal Termitaria	-27.6248677,152.8599177
22	Arboreal Termitaria	-27.6246665,152.8600369
23	Arboreal Termitaria	-27.6245144,152.8601839
24	Arboreal Termitaria	-27.6245147,152.8599728
25	Arboreal Termitaria	-27.6246209,152.8599546
26	Arboreal Termitaria x 2	-27.6253193,152.8599483

27	Arboreal Termitaria	-27.6252913,152.8599521
28	Arboreal Termitaria	-27.6256119,152.8598006
29	Arboreal Termitaria	-27.6253681,152.8596018
30	Arboreal Termitaria	-27.6248227,152.8595241
31	Arboreal Termitaria	-27.6245057,152.8594054
32	Arboreal Termitaria	-27.6258489,152.8597348
33	Arboreal Termitaria	-27.6253398,152.8595756
34	Arboreal Termitaria	-27.6252639,152.8592508
35	Arboreal Termitaria	-27.6257561,152.8593642
36	Arboreal Termitaria	-27.6260915,152.859026
37	Arboreal Termitaria	-27.62583,152.8590185
38	Arboreal Termitaria	-27.6256514,152.8593913
39	Arboreal Termitaria	-27.6248356,152.858676
40	Arboreal Termitaria	-27.6257062,152.8589085
41	Arboreal Termitaria	-27.625586,152.8585363
42	Arboreal Termitaria	-27.6251137,152.8582656
43	Arboreal Termitaria	-27.6248953,152.8583221
44	Arboreal Termitaria	-27.6254019,152.8580766
45	Arboreal Termitaria	-27.6257694,152.858456
46	Arboreal Termitaria	-27.6265607,152.8586415
47	Arboreal Termitaria	-27.6258236,152.8579832
48	Arboreal Termitaria	-27.6252201,152.8579178
49	Arboreal Termitaria	-27.6244426,152.8577379
50	Arboreal Termitaria	-27.6248862,152.8574849
51	Arboreal Termitaria	-27.6249472,152.8574311
52	Arboreal Termitaria	-27.6253713,152.8573958
53	Arboreal Termitaria	-27.6258928,152.8573994
54	Arboreal Termitaria	-27.6261211,152.8575091
55	Arboreal Termitaria	-27.6265096,152.8574453

56	Arboreal Termitaria	-27.6265855,152.856528
57	Arboreal Termitaria	-27.6271732,152.8575093
58	Arboreal Termitaria	-27.6273159,152.8574264
59	Arboreal Termitaria	-27.62675,152.858638
60	Arboreal Termitaria	-27.6267005,152.858772
61	Arboreal Termitaria (with excavation)	-27.6249159,152.8637095
62	Arboreal Termitaria (with excavation)	-27.6247987,152.8629775
63	Arboreal Termitaria (with excavation)	-27.6249252,152.8626092
64	Arboreal Termitaria (with excavation)	-27.6259459,152.8656199
65	Arboreal Termitaria (with excavation)	-27.625416,152.8619828
66	Arboreal Termitaria (with excavation)	-27.6252132,152.8619103
67	Arboreal Termitaria (with excavation)	-27.625136,152.8618072
68	Arboreal Termitaria (with excavation)	-27.6252768,152.8616449
69	Arboreal Termitaria (with excavation)	-27.6249166,152.8616705
70	Arboreal Termitaria (with excavation)	-27.6253245,152.8613835
71	Arboreal Termitaria (with excavation)	-27.6252612,152.8613567
72	Arboreal Termitaria (with excavation)	-27.6253546,152.8613152
73	Arboreal Termitaria (with excavation)	-27.624975,152.8606973
74	Arboreal Termitaria (with excavation)	-27.625387,152.8606252
75	Arboreal Termitaria (with excavation)	-27.6249711,152.8603342
76	Arboreal Termitaria (with excavation)	-27.6251128,152.8598335
77	Arboreal Termitaria (with excavation) – Common Brushtail possum living inside	-27.6246293,152.8592282
78	Arboreal Termitaria (with excavation)	-27.6257299,152.8598509
79	Arboreal Termitaria (with excavation)	-27.625788,152.8596456
80	Arboreal Termitaria (with excavation)	-27.624274,152.8590524
81	Arboreal Termitaria (with excavation)	-27.625139,152.8590728
82	Arboreal Termitaria (with excavation)	-27.6258692,152.8593261
83	Arboreal Termitaria (with excavation)	-27.625717,152.8590945
84	Arboreal Termitaria (with excavation)	-27.6245983,152.8579299

85	Arboreal Termitaria (with excavation)	-27.6250173,152.8579932
86	Arboreal Termitaria (with excavation)	-27.6254607,152.8582867
87	Arboreal Termitaria (with excavation)	-27.6259247,152.8586079
88	Arboreal Termitaria (with excavation)	-27.6241409,152.8578808
89	Arboreal Termitaria (with excavation)	-27.624429,152.8577414
90	Arboreal Termitaria (with excavation)	-27.6245657,152.8576693
91	Arboreal Termitaria (with excavation)	-27.6246609,152.857734
92	Arboreal Termitaria (with excavation)	-27.6255154,152.8577376
93	Arboreal Termitaria (with excavation)	-27.6257015,152.8576545
94	Arboreal Termitaria (with excavation)	-27.6260062,152.8572259
95	Arboreal Termitaria (with excavation)	-27.6275766,152.858911
96	Bird Nest	-27.6248155,152.8631628
97	Bird Nest	-27.6248118,152.863098
98	Bird Nest	-27.6254245,152.8617446
99	Bird Nest	-27.6247149,152.8606001
100	Bird Nest	-27.6248667,152.8599196
101	Bird Nest	-27.6251234,152.8598266
102	Bird Nest	-27.6245315,152.8594464
103	Bird Nest	-27.6250961,152.858304
104	Bird Nest	-27.6249972,152.8579954
105	Bird Nest	-27.6258902,152.8583678
106	Bird Nest	-27.6251527,152.8577982
107	Bird Nest	-27.6251389,152.8577682
108	Dead Stag	-27.6248095,152.8631087
109	Dead Stag	-27.6247943,152.8630284
110	Dead Stag	-27.6252189,152.8619259
111	Dead Stag	-27.6253633,152.8613654
112	Dead Stag	-27.6251475,152.8613091
113	Dead Stag	-27.6250875,152.8612365

114	Dead Stag	-27.6251057,152.8607853
115	Dead Stag	-27.6253483,152.8606092
116	Dead Stag	-27.6246267,152.8606326
117	Dead Stag	-27.6245912,152.8604114
118	Dead Stag	-27.6251544,152.8603067
119	Dead Stag	-27.6246339,152.8599614
120	Dead Stag	-27.6255712,152.8599872
121	Dead Stag	-27.6255609,152.8599778
122	Dead Stag	-27.6256447,152.8595505
123	Dead Stag	-27.6253528,152.8588316
124	Dead Stag	-27.6250209,152.8579836
125	Dead Stag	-27.6257278,152.8581076
126	Dead Stag	-27.6265266,152.8585959
127	Dead Stag	-27.6265609,152.8586464
128	Dead Stag	-27.6243095,152.8576565
129	Dead Stag	-27.6248862,152.8574849
130	Dead Stag	-27.6250687,152.8575596
131	Dead Stag	-27.6252841,152.8573055
132	Dead Stag	-27.6252887,152.8573761
133	Dead Stag	-27.6255462,152.8575334
134	Dead Stag	-27.6257115,152.8576943
135	Dead Stag	-27.6257425,152.857759
136	Dead Stag	-27.6266913,152.8575809
137	Dead Stag	-27.6270737,152.8578924
138	Dead Stag	-27.6269225,152.8579998
139	Dead Stag	-27.6266802,152.8586415
140	Hollow Bearing Tree	-27.6253774,152.8628074
141	Hollow Bearing Tree	-27.6247869,152.8615963
142	Hollow Bearing Tree	-27.6251288,152.8611411

143	Hollow Bearing Tree	-27.6247298,152.8607569
144	Hollow Bearing Tree	-27.6250279,152.8606611
145	Hollow Bearing Tree	-27.6250363,152.8607514
146	Hollow Bearing Tree	-27.6246286,152.860632
147	Hollow Bearing Tree	-27.6248281,152.8603662
148	Hollow Bearing Tree	-27.6244862,152.8595853
149	Hollow Bearing Tree	-27.624889,152.8592375
150	Hollow Bearing Tree	-27.6262288,152.8596835
151	Hollow Bearing Tree	-27.6250685,152.8592588
152	Hollow Bearing Tree	-27.6251312,152.8590711
153	Hollow Bearing Tree	-27.6253485,152.8589016
154	Hollow Bearing Tree	-27.6250834,152.8587139
155	Hollow Bearing Tree	-27.6250906,152.8582639
156	Hollow Bearing Tree	-27.6245717,152.8582093
157	Hollow Bearing Tree	-27.6255972,152.8582811
158	Hollow Bearing Tree	-27.6258091,152.8582162
159	Hollow Bearing Tree	-27.6257971,152.8582952
160	Hollow Bearing Tree	-27.626588,152.858842
161	Hollow Bearing Tree	-27.6263898,152.8585785
162	Hollow Bearing Tree	-27.6258937,152.8583545
163	Hollow Bearing Tree	-27.6253289,152.8577826
164	Hollow Bearing Tree	-27.6249607,152.8577244
165	Hollow Bearing Tree	-27.6249333,152.8574542
166	Hollow Bearing Tree	-27.6266901,152.8575492
167	Hollow Bearing Tree	-27.6268804,152.8578681
168	Hollow Bearing Tree	-27.6268653,152.8580623
169	Hollow Bearing Tree	-27.6266387,152.8585624
170	Hollow Stump	-27.6251098,152.8629472
171	Hollow Stump	-27.6253379,152.8613844

172	Hollow Stump	-27.6248706,152.8614002
173	Hollow Stump	-27.6255705,152.8599858
174	Hollow Stump	-27.6257341,152.8598509
175	Hollow Stump	-27.6257869,152.8575759
176	Koala in *E. moluccana*	-27.6245981,152.8613613
177	Roosting Tawny Frogmouth Pair	-27.6255535,152.8601776
178	Native Stingless Bee Hive	-27.6265609,152.8586464
179	Paper Wasp (*Ropalidia romandi*) Nest	-27.6250822,152.8610643
180	Common Brushtail Possum inside arboreal termite mound	-27.6246293,152.8592282

Figure 30: Site overview

Figure 31: Site overview

Figure 32: Site overview

Figure 33: Site overview

Figure 34: Flowering gum

Figure 35: Contiguous canopy structure

Figure 36: Hollow-bearing tree

Figure 37: Hollow-bearing tree

Figure 38: Hollow-bearing tree

Figure 39: Hollow-bearing tree

Figure 40: Stag tree

Figure 41: Stag tree

Figure 42: Stag tree

Figure 43: Hollow tree stump

Figure 44: Hollow tree stump

Figure 45: Exfoliating bark

Figure 46: Exfoliating bark

Figure 47: Arboreal termite mound

Figure 48: Arboreal termite mound

Figure 49: Arboreal termite mound with excavations

Figure 50: Arboreal termite mound with excavations

Figure 51: Arboreal termite mound with excavation

Figure 52: Arboreal termite mound occupied by a Common Brushtail Possum *Trichosurus vulpecula*

Figure 53: Native Stingless Bee Hive *Tetragonula sp.*

Figure 54: Arboreal termite mound

Figure 55: Bird nest

Figure 56: Bird nest

Figure 57: Bird nest

Figure 58: Bird nest

Figure 59: Bird nest

Figure 60: Bird nest

Figure 61: Tawny Frogmouth *Podargus strigoides* pair

Figure 62: Possum scratchings

Figure 63: Possum scat

Figure 64: Fruiting Black She-oak *Allocasuarina littoralis*

Figure 65: Koala *Phascolarctos cinereus*

Figure 66: Location of Koala

Figure 67: Koala scratchings

Table 4: **Arboreal Fauna Species Observed**

Number	Common Name and *Scientific Name*	Conservation Status	
		NCA	EPBC
1	Australian Magpie *Cracticus tibicen*	Least Concern	Not Listed
2	Noisy Miner *Manorina melanocephala*	Least Concern	Not Listed
3	Pied Currawong *Strepera graculina*	Least Concern	Not Listed
4	Torresian Crow *Corvus orru*	Least Concern	Not Listed
5	Laughing Kookaburra *Dacelo novaeguineae*	Least Concern	Not Listed
6	Rainbow Lorikeet *Trichoglossus haematodus*	Least Concern	Not Listed
7	Scaly-breasted Lorikeet *Trichoglossus chlorolepidotus*	Least Concern	Not Listed
8	Little Lorikeet *Glossopsitta pusilla*	Least Concern	Not Listed
9	Brown Honeyeater *Lichmera indistincta*	Least Concern	Not Listed
10	Spangled Drongo *Dicrurus bracteatus*	Least Concern	Marine
11	Grey Fantail *Rhipidura albiscapa*	Least Concern	Not Listed
12	Willie Wagtail *Rhipidura leucophrys*	Least Concern	Not Listed
13	Common Bronzewing *Phaps chalcoptera*	Least Concern	Not Listed
14	Striated Pardalote *Pardalotus striatus*	Least Concern	Not Listed
15	Double-barred Finch *Taeniopygia bichenovii*	Least Concern	Not Listed
16	Australian Golden Whistler *Pachycephala pectoralis*	Least Concern	Not Listed
17	Rufous Whistler *Pachycephala rufiventris*	Least Concern	Not Listed
18	Rose Robin *Petroica rosea*	Least Concern	Not Listed
19	Rainbow Bee-eater *Merops ornatus*	Least Concern	Marine
20	Tawny Frogmouth *Podargus strigoides*	Least Concern	Not Listed
21	Koala *Phascolarctos cinereus*	Endangered	Endangered

3.3 Aquatic Habitat Features

A single creek is located within the clearing area (Figure 68 and Figure 69). The creek was retaining flowing water at the time of the inspection and exhibited varying sparse to dense riparian vegetation. A number of native species may exploit the various microhabitats presented by such an environmental feature including Eastern Water Dragon *Intellagama lesueurii,* Keelback Snake *Tropidonophjis mairii,* Tusked Frog *Adelotus brevis,* Striped Marsh Frog *Limnodynastes peronii,* Graceful Treefrog *Litoria gracilenta,* as well as various birds and mammals as a water source.

GPS coordinates for identified aquatic habitat features are shown in Table 5.

Table 5: **Localities for identified aquatic habitat features**

Number	Habitat Feature	GPS Coordinates (Latitude, Longitude)
1	Creek	-27.6266883,152.8575281

Figure 68: Creek

Figure 69: Creek

3.4 Endangered, Vulnerable and Near Threatened (EVNT) & Special Least Concern (SLC) Species

It is not envisaged that any EVNT or SLC fauna species will be detrimentally impacted by the proposed works. However, nine species identified within the Online EPBC Protected Matters Report (Appendix B) and the Queensland Government Wildlife Online Search Tool (Appendix C) were considered possible to occur within the site and will require further mitigation during clearing activities.

A single Koala was sighted within the clearing area during the inspection and the species is well-documented in the area. The site contains habitat identified as Core Koala Habitat under the Koala Habitat in South East Queensland mapping sourced from the Queensland Globe online search tool (see Appendix A).

It is advised that dedicated methodologies be employed by a qualified Fauna Spotter specific to the detection of these identified species prior to vegetation clearing activities.

Table 6: **Significant species deemed possible to occur within the clearance survey area**

Common Name **Scientific Name**	**Species Information**	**Likelihood of Occurrence within the Clearance Survey area**
Mammals		
Koala *Phascolarctos cinereus* **EPBC:** Endangered **NCA:** Endangered	Inhabits a range of open forest and woodland communities which may include any of the following noted food trees: *Eucalyptus*, *Corymbia*, *Melaleuca*, *Angophora* and *Lophostemon*.	***Present*** Known food trees for the transient Koala (*Phascolarctos cinereus)* occur on the clearance site and the species was sighted during the inspection.
Greater Glider *Petauroides volans* **EPBC:** Endangered **NCA:** Endangered	The Greater Glider lives in a variety of Eucalypt-dominated habitats, feeding almost exclusively on eucalypt leaves. Dens are constructed in suitable hollow-bearing trees with the breeding season occurring from March to June (Strahan R (ed) 1995).	***Possible*** Suitable vegetation communities containing both feeding and refugial resources occur on and adjacent to the clearance site.
Grey-headed Flying-fox *Pteropus poliocephalus* **EPBC:** Vulnerable **NCA:** Least Concern	The Grey-headed Flying-Fox roosts in aggregations of various sizes on exposed branches, commonly of emergent trees. Roost sites are typically located near water, such as lakes, rivers or the coast. Habitat includes open forests, woodlands, urban parks and gardens.	***Possible*** Suitable vegetation communities containing both feeding and roosting resources occur on and adjacent to the clearance site.
Short-beaked Echidna *Tachyglossus aculeatus* **EPBC:** Not Listed **NCA:** Special Least Concern	Inhabits a broad range of habitat types across Australia where there is a supply of ants or termites. Echidnas will shelter within hollow logs, under bushes and debris (Van Dyck & Strahan 2008).	***Possible*** Suitable feeding resources occur onsite and evidence of diggings observed onsite.

Birds		
Glossy Black Cockatoo *Calyptorhynchus lathami* **EPBC:** Vulnerable **NCA:** Vulnerable	Generally associated with open forest environs where She-Oak species persist (Simpson and Day, 2004).	***Possible*** Suitable vegetation communities containing both feeding and roosting resources occur on and adjacent to the clearance site. Favoured food tree *Allocasuarina littoralis* present on site and the species has been recorded in the area previously.
White-throated Needletail *Hirundapus caudactus* **EPBC:** Vulnerable **NCA:** Vulnerable	Non-breeding migrant which occurs over many habitats including forests and areas with updrafts such as coastal cliffs. Usually seen flying high in very large flocks and is rarely seen perching in Australia, however there are records of birds roosting in the outer foliage of trees (Menkhorst et al. 2017).	***Possible*** Suitable habitat occurs within and adjacent to the clearance site and the species has previously been recorded in the area.
Rainbow Bee-eater *Merops ornatus* **EPBC:** Marine **NCA:** Least Concern	Breeds from August to January (Higgins 1999; Boland 2004). The nest is located in an enlarged chamber at the end of long burrow or tunnel (Comrie-Smith 1930; Morris 1977), in flat or sloping ground, in the banks of rivers, creeks or dams, in roadside cuttings, in the walls of gravel pits or quarries, in mounds of gravel, or in cliff faces (Forshaw and Cooper 1987; Lill 1993; Higgins 1999; Boland 2004).	***Present*** Habitat conducive to this species is found within the survey area and the species was sighted during the inspection.
Powerful Owl *Ninox strenua* **EPBC:** Not Listed **NCA:** Vulnerable	Inhabits open forests and woodlands, favouring creek lines and gullies for roosting. Can be found in suburban areas and remnant bushland patches. Requires old growth trees with large hollows for nesting and breeds from April to September (Simpson & Day 2004; BirdLife Australia n.d.)	***Possible*** Suitable roosting and nesting habitat is found within the survey area and the species has previously been recorded in the area.
Amphibians		
Tusked Frog *Adelotus brevis* **EPBC:** Not Listed **NCA:** Vulnerable	Inhabits permanent ponds and streams within rainforests, wet to dry forests and farmland areas (Anstis 2013). Nests are constructed under leaf litter, vegetation or logs at the edge of ponds or stream pools in concealed locations (Anstis 2013).	***Possible*** Habitat conducive to this species is found within the survey area.

4. Assessment, Conclusion and Fauna Management Recommendations

A number of conclusions and recommendations are presented, with the specific intention of providing a comprehensive management structure to facilitate minimal impact to fauna during the clearing of vegetation and subsequent disturbance of habitats. The directives given by Fauna Spotter Catchers should embrace a "best practice" approach which includes implementation of proven specific management techniques for identified habitat types and compliance with legislation relevant to the activity.

Fauna management is presented here specific to EVNT fauna, general terrestrial and arboreal fauna and aquatic fauna. Although each is treated separately, overlap does occur within target techniques providing a comprehensive approach for target species of all conservation significance.

4.1 EVNT and SLC Fauna

It is not envisaged that any species, listed under the provisions of the *Environment Protection and Biodiversity Conservation Act 1999* or the *Nature Conservation Act 1992*, other than those listed in Table 6, will require specific management during vegetation clearing activities.

However, specific management for those identified EVNT or SLC species will include targeted investigations immediately prior to vegetation removal activities on each day of clearing and subsequently whilst clearing takes place. Preliminary investigations will be supported by additional monitoring applied during clearing activities with a designated fauna spotter operating with each machine actively involved in vegetation or identified habitat disturbance. These should include the following:

Koala:
As favoured Koala food trees on site exceed a diameter of 100mm at 1.3 metres from the ground, requirements under the Koala Plan's 'Koala Habitat Area' provisions trigger the need for inspection and monitoring during vegetation clearing by a qualified Fauna Spotter.

Historically known to occur within the area the Koala will feature highly in daily search efforts with a dedicated and detailed methodology employed.

Direct observational methodology will include the following components:

- Use of binoculars to inspect the crown, forks and trunk of trees for individuals currently occupying the site;
- 'Drip zone' searches at the base of known food trees for the presence of scats to a radius equal to that of the crown of individual trees;
- Inspection of trunks for scratchings indicative of use by Koalas;
- Repeat observations made of single trees from numerous angles at repeated times throughout the clearing activities by the assigned fauna spotter.

In the event a Koala is detected; the Fauna Spotter will determine the appropriate course of action with exclusion zones implemented and alterations to the clearing plan discussed with the Site Supervisor. Once defined, these directions will be communicated to the plant operators and clearing will proceed in accordance with the recommendations made.

Changes to Koala management strategies highlighted in the *Nature Conservation (Koala) Conservation Plan 2017* have resulted in particular conditions placed on vegetation clearance involving the removal of Koala food trees. These provisions entail an increased responsibility by developers and land clearance operators alike to ensure the welfare of potentially present Koalas in areas identified as having significance for the persistence of this species.

Where significance under planning instruments is assigned provisions may include the restriction of all clearance that directly interferes with any tree a Koala is residing in or surrounding trees that, when felled, may impact on the crown of the host tree. Koalas are to leave via their own volition through a corridor designated by the Fauna Spotter to the closest remaining suitable habitat.

Throughout this time, the Koala may not be interfered with by any means unless special dispensation has been sought through the appropriate government body or where the Koala is evidently in a state of compromised health. Only when Koalas have vacated a tree can clearance operations include the identified host tree and surrounding vegetation which composes the established exclusion zone. Recommendations made by the Fauna Spotter on site will embrace these provisions.

Greater Glider:
Although no Greater Gliders or dens were noted during the site survey, the cryptic nature of this species and the abundance of available feeding resources and suitable habitat trees would see probability for the species to utilise the site.

The following recommendations are made for management of potentially occurring Greater Glider:

- Daily Inspection of hollow-bearing trees assigned for removal be conducted to detect potential nesting Gliders; involving 'Drip zone' searches at the base of suitable trees for the presence of Glider scat and inspection of trunks for scratchings indicative of use by Gliders;
- Trees found to contain or considered probable for nesting Greater Gliders are to be felled in a manner directed at minimising potential risk of injury to fauna, and hollows to be 'plugged' to prevent animals from escaping during the soft felling procedure.

Grey-headed Flying Fox:
Although no Flying Fox camps or roosts were noted during the site survey, the transient nature of this species and the abundance of available feeding resources would see probability for the species to intermittently utilise the site.
The following recommendations are made for management of potentially occurring Grey-headed Flying Fox:

- Daily Inspection of trees assigned for removal be conducted to detect potential roosting Flying Foxes;
- Trees found to contain roosting Flying Foxes to be left standing and re assessed at the end of each days clearing. Being a transient species, the disturbance associated by the

surrounding clearing is likely to see individuals fly off via its own volition come nightfall and not return the following morning, thus negating the need for direct disturbance.

Short-beaked Echidna

Although no individuals were observed during the survey, evidence of echidna use had been observed during inspections by QFC and would see possibility for the Short-beaked Echidna to be encountered during clearing activities.

The following recommendations are made for management of potentially occurring Short-beaked Echidna:

- Daily inspection of areas to be cleared for transient individuals.
- Inspection daily for potential burrow sites.
- Monitored dismantling of identified microhabitats by fauna spotters with machinery assistance.

Glossy Black-Cockatoo

Due to specific requirements and the potential for intermittent use of resources at the site, the following techniques were employed to assist in ascertaining the current and historical presence/absence status of the Glossy Black Cockatoo at the site:

- Use of binoculars to inspect the crowns of trees for individuals currently occupying the site;
- Inspection of the crowns of trees for hollow bearing limbs capable of supporting breeding efforts;
- 'Drip zone' searches at the base of known food trees, in particular *Allocasuarina littoralis*, for the presence of discarded, chewed cones (orts) to a radius equal to that of the crown of individual trees;
- Aerial observations for birds flying within the vicinity of the site.

White-throated Needletail:

The site contains preferred habitat types for the White-throated Needletail; however, the species does not breed in Australia. It is unlikely that either species will be impacted by clearing activities as it is rare to see these species perched. Observations are likely to be limited to flyovers and aerial foraging high above the area of works.

Rainbow Bee-eater:

The site contains preferred habitat types with the potential to support nesting localities for the Rainbow Bee-eater. The following recommendations are made for management of potentially occurring Rainbow Bee-eater:

- Inspection daily of trees assigned for removal in areas of likely occurrence to detect potentially roosting birds;
- Observation of mature birds to ensure individuals are out of immediate felling zones;
- Inspection of potential burrows for nesting activity

Powerful Owl:

The site contains suitable roosting habitat as well as a large number of hollow-bearing trees, some of which have the potential to support nesting localities for the Powerful Owl.
The following recommendations are made for management of potentially occurring Powerful Owl:

- Inspection daily of trees assigned for removal in areas of likely occurrence to detect potentially roosting birds;
- Observation of mature birds to ensure individuals are out of immediate felling zones;
- Implementation of a soft felling technique where trees are determined to have potential nests where hollow cannot be accessed to inspect for birds prior to felling. Trees found to contain or considered probable for nesting Powerful Owls are to be felled in a manner directed at minimising potential risk of injury to fauna, and hollows to be 'plugged' to prevent animals from escaping during the soft felling procedure.

Tusked Frog:
Habitats conducive to the presence of these amphibians are noted at several localities throughout the site. Subsequently, it is recommended that Inspection of these microhabitats be conducted prior to the disturbance of microhabitat to detect potentially occupant frogs.

A DES approved Fauna Spotter should be in attendance throughout all disturbance of vegetation associated with identified EVNT habitats. No clearing is to commence prior to the Fauna Spotter being satisfied all required investigations have been undertaken within the designated areas to be cleared.

4.2 General Terrestrial and Arboreal Fauna

Overall. the site contains high value refugial opportunities for arboreal and terrestrial fauna species (see Section 3.1 and 3.2). The species expected within the site are likely to primarily reflect common fauna assemblages for the region however provisions are proposed directly for common fauna and species of conservation significance.

It is advised that all identified fauna habitats onsite be inspected by a DES approved Fauna Spotter prior to vegetation clearing and all vegetation removal activities be supervised during the clearing process. Fauna captured will be relocated to adjacent habitat consistent with the life history requirements of the species requiring translocation.

4.3 Aquatic Fauna

In the event dewatering is required the following recommendations are made to mitigate impacts to potentially occupant fauna:

- Inspection of banks, peripheral vegetation and other immediate terrestrial microhabitats;
- Identification of potential fauna values including aquatic and sub-aquatic vegetation peripheral vegetation, logs, rocks, artificial structures, discarded rubbish and burrows;
- Targeted searched for frog egg deposition sites on debris, bank edges, water surface and vegetation.

4.4 Felling Procedures

Trees identified as having potential fauna values (such as hollows, fissures and exfoliating bark) will be clearly identified and subsequently marked for supervision during felling and inspected once felled. Efforts will be made to determine potentially occupant species by way of investigations for indicative signs (scats, scratchings and tracks) on the day(s) of clearing. Where no signs are found or potentially occupant species are undeterminable, machinery operators will be instructed to fell trees in a manner directed at minimising the potential risk of injury to fauna.

All identified micro habitats will be inspected via ground-based observation and the direction of felling will be determined considering the safety of personnel, machinery and potentially occupant fauna. Felling procedures will see implementation of a soft felling technique specifically constructed by QFC to achieve minimal deceleration and impact upon felling. This will be achieved under direction of the Fauna Spotter present directly communicating with the plant operator(s).

5. References

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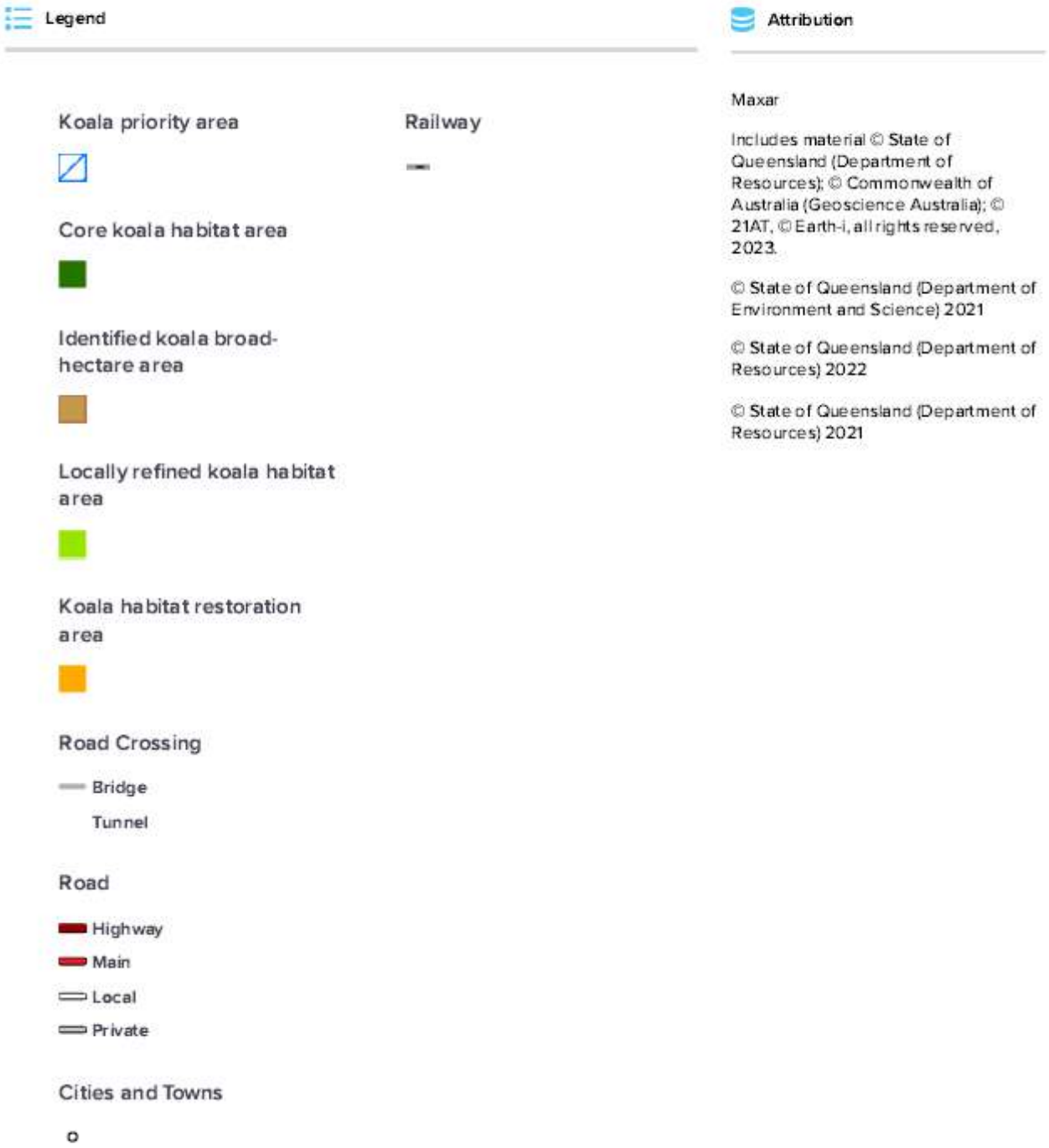
6. Appendix A: Koala Habitat Values


Legend
Koala priority area
Core koala habitat area
Identified koala broad-hectare area
Locally refined koala habitat area
Koala habitat restoration area
Road Crossing
Bridge
Tunnel
Road
Highway
Main
Local
Private
Cities and Towns
Railway
Attribution
Maxar
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7. Appendix B: EPBC Act Protected Matters Report

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

EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected. Please see the caveat for interpretation of information provided here.

Report created: 09-May-2023

Summary

Matters of National Environment Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the Administrative Guidelines on Significance.

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance (Ramsar	1
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	6
Listed Threatened Species:	73
Listed Migratory Species:	37

Other Matters Protected by the EPBC Act

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the environment anywhere.

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place. Information on the new heritage laws can be found at https://www.dcceew.gov.au/parks-heritage/heritage

A permit may be required for activities in or on a Commonwealth area that may affect a member of a listed threatened species or ecological community, a member of a listed migratory species, whales and other cetaceans, or a member of a listed marine species.

Commonwealth Lands:	None
Commonwealth Heritage Places:	None
Listed Marine Species:	42
Whales and Other Cetaceans:	1
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	None
Habitat Critical to the Survival of Marine Turtles:	None

Extra Information

This part of the report provides information that may also be relevant to the area you have

State and Territory Reserves:	1
Regional Forest Agreements:	None
Nationally Important Wetlands:	None
EPBC Act Referrals:	38
Key Ecological Features (Marine):	None
Biologically Important Areas:	None
Bioregional Assessments:	1
Geological and Bioregional Assessments:	None

Details

Matters of National Environmental Significance

Wetlands of International Importance (Ramsar Wetlands) [Resource Information]

Ramsar Site Name	Proximity	Buffer Status
Moreton bay	30 - 40km upstream from Ramsar site	In feature area

Listed Threatened Ecological Communities [Resource Information]

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.
Status of Vulnerable, Disallowed and Ineligible are not MNES under the EPBC Act.

Community Name	Threatened Category	Presence Text	Buffer Status
Coastal Swamp Oak (Casuarina glauca) Forest of New South Wales and South East Queensland ecological community	Endangered	Community may occur within area	In feature area
Grey box-grey gum wet forest of subtropical eastern Australia	Endangered	Community likely to occur within area	In buffer area only
Lowland Rainforest of Subtropical Australia	Critically Endangered	Community may occur within area	In feature area
Poplar Box Grassy Woodland on Alluvial Plains	Endangered	Community may occur within area	In feature area
Subtropical eucalypt floodplain forest and woodland of the New South Wales North Coast and South East Queensland bioregions	Endangered	Community likely to occur within area	In feature area
White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland	Critically Endangered	Community likely to occur within area	In feature area

Listed Threatened Species [Resource Information]

Status of Conservation Dependent and Extinct are not MNES under the EPBC Act.
Number is the current name ID.

Scientific Name	Threatened Category	Presence Text	Buffer Status
BIRD			

Scientific Name	Threatened Category	Presence Text	Buffer Status
Anthochaera phrygia Regent Honeyeater [82338]	Critically Endangered	Foraging, feeding or related behaviour may occur within area	In feature area
Botaurus poiciloptilus Australasian Bittern [1001]	Endangered	Species or species habitat likely to occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area	In feature area
Calyptorhynchus lathami lathami South-eastern Glossy Black-Cockatoo [67036]	Vulnerable	Species or species habitat known to occur within area	In feature area
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat may occur within area	In feature area
Climacteris picumnus victoriae Brown Treecreeper (south-eastern) [67062]	Vulnerable	Species or species habitat may occur within area	In feature area
Cyclopsitta diophthalma coxeni Coxen's Fig-Parrot [59714]	Critically Endangered	Species or species habitat may occur within area	In buffer area only
Diomedea antipodensis Antipodean Albatross [64458]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Diomedea antipodensis gibsoni Gibson's Albatross [82270]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Diomedea exulans Wandering Albatross [89223]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Erythrotriorchis radiatus Red Goshawk [942]	Endangered	Species or species habitat likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Falco hypoleucos Grey Falcon [929]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Geophaps scripta scripta Squatter Pigeon (southern) [64440]	Vulnerable	Species or species habitat may occur within area	In feature area
Grantiella picta Painted Honeyeater [470]	Vulnerable	Species or species habitat may occur within area	In feature area
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area	In feature area
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat likely to occur within area	In feature area
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area	In buffer area only
Macronectes halli Northern Giant Petrel [1061]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Neophema chrysostoma Blue-winged Parrot [726]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat likely to occur within area	In feature area
Pachyptila turtur subantarctica Fairy Prion (southern) [64445]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
Rostratula australis Australian Painted Snipe [77037]	Endangered	Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Stagonopleura guttata Diamond Firetail [59398]	Vulnerable	Species or species habitat may occur within area	In feature area
Sternula nereis nereis Australian Fairy Tern [82950]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Thalassarche cauta Shy Albatross [89224]	Endangered	Species or species habitat may occur within area	In buffer area only
Thalassarche impavida Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Thalassarche melanophris Black-browed Albatross [66472]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Thalassarche salvini Salvin's Albatross [64463]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Thalassarche steadi White-capped Albatross [64462]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Turnix melanogaster Black-breasted Button-quail [923]	Vulnerable	Species or species habitat likely to occur within area	In feature area
FISH			
Epinephelus daemelii Black Rockcod, Black Cod, Saddled Rockcod [68449]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Neoceratodus forsteri Australian Lungfish, Queensland Lungfish [67620]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
Thunnus maccoyii Southern Bluefin Tuna [69402]	Conservation Dependent	Species or species habitat likely to occur within area	In buffer area only
FROG			

Scientific Name	Threatened Category	Presence Text	Buffer Status
Mixophyes fleayi Fleay's Frog [25960]	Endangered	Species or species habitat may occur within area	In buffer area only
INSECT			
Argynnis hyperbius inconstans Australian Fritillary [88056]	Critically Endangered	Species or species habitat may occur within area	In feature area
MAMMAL			
Chalinolobus dwyeri Large-eared Pied Bat, Large Pied Bat [183]	Vulnerable	Species or species habitat may occur within area	In feature area
Dasyurus hallucatus Northern Quoll, Digul [Gogo-Yimidir], Wijingadda [Dambimangari], Wiminji [Martu] [331]	Endangered	Species or species habitat may occur within area	In feature area
Dasyurus maculatus maculatus (SE mainland population) Spot-tailed Quoll, Spotted-tail Quoll, Tiger Quoll (southeastern mainland population) [75184]	Endangered	Species or species habitat likely to occur within area	In feature area
Macroderma gigas Ghost Bat [174]	Vulnerable	Species or species habitat may occur within area	In feature area
Petauroides volans Greater Glider (southern and central) [254]	Endangered	Species or species habitat known to occur within area	In feature area
Petaurus australis australis Yellow-bellied Glider (south-eastern) [87600]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Petrogale penicillata Brush-tailed Rock-wallaby [225]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Phascolarctos cinereus (combined populations of Qld, NSW and the ACT) Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory) [85104]	Endangered	Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Potorous tridactylus tridactylus Long-nosed Potoroo (northern) [66645]	Vulnerable	Species or species habitat may occur within area	In feature area
Pteropus poliocephalus Grey-headed Flying-fox [186]	Vulnerable	Roosting known to occur within area	In feature area
PLANT			
Arthraxon hispidus Hairy-joint Grass [9338]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Bosistoa transversa Three-leaved Bosistoa, Yellow Satinheart [16091]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Corchorus cunninghamii Native Jute [14659]	Endangered	Species or species habitat may occur within area	In buffer area only
Cupaniopsis shirleyana Wedge-leaf Tuckeroo [3205]	Vulnerable	Species or species habitat may occur within area	In feature area
Dichanthium setosum bluegrass [14159]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Fontainea venosa [24040]	Vulnerable	Species or species habitat may occur within area	In feature area
Macadamia integrifolia Macadamia Nut, Queensland Nut Tree, Smooth-shelled Macadamia, Bush Nut, Nut Oak [7326]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
Macadamia tetraphylla Rough-shelled Bush Nut, Macadamia Nut, Rough-shelled Macadamia, Rough-leaved Queensland Nut [6581]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Notelaea ipsviciensis Cooneana Olive [81858]	Critically Endangered	Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Notelaea lloydii Lloyd's Olive [15002]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Picris evae Hawkweed [10839]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Planchonella eerwah Shiny-leaved Condoo, Black Plum, Wild Apple [17340]	Endangered	Species or species habitat may occur within area	In feature area
Plectranthus habrophyllus [64589]	Endangered	Species or species habitat known to occur within area	In feature area
Plectranthus omissus [55729]	Endangered	Species or species habitat may occur within area	In buffer area only
Rhodamnia rubescens Scrub Turpentine, Brown Malletwood [15763]	Critically Endangered	Species or species habitat may occur within area	In feature area
Rhodomyrtus psidioides Native Guava [19162]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Samadera bidwillii Quassia [29708]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Thesium australe Austral Toadflax, Toadflax [15202]	Vulnerable	Species or species habitat may occur within area	In feature area
REPTILE			
Caretta caretta Loggerhead Turtle [1763]	Endangered	Species or species habitat known to occur within area	In buffer area only
Chelonia mydas Green Turtle [1765]	Vulnerable	Species or species habitat known to occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Delma torquata Adorned Delma, Collared Delma [1656]	Vulnerable	Species or species habitat known to occur within area	In feature area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat known to occur within area	In buffer area only
Eretmochelys imbricata Hawksbill Turtle [1766]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
Furina dunmalli Dunmall's Snake [59254]	Vulnerable	Species or species habitat may occur within area	In feature area
Hemiaspis damelii Grey Snake [1179]	Endangered	Species or species habitat likely to occur within area	In feature area
Lepidochelys olivacea Olive Ridley Turtle, Pacific Ridley Turtle [1767]	Endangered	Species or species habitat known to occur within area	In buffer area only
Natator depressus Flatback Turtle [59257]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
SHARK			
Sphyrna lewini Scalloped Hammerhead [85267]	Conservation Dependent	Species or species habitat likely to occur within area	In buffer area only

Listed Migratory Species [Resource Information]

Scientific Name	Threatened Category	Presence Text	Buffer Status
Migratory Marine Birds			
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area	In feature area
Ardenna grisea Sooty Shearwater [82651]		Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Diomedea antipodensis Antipodean Albatross [64458]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Diomedea exulans Wandering Albatross [89223]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area	In buffer area only
Macronectes halli Northern Giant Petrel [1061]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Phaethon lepturus White-tailed Tropicbird [1014]		Species or species habitat may occur within area	In buffer area only
Thalassarche cauta Shy Albatross [89224]	Endangered	Species or species habitat may occur within area	In buffer area only
Thalassarche impavida Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Thalassarche melanophris Black-browed Albatross [66472]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Thalassarche salvini Salvin's Albatross [64463]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Thalassarche steadi White-capped Albatross [64462]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Migratory Marine Species			
Caretta caretta Loggerhead Turtle [1763]	Endangered	Species or species habitat known to occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Chelonia mydas Green Turtle [1765]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat known to occur within area	In buffer area only
Eretmochelys imbricata Hawksbill Turtle [1766]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
Lepidochelys olivacea Olive Ridley Turtle, Pacific Ridley Turtle [1767]	Endangered	Species or species habitat known to occur within area	In buffer area only
Mobula alfredi as Manta alfredi Reef Manta Ray, Coastal Manta Ray [90033]		Species or species habitat may occur within area	In buffer area only
Mobula birostris as Manta birostris Giant Manta Ray [90034]		Species or species habitat may occur within area	In buffer area only
Natator depressus Flatback Turtle [59257]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
Orcaella heinsohni Australian Snubfin Dolphin [81322]		Species or species habitat known to occur within area	In buffer area only
Migratory Terrestrial Species			
Cuculus optatus Oriental Cuckoo, Horsfield's Cuckoo [86651]		Species or species habitat known to occur within area	In feature area
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area	In feature area
Monarcha melanopsis Black-faced Monarch [609]		Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Motacilla flava Yellow Wagtail [644]		Species or species habitat may occur within area	In feature area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat known to occur within area	In feature area
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat known to occur within area	In feature area
Symposiachrus trivirgatus as Monarcha trivirgatus Spectacled Monarch [83946]		Species or species habitat known to occur within area	In feature area
Migratory Wetlands Species			
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat known to occur within area	In feature area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat known to occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area	In feature area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat known to occur within area	In feature area
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat may occur within area	In feature area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat known to occur within area	In feature area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Pandion haliaetus Osprey [952]		Species or species habitat known to occur within area	In buffer area only
Tringa nebularia Common Greenshank, Greenshank [832]		Species or species habitat likely to occur within area	In feature area

Other Matters Protected by the EPBC Act

Listed Marine Species			[Resource Information]
Scientific Name	Threatened Category	Presence Text	Buffer Status
Bird			
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat known to occur within area	In feature area
Anseranas semipalmata Magpie Goose [978]		Species or species habitat may occur within area overfly marine area	In feature area
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area overfly marine area	In feature area
Ardenna grisea as Puffinus griseus Sooty Shearwater [82651]		Species or species habitat may occur within area	In buffer area only
Bubulcus ibis as Ardea ibis Cattle Egret [66521]		Breeding likely to occur within area overfly marine area	In feature area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat known to occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area overfly marine area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat known to occur within area overfly marine area	In feature area
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat may occur within area	In feature area
Diomedea antipodensis Antipodean Albatross [64458]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Diomedea antipodensis gibsoni as Diomedea gibsoni Gibson's Albatross [82270]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Diomedea exulans Wandering Albatross [89223]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat known to occur within area overfly marine area	In feature area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat known to occur within area	In feature area
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area overfly marine area	In feature area
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat likely to occur within area overfly marine area	In feature area
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Macronectes halli Northern Giant Petrel [1061]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area overfly marine area	In feature area
Monarcha melanopsis Black-faced Monarch [609]		Species or species habitat known to occur within area overfly marine area	In feature area
Motacilla flava Yellow Wagtail [644]		Species or species habitat may occur within area overfly marine area	In feature area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat known to occur within area overfly marine area	In feature area
Neophema chrysostoma Blue-winged Parrot [726]	Vulnerable	Species or species habitat may occur within area overfly marine area	In buffer area only
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat likely to occur within area	In feature area
Pachyptila turtur Fairy Prion [1066]		Species or species habitat likely to occur within area	In buffer area only
Pandion haliaetus Osprey [952]		Species or species habitat known to occur within area	In buffer area only
Phaethon lepturus White-tailed Tropicbird [1014]		Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat known to occur within area overfly marine area	In feature area
Rostratula australis as Rostratula benghalensis (sensu lato) Australian Painted Snipe [77037]	Endangered	Species or species habitat known to occur within area overfly marine area	In feature area
Symposiachrus trivirgatus as Monarcha trivirgatus Spectacled Monarch [83946]		Species or species habitat known to occur within area overfly marine area	In feature area
Thalassarche cauta Shy Albatross [89224]	Endangered	Species or species habitat may occur within area	In buffer area only
Thalassarche impavida Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Thalassarche melanophris Black-browed Albatross [66472]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Thalassarche salvini Salvin's Albatross [64463]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Thalassarche steadi White-capped Albatross [64462]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Tringa nebularia Common Greenshank, Greenshank [832]		Species or species habitat likely to occur within area overfly marine area	In feature area
Reptile			
Caretta caretta Loggerhead Turtle [1763]	Endangered	Species or species habitat known to occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Chelonia mydas			
Green Turtle [1765]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
Dermochelys coriacea			
Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat known to occur within area	In buffer area only
Eretmochelys imbricata			
Hawksbill Turtle [1766]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
Lepidochelys olivacea			
Olive Ridley Turtle, Pacific Ridley Turtle [1767]	Endangered	Species or species habitat known to occur within area	In buffer area only
Natator depressus			
Flatback Turtle [59257]	Vulnerable	Species or species habitat known to occur within area	In buffer area only

Whales and Other Cetaceans		[Resource Information]	
Current Scientific Name	Status	Type of Presence	Buffer Status
Mammal			
Orcaella heinsohni as Orcaella brevirostris			
Australian Snubfin Dolphin [81322]		Species or species habitat known to occur within area	In buffer area only

Extra Information

State and Territory Reserves			[Resource Information]
Protected Area Name	Reserve Type	State	Buffer Status
White Rock	Conservation Park	QLD	In buffer area only

EPBC Act Referrals				[Resource Information]
Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Bellbird Park Primary School Development Project	2022/09296		Completed	In buffer area only
Controlled action				
Brentwood Residential Estate, Bellbird Park, Ipswich, QLD	2013/7074	Controlled Action	Post-Approval	In buffer area only
Casino Ipswich Pipeline	2007/3877	Controlled Action	Completed	In buffer area only

Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Controlled action				
Citiswich Stage 7 - Commercial Development	2021/9112	Controlled Action	Assessment Approach	In buffer area only
First Nine Master planned residential development, Brookwater, Qld	2016/7676	Controlled Action	Post-Approval	In buffer area only
Redbank Plains	2021/9065	Controlled Action	Further Information Request	In buffer area only
Residential Development, Collingwood Park, Ipswich, Qld	2019/8516	Controlled Action	Post-Approval	In feature area
Residential subdivision, Lot 901 and 902 Eugene St, Bellbird Park, Qld	2018/8350	Controlled Action	Assessment Approach	In buffer area only
Scenic Precinct Residential Development	2020/8651	Controlled Action	Further Information Request	In buffer area only
Southern Regional Water Pipeline	2006/2593	Controlled Action	Post-Approval	In buffer area only
Springfield Residential Development	2019/8575	Controlled Action	Further Information Request	In buffer area only
Spring Mountain mixed use master planned community development, Springfield, Qld	2013/7057	Controlled Action	Post-Approval	In buffer area only
Springview Village One, Springfield, Ipswich City, QLD	2014/7306	Controlled Action	Post-Approval	In buffer area only
Woodlink Residential Community, 246-326 Collingwood Drive, Collingwood Park	2013/6866	Controlled Action	Post-Approval	In feature area
Woody Weed Removal at Woogaroo Creek	2007/3760	Controlled Action	Completed	In buffer area only
Woogaroo Heights master planned residential development, Springfield, Qld	2017/7875	Controlled Action	Post-Approval	In buffer area only
Not controlled action				
Bellbird Park State High School development, Redbank Plains, Qld	2014/7323	Not Controlled Action	Completed	In buffer area only
Blackstone Power Station	2012/6252	Not Controlled Action	Completed	In buffer area only
BrisWest Holdings - Release 5 Operational Works	2021/9086	Not Controlled Action	Completed	In buffer area only

Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Not controlled action				
Collingwood Park stage 8 Subdivision	2011/6075	Not Controlled Action	Completed	In buffer area only
Fernbrooke Ridge residential estate development - Balance Land, Redbank Plains, Qld	2013/6818	Not Controlled Action	Completed	In buffer area only
Goodna and Bundamba Sewage Treatment Plant Upgrades	2010/5612	Not Controlled Action	Completed	In buffer area only
Improving rabbit biocontrol: releasing another strain of RHDV, sthrn two thirds of Australia	2015/7522	Not Controlled Action	Completed	In feature area
New motorway alignment called the Goodna Bypass	2007/3648	Not Controlled Action	Completed	In buffer area only
Northern Link Parallel Road Tunnels Project	2007/3824	Not Controlled Action	Completed	In buffer area only
REMONDIS Waste to Energy Facility	2020/8806	Not Controlled Action	Completed	In buffer area only
Removal of Grey-headed Flying-fox Habitat	2005/2284	Not Controlled Action	Completed	In buffer area only
Removal of Grey-headed Flying-fox Habitat	2005/2137	Not Controlled Action	Completed	In buffer area only
South West Transport Corridor	2006/2547	Not Controlled Action	Completed	In feature area
Streambank Rehabilitation - Removal of woody weeds	2006/2658	Not Controlled Action	Completed	In buffer area only
Swanbank Gas Fired Combined Cycle Plant	2008/4087	Not Controlled Action	Completed	In buffer area only
Swanbank Waste Management Facility Stage 1B extension Area, Qld	2015/7581	Not Controlled Action	Completed	In buffer area only
Underground Bus and Train Project, Brisbane	2013/7106	Not Controlled Action	Completed	In buffer area only
Urban Residential Development Priors Pocket Road	2012/6662	Not Controlled Action	Completed	In buffer area only
Western Corridor Recycled Water Project/Bundamba 1B AWTP and Oxley-Bundamba Pipeline	2006/3163	Not Controlled Action	Completed	In buffer area only
Not controlled action (particular manner)				
Construction & Operation 275/330kV Transmission Line	2006/2820	Not Controlled Action (Particular Manner)	Post-Approval	In feature area

Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Not controlled action (particular manner)				
Cross River Rail	2010/5427	Not Controlled Action (Particular Manner)	Post-Approval	In buffer area only
Paper Mill	2003/915	Not Controlled Action (Particular Manner)	Post-Approval	In buffer area only

Bioregional Assessments			
SubRegion	BioRegion	Website	Buffer Status
Clarence-Moreton	Clarence-Moreton	BA website	In feature area

Caveat

1 PURPOSE

This report is designed to assist in identifying the location of matters of national environmental significance (MNES) and other matters protected by the Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act) which may be relevant in determining obligations and requirements under the EPBC Act.

The report contains the mapped locations of:

- World and National Heritage properties;
- Wetlands of International and National Importance;
- Commonwealth and State/Territory reserves;
- distribution of listed threatened, migratory and marine species;
- listed threatened ecological communities; and
- other information that may be useful as an indicator of potential habitat value.

2 DISCLAIMER

This report is not intended to be exhaustive and should only be relied upon as a general guide as mapped data is not available for all species or ecological communities listed under the EPBC Act (see below). Persons seeking to use the information contained in this report to inform the referral of a proposed action under the EPBC Act should consider the limitations noted below and whether additional information is required to determine the existence and location of MNES and other protected matters.

Where data are available to inform the mapping of protected species, the presence type (e.g. known, likely or may occur) that can be determined from the data is indicated in general terms. It is the responsibility of any person using or relying on the information in this report to ensure that it is suitable for the circumstances of any proposed use. The Commonwealth cannot accept responsibility for the consequences of any use of the report or any part thereof. To the maximum extent allowed under governing law, the Commonwealth will not be liable for any loss or damage that may be occasioned directly or indirectly through the use of, or reliance

3 DATA SOURCES

Threatened ecological communities

For threatened ecological communities where the distribution is well known, maps are generated based on information contained in recovery plans, State vegetation maps and remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Threatened, migratory and marine species

Threatened, migratory and marine species distributions have been discerned through a variety of methods. Where distributions are well known and if time permits, distributions are inferred from either thematic spatial data (i.e. vegetation, soils, geology, elevation, aspect, terrain, etc.) together with point locations and described habitat; or modelled (MAXENT or BIOCLIM habitat modelling) using

Where little information is available for a species or large number of maps are required in a short time-frame, maps are derived either from 0.04 or 0.02 decimal degree cells; by an automated process using polygon capture techniques (static two kilometre grid cells, alpha-hull and convex hull); or captured manually or by using topographic features (national park boundaries, islands, etc.).

In the early stages of the distribution mapping process (1999-early 2000s) distributions were defined by degree blocks, 100K or 250K map sheets to rapidly create distribution maps. More detailed distribution mapping methods are used to update these distributions

4 LIMITATIONS

The following species and ecological communities have not been mapped and do not appear in this report:

- threatened species listed as extinct or considered vagrants;
- some recently listed species and ecological communities;
- some listed migratory and listed marine species, which are not listed as threatened species; and
- migratory species that are very widespread, vagrant, or only occur in Australia in small numbers.

The following groups have been mapped, but may not cover the complete distribution of the species:

- listed migratory and/or listed marine seabirds, which are not listed as threatened, have only been mapped for recorded
- seals which have only been mapped for breeding sites near the Australian continent

The breeding sites may be important for the protection of the Commonwealth Marine environment.

Refer to the metadata for the feature group (using the Resource Information link) for the currency of the information.

Acknowledgements

This database has been compiled from a range of data sources. The department acknowledges the following custodians who have contributed valuable data and advice:

-Office of Environment and Heritage, New South Wales
-Department of Environment and Primary Industries, Victoria
-Department of Primary Industries, Parks, Water and Environment, Tasmania
-Department of Environment, Water and Natural Resources, South Australia
-Department of Land and Resource Management, Northern Territory
-Department of Environmental and Heritage Protection, Queensland
-Department of Parks and Wildlife, Western Australia
-Environment and Planning Directorate, ACT
-Birdlife Australia
-Australian Bird and Bat Banding Scheme
-Australian National Wildlife Collection
-Natural history museums of Australia
-Museum Victoria
-Australian Museum
-South Australian Museum
-Queensland Museum
-Online Zoological Collections of Australian Museums
-Queensland Herbarium
-National Herbarium of NSW
-Royal Botanic Gardens and National Herbarium of Victoria
-Tasmanian Herbarium
-State Herbarium of South Australia
-Northern Territory Herbarium
-Western Australian Herbarium
-Australian National Herbarium, Canberra
-University of New England
-Ocean Biogeographic Information System
-Australian Government, Department of Defence
Forestry Corporation, NSW
-Geoscience Australia
-CSIRO
-Australian Tropical Herbarium, Cairns
-eBird Australia
-Australian Government – Australian Antarctic Data Centre
-Museum and Art Gallery of the Northern Territory
-Australian Government National Environmental Science Program
-Australian Institute of Marine Science
-Reef Life Survey Australia
-American Museum of Natural History
-Queen Victoria Museum and Art Gallery, Inveresk, Tasmania
-Tasmanian Museum and Art Gallery, Hobart, Tasmania
-Other groups and individuals

The Department is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

Please feel free to provide feedback via the Contact us page.

8. Appendix C: WildNet Species List

Queensland Government

WildNet species list

Search Criteria: Species List for a Specified Point
Species: Animals
Type: Native
Queensland status: Rare and threatened species
Records: All
Date: Since 1980
Latitude: -27.6252
Longitude: 152.8593
Distance: 5
Email: jasmine@qfc.com.au
Date submitted: Tuesday 09 May 2023 12:10:27
Date extracted: Tuesday 09 May 2023 12:20:02

The number of records retrieved = 10

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	amphibians	Limnodynastidae	*Adelotus brevis*	tusked frog		V		14
animals	birds	Apodidae	*Hirundapus caudacutus*	white-throated needletail		V	V	7
animals	birds	Cacatuidae	*Calyptorhynchus lathami lathami*	glossy black-cockatoo (eastern)		V	V	2
animals	birds	Psittaculidae	*Lathamus discolor*	swift parrot		E	CE	1
animals	birds	Rostratulidae	*Rostratula australis*	Australian painted-snipe		E	E	6
animals	birds	Strigidae	*Ninox strenua*	powerful owl		V		69
animals	mammals	Delphinidae	*Orcaella heinsohni*	Australian snubfin dolphin		V		1
animals	mammals	Phascolarctidae	*Phascolarctos cinereus*	koala		E	E	304
animals	mammals	Pseudocheiridae	*Petauroides armillatus*	central greater glider		E	E	10
animals	mammals	Vombatidae	*Vombatus ursinus*	common wombat		NT		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.

Appendix C

Stage 20 fauna spotter catcher post-clearance survey report

QFC
QUEENSLAND FAUNA CONSULTANCY
Pty Ltd

June 2023

Fauna Management and Spotter/Catcher Services Report

Woodlinks (Stage 20 & Future Stages)
Neumann Drive, Collingwood Park
Report prepared for Shadforth Civil Pty Ltd

Report prepared by

QLD Fauna Consultancy Pty Ltd

Phone: (07) 3376 9780

Email: fauna@qfc.com.au

Date:	23/06/2023
Title:	Fauna Management and Spotter/Catcher Services Report Woodlinks (Stage 20 & Future Stages) - Neumann Drive, Collingwood Park
Author/s:	Bryan Robinson, Tamara Cantwell, Jasmine Zeleny
Reviewed by:	Jasmine Zeleny
Field personnel:	John Bolton, Rodney Whitaker, Diamantina Ward, Jaedon Lunt
Status:	Final Report
Filed as:	QFC FMR Shadforth Collingwood Park June 2023.doc

Contents

1 Introduction

Qld Fauna Consultancy Pty Ltd has been engaged by Shadforth Civil Pty Ltd to conduct Fauna Spotter/Catcher and Fauna Management activities for works at Woodlinks (Stage 20 & Future Stages) - Neumann Drive, Collingwood Park.

All activities were conducted under the provisions of Rehabilitation Permit (WA0026789) issued to Queensland Fauna Consultancy Pty Ltd by the Department of Environment and Science (DES), approving the observation and relocation of protected animals.

This report covers clearance activities undertaken in June 2023.

2 Methodology

2.1 Clearance Investigations

A standard set of observational and active searching techniques were employed each day of clearance to ascertain and identify existing fauna values for each location. These include:

- Assessment of terrestrial microhabitats such as ground hollows, rock, burrows, leaf litter, fallen branches and bark exfoliations,
- Observation and assessment of occupancy of arboreal microhabitats such as tree hollows, fissures and exfoliations,
- Direct observation of active or exposed fauna,
- Identification of scats, tracks and scratchings to determine fauna present on the site.

All microhabitats were identified and subsequently inspected during clearance.

2.2 Specific methodology for Koalas *Phascolarctos cinereus*

Due to the specific requirements relating to the Koala the following techniques were employed at the clearance site to ascertain presence/absence status:

- Use of binoculars to inspect the crown, forks and trunk of trees;
- 'Drip zone' searches at the base of known food trees for the presence of scats to a radius equal to that of the crown of individual trees;
- Inspection of trunks for scratchings indicative of use by Koalas.

Recent changes to Koala management strategies highlighted in the *Nature Conservation (Koala) Conservation Plan 2017* have resulted in particular conditions placed on vegetation clearance involving the removal of Koala food trees.

Further provisions include the restriction of all clearance that may directly interfere with the tree a Koala is residing in. Koalas are to leave via their own volition and may not be interfered with by any means. Only when Koalas have vacated a tree can clearance operations include the host tree and surrounding vegetation.

2.3 Felling Procedures

Trees identified as having potential fauna values (such as hollows, fissures and exfoliating bark) were clearly marked for supervision during felling and inspected once felled. Efforts were made to determine potentially occupant species by way of investigations for indicative signs (scats, scratchings and tracks). Where no signs were found or occupant species undeterminable, machinery operators were instructed to fell trees in a manner directed at minimising the potential risk of injury to fauna.

Limbs were inspected and the direction of felling determined with regards to safety of both machinery and operators. Considerations to potentially occupant fauna were assessed and felling procedures formulated. Felling procedures may have included the following techniques:

- Machinery blades were utilised to shake the tree in an attempt to disturb fauna out of hollows or fissures to determine species present.
- If fauna were present, the tree was either left standing overnight to allow the occupant animal(s) time to leave via their own volition, or if species detected were able to be encouraged from the tree by shaking or direct capture by a wildlife spotter(s). The tree was felled with considerations to potentially undetected fauna.
- Where possible potentially occupied trees were felled with the identified microhabitat receiving minimal contact on impact.
- Adjacent felled trees were utilised to absorb the impact of potential fauna bearing trees.

2.4 Communications during Clearance

Each spotter/catcher was equipped with a hand held radio to make positive communications with machinery operators. Communications by radio and positive hand signals were utilised to indicate intentions to machinery operators.

3 Results

The following daily inventory details fauna-based investigation results for the clearing area. Inspection activities, location, habitat values and fauna found are documented where required. Refer to Appendix A for fauna photos.

Friday 2nd June 2023

- Pre-clearance activities carried out (refer to Methodology) at End of Neumann Drive, Collingwood Park
- Vegetation clearance carried out at End of Neumann Drive, Collingwood Park
- Refer to **Fauna Register** for fauna found
- 4 trees flagged
- One personnel in attendance

Arboreal Microhabitats: No. flagged tree/s felled: 22
Nest - inactive ☒Y ☐N Hollows ☒Y ☐N Arboreal termitaria ☒Y ☐N Other: Exfoliating bark
No. & size of hollow/s (mm): 0-49mm: 1, 50-99mm: 1, 100-149mm: 2, 150-199mm: 2, 200-249mm: 1
Terrestrial Microhabitats:
Hollow logs ☒Y ☐N Woody debris ☒Y ☐N Rock piles ☐Y ☒N Burrows ☐Y ☒N
Other: Dense leaf litter, Terrestrial termitaria, Bark exfoliations
Aquatic habitat/s: Dam ☐Y ☒N Creek ☐Y ☒N Wetland ☐Y ☒N

Tuesday 6th June 2023

- Pre-clearance activities carried out (refer to Methodology) at End of Neumann Drive, Collingwood Park
- Vegetation clearance carried out at End of Neumann Drive, Collingwood Park
- Refer to **Fauna Register** for fauna found
- 2 trees flagged
- One personnel in attendance

Arboreal Microhabitats: No. flagged tree/s felled: 23
Nest - inactive ☒Y ☐N Hollows ☒Y ☐N Arboreal termitaria ☒Y ☐N Other: Exfoliating bark
No. & size of hollow/s (mm): 50-99mm: 3, 100-149mm: 2, 150-199mm: 2, 200-249mm: 1
Terrestrial Microhabitats:
Hollow logs ☐Y ☒N Woody debris ☒Y ☐N Rock piles ☐Y ☒N Burrows ☐Y ☒N
Other: Dense leaf litter, Terrestrial termitaria, Bark exfoliations, Artificial debris
Aquatic habitat/s: Dam ☐Y ☒N Creek ☐Y ☒N Wetland ☐Y ☒N

Wednesday 7th June 2023

- Pre-clearance activities carried out (refer to Methodology) at End of Neumann Drive, Collingwood Park
- Vegetation clearance carried out at End of Neumann Drive, Collingwood Park
- Refer to **Fauna Register** for fauna found
- 6 trees flagged
- One personnel in attendance

Arboreal Microhabitats: No. flagged tree/s felled: 26 Nest - inactive ☒Y ☐N Hollows ☒Y ☐N Arboreal termitaria ☒Y ☐N Other: Exfoliating bark No. & size of hollow/s (mm): 50-99mm: 3, 100-149mm: 6, 150-199mm: 4, 200-249mm: 3
Terrestrial Microhabitats: Hollow logs ☒Y ☐N Woody debris ☒Y ☐N Rock piles ☐Y ☒N Burrows ☐Y ☒N Other: Dense leaf litter, Bark exfoliations
Aquatic habitat/s: Dam ☐Y ☒N Creek ☐Y ☒N Wetland ☐Y ☒N

Thursday 8th June 2023

- Pre-clearance activities carried out (refer to Methodology) at End of Neumann Drive, Collingwood Park
- Vegetation clearance carried out at End of Neumann Drive, Collingwood Park
- Refer to **Fauna Register** for fauna found
- 2 trees flagged
- One personnel in attendance

Arboreal Microhabitats: No. flagged tree/s felled: 21 Nest - inactive ☒Y ☐N Hollows ☒Y ☐N Arboreal termitaria ☒Y ☐N Other: Exfoliating bark No. & size of hollow/s (mm): 50-99mm: 4, 100-149mm: 6, 150-199mm: 2, 200-249mm: 2
Terrestrial Microhabitats: Hollow logs ☐Y ☒N Woody debris ☒Y ☐N Rock piles ☒Y ☐N Burrows ☐Y ☒N Other: Dense leaf litter, Bark exfoliations
Aquatic habitat/s: Dam ☐Y ☒N Creek ☐Y ☒N Wetland ☐Y ☒N

Friday 9th June 2023

- Pre-clearance activities carried out (refer to Methodology) at End of Neumann Drive, Collingwood Park
- Vegetation clearance carried out at End of Neumann Drive, Collingwood Park
- Refer to **Fauna Register** for fauna found
- 2 trees flagged
- One personnel in attendance

Arboreal Microhabitats: No. flagged tree/s felled: 18 Nest - inactive ☒Y ☐N Hollows ☒Y ☐N Arboreal termitaria ☒Y ☐N Other: Exfoliating bark No. & size of hollow/s (mm): 50-99mm: 2, 100-149mm: 3, 150-199mm: 1, 200-249mm: 1
Terrestrial Microhabitats: Hollow logs ☐Y ☒N Woody debris ☒Y ☐N Rock piles ☐Y ☒N Burrows ☐Y ☒N Other: Dense leaf litter, Bark exfoliations, Artificial debris, Mulch piles
Aquatic habitat/s: Dam ☐Y ☒N Creek ☐Y ☒N Wetland ☐Y ☒N

Monday 12th June 2023

- Pre-clearance activities carried out (refer to Methodology) at End of Neumann Drive, Collingwood Park
- Vegetation clearance carried out at End of Neumann Drive, Collingwood Park
- Refer to **Fauna Register** for fauna found
- 3 trees flagged
- One personnel in attendance

Arboreal Microhabitats: No. flagged tree/s felled: 18 Nest - inactive ☒Y ☐N Hollows ☒Y ☐N Arboreal termitaria ☒Y ☐N Other: Exfoliating bark No. & size of hollow/s (mm): 50-99mm: 2, 100-149mm: 3, 150-199mm: 1, 200-249mm: 2
Terrestrial Microhabitats: Hollow logs ☒Y ☐N Woody debris ☒Y ☐N Rock piles ☒Y ☐N Burrows ☐Y ☒N Other: Dense leaf litter, Bark exfoliations
Aquatic habitat/s: Dam ☐Y ☒N Creek ☐Y ☒N Wetland ☐Y ☒N

Tuesday 13th June 2023

- Pre-clearance activities carried out (refer to Methodology) at End of Neumann Drive, Collingwood Park
- Vegetation clearance carried out at End of Neumann Drive, Collingwood Park
- Refer to **Fauna Register** for fauna found
- 8 trees flagged
- One personnel in attendance

Arboreal Microhabitats: No. flagged tree/s felled: 26
Nest - inactive ☒Y ☐N Hollows ☒Y ☐N Arboreal termitaria ☒Y ☐N
Other: Exfoliating bark, Fissure
No. & size of hollow/s (mm): 0-49mm: 46, 50-99mm: 30, 100-149mm: 11, 150-199mm: 6, 200-249mm: 4, 250-299mm: 2, 300+mm: 2
Terrestrial Microhabitats:
Hollow logs ☒Y ☐N Woody debris ☒Y ☐N Rock piles ☒Y ☐N Burrows ☐Y ☒N
Other: Dense leaf litter, Bark exfoliations, Artificial debris, Terrestrial termitaria
Aquatic habitat/s: Dam ☐Y ☒N Creek ☐Y ☒N Wetland ☐Y ☒N Other: Gully

Wednesday 14th June 2023

- Pre-clearance activities carried out (refer to Methodology) at End of Neumann Drive, Collingwood Park
- Vegetation clearance carried out at End of Neumann Drive, Collingwood Park
- Refer to **Fauna Register** for fauna found
- 3 trees flagged
- One personnel in attendance

Arboreal Microhabitats: No. flagged tree/s felled: 15
Nest - inactive ☒Y ☐N Hollows ☒Y ☐N Arboreal termitaria ☒Y ☐N Other: Exfoliating bark
No. & size of hollow/s (mm): 0-49mm: 15, 50-99mm: 10, 100-149mm: 8, 150-199mm: 4, 200-249mm: 4, 250-299mm: 3, 300+mm: 2
Terrestrial Microhabitats:
Hollow logs ☒Y ☐N Woody debris ☒Y ☐N Rock piles ☒Y ☐N Burrows ☐Y ☒N
Other: Dense leaf litter, Bark exfoliations, Artificial debris
Aquatic habitat/s: Dam ☐Y ☒N Creek ☒Y ☐N Wetland ☐Y ☒N Other: Gully

Thursday 15th June 2023

- Pre-clearance activities carried out (refer to Methodology) at End of Neumann Drive, Collingwood Park
- Vegetation clearance carried out at End of Neumann Drive, Collingwood Park
- Refer to **Fauna Register** for fauna found
- 2 trees flagged
- One personnel in attendance

Arboreal Microhabitats: No. flagged tree/s felled: 4 Nest ☐Y ☒N Hollows ☒Y ☐N Arboreal termitaria ☒Y ☐N Other: Exfoliating bark No. & size of hollow/s (mm): 0-49mm: 3, 50-99mm: 5, 100-149mm: 4
Terrestrial Microhabitats: Hollow logs ☒Y ☐N Woody debris ☒Y ☐N Rock piles ☒Y ☐N Burrows ☐Y ☒N Other: Dense leaf litter, Bark exfoliation, Timber stockpiles, Terrestrial termitaria, Artificial debris
Aquatic habitat/s: Dam ☐Y ☒N Creek ☐Y ☒N Wetland ☐Y ☒N Other: Gully (dry)

Friday 16th June 2023

- Pre-clearance activities carried out (refer to Methodology) at End of Neumann Drive, Collingwood Park
- Vegetation clearance carried out at End of Neumann Drive, Collingwood Park
- Refer to **Fauna Register** for fauna found
- 0 trees flagged
- One personnel in attendance

Arboreal Microhabitats: No. flagged tree/s felled: 3 Nest ☐Y ☒N Hollows ☒Y ☐N Arboreal termitaria ☒Y ☐N Other: Exfoliating bark No. & size of hollow/s (mm): 0-49mm: 1
Terrestrial Microhabitats: Hollow logs ☐Y ☒N Woody debris ☒Y ☐N Rock piles ☐Y ☒N Burrows ☐Y ☒N Other: Dense leaf litter, Bark exfoliations, Artificial debris
Aquatic habitat/s: Dam ☐Y ☒N Creek ☒Y ☐N Wetland ☐Y ☒N

4 Fauna Register

			Capture Location							Release Details			Actions					
Collectors Name	**Date**	**Time**	**Capture Location**	**Latitude**	**Longitude**	**Count Type**	**Status**	***Common Name - Scientific Name***	**Count**	**Date**	**Latitude**	**Longitude**	**R1**	**R2**	**D**	**I**	**Release Location Description**	**Comments**
John Bolton	02/06/2023	16:16	End of Neumann Drive, Collingwood Park	-27.6252	152.8629	Alive	Least Concern	Gould's Wattled Bat *Chalinolobus gouldii*	4	02/06/2023	-27.6244	152.8652	X				Released under bark on tree	
John Bolton	02/06/2023	16:17	End of Neumann Drive, Collingwood Park	-27.6251	152.8629	Alive	Least Concern	Dubious Dtella *Gehyra dubia*	2	02/06/2023	-27.6245	152.8650	X				Released under log	
John Bolton	02/06/2023	16:18	End of Neumann Drive, Collingwood Park	-27.6252	152.8629	Alive	Least Concern	Robust Velvet Gecko *Nebulifera robusta*	2	02/06/2023	-27.6244	152.8650	X				Released under log	

John Bolton	02/06/2023	09:39	End of Neumann Drive, Collingwood Park	-27.6254	152.8610	Alive	Least Concern	Common Brushtail Possum *Trichosurus vulpecula*	1	02/06/2023	-27.6248	152.8658	X				Released Into dense cover	
John Bolton	06/06/2023	09:01	End of Neumann Drive, Collingwood Park	-27.6249	152.8623	Alive	Least Concern	Robust Velvet Gecko *Nebulifera robusta*	1	06/06/2023	-27.6243	152.8658	X				Released under bark on tree	Found in hollow: 150-199mm
John Bolton	06/06/2023	09:02	End of Neumann Drive, Collingwood Park	-27.6249	152.8623	Alive	Least Concern	Dubious Dtella *Gehyra dubia*	1	06/06/2023	-27.6242	152.8658	X				Released under bark on tree	Found in hollow: 150-199mm
John Bolton	06/06/2023	12:08	End of Neumann Drive, Collingwood Park	-27.6245	152.8618	Alive	Least Concern	Squirrel Glider *Petaurus norfolcensis*	1	06/06/2023	-27.6279	152.8641	X				Released onto tree with excavated termite mound	Found in hollow: 50-99mm

John Bolton	06/06/2023	14:33	End of Neumann Drive, Collingwood Park	-27.6248	152.8608	Alive	Least Concern	Water Dragon *Intellagama lesueurii*	1	06/06/2023	-27.6248	152.8660	X				Released onto bank of Goodna Creek	
John Bolton	06/06/2023	15:09	End of Neumann Drive, Collingwood Park	-27.6249	152.8608	Alive	Least Concern	Squirrel Glider *Petaurus norfolcensis*	2	06/06/2023	-27.6248	152.8660	X				Released onto tree with hollos	Found in hollow: 150-199mm
John Bolton	06/06/2023	15:50	End of Neumann Drive, Collingwood Park	-27.6251	152.8615	Alive	Least Concern	Common Brushtail Possum *Trichosurus vulpecula*	1	NA	NA	NA	X				Self relocated away from site	Found in hollow: 200-249mm
John Bolton	07/06/2023	09:04	End of Neumann Drive, Collingwood Park	-27.6250	152.8603	Alive	Least Concern	Squirrel Glider *Petaurus norfolcensis*	4	07/06/2023	-27.6235	152.8665	X				Released into hollow tree	Found in hollow: 150-199mm

John Bolton	07/06/2023	09:55	End of Neumann Drive, Collingwood Park	-27.6252	152.8598	Alive	Least Concern	Dubious Dtella *Gehyra dubia*	2	07/06/2023	-27.6236	152.8664	X				Released into hollow tree	
John Bolton	07/06/2023	10:51	End of Neumann Drive, Collingwood Park	-27.6256	152.8599	Alive	Least Concern	Common Brushtail Possum *Trichosurus vulpecula*	1	07/06/2023	-27.6247	152.8645	X				Released into dense cover	Found in Hollow: 150-199mm
John Bolton	07/06/2023	14:05	End of Neumann Drive, Collingwood Park	-27.6248	152.8602	Alive	Least Concern	Squirrel Glider *Petaurus norfolcensis*	5	07/06/2023	-27.6277	152.8606	X				Released into hollow-bearing gum	
John Bolton	07/06/2023	15:40	End of Neumann Drive, Collingwood Park	-27.6251	152.8594	Alive	Least Concern	Common Brushtail Possum Trichosurus vulpecula	1	NA	NA	NA	X				Self-relocated away from site	

John Bolton	07/06/2023	16:23	End of Neumann Drive, Collingwood Park	-27.6250	152.8594	Alive	Least Concern	Common Brushtail Possum *Trichosurus vulpecula*	1	NA	NA	NA	X				Self Relocated away from site	Found in Hollow: 200-249mm
John Bolton	08/06/2023	08:59	End of Neumann Drive, Collingwood Park	-27.6256	152.8596	Alive	Least Concern	Dubious Dtella *Gehyra dubia*	2	08/06/2023	-27.6304	152.8608	X				Released under log	
John Bolton	08/06/2023	13:14	End of Neumann Drive, Collingwood Park	-27.6251	152.8588	Alive	Least Concern	Squirrel Glider *Petaurus norfolcensis*	1	08/06/2023	-27.6246	152.8661	X				Released onto tree with hollows	Found in hollow: 150-199mm
John Bolton	08/06/2023	14:48	End of Neumann Drive, Collingwood Park	-27.6253	152.8590	Alive	Least Concern	Common Brushtail Possum *Trichosurus vulpecula*	1	08/06/2023	-27.6247	152.8661	X				Released Into dense cover	Found in hollow: 200-249mm

John Bolton	09/06/2023	10:08	End of Neumann Drive, Collingwood Park	-27.6260	152.8593	Alive	Least Concern	Common Brushtail Possum *Trichosurus vulpecula*	1	09/06/2023	-27.6246	152.8642	X				Released Into dense cover	Found in hollow: 200-249mm
John Bolton	09/06/2023	11:56	End of Neumann Drive, Collingwood Park	-27.6244	152.8589	Alive	Least Concern	Dubious Dtella *Gehyra dubia*	2	09/06/2023	-27.6246	152.8640	X				Released under log	
John Bolton	09/06/2023	13:32	End of Neumann Drive, Collingwood Park	-27.6250	152.8584	Alive	Least Concern	Common Brushtail Possum *Trichosurus vulpecula*	1	09/06/2023	-27.6279	152.8642	X				Released onto tree with excavated termite mound	Found in hollow: 200-249mm
John Bolton	09/06/2023	15:17	End of Neumann Drive, Collingwood Park	-27.6263	152.8585	Alive	Least Concern	Robust Velvet Gecko *Nebulifera robusta*	2	09/06/2023	-27.6281	152.8641	X				Released under bark on tree	Found in hollow: 150-199mm

John Bolton	12/06/2023	08:28	End of Neumann Drive, Collingwood Park	-27.6260	152.8583	Alive	Least Concern	Eastern Bearded Dragon *Pogona barbata*	1	12/06/2023	-27.6274	152.8650	X				Released onto pile of woody debris	
John Bolton	12/06/2023	09:52	End of Neumann Drive, Collingwood Park	-27.6257	152.8580	Alive	Least Concern	Robust Velvet Gecko *Nebulifera robusta*	1	12/06/2023	-27.6274	152.8651	X				Released under bark on tree	Found in hollow: 150-199mm
John Bolton	12/06/2023	09:52	End of Neumann Drive, Collingwood Park	-27.6256	152.8580	Alive	Least Concern	Dubious Dtella *Gehyra dubia*	1	12/06/2023	-27.6279	152.8645	X				Released under bark on tree	
John Bolton	12/06/2023	11:41	End of Neumann Drive, Collingwood Park	-27.6246	152.8581	Alive	Least Concern	Common Brushtail Possum *Trichosurus vulpecula*	1	12/06/2023	-27.6280	152.8644	X				Released into hollow stump	Found in hollow: 200-249mm

Rodney Whitaker	13/06/2023	9:30	End of Neumann Drive, Collingwood Park	-27.6271	152.8574	Alive	Endangered	Koala *Phascolarctos cinereus*	1	13/06/2023	NA	NA				X	Investigation only - left to self-relocate overnight	Tree was double flagged, exclusion zone established, and operators alerted to its presence.
Rodney Whitaker	13/06/2023	10:00	End of Neumann Drive, Collingwood Park	-27.6267	152.8581	Alive	Least Concern	Common Brushtail Possum *Trichosurus vulpecula*	1	13/06/2023	-27.6300	152.8618	X				Released onto habitat tree	
Rodney Whitaker	13/06/2023	11:00	End of Neumann Drive, Collingwood Park	-27.6259	152.8579	Alive	Least Concern	Eastern Bearded Dragon *Pogona barbata*	1	13/06/2023	NA	NA	X				Released into tree hollow	
Rodney Whitaker	13/06/2023	11:18	End of Neumann Drive, Collingwood Park	-27.6254	152.8576	Alive	Least Concern	Squirrel Glider *Petaurus norfolcensis*	1	13/06/2023	-27.6254	152.8576	X				Self-relocated to tree protection area	Found in hollow: 100-149mm

Rodney Whitaker	13/06/2023	12:21	End of Neumann Drive, Collingwood Park	-27.6270	152.8590	Alive	Least Concern	Rainbow Lorikeet *Trichoglossus haematodus*	2	13/06/2023	NA	NA		C			Released to carer – Ann De Jong. 2 Veronica Street, Gailes, phone: 3736 1967	2x chicks. Found in hollow: 150-199mm
Rodney Whitaker	13/06/2023	13:59	End of Neumann Drive, Collingwood Park	-27.6270	152.8590	Alive	Least Concern	Native Bee Hive *(Tetragonula sp.)*	1	13/06/2023	NA	NA		C			Released to carer – Rodney Whitaker. 157 Chapel Hill Road, Chapel Hill QLD 4069. Phone: 0488 118 864	Found in hollow 150-199mm
Rodney Whitaker	13/06/2023	14:00	End of Neumann Drive, Collingwood Park	-27.6267	152.8578	Deceased	Least Concern	Native bee hive: *Austroplebeia australis*	1	13/06/2023	NA	NA			X		Unable to be salvaged	Found in hollow: 100-149mm

Rodney Whitaker	13/06/2023	14:04	End of Neumann Drive, Collingwood Park	-27.6267	152.8578	Alive	Least Concern	Common Brushtail Possum *Trichosurus vulpecula*	1	13/06/2023	NA	NA	X				Self-relocated outside of work area	Found in hollow: 250-299mm
Rodney Whitaker	13/06/2023	16:10	End of Neumann Drive, Collingwood Park	-27.6256	152.8588	Alive	Least Concern	Eastern Grey Kangaroo *Macropus giganteus*	1	13/06/2023	NA	NA	X				Self-relocated away from site	
Rodney Whitaker	14/06/2023	08:30	End of Neumann Drive, Collingwood Park	-27.6270	152.8580	Alive	Least Concern	Eastern Bearded Dragon *Pogona barbata*	1	14/06/2023	-27.6246	152.8639	X				Onto tree trunk	
Rodney Whitaker	14/06/2023	09:30	End of Neumann Drive, Collingwood Park	-27.6270	152.8580	Alive	Least Concern	Squirrel Glider *Petaurus norfolcensis*	1	14/06/2023	-27.6270	152.8579	X				Self-relocated into tree in protection zone	

Rodney Whitaker	14/06/2023	09:45	End of Neumann Drive, Collingwood Park	-27.6270	152.8579	Alive	Endangered	Koala *Phascolarctos cinereus*	1	14/06/2023	NA	NA				X	Investigation only - left to self-relocate overnight	Same individual recorded on 13/6. Tree was double flagged, new exclusion zone established, and operators alerted to its presence.
Rodney Whitaker	14/06/2023	09:50	End of Neumann Drive, Collingwood Park	-27.6268	152.8581	Alive	Least concern	Native Bee Hive *(Tetragonula sp.)*	2	14/06/2023	NA	NA			X		Death	Unable to be rescued. Found in hollow: 150mm-199mm
Rodney Whitaker	14/06/2023	11:30	End of Neumann Drive, Collingwood Park	-27.6265	152.8573	Euthanised	Least concern	Eastern Bearded Dragon *Pogona barbata*	1	14/06/2023	NA	NA			X		Humanely euthanised by FSC	Severely injured.
Rodney Whitaker	14/06/2023	10:30	End of Neumann Drive, Collingwood Park	-27.6265	152.8573	Alive	Least concern	Common Brushtail Possum *Trichosurus vulpecula*	1	14/06/2023	NA	NA	X				Left within tree and tree moved aside to protection area to allow self-relocation overnight	Unable to be removed from hollow. Found in hollow: 200-249mm

Rodney Whitaker	14/06/2023	11:00	End of Neumann Drive, Collingwood Park	-27.6265	152.8573	Alive	Least concern	Squirrel Glider *Petaurus norfolcensis*	2	14/06/2023	-27.6246	152.8639	X				Released into large hollow tree	Found in hollow: 50-99mm
Rodney Whitaker	14/06/2023	11:22	End of Neumann Drive, Collingwood Park	-27.6265	152.8573	Alive	Least concern	Native Bee Hive *(Tetragonula sp.)*	1	14/06/2023	NA	NA		X			Death	Unable to be rescued. Found in hollow: 200-249mm
Rodney Whitaker	14/06/2023	11:23	End of Neumann Drive, Collingwood Park	-27.6265	152.8573	Alive	Least concern	Robust Velvet Gecko *Nebulifera robusta*	1	14/06/2023	-27.6246	152.8639	X				Released into hollow tree stump	
Rodney Whitaker	14/06/2023	12:06	End of Neumann Drive, Collingwood Park	-27.6261	152.8580	Alive	Least concern	Common Brushtail Possum *Trichosurus vulpecula*	2	14/06/2023	-27.6309	152.8615	X				Released into large tree along Goodna Creek	Found in hollow: 250-299mm

Rodney Whitaker	14/06/2023	12:07	End of Neumann Drive, Collingwood Park	-27.6261	152.8580	Alive	Least concern	Robust Velvet Gecko *Nebulifera robusta*	2	14/06/2023	-27.6246	152.8639	X				Released into hollow tree stump	
Jaedon Lunt	15/06/2023	07:00	End of Neumann Drive, Collingwood Park	-27.6271	152.8582	Alive	Endangered	Koala *Phascolarctos cinereus*	1	15/06/2023	NA	NA	X				Investigation only - left to self-relocate overnight	Same individual recorded on 13/6 & 14/6. Tree was double flagged, new exclusion zone established, and operators alerted to its presence.
Diamantina Ward	16/06/2023	08:23	End of Neumann Drive, Collingwood Park	-27.6269	152.8580	Alive	Least concern	Squirrel Glider *Petaurus norfolcensis*	1	15/06/2023	NA	NA	X				Self-relocated into neighbouring tree	Found in 0-49mm hollow

Diamantina Ward	16/06/2023	08:44	End of Neumann Drive, Collingwood Park	-27.6262	152.8573	Alive	Endangered	Koala *Phascolarctos cinereus*	1	15/06/2023	NA	NA	X				Investigation only - left to self-relocate overnight	Same individual recorded on 13/6,14/6.& 15/6. Koala had relocated to tree protection area overnight. Tree was double flagged, exclusion zone established, and operators alerted to its presence.

5 Conclusion

All vegetation clearance was supervised as requested by Shadforth Civil Pty Ltd and in accordance with stipulations as expressed in the *Nature Conservation (Koala) Conservation Plan 2017.*

A single Koala was observed and monitored over 4 days during clearing activities. Operators were notified of its presence, exclusion zones were established, and paths of vegetation were retained to allow the Koala to self-relocate to tree protection areas. Other fauna found during clearance works were relocated (or self-relocated) to adjacent localities comprising suitable refugia and feeding resources consistent with individual species requirements. Young/injured fauna were taken to a certified wildlife carer or veterinary clinic.

All supervised clearance activities were conducted with the full co-operation of onsite personnel and machinery operator/s.

6 References

Department of Environment and Heritage Protection (2017) *Nature Conservation (Koala) Conservation Plan 2017*. Queensland Government.

References for nomenclature

Menkhorst, K. & Knight, F. (2011) *A Field Guide to the Mammals of Australia*. 3rd edn. Oxford University Press, South Melbourne.

Simpson, K. & Day, N. (2004) *Field Guide to the Birds of Australia*. Penguin Group, Australia

Strahan, R. And Van Dyck, S. (2008) *The Mammals of Australia*, 3rd edn Sydney: New Holland Publishers.

Vanderduys, E. (2012) *Field Guide to the Frogs of Queensland*. Collingwood: CSIRO Publishing.

Wilson, S. (2015) *A Field Guide to Reptiles of Queensland*. 2nd edn, Sydney: New Holland Publishers.

7 Appendix A: Fauna Photos

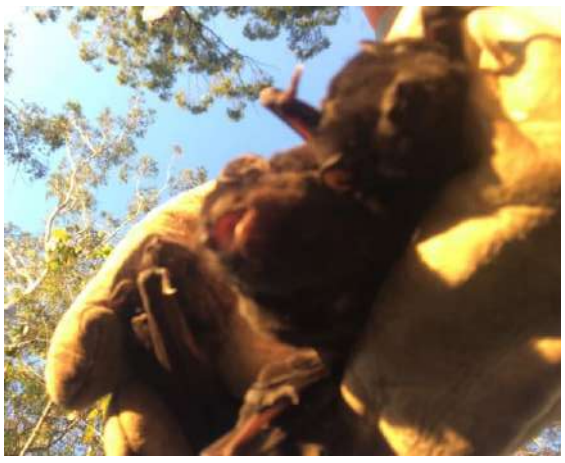
Squirrel Glider
Petaurus norfolcensis

Common Brushtail Possum
Trichosurus vulpecula

Dubious Dtella
Gehyra dubia

Eastern Water Dragon
Intellagama lesueurii

Robust Velvet Geckos
Nebulifera robusta



Gould's Wattled Bats
Chalinolobus gouldii

Koala
Phascolarctos cinereus

Rainbow Lorikeet chicks
Trichoglossus haematodus

Eastern Bearded Dragon
Pogona barbata

Appendix D

Harry Ratnam Park monthly photo monitoring reports (March, April and May 2023)

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surveying town planning urban design environmental management landscape architecture

Our Reference: 8051 Harry Ratnam photo monitoring points 20230303.docx

Date: 03rd March 2023
Project No: 8051
Project Title: Harry Ratnam

CIRCULATION:
VILLAGE BUILDING COMPANY – Bec Ashby
JUNGLE BUSTERS – Rick Hartman

RE: HARRY RATNAM PC INSPECTION PHOTO MONITORING POINTS 03.03.2023

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Our Reference: 8051 Harry Ratnam photo monitoring points 2 20230418.docx
Date: 18th April 2023
Project No: 8051
Project Title: Harry Ratnam Park

CIRCULATION:
VILLAGE BUILDING COMPANY – Bec Ashby
JUNGLE BUSTERS – Rick Hartman

RE: HARRY RATNAM PARK PHOTO MONITORING INSPECTION #2 POINTS 18.04.2023

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Our Reference: 8051 Harry Ratnam photo monitoring points 3 20230531.docx
Date: 31st May 2023
Project No: 8051
Project Title: Harry Ratnam Park rehabilitation works

CIRCULATION:
VILLAGE BUILDING COMPANY – Bec Ashby
JUNGLE BUSTERS – Rick Hartman

RE: HARRY RATNAM PARK PHOTO MONITORING INSPECTION #3 POINTS 31.05.2023

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Appendix E

Goodna Creek & Harry Ratnam Park revegetation and rehabilitation works status overview Harry Ratnam Park Rehabilitation Works

GOODNA CREEK & HARRY RATNAM PARK REVEGETATION & REHABILITATION

100m

HILLTOP ADVENTURE PARK

COMPLETED REHABILITATION & REVEGETATION

GOODNA CREEK

KOALA RESERVE

EAGLE ST

EXISTING PEDESTRIAN LINK

ELDER PDE

EXISTING POWERLINK EASEMENT

HENTY DR

PALASZCZUK AVE

COMPLETED REHABILITATION & REVEGETATION

DR HARRY RATNAM PARK

EXISTING DRAINAGE CORRIDOR

EXISTING PEDESTRIAN LINK TO WOODLINKS VILLAGE

LEGEND

1 Existing vegetation cover
Weed Removal and Management and Natural Regeneration of Native Species

2 Proposed broad scale re-vegetation
Native Species planting into open grassed areas away from houses, powerlines and drainage areas

3 Proposed individual tree planting
Koala Tree Species planting at wider spacings into open grassed areas between pedestrian pathway

4 Existing open grassed areas
Grass areas under power lines and alongside pathways

5 Existing drainage areas
No new works proposed

6 Existing recreation park
No new works proposed

7 Existing koala food plantings
No new works proposed

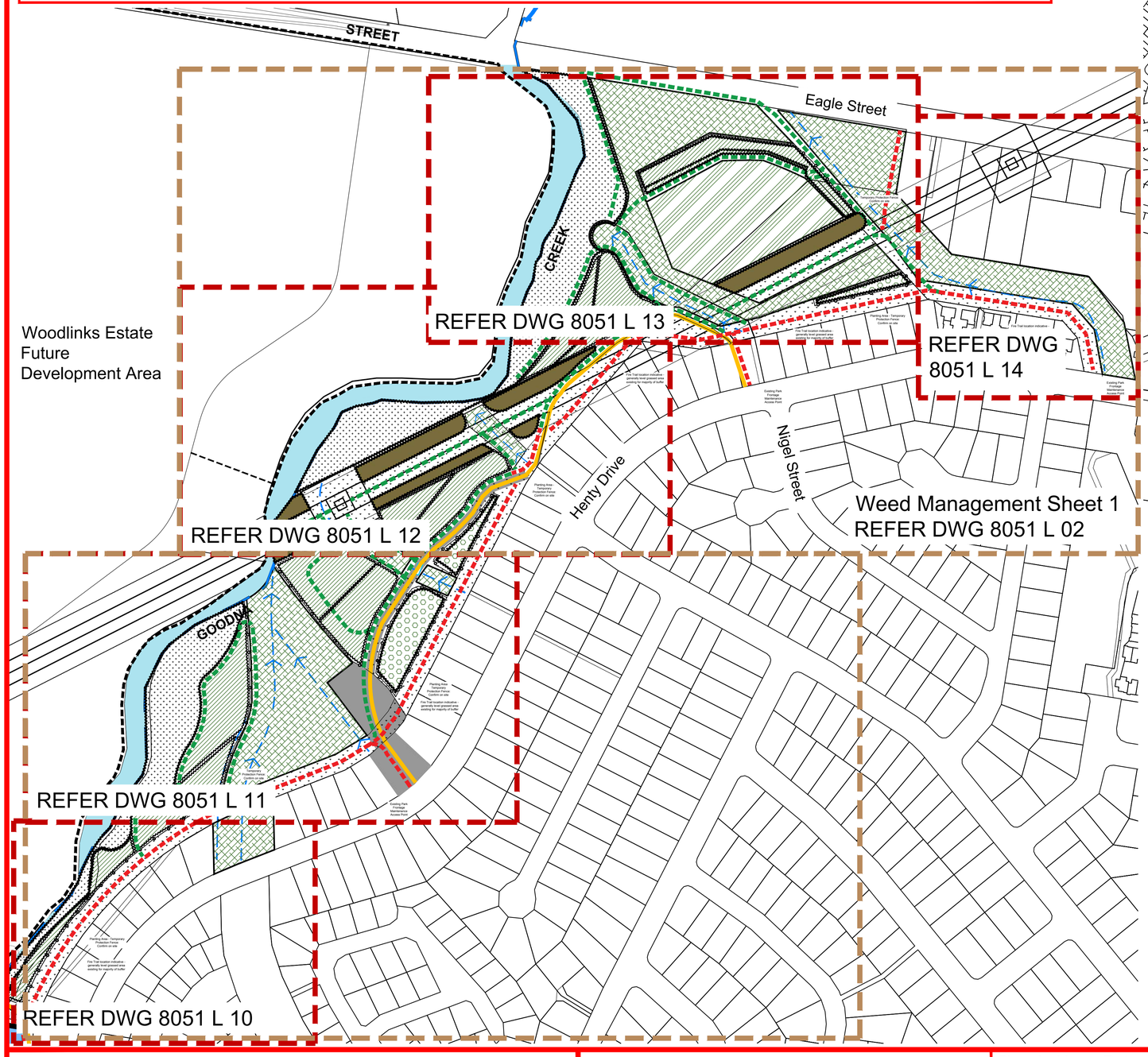
Appendix F

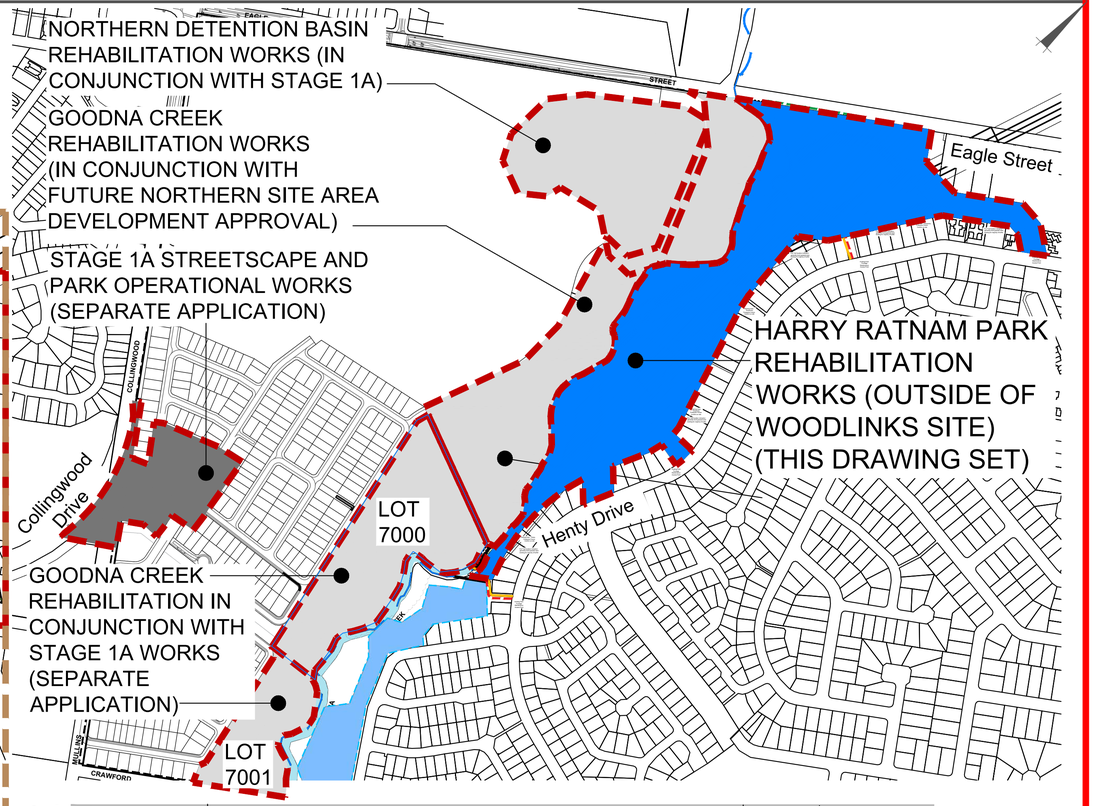
Harry Ratnam Park Rehabilitation Works Plan, prepared by SHG

Woodlinks Village Estate - Harry Ratnam Park

Weed Management & Rehabilitation Works

SITE LAYOUT: 1:2000 @ A1





DRAWING SCHEDULE

Dwg No.	Drawing Title	Issue	Date
8051 L 01	Cover Sheet	E	15.06.21
8051 L 02	Weed Management Plan - Sheet 1	E	15.06.21
8051 L 03	Weed Management Plan - Sheet 2	E	15.06.21
8051 L 04	Weed Management Notes	E	15.06.21
8051 L 05	Weed Treatment & Removal Strategy - Sheet 1	E	15.06.21
8051 L 06	Weed Treatment & Removal Strategy - Sheet 2	E	15.06.21
8051 L 07	Weed Treatment & Removal Strategy - Sheet 3	E	15.06.21
8051 L 08	Weed Treatment & Removal Strategy - Sheet 4	E	15.06.21
8051 L 09	Rehabilitation General Notes - Sheet 1	E	15.06.21
8051 L 10	Rehabilitation Zone Notes - Sheet 2	E	15.06.21
8051 L 11	Rehabilitation Plan - Sheet 1	E	15.06.21
8051 L 12	Rehabilitation Plan - Sheet 2	E	15.06.21
8051 L 13	Rehabilitation Plan - Sheet 3	E	15.06.21
8051 L 14	Rehabilitation Plan - Sheet 4	E	15.06.21
8051 L 15	Rehabilitation Plan - Sheet 5 & Plant Schedules	E	15.06.21
8051 L 16	Rehabilitation Plan Plant Schedules - Sheet 1	E	15.06.21
8051 L 17	Rehabilitation Plan Plant Schedules - Sheet 2	E	15.06.21
8051 L 18	Rehabilitation Sections	E	15.06.21
8051 L 19	Single Tree Planting - Typical Layout Plan	E	15.06.21
~~8051 L 20~~	~~Indicative Phasing Plan~~	~~E~~	~~15.06.21~~

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amendments:

Issue	Date	Details	Approved
A	22.03.2016	Preliminary	GC
B	09.07.2018	Phase 1 Tender	GC
C	17.08.2018	Revised Tender	GC
E	15.06.2021	Revised Tender	GC

Date Jun 15

Scale N.T.S

Plan of: Harry Ratnam Park
Rehabilitation Works - Cover Sheet

Drawn by. FW

Checked by GC / MS

Project: Woodlinks Village Estate H.R.Park

Client: Canberra Estate Consortium No. 36

SCALE:
1:2000@A1
1:4000@A3
0 20 100m

North

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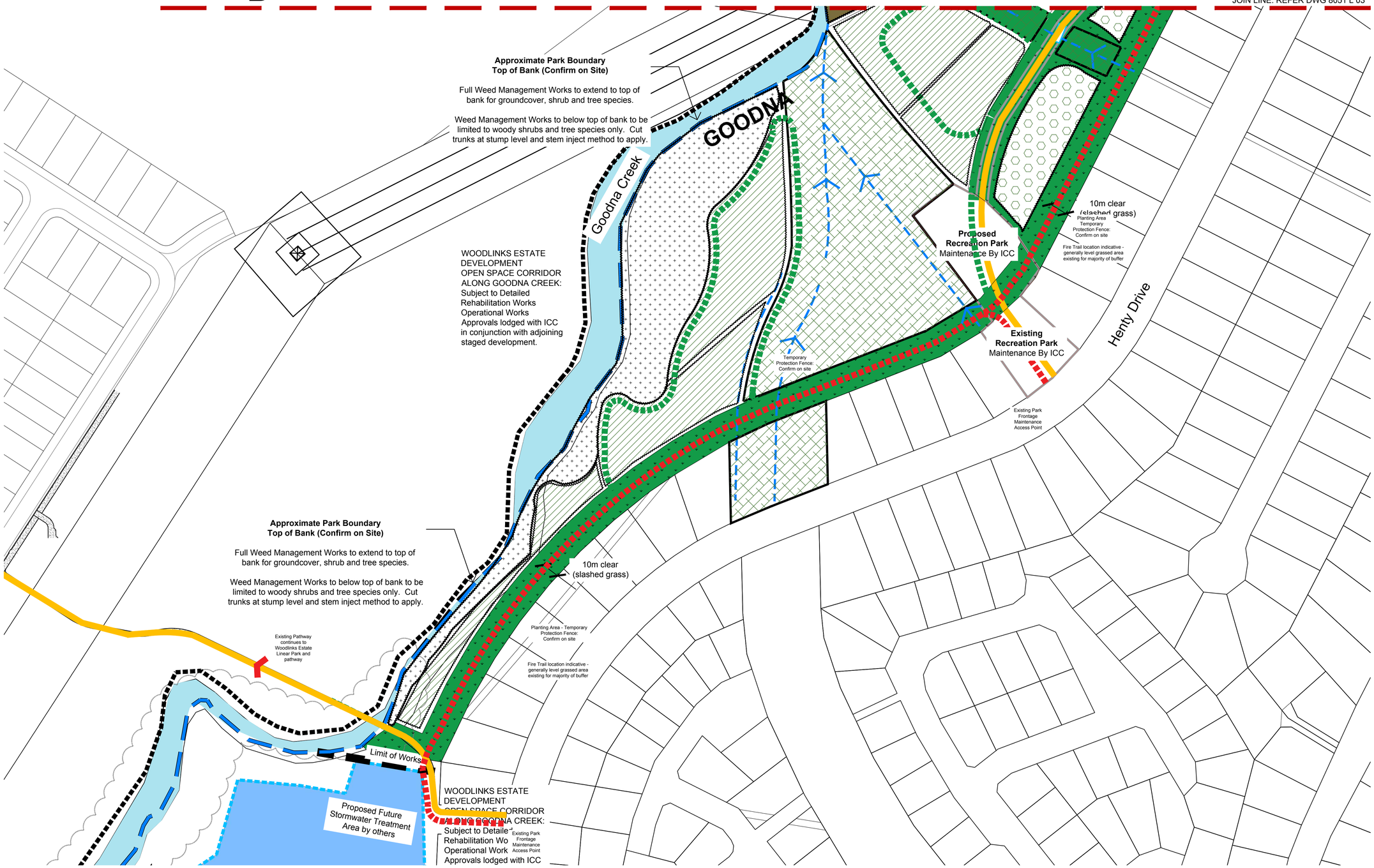
Dwg No. 8051 L 01 E

Woodlinks Village Estate - Harry Ratnam Park

Weed Management Plan - Sheet 1



LEGEND

WOODLINKS ESTATE GOODNA CREEK REHABILITATION WORKS AREA: Subject to separate management plan & not part of scope for H. R. Park works package.

FUTURE ICC WORKS AREAS: These areas to be managed by ICC & not part of scope for H. R. Park works package. No allowance for contractor to weed manage, mow or slash grass in these areas.

OVERLAND FLOWS & GRASSED ACCESS AREAS (CONTRACTOR): These are areas proposed to be managed by the Landscape Contractor as part of scope for H. R. Park works package. Contractor to make allowance to mow or slash grass in these areas.

EXISTING VEGETATION MANAGEMENT AREA: Full weed management throughout involving manual removal, stock piling and disposal and usage of prescribed herbicides.

PROPOSED BROAD-SCALE MULCHED PLANTED AREAS: Full conversion from grass to mulched planting areas.
- In these areas the Contractor is to allow for full eradication of existing slashed grass cover through usage of prescribed herbicides and methods.

PROPOSED TREE PLANTING MULCHED PLANTED AREAS: In these areas the Contractor is to allow for selective individual and grouped tree plantings into existing slashed grass. Contractor to allow for eradication of grass cover through usage of prescribed herbicides and methods in locations confirmed on site with Superintendent.

ELECTRICAL EASEMENT: No works in the initial phase.

NOTES

NOTE 1: Where indicative dominant weed locations are noted in approximate locations from site observations these do not represent all weeds on site.

All weeds listed on Drawings 8051 L 05, 06 & 07 "Weed Treatment and Removal Strategy Sheets 1 to 3" are to be removed.

NOTE 2: All works in accordance with Notes on Drawing 8051 L 04 "Weed Management Notes"

NOTE 3: All planting areas to be maintained weed free following establishment.

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amendments:

Issue	Date	Details	Approved
A	22.03.2016	Preliminary	GC
B	17.08.2018	Revised Tender	GC
E	15.06.2021	Revised Tender	GC

Date Jun 15

Plan of: Harry Ratnam Park
Weed Management Plan - Sheet 1

Drawn by. FW

Checked by GC / MS

Project: Woodlinks Village Estate H.R.Park

Client: Canberra Estate Consortium No. 36

SCALE: 1:1000@A1 1:2000@A3 0 10 20 50m

North

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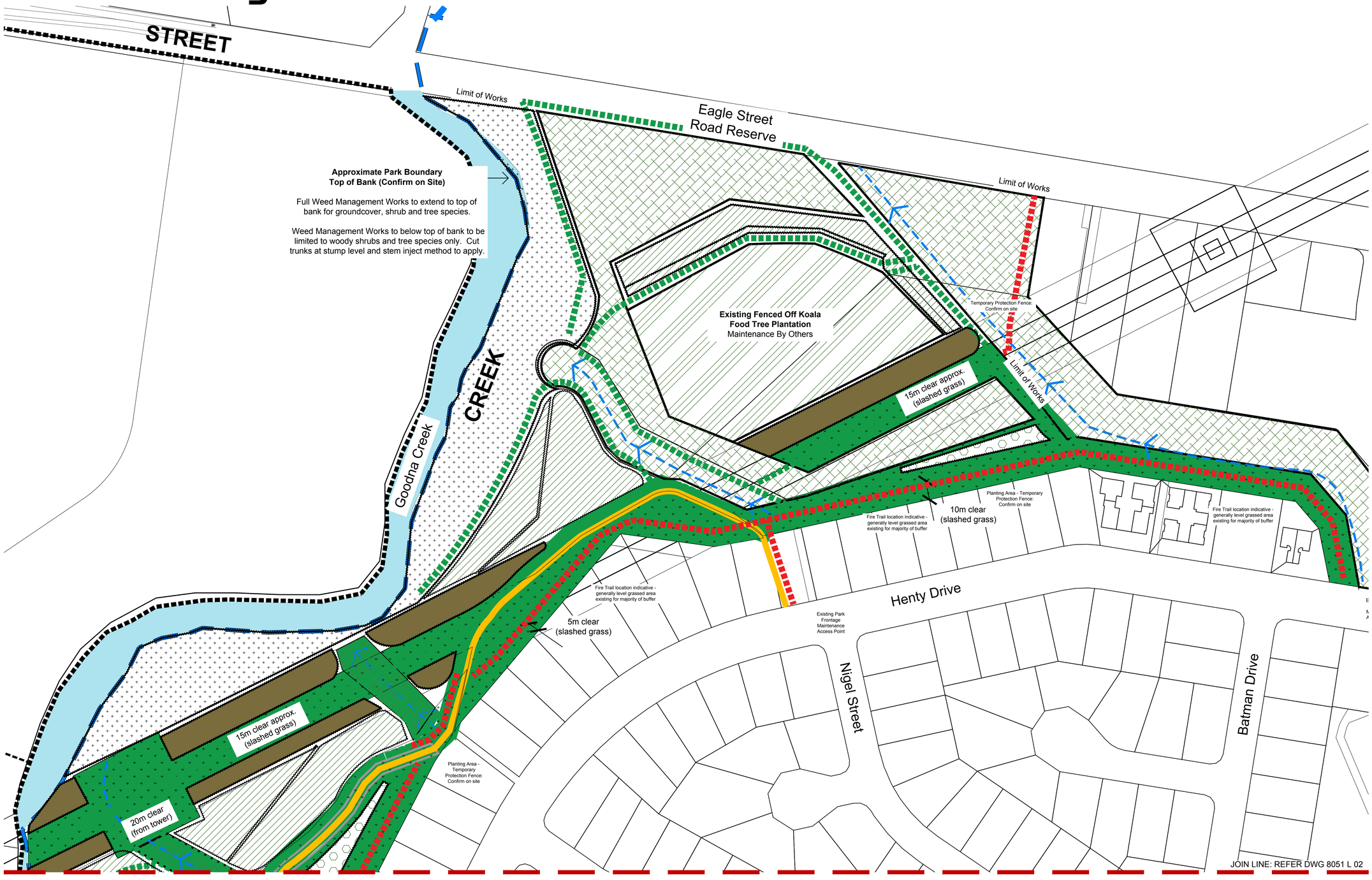
Dwg No. 8051 L 02 E

Woodlinks Village Estate - Harry Ratnam Park

Weed Management Plan - Sheet 2



LEGEND

Existing Pathway continues to Woodlinks Estate Linear Park and pathway

WOODLINKS ESTATE GOODNA CREEK REHABILITATION WORKS AREA: Subject to separate management plan & not part of scope for H. R. Park works package.

FUTURE ICC WORKS AREAS: These areas to be managed by ICC & not part of scope for H. R. Park works package. No allowance for contractor to weed manage, mow or slash grass in these areas.

OVERLAND FLOWS & GRASSED ACCESS AREAS (CONTRACTOR): These are areas proposed to be managed by the Landscape Contractor as part of scope for H. R. Park works package. Contractor to make allowance to mow or slash grass in these areas.

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ELECTRICAL EASEMENT: No works in the initial phase.

NOTES

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All weeds listed on Drawings 8051 L 05, 06 & 07 "Weed Treatment and Removal Strategy Sheets 1 to 3" are to be removed.

NOTE 2: All works in accordance with Notes on Drawing 8051 L 04 "Weed Management Notes"

NOTE 3: All planting areas to be maintained weed free following establishment.

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amendments:

Issue	Date	Details	Approved
A	22.03.2016	Preliminary	GC
B	17.08.2018	Revised Tender	GC
E	15.06.2021	Revised Tender	GC

Date Jun 15

Plan of: Harry Ratnam Park
Weed Management Plan - Sheet 2

Drawn by. FW

Checked by GC / MS

Project: Woodlinks Village Estate H.R.Park

Client: Canberra Estate Consortium No. 36

SCALE: 1:1000@A1 1:2000@A3 0 10 20 50m

North

saunders havill group

Dwg No. 8051 L 03 E

Woodlinks Village Estate - Harry Ratnam Park

Weed Management Notes

NOTES

1. INTRODUCTION

The Saunders Havill Group was engaged by Canberra Estate Consortium No.36 Pty Ltd to prepare this **Rehabilitation and Weed Management Plan** covering the proposed Rehabilitation Works within **Harry Ratnam Park** adjacent to "Woodlinks Village" residential estate.

This Rehabilitation Plan comprises of two main components:

- Weed Management
- Revegetation

This Rehabilitation and Weed Management Plan will aid to enhance the natural vegetation through extensive weed management, selective infill planting and natural regeneration.

2. WEED MANAGEMENT

Weed management will comprise a major part of the site works within the park areas. Weed management will provide the basis of aiding natural regeneration within the riparian corridor. Where significant disturbance occurs, infill tubestock planting will be utilized to aid stabilization and native vegetation succession. **All weed control works shall be undertaken by an experienced and qualified ecological restoration and management contractor.**

Native species should be identified and tagged as required prior to weed removal and throughout the maintenance period. This is to ensure maximum regeneration and reducing likelihood of accidental weed spraying to native vegetation. Regenerating species to be treated and maintained in a similar manner to newly planted revegetation tubestock.

WEED CONTROL PROGRAM TIMING

The primary stage of manual weed removal, treatment and disposal for the parkland dedication is programmed. A primary weed removal strategy over the initial months of commencement will remove most of the existing weeds and minimize erosion issues and impacts, whilst secondary removal over the following months will ensure very minimum weed regrowth. Ongoing maintenance weeding will occur for the remainder of the period until off maintenance.

Primary Weed Removal Stage - Consists of the initial weed removal / treatment of site weeds via the methods detailed in this Drawing Set. It essentially involves the manual removal, stock piling and disposal and initial usage of prescribed herbicides staged over a 2 month period- minimizing possible erosion issues. Additional notes below include:

- Implemented weed control method according to this Rehabilitation Plan.
- **All Herbicides are to be applied by an appropriately qualified / supervised person in accordance with the Agricultural Chemicals and Distribution Control Act 1966** at rates as identified on registered product labels or an Australian Pesticides and Veterinary Medicines Authority (APVMA) issued off-label permit where applicable. Refer to SEQ Ecological Restoration Framework for additional guidance.
- Program timing; primary weed removal phase is considered to be completed when all existing weeds within the designated Park have been removed initially. Both the secondary phase and the primary phase of weed removal can occur concurrently in different work areas over time. Primary weeding methods to minimize mass clearing and cause erosion issues.
- A key map is to be provided logging the progress of areas from primary to secondary phases of weed removal and areas of rehabilitation as part of the reporting progress.

Secondary or Follow-up Weeding - for parkland areas will involve the quarterly inspection of areas having undergone Primary Weed Removal and treatment of infestations or outbreak as required. Additional notes below include:

- Implemented weed control method according to this Rehabilitation Plan.
- Program timing; primary weed removal phase is considered to be completed when all existing weeds within the designated Park have been removed initially. Both the secondary phase and the primary phase of weed removal can occur concurrently in different work areas over time.
- A key map is to be provided logging the progress of areas from primary to secondary phases of weed removal and areas of rehabilitation as part of the reporting progress.

NOTE

ALL WEED SPECIES IDENTIFIED IN THE "BIOSECURITY ACT 2014" AND

QLD HERBARIUM INVASIVE WEED SPECIES LISTS

Maintenance Weeding Phase - final stage of weeding which occurs in areas where the majority of weeds have been removed and treated. Maintenance weeding continues to remove additional outbreaks but also allows for the fostering of natural regeneration and regrowth seedlings. Additional notes below include:

- Implemented weed control method according to this Rehabilitation Plan.
- Program timing; primary weed removal phase is considered to be completed when all existing weeds within the designated Park have been removed initially. Both the secondary phase and the primary phase of weed removal can occur concurrently in different work areas over time.
- A key map is to be provided logging the progress of areas from primary to secondary phases of weed removal and areas of rehabilitation as part of the reporting progress.

NOTES

CLASS 2 PESTS

- Class 2 pests are established in Queensland and have, or could have, an adverse economic, environmental or social impact.
- The management of these pests requires coordination and they are subject to programs led by local government, community or landowners.
- Landowners must take reasonable steps to keep land free of Class 2 pests.

CLASS 3 PESTS

- Class 3 pests are established in Queensland and have, or could have, an adverse economic, environmental or social impact.
- The primary objective of Class 3 listing is to prevent sale, therefore preventing the spread of these pests into new areas.
- Landholders are not required to control Class 3 plants unless their land is adjacent to an environmentally significant area. *(Extract from Department of Environment and Resource Management website).*

Refer to Weed Management Techniques for detail and specifications on removal / treatment of all weed species in accordance with the Qld Herberium List

3. MONITORING AND REPORTING PROCEDURES

Monitoring of the park weed management and revegetation works allows for:

- Review of the pre-established performance indicators for measuring the success of the weed removal and control.

NOTES

- Ensure level of protection for existing identified native vegetation inclusive of that which has naturally regenerated
- Review the rate of spread or contraction of weed infestation within the control program.
- Monitor the rate of assisted regeneration and revegetation of desirable native species promoted in areas where weeds have been removed.
- Identification of new weed threats or other factors which may be effecting areas designated for rehabilitation.

Monitoring is required for weed eradication, revegetation and assisted regeneration.

MONITORING MILESTONES

For weed removal and revegetation three main Milestones will apply for the monitoring process. These include:

Pre-Start Inspection - *On-site meeting prior to the initial commencement of work. Will involve Consultant, Contractor and Council to confirm weed treatment areas and clarify works to proceed.*

On-Maintenance - *At the completion of the Primary Weed Removal Stage and any required revegetation, an On-Maintenance meeting will be held to inspect the works on-site in relation to the approved plans and previously agreed on-maintenance criteria.*

Off- Maintenance - *At the completion of all site weeding works and the agreed maintenance timeframe a final inspection will be held to determine if works have been completed to the required level for completion. The completion of ongoing maintenance duties during the maintenance period will be critical to enable "Off Maintenance" to be acheived.*

4. BENCHMARKS

This rehabilitation and weed management plans aims to improve the flora and fauna value along the Creek corridor through weed removal and promoting native species growth. To ensure clear and reasonable result benchmarks, we propose the following breakdown of works in to be conjunction with on and off maintenance milestones:

EXISTING VEGETATION AREAS:

- On Maintenance requirements;
  - Primary weed removal completed;
  - Secondary weed removal completed
- Off Maintenance requirements;
  - 10% or less weeds present on site
  - Any additional revegetation required has 80% success rate

REVEGETATION AREAS:

- On Maintenance requirements;
  - All required planting completed;
  - evidence of ongoing weed management;
  - Max. 10% plant failures at time of inspection
- Off Maintenance requirements;
  - Max 20% plant failures
  - Plants established and generally free of weeds

NOTES

5. RESOURCES / ROLES & RESPONSIBILITIES

All resources required to implement this Rehabilitation Plan will be provided by the proponent. The following roles are applicable:

PROPONENT

- Ensure all consultants, contractors, sub contractors or others utilizing the parkland area are aware of the Rehabilitation Plan.
- Appoint appropriate consultants and contractors to undertake works as prescribed on the drawings and conditioned by **Ipswich City Council**.
- Provide security via an uncompleted works bond and maintenance bond for the cost of works if required.
- Cover the costs of all necessary resources to ensure works are completed as per the approved documents.

CONSULTANTS

- Brief proponent on their requirements in implementing and maintaining works as per the Rehabilitation Plan.
- Attend pre start, on maintenance and off maintenance meetings.
- Undertake monitoring and reporting to **Ipswich City Council** as set up by this document.
- Be available to respond to technical queries to the approved documentation when on-site conditions require changes.
- Liaise with Council throughout all stages of approval, initial works and maintenance of works.

COUNCIL

- Provide technical expertise via commentary on the approval of documentation.
- Attend pre-start, on and off maintenance inspections.
- Undertake random inspections through the Secondary weed management and Maintenance phases.
- Reduce and release securities held against works at the completion of successful milestone inspections.
- Accept and review quarterly reports as dictated in this document.

CONTRACTOR

- Complete works in strict accordance with the documentation.
- Recommend changes to the documentation when specific experience or on-site conditions require so.
- Attend pre-start, on and off maintenance inspections.

PROJECT 8051 HARRY RATNAM PARK

REVEGETATION AND REHABILITATION WORKS - INDICATIVE SCHEDULE OF WORK ITEMS AND MAINTENANCE SEQUENCING

NOTE: Assumes planting at end of Winter to allow for establishment and maintenance over two growing seasons

COLOUR KEY TO WORK ITEMS — Weed Management | Soil Preparation and Mulching | Planting Works | Watering, Monitoring and Reporting

	WINTER			SPRING			SUMMER			AUTUMN			WINTER			SPRING		
	CONSTRUCTION PERIOD (3 months)			ESTABLISHMENT PERIOD (3 months)			ONGOING MAINTENANCE			ONGOING MAINTENANCE			ONGOING MAINTENANCE			ONGOING MAINTENANCE		
	Month 1	Month 2	Month 3	Month 1	Month 2	Month 3	Month 1	Month 2	Month 3	Month 1	Month 2	Month 3	Month 1	Month 2	Month 3	Month 1	Month 2	Month 3
WEEK 1	Pre-start meeting Council, Contractor and Superintendant	Weed management - "knockdown spray"	Mulch spreading and Jute-mat installation	Watering and Monitoring and reporting (throughout establishment)	Watering and Monitoring and reporting (throughout establishment)	Watering and Monitoring and reporting (throughout establishment)	Monitoring and reporting (watering to replacement plants only)	Monitoring and reporting	Monitoring and reporting	Monitoring (watering to replacement plants only)		Monitoring and reporting			Monitoring and reporting	Mulch - top up depths to 100mm and replace / repair Jutematting as required	Monitoring (watering to replacement plants only)	Monitoring (watering to replacement plants only)
WEEK 2	Initial weed management works - wood weed removal /"knockdown" spray	Soil Preparation and cultivation	Natural regeneration plants staking for identification	Weed management - "knockdown spray" in mulched areas	Weed management - "knockdown spray" re-apply woody weeds	Weed management - "knockdown spray" in mulched areas	Weed management - rotation "knockdown spray" in mulched areas	Weed management - rotation "knockdown spray" in mulched areas	Weed management - rotation "knockdown spray" in mulched areas	Weed management - rotation "knockdown spray" in mulched areas		Weed management - rotation "knockdown spray" in mulched areas			Weed management - rotation "knockdown spray" in mulched areas	Natural regeneration plants - weed management	Weed management - "knockdown spray" re-apply woody weeds	Weed management - "knockdown spray" in mulched areas
WEEK 3	Weed management works - removal by hand	Soil Preparation and modification	Planting and Watering	Natural regeneration plants - weed management	Replacement of Failed Plants	Replacement of Failed Plants	Natural regeneration plants - weed management	Natural regeneration plants - weed management	Replacement of Failed Plants	Natural regeneration plants - weed management		Trees formative pruning				Replacement of Failed Plants	Replacement of Failed Plants	Natural regeneration plants - weed management
WEEK 4	Weed Management - slashing of maintenance access paths	Mulch - stockpiled on site	Planting and Watering	Weed Management - slashing of maintenance access paths	Weed Management - slashing of maintenance access paths	Weed Management - slashing of maintenance access paths	Weed Management - slashing of maintenance access paths	Weed Management - slashing of maintenance access paths	Weed Management - slashing of maintenance access paths	Weed Management - slashing of maintenance access paths		Weed Management - slashing of maintenance access paths			Weed Management - slashing of maintenance access paths	Replacement of Failed Plants	Weed Management - slashing of maintenance access paths	Weed Management - slashing of maintenance access paths

MILESTONE: PRACTICAL COMPLETION

MILESTONE: COUNCIL "ON MAINTENANCE"

NOTE: Assumes Coordination Works Carried Out Prior To Council Pre-start: Council approval, appointment of suitability of qualified contractor by developer, procurement of all plant stock and materials, establishment of protection fencing around nominated

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Weed Management Notes

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Checked by GC / MS

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Client: Canberra Estate Consortium No. 36

saunders havill group

Dwg No. 8051 L 04 E

Woodlinks Village Estate - Harry Ratnam Park

Weed Treatment & Removal Strategy - Sheet 1

REHABILITATION METHODOLOGY - SITE WORKS - WEED NOTES

All Herbicides are to be applied by an appropriately qualified / supervised person in accordance with the Agricultural Chemicals and Distribution Control Act 1966 at rates as identified on registered product labels or an Australian Pesticides and Veterinary Medicines Authority (APVMA) issued off-label permit where applicable. Refer to SEQ Ecological Restoration Framework for additional guidance.

REHABILITATION METHODOLOGY - SITE WORKS - WEED NOTES

QUEENSLAND HERBARIUM INVASIVE NATURALISED PLANTS IN SOUTH EAST QUEENSLAND

RANK	FAMILY	SCIENTIFIC & COMMON NAME	SUB-REGION	LIFE FORM & SOURCE	NON-CHEMICAL CONTROL	CHEMICAL CONTROL
1	Verbenaceae	Lantana camara var. camara (lantana)	10	S/O	Seedlings: Hand pull	Seedlings: CS&P (G1.5); Shrubs: blanket spray G100 or cut down and spray regrowth G100 or splatter gun using 1 part G to 9 parts water - apply only when plant is growing, not dormant (ref 1).
2	Asteraceae	Baccharis halimifolia (groundsel bush)	10	S/O	Seedlings: Hand pull	Shrubs: CS&P or F/I (G1); Seedlings: CS&P (G1.5) or spray G200 (ref 1).
3	Crassulaceae	Bryophyllum delagoense (mother of millions)	8	H/O	Hand pull and dispose	Plantlets: spray G200 + MM or MM (ref 1).
4	Bignoniaceae	Macfadyena unguis-cati (cat's claw creeper)	5	V/O	Tubers: crown or dig up, bag and remove.	Regrowth and tuberlings: spray G100 + MM or F100 (ref 1).
5	Basellaceae	Anredera cordifolia (madeira vine)	8	V/O	Small Vines & Tubers: Hand pull. Bag and dispose.	Ascending Stems: S&P (GU); Tubers: gouge, scrape and paint (GU); Ground infestations: spray G200 or G200 + MM (ref 1).
6	Asparagaceae	Asparagus africanus (ornamental asparagus, asparagus fern)	7	V/O	dig out roots and dispose of at local council landfill site. remove entire crown and underground stem to prevent regrowth	fluroxypyr (200 g/L) @ 35 mL per 1 L diesel/kerosene
7	Ulmaceae	Celtis sinensis (Chinese celtis)	8	T/O	remove when small .hand pull or dig out small seedlings. combine dozing, burning and controlled grazing for large infestations	Stem injection, glyphosate (360 g/L) @ Undiluted at 1 mL per 2 cm of hole or cut
8	Lauraceae	Cinnamomum camphora (camphor laurel)	7	T/O	Seedlings: Hand pull	Saplings: CS&P (G1.5); Trees: F/I (G1 or G1.5) or C&P (G1.5 or GU for stems up to 8 diameter); Seedlings: spray G200 or G200 + MM (ref 1).
9	Anacardiaceae	Schinus terebinthifolius (broad-leaf pepper tree)	6	T/O	Seedlings: Hand pull	Saplings: CS&P (G1.5); Trees: F/I (G1.5); Seedlings: spray G200 (ref 1).
10	Salviniaceae	Salvinia molesta (salvinia)	8	Ha/F	Mechanical removal of small infestations; Salvinia weevil (Biological control)	Aquatic areas: calcium dodecylbenzene sulphanate (AF-100) @ 1 part to 19 parts kerosene; diquat (vegetrol) 50-100L/ha or 4L/100L water; diquat (watrol) 50-100L/Ha or 4L/100L water; diquat (reglone) 5-10L/Ha or 400mL + 150mL Agral / 100L water (see ref 2.
11	Cabombaceae	Cabomba caroliniana (cabomba, fanwort)	4	Ha/F	Mechanical removal of small infestations	2, 4-D N-Butyl Ester (Rubber Vine Spray) @ 12.5L/ML water (see ref 2. for application guide).
12	Asteraceae	Chrysanthemoides monilifera subsp. rotundata (bitou bush)	3	S/OA	N/A	Stems: C&P or F/I (G1.5); Bushes: spray or cut down and spray regrowth G100 or MM (ref 1).

REHABILITATION METHODOLOGY - SITE WORKS - WEED NOTES

QUEENSLAND HERBARIUM INVASIVE NATURALISED PLANTS IN SOUTH EAST QUEENSLAND

RANK	FAMILY	SCIENTIFIC & COMMON NAME	SUBREGION	LIFE FORM & SOURCE	NON-CHEMICAL CONTROL	CHEMICAL CONTROL
13	Pontederiaceae	Eichhornia crassipes (water hyacinth)	4	Ha/OF	Mechanical removal of small infestations	Waterways: 2, 4-D acid ('AF 300') @ 1:200 with water; Aquatic Areas: glyphosate @1-1.3L/100L water (see ref 2. for application guide).
14	Acanthaceae	Hygrophila costata (Glush weed)	3	Ha/F	Hand pull smal infestations. Can be controlled by planting competitive native species.	Glyphosate known to be effective.Species known to occur in waterways so EPA should be contacted before spraying (ref 4).
15	Oleaceae	Ligustrum lucidum (tree privet)	5	T/O	Seedlings: Hand pull	Saplings: CS&P or C&P (G1.5); Trees: F/I (G1 or G1.5) or C&P GU for stems up to 8cm diameter; Seedlings: spray MM or G200 + MM if other weeds such as Lantana or Camphor Laurel are present (ref 1).
16	Asteraceae	Sphagneticola trilobata (Singapore daisy)	6	H/O	Hand pull	Hand pull and/or spray G200 + MM (ref 1).
17	Asteraceae	Ageratina adenophora (crofton weed)	6	H/O	Hand pull and hang to dry.	Spray MM or G200 or G200 + MM if other weeds such as Lantana or Camphor Laurel are present (ref 1).
18	Verbenaceae	Lantana montevidensis (creeping lantana)	8	S/O	Fire and/or mechanical control	Spray (march to may): glyphosate 1L/100L water; metsulfuron methyl 10g/100L water; metsulfuron methyls + glyphosate 173g/100L water; Basal bark (anytime): triclopyr 1L/60L Diesel, picloram + triclopyr @ 1L/60L Diesel, Glyphosate, neat application; Splatt
19	Fabaceae	Neonotonia wightii (glycine)	5	H/A	N/A	Vines: CS&P (1:1.5) or spray G100 + MM or MM (ref 1).
20	Poaceae	Panicum maximum (green panic and guinea grass)	8	H/A	Hand or mechanical removal of small infestations	Spray: glyphosate @ 13mL/1L water (ref 2.)
21	Oleaceae	Ligustrum sinense (Chinese privet)	4	T/O	Seedlings: Hand pull	Saplings: CS&P or C&P (G1.5); Trees: F/I (G1.5); Seedlings: spray MM or G200 + MM if other weeds such as Lantana or Camphor Laurel are present (ref 1).
22	Ochnaceae	Ochna serrulata (ochna)	7	S/O	N/A	Stems: CS&P or S&P or F/I (G1.5); Seedlings and Regrowth: spray G200 + MM or MM. Trial basal bark F100 or G200 + MM (ref 1).
23	Asparagaceae	Asparagus aethiopicus cv. Sprengeri (asparagus ground fern)	5	H/O	dig out unwanted plants and dispose of at the appropriate council landfill. remove the entire crown of underground stem of plant to prevent regrowth	Spot spray - metsulfuronmethyl (600 g/L) @ 10 g per 100 L water plus wetting agent or 100 g/ha plus wetting agent. Cut stump, spot spray, Apply neat Diesel

REHABILITATION METHODOLOGY - SITE WORKS - WEED NOTES

QUEENSLAND HERBARIUM INVASIVE NATURALISED PLANTS IN SOUTH EAST QUEENSLAND

RANK	FAMILY	SCIENTIFIC & COMMON NAME	SUBREGION	LIFE FORM & SOURCE	NON-CHEMICAL CONTROL	CHEMICAL CONTROL
24	Poaceae	Sporobolus pyramidalis and S. natalensis (giant rat's tail grasses)	8	H/U?	Hand or mechanical removal of small infestations	Small infestations: spray glyphosate @ 15mL/L water, flupropanate @ 2mL/L water + ionic wetter @ 1mL/Lwater; Dense Infestations: blanket spraying glyphosate 3L/ha, flupropanate 2L/ha (ref 2).
25	Asteraceae	Ageratina riparia (mistflower)	5	H/O	Hand pull and hang to dry.	Spray G100 or MM (ref 1).
26	Asclepiadaceae	Araujia sericifera (mothvine)	9	V/O	Seedlings & Vines: Hand pull. Bag and remove fruit.	Vines: CS&P (G1.5); Seedlings: spray G200 or G200 + MM or MM (ref 1).
27	Crassulaceae	Bryophyllum daigremontianum x B. delagoense (hybrid mother-of millions)	6	H/O	Hand pull and dispose	Plantlets: spray G200 + MM or MM (ref 1).
28	Convolvulaceae	Ipomoea cairica (mile-a-minute)	7	V/O	Vines & Runners: hand pull, roll up and hand up to dry.	Vines and Runners: CS&P (G1.5); Larger Stems, Roots and Nodes: spray G100 + MM (ref 1).
29	Sapindaceae	Cardiospermum grandiflorum (balloon vine)	7	V/O	Seedlings & Small Vines: Hand Pull	Sterns: CS&P (G1.5); Seedlings or Small vines: spray G200 or G200 + MM (ref 1).
30	Asclepiadaceae	Cryptostegia grandiflora (rubber vine)	6	V/O	Scattereded or medium-density infestations: Where possible, repeated slashing close to ground level is recommended.	Foliar spray - Follow-up basal bark/cut stump/foliar spray as necessary with Triclopyr + picloram (Grazon DS, Grass-up, etc.) @ 0.35–0.5 L /100 L water
31	Phytolaccaceae	Rivina humilis (baby pepper)	8	H/O	Hand pull and hang to dry.	Spray G100 (ref 1).
32	Poaceae	Sporobolus africanus (Parramatta grass)	8	H/U	Hand or mechanical removal of small infestations	Small infestations: spray glyphosate @ 15mL/L water, flupropanate @ 2mL/L water + ionic wetter @ 1mL/Lwater; Dense Infestations: blanket spraying glyphosate 3L/ha, flupropanate 2L/ha (ref 2).
33	Poaceae	Sporobolus fertilis (giant Parramatta grass)	9	H/U	Hand or mechanical removal of small infestations	Small infestations: spray glyphosate @ 15mL/L water, flupropanate @ 2mL/L water + ionic wetter @ 1mL/Lwater; Dense Infestations: blanket spraying glyphosate 3L/ha, flupropanate 2L/ha (ref 2).
34	Poaceae	Eragrostis curvula (African lovegrass)	7	H/U	Chipped out before they flower. When chipping out the plant ensure that the tussock crowns are removed, as this will prevent regrowth. If in seed, the stems must be cut and bagged first.	Glyphosate (360 g/L) (e.g. Weedmaster® Duo) @ 10 ml/1 L water
35	Asteraceae	Gymnocoronis spilanthoides (Senegal tea)	3	Ha/F	place plant material in a sealed plastic bag, leave in sunlight to rot then burn or dispose of at a council-approved land fill tip	Glyphosate and metsulfuron-methyl @ 15mL/L water

REHABILITATION METHODOLOGY - SITE WORKS - WEED NOTES

QUEENSLAND HERBARIUM INVASIVE NATURALISED PLANTS IN SOUTH EAST QUEENSLAND

RANK	FAMILY	SCIENTIFIC & COMMON NAME	SUBREGION	LIFE FORM & SOURCE	NON-CHEMICAL CONTROL	CHEMICAL CONTROL
36	Amaranthaceae	Alternanthera philoxeroides (alligator weed)	1?	Ha/U	physical removal of plant should not be attempted	Terrerstrial plants use Metsulfuron methyl (Brushoff®) + 1mL/L non-ionic wetter @ 80g/ha + 1mL/L non-ionic wetter or 10g/100L water + 1mL/L non-ionic wetter. Free floating plants Glyphosate (Roundup Biactive®) 10 mL/L
37	Passifloraceae	Passiflora suberosa (cork passionflower)	8	V/O	N/A	Stems: CS&P; Seedlings & Regrowth: spray G200 or G200 + MM (ref 1).
38	Poaceae	Melinis minutiflora (molasses grass)	5	H/A	Grazing or mowing	Spray: Fluazifop-P 212g/L @ 2L/Ha, Glyphosate 360g/L @ 1L/100L water (ref 2).
39	Aristolochiaceae	Aristolochia elegans (Dutchman's pipe)	8	V/O	Stems: Hand pull; Fruit: Bag and remove.	Sterns: CS&P (G1.5); Seedlings: spray G200 or G200 + MM or MM (ref 1).
40	Convolvulaceae	Ipomoea indica (blue morning glory)	5	V/O	Vines and Runners: hand pull, roll up and hang to dry.	Vines and Runners: CS&P (G1.5); Larger Stems, Roots and Nodes: spray G100 + MM or F150 (ref 1).
41	Mimosaceae	Leucaena leucocephala (leucaena)	6	ST/A	Small plants: Hand pull or mechanical removal	Herbicide Control - Basal Bark application: triclopyr 240g/L + picloram 120g/L @ 1L/60L diesel; C&P: triclopyr 240g/L + picloram 120g/L @ 1L per 60L diesel; spray triclopyr 300g/l + picloram 120g/L @ 350mL per 100L water. Combination of chemical and mecha
42	Poaceae	Brachiaria mutica (para grass)	6	Ha/A	Grazing	Herbicide Control - Foliar application (Knapsack): glyphosate 360g/L @ 200mL/15L water; Foliar: glyphosate 360g/L @ 9L/Ha; Handgun: glyphosate 360g/L @ 1.3L/100L water (ref 2).
43	Hydrocharitacea e	Egeria densa (egeria waterweed)	2	Ha/F	hand pulling, cutting and digging with machines effective	N/A
44	Pinaceae	Pinus elliottii (slash pine)	4	T/A	Seedlings: Hand pull; Saplings and Trees: cut close to ground or ring-bark	Saplings and Trees: F/I (G1.5) ensuring thick bark is penetrated (ref 1).
45	Caesalpiniaceae	Senna pendula var. glabrata (Easter cassia)	7	ST/O	Seedlings: Hand pull	Shrubs: CS&P or F/I (G1.5); Seedlings: spray G200 or G200 + MM or MM; collect and bag seeds (ref 1).
46	Poaceae	Chloris gayana (Rhodes grass)	9	H/A	Hand pulling and removal and digging of larger clumps	Spray: glyphosate @ 1l/100L water
47	Crassulaceae	Bryophyllum pinnatum (resurrection plant)	6	H/O	Hand pull and dispose	Plantlets: spray G200 + MM or MM (ref 1).
48	Asteraceae	Parthenium hysterophorus (parthenium weed)	6	H/U	hand pulling of small areas is not recommended	Spot spray 2,4-D amine 500 g/L @ 0.4 L/100 L
49	Caprifoliaceae	Lonicera japonica (Japanese honeysuckle)	3	V/O	Vines and Runners: hand pull, roll up and hang to dry.	Vines and Runners: CS&P (G1.5); Larger Stems, Roots and Nodes: spray G100 + MM or MM (ref 1).
50	Acanthaceae	Thunbergia alata (black eyed susan)	5	H/O	N/A	CS&P (G1.5); spray G200 or G200 + MM (ref 1).

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Checked by GC / MS
Project: Woodlinks Village Estate H.R.Park
Client: Canberra Estate Consortium No. 36

SCALE: AS NOTED

North

saunders havill group

Dwg No. 8051 L 05 E

Woodlinks Village Estate - Harry Ratnam Park

Weed Treatment & Removal Strategy - Sheet 2

REHABILITATION METHODOLOGY - SITE WORKS - WEED NOTES

All Herbicides are to be applied by an appropriately qualified / supervised person in accordance with the Agricultural Chemicals and Distribution Control Act 1966 at rates as identified on registered product labels or an Australian Pesticides and Veterinary Medicines Authority (APVMA) issued off-label permit where applicable. Refer to SEQ Ecological Restoration Framework for additional guidance.

REHABILITATION METHODOLOGY - SITE WORKS - WEED NOTES

QUEENSLAND HERBARIUM INVASIVE NATURALISED PLANTS IN SOUTH EAST QUEENSLAND

RANK	FAMILY	SCIENTIFIC & COMMON NAME	SUBREGION	LIFE FORM & SOURCE	NON-CHEMICAL CONTROL	CHEMICAL CONTROL
51	Fabaceae	Macroptilium atropurpureum (siratro)	8	V/A	N/A	Vines: CS&P (1:1.5) or spray G100 + MM or MM (ref 1).
52	Rosaceae	Rubus ellipticus (yellowberry)	4	S/O	slashing hinders growth, giving some control if plants are slashed before they seed	Grazon DS picloram/triclopyr 1:200 parts water + wetting agent
53	Colchicaceae	Gloriosa superba (glory lily)	3	V/O	N/A	Young Shoots: spray G200 or G200 + MM. Best results in Oct-Nov and by using 'Pulse' as surfucant (ref 1).
54	Verbenaceae	Phyla canescens (lippia, Condamine couch)	3	Ha/O	a combined approach of different control methods including chemical and mechanical with land management practices is most effective	Foliar spray 600 g/L Dichlorprop @ 5 ml /1 L water or 2,4-D amine (500 g/L) + 1% crop oil @ 2-4 L/ha + 1% crop oil
55	Solanaceae	Solanum seaforthianum (Brazilian nightshade)	8	V/O	Hand pull	Spray G100 (ref 1).
56	Araceae	Pistia stratiotes (water lettuce)	3	Ha/OF	Mechanical removal of small infestations	Glyphosate 360g/L @ 1-1.3L/100L water or 6.9L/Ha; diquat 20g/L @ 4L/100L water or 50-100L/Ha (see ref 2. for application guide).
57	Asparagaceae	Asparagus plumosus (asparagus fern)	4	V/O	Rhizomes: crown and hang to dry.	Rhizomes: gouge and paint (G1.5); Stems: wind up and spray or cut high and low and spray regrowth G200 or G200 + MM (ref 1).
58	Commelinaceae	Tradescantia fluminensis (Qld use T. albiflora) (wandering jew)	5	H/O	N/A	Spray F150 (as per label) or G200 or G200 + MM; Collect and bag or roll and rake carefully. Dispose (ref 1).
59	Solanaceae	Cestrum parqui (green cestrum)	6	S/O	Seedlings: Hand pull	Stems: CS&P (G1.5) or spray G100 (ref 1).
60	Caesalpiniaceae	Senna septemtrionalis (arsenic bush, was S. floribunda)	6	S/O	Seedlings: Hand pull	Shrubs: CS&P or F/I (G1.5); Seedlings: spray G200 or G200 + MM or MM; collect and bag seeds (ref 1).
61	Solanaceae	Solanum mauritianum (wild tobacco tree)	8	S/O	Seedlings: Hand pull	Shrubs: CS&P (G1.5) or F/I (G1:1.5); Seedlings: spray G200 (ref 1).
62	Apocynaceae	Catharanthus roseus (pink periwinkle)	5	S/O	Hand pull	Spray G100 (ref 1).
63	Passifloraceae	Passiflora subpeltata (white passion flower)	10	V/O	Stems: Hand pull	Stems: CS&P; Seedlings & Regrowth: spray G200 or G200 + MM (ref 1).
64	Fabaceae	Desmodium uncinatum (silverleaf desmodium)	5	H/A	Hand pull or crown and dispose	CS&P tuberous roots (G1.5); spray G200 or G200 + MM or MM; collect and bag seeds (ref 1).
65	Poaceae	Melinis repens (red Natal grass)	10	H/A	Grazing or mowing	Spray: Fluazifop-P 212g/L @ 2L/Ha, Glyphosate 360g/L @ 1L/100L water (ref 2).
66	Nymphaeaceae	Nymphaea caerulea subsp. zanzibarensis (blue lotus)	4	Ha/OF	Hand pull small infestations.	Spray with or Diquat Glyphosate. Occurs in waterways, thus EPA should be notified before any herbicide use (ref 5).

REHABILITATION METHODOLOGY - SITE WORKS - WEED NOTES

QUEENSLAND HERBARIUM INVASIVE NATURALISED PLANTS IN SOUTH EAST QUEENSLAND

RANK	FAMILY	SCIENTIFIC & COMMON NAME	SUBREGION	LIFE FORM & SOURCE	NON-CHEMICAL CONTROL	CHEMICAL CONTROL
67	Onagraceae	Oenothera drummondii subsp. drummondii (beach evening primrose)	3	H/O	Hand pull	Spray G100 (ref 1).
68	Tiliaceae	Triumfetta rhomboidea (Chinese burr)	7	H/U	Hand pull	Spray G100 (ref 1).
69	Haloragaceae	Myriophyllum aquaticum (parrot's feather)	3	Ha/F	N/A	Spray: glyphosate 360g/L @ 100mL/10L water (ref 1).
70	Passifloraceae	Passiflora foetida (stinking passion flower)	7	V/O	Hand Pull	CS&P (G1.5); spray G200 or G200 + MM (ref 1).
71	Asteraceae	Verbesina encelioides (crownbeard)	7	H/U	Vines: Hand pull and remove; Runners: Roll up and hang to dry.	Stems: S&P (GU); Regrowth and seedlings: spray G200 or G200 + MM (ref 1).
72	Poaceae	Paspalum mandiocanum (broad leaf paspalum)	3	H/A	N/A	Spray G200 - resistant to weaker strength (ref 1).
73	Poaceae	Paspalum dilatatum (paspalum grass)	10	H/A	Hand pull or dig up	Spray G100 (ref 1).
74	Ruppiaceae	Ruppia maritima (sea tassel)	2	Ha/F	Hand pull or dig up	Spray G100 (ref 1).
75	Arecaceae	Syagrus romanzoffiana (queen palm)	4?	T/O	Seedlings: Hand pull or crown; Trees: cut below growing point	Trees: F/I (G1.5); Seedlings: spray G200 + MM (ref 1).
76	Poaceae	Hymenachne amplexicaulis cv. Olive (hymenachne)	1?	Ha/A	a combined approach of different control methods including mechanical, chemical and biological with land management practices is most effective	360 g/L Glyphosate (includes Roundup Biactive & Weedmaster Duo) – 1 L/100L water or 10 L/ha delivered by boom
77	Asteraceae	Senecio tamoides (Canary creeper)	3	V/O	Vines: Hand pull and remove; Runners: Roll up and hang to dry.	Stems: S&P (GU); Regrowth and seedlings: spray G200 or G200 + MM (ref 1).
78	Poaceae	Cenchrus ciliaris (buffel grass)	4	H/A	Hand or mechanical removal of young plants	Herbicide Control - Glyphosate 7mL/L water; Dichlobenil 600g/100m2; Fluazifop 50-100mL/10L water (ref 2).
79	Acanthaceae	Thunbergia grandiflora (thunbergia, blue thunbergia)	2	V/O	N/A	CS&P (G1.5); spray G200 (ref 1).
80	Cactaceae	Opuntia tomentosa (velvet tree pear)	8	S/O	Biological controls available: cactoblastis cactorum successful. Mechanical control difficult. Fire can be used.	Spray; Basal Bark application; Injection: Triclopyr: .8L/60L diesel. Picloram + Triclopyr: 1L/60L diesel. Amitrole: 1mL/3cm (ref 3).
81	Euphorbiaceae	Ricinus communis (castor oil plant)	7	S/O	Seedlings: Hand pull	Shrubs: S: CS&P or F/I (G1.5); Seedlings: spray G200 (ref 1).
82	Asteraceae	Senecio madagascariensis (fire weed)	6	H/U	Vines: Hand pull and remove; Runners: Roll up and hang to dry.	Stems: S&P (GU); Regrowth and seedlings: spray G200 or G200 + MM (ref 1).

REHABILITATION METHODOLOGY - SITE WORKS - WEED NOTES

QUEENSLAND HERBARIUM INVASIVE NATURALISED PLANTS IN SOUTH EAST QUEENSLAND

RANK	FAMILY	SCIENTIFIC & COMMON NAME	SUBREGION	LIFE FORM & SOURCE	NON-CHEMICAL CONTROL	CHEMICAL CONTROL
83	Cyperaceae	Cyperus involucratus (African sedge)	6	Ha/OF	Each has to be dug out with a spade and the entire plant turned over, exposing the root system while making sure all aerial parts of the plant are completely covered.	Aquatic areas - Glyphosate ipa Land—commercial/industrial, rights of way - Glyphosate-ipa, glyphosate-mas, imazapyr
84	Asteraceae	Tithonia diversifolia (Mexican sunflower)	5	H/O	N/A	Stems: CS&P (G1.5) or cut and spray regrowth and seedlings (G100 or MM) (ref 1).
85	Poaceae	Setaria sphacelata (South African pigeon grass)	9	H/A	Hand pull or dig up	Spray G100 (ref 1).
86	Asclepiadaceae	Gomphocarpus physocarpus (balloon cotton bush)	10	S/OU	Slash in winter and burn cuttings. Wanderer Butterfly can also be used as biological control.	Spray: glyphosate @ 1:1000 with water, in spring before seeding (ref 3).
87	Poaceae	Digitaria didactyla (Queensland blue couch)	9	H/A	Hand pull or cultivation	Spot Spray: glyphosate or 2,2-DPA (ref 3)
88	Caesalpiniaceae	Gleditsia triacanthos (honey locust)	7	T/O	For the control of dense infestations on grazing land, burning followed by spot spraying is an economical control method.	pastures non-agricultural land fluroxpyr1 (Starane 200®) @ 1.5 L - 75ml/100 L diesel
89	Poaceae	Paspalum notatum (bahia grass)	4	H/A	Hand pull or dig up	Spray G100 (ref 1).
90	Cactaceae	Opuntia monacantha (drooping tree pear, syn. O. vulgaris)	2	S/O	Biological controls available: cactoblastis cactorum successful. Mechanical control difficult. Fire can be used.	Spray; Basal Bark application; Injection: Triclopyr: .8L/60L diesel. Picloram + Triclopyr: 1L/60L diesel. Amitrole: 1mL/3cm (ref 3).
91	Poaceae	Paspalum conjugatum (paspalum grass)	7	H/A	Cut below crown.	Spot Spray: glyphosate or 2,2-DPA (ref 3).
92	Malpighiaceae	Hiptage benghalensis (hiptage)	3	S,V/O	Hand pull small infestations.	Seedlings: Foliar spray of dicamba, fluroxypyr, and triclopyr/picloram. Larger plants cut stump application of fluroxypyr and triclopyr/picloram with diesel, glyphosate with water and picloram undiluted (ref 7).
93	Solanaceae	Solanum torvum (devil's fig)	6	S/O	Seedlings: Hand pull	Shrubs: CS&P (G1.5) or F/I (G1:1.5); Seedlings: spray G200 (ref 1).
94	Caesalpiniaceae	Caesalpinia decapetala (thorny poinciana)	4	S,V/O	Seed-heads: Bag and remove.	Stems: CS&P (G1.5); Seedlings: spray G200 or G200 + MM or MM (ref 1).
95	Poaceae	Pennisetum alopecuroides (swamp foxtail)	7	H/O	Hand Pull	Spot Spray: glyphosate or 2,2-DPA (ref 3)
96	Verbenaceae	Duranta erecta (duranta)	6	ST/O	Shrubs: CS&P (1:1.5)	Spray G100 (ref 1).
97	Brassicaceae	Nasturtium officinale (Qld use Rorippa nasturtium-aquaticum) (watercress)	7	Ha/FU	Manually grub and destroy.	Spray G100 and replace with local species (ref 1).

REHABILITATION METHODOLOGY - SITE WORKS - WEED NOTES

QUEENSLAND HERBARIUM INVASIVE NATURALISED PLANTS IN SOUTH EAST QUEENSLAND

RANK	FAMILY	SCIENTIFIC & COMMON NAME	SUBREGION	LIFE FORM & SOURCE	NON-CHEMICAL CONTROL	CHEMICAL CONTROL
98	Polygonaceae	Acetosa sagittata (rambling dock)	4	V/U	Tubers: Dig up, bag and remove.	Tubers: Spray G200 or G200 + MM or MM (ref 1).
99	Poaceae	Cynodon dactylon (couch, Bahama grass introduced cultivars)	10	H/OA	Hand pull small infestations, removing all roots or smother with mulch.	Spray: glyphosate @ 200mL/15L water. Follow up spray (ref 3).
100	Bignoniaceae	Tecoma stans (yellow bells)	4	ST/O	N/A	Stems: CS&P (G1.5) or spray G200; Seeds: collect, bag and remove (ref 1).
101	Rosaceae	Rhaphiolepis indica (Indian hawthorn)	3	ST/O	Seedlings: Hand pull	Saplings: CS&P (G1.5); Trees: F/I (G1.5); Seedlings: spray G200 or G200 + MM or MM (ref 1).
102	Mimosaceae	Mimosa pudica (common sensitive plant)	4	S/A	N/A	Pastures - Fluroxypyr/Starane 200 @ 1.5 L/ha Between cropping applications (conservation tillage) - Dicamba/Banvel 200 @ 0.8-1.4 L/ha
103	Commelinaceae	Callisia fragrans (purple succulent)	3	H/O	N/A	Spray F100 or G200 or G200 + MM; Collect and bag or roll and rake carefully. Dispose (ref 1).
104	Scrophulariaceae	Paulownia tomentosa (paulownia)	3	T/AO	Seedlings: Hand pull	Saplings: CS&P (G1.5); Trees: F/I (G1.5); Seedlings: spray G200 (ref 1).
105	Commelinaceae	Tradescantia zebrina (zebrina)	3	H/O	N/A	Spray F100 or G200 or G200 + MM; Collect and bag or roll and rake carefully. Dispose (ref 1).
106	Acanthaceae	Ruellia malacosperma (ruellia)	5	H/O	N/A	Spray G200 + MM (ref 1).
107	Poaceae	Pennisetum clandestinum (kikuyu grass)	4	H/A	Hand Pull	Spot Spray: glyphosate or 2,2-DPA (ref 3)
108	Liliaceae	Lilium formosanum (Taiwan lily)	5	H/O	Hand pull or crown and dispose	Spray G100 + MM or MM (ref 1).
109	Asteraceae	Sigesbeckia orientalis (Indian weed)	10	H/U	Hand pull or cultivation.	Spray with 2,4-D amine or sodium, pr MCPA + dicamba (ref 3).
110	Asteraceae	Bidens pilosa (cobbler's pegs)	10	H/U	Hand pull or cultivation.	Spray with 2,4-D amine or sodium, pr MCPA + dicamba (ref 3).
111	Cactaceae	Opuntia stricta (common prickly pear)	7	S/O	Biological controls available: cactoblastis cactorum successful. Mechanical control difficult. Fire can be used.	Spray; Basal Bark application; Injection: Triclopyr: .8L/60L diesel. Picloram + Triclopyr: 1L/60L diesel. Amitrole: 1mL/3cm (ref 3).
112	Poaceae	Eleusine indica (crowsfoot grass)	8	H/A	Pull and chip. Replant with native couch.	Spray: glyphosate or 2,2-DPA (ref 3).
113	Poaceae	Axonopus compressus (broad leaved carpet grass)	5	H/AO	Cut stems from roos.	Spot spray with Glyphosate (ref 3).
114	Lamiaceae	Salvia coccinea (red salvia)	9	H/O	remove small areas by hand or machine	Aquatic areas (drains, channels, margins of streams, lakes and dams) - calcium dodecylbenzene sulphonate (AF-100) @ 1 part in 19 parts kerosene
115	Asteraceae	Ageratum houstonianum (blue billygoat weed)	8	H/UO	N/A	Spray G100 or hand pull and spray regrowth G100 (ref 1).

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amendments:

Issue	Date	Details	Approved
B	17.08.2018	Revised Tender	GC
E	15.06.2021	Revised Tender	GC

Date Jun 15

Plan of: Harry Ratnam Park
Weed Treatment & Removal Strategy
Sheet 2

Drawn by. FW
Checked by.GC / MS
Project: Woodlinks Village Estate H.R.Park
Client: Canberra Estate Consortium No. 36

SCALE: AS NOTED

North

saunders havill group

Dwg No. 8051 L 06 E

Woodlinks Village Estate - Harry Ratnam Park

Weed Treatment & Removal Strategy - Sheet 3

REHABILITATION METHODOLOGY - SITE WORKS - WEED NOTES

All Herbicides are to be applied by an appropriately qualified / supervised person in accordance with the Agricultural Chemicals and Distribution Control Act 1966 at rates as identified on registered product labels or an Australian Pesticides and Veterinary Medicines Authority (APVMA) issued off-label permit where applicable. Refer to SEQ Ecological Restoration Framework for additional guidance.

REHABILITATION METHODOLOGY - SITE WORKS - WEED NOTES

QUEENSLAND HERBARIUM INVASIVE NATURALISED PLANTS IN SOUTH EAST QUEENSLAND

RANK	FAMILY	SCIENTIFIC & COMMON NAME	SUBREGION	LIFE FORM & SOURCE	NON-CHEMICAL CONTROL	CHEMICAL CONTROL
116	Myrtaceae	Psidium guajava and P. guineense (yellow guava and West Indes guava)	4	ST/AO	N/A	Shrubs: CS&P or F/I (G1.5) or spray G200 + MM or MM. Trial basal bark F100 or G200 + MM (ref 1).
117	Rosaceae	Rubus bellobatus (kittatinny blackberry)	5	S/O	slashing hinders growth, giving some control if plants are slashed before they seed	Grazon DS picloram/triclopyr 1:200 parts water + wetting agent
118	Myrtaceae	Eugenia uniflora (Brazilian cherry)	4	ST/O	N/A	Stems: C&P or F/I (G1.5); Bushes: spray or cut down and spray regrowth G100 or MM (ref 1).
119	Oleaceae	Olea europaea (olive)	2	T/A	Seedlings: Hand pull	Saplings: CS&P (G1.5); Trees: F/I (G1.5); Seedlings: spray G200 or G200 + MM (ref 1).
120	Poaceae	Brachiaria decumbens (signal grass)	4	H/A	Grazing	Herbicide Control - Foliar application (Knapsack): glyphosate 360g/L @ 200mL/15L water; Foliar: glyphosate 360g/L @ 9L/Ha; Handgun: glyphosate 360g/L @ 1.3L/100L water (ref 2).
121	Fabaceae	Stylosanthes scabra (shrubby stylo)	4	H/A	N/A	Vines: CS&P (1:1.5) or spray G100 + MM or MM (ref 1).
122	Commelinaceae	Commelina benghalensis (hairy wandering jew)	4	H/O	Collect and Bag	Spray G200 or G200 + MM (ref 1).
123	Poaceae	Pennisetum purpureum (elephant grass)	2	H/O	Grazing or mechanical removal	N/A (ref 2).
124	Zingiberaceae	Hedychium coronarium (wild ginger)	2	H/O	Small Plants: Hand pull and dispose	Small Plants: spray G200 or G200 + MM; Large Plants: cut and spray regrowth. If rhizomes are at ground level, cut stem and gouge rhizome - fill hole with G1.5 with injector kit or similar (ref 1).
125	Phytolaccaceae	Phytolacca octandra (inkweed)	10	H/O	Hand pull or crown	CS&P (G1.5) or C&P (G1.5); spray G100 (ref 1).
126	Asclepiadaceae	Asclepias curassavica (red cotton bush)	9	S/O	Hand pull; Slash	Slash and/or spray G100 (ref 1).
127	Solanaceae	Lycium ferocissimum (African boxthorn)	1?	S/O	N/A	Stems: C&P (G1.5); Regrowth: spray G200 + MM (ref 1).
128	Mimosaceae	Prosopis pallida (algaroba)	2	ST/O	When using mechanical control methods, it is important to remove the bud zone of the root system (about 30 cm below the ground surface). If this is not removed, re-shooting can occur.	Basal bark - triclopyr + picloram Access® @ 1L/60L diesel. Cut stump - triclopyr + picloram Access® @ 1L/60L diesel. Overall spray - triclopyr + picloram Grazon DS® @ 350ml/100L water plus a wetting agent if plant is growing actively
129	Juncaceae	Juncus articulatus (jointed rush)	1	Ha/FO	Hand pull.	Spot spray with Glyphosate, 2,2-DPA or MCPA + dicamba (ref 3).
130	Cactaceae	Opuntia aurantiaca (tiger pear)	1	S/O	Biological controls available: cactoblastis cactorum successful. Mechanical control difficult. Fire can be used.	Spray; Basal Bark application; Injection: Triclopyr: .8L/60L diesel. Picloram + Triclopyr: 1L/60L diesel. Amitrole: 1mL/3cm (ref 3).

REHABILITATION METHODOLOGY - SITE WORKS - WEED NOTES

QUEENSLAND HERBARIUM INVASIVE NATURALISED PLANTS IN SOUTH EAST QUEENSLAND

RANK	FAMILY	SCIENTIFIC & COMMON NAME	SUBREGION	LIFE FORM & SOURCE	NON-CHEMICAL CONTROL	CHEMICAL CONTROL
131	Poaceae	Arundo donax (giant reed)	1	H/O	Physical removal of small infestations.	Spot spray or cut stump and spray with Glyphosate (ref 5).
132	Cactaceae	Opuntia imbricata (rope pear)	1	H/O	Biological controls available: cactoblastis cactorum successful. Mechanical control difficult. Fire can be used.	Spray; Basal Bark application; Injection: Triclopyr: .8L/60L diesel. Picloram + Triclopyr: 1L/60L diesel. Amitrole: 1mL/3cm (ref 3).
133	Bignoniaceae	Pyrostegia venusta (flame vine)	1	V/O	N/A	CS&P (G1.5); spray G200 (ref 1).
134	Poaceae	Cortaderia selloana (pampas grass)	2	H/O	Small Plants: dig out by hand or machine	Stems: C&P (G1.5) or cut back and slash and spray regrowth G100 (ref 1).
135	Solanaceae	Solanum hispidum (giant devil's fig)	5	S/O	Hand pull	Spray G100 (ref 1).
136	Agavaceae	Furcraea foetida (Cuban hemp)	3	S/OA	Dig out by hand or machine	CS& P near ground or spray MM (ref 1).
137	Agavaceae	Furcraea selloa (hemp)	1	S/OA	Dig out by hand or machine	CS& P near ground or spray MM (ref 1).
138	Agavaceae	Agave americana (century plant)	4	S/OA	Dig out by hand or machine	CS& P near ground or spray MM (ref 1).
139	Rutaceae	Murraya paniculata cv. Exotica (murraya)	6	S/O	Seedlings: Hand pull	Shrubs: CS&P or F/I (G1.5); Seedlings: spray G200 (ref 1).
140	Rosaceae	Rubus discolor (R. fruticosus complex, a blakberry)	4	S/OA	slashing hinders growth, giving some control if plants are slashed before they seed	Grazon DS picloram/triclopyr 1:200 parts water + wetting agent. A variety of herbicides may be used to control this species including (ref 5).
141	Brassicaceae	Cakile edentula (American sea rocket)	4	H/U	Manually grub and destroy.	Spray G100 and replace with local species (ref 1).
142	Balsaminaceae	Impatiens walleriana (balsam)	2	H/O	N/A	Spray G100 (ref 1).
143	Agavaceae	Agave sisalana (sisal)	2	S/OA	Dig out by hand or machine	CS& P near ground or spray MM (ref 1).
144	Agavaceae	Agave vivipara var. vivipara (sisal)	2	S/OA	Dig out by hand or machine	CS& P near ground or spray MM (ref 1).
145	Rosaceae	Prunus munsoniana (wild goose plum)	7	ST/A	Seedlings: Hand pull	Shrubs: CS&P or F/I (G1.5); Seedlings: spray G200 (ref 1).
146	Poaceae	Echinochloa crus-galli (barnyard grass)	6	H/A	Hand pull or dig out small infestations.	Spot spraying with Glyphosate or 2,2-DPA (ref 3).
147	Asteraceae	Solidago canadensis var. scabra (Canadian goldenrod)	7	H/O	Hand pull and hang to dry.	Spray MM or G200 or G200 + MM if other weeds such as Lantana or Camphor Laurel are present (ref 1).
148	Fabaceae	Pueraria lobata (kudzu)	3	V,S/O	Slash; Diminish by shading site	CS&P (G1.5); spray G200 or MM (ref 1).
149	Alismataceae	Sagittaria graminea var. platyphylla (sagittaria arrowhead)	3	Ha/FO	Physical removal of small infestations.	Spot Spray with Glyphosate at 1.0L:100L water (ref 5).
150	Nymphaeaceae	Nymphaea mexicana (yellow waterlily)	2	Ha/OF	Hand pull small infestations.	Spray with or Diquat Glyphosate. Occurs in waterways, thus EPA should be notified before any herbicide use (ref 5).
151	Poaceae	Phyllostachys aurea (fishpole bamboo)	1	S/O	N/A	Stems: cut and fill segment (G1.5); Regrowth: spray G100 (ref 1).
152	Euphorbiaceae	Jatropha gossypiifolia (cotton-leaf physic nut, bellyache bush)	1	S/O	Hand pull	Spray G100 (ref 1).
153	Malvaceae	Sida rhombifolia (Paddy`s lucerne)	9	S/U	Hand pull or dig out.	Spray with 2,4-D amine or fluoxypyr (ref 3).

REHABILITATION METHODOLOGY - SITE WORKS - WEED NOTES

QUEENSLAND HERBARIUM INVASIVE NATURALISED PLANTS IN SOUTH EAST QUEENSLAND

RANK	FAMILY	SCIENTIFIC & COMMON NAME	SUBREGION	LIFE FORM & SOURCE	NON-CHEMICAL CONTROL	CHEMICAL CONTROL
154	Poaceae	Themeda quadrivalvis (grader grass)	8	H/A	Hand pull or dig out small infestations.	Spot spraying with Glyphosate or 2,2-DPA (ref 3).
155	Poaceae	Andropogon virginicus (whisky grass)	6	H/A	Hand pull or dig out small infestations.	Spot spraying with Glyphosate or 2,2-DPA (ref 3).
156	Bignoniaceae	Jacaranda mimosifolia (jacaranda)	4	T/O	Seedlings: Hand pull	Saplings: CS&P (G1.5); Trees: F/I (G1.5); Seedlings: spray G200 (ref 1).
157	Acanthaceae	Justicia betonica (squirreltail)	2	S/O	Hand pull smal infestations. Can be controlled by planting competitive native species.	Glyphosate known to be effective.Species known to occur in waterways, DERM should be contacted before spraying in waterways (ref 4).
158	Mimosaceae	Acacia boliviana (Bolivian wattle)	1	T/O	Mechanical or chain removal.	Basal Bark or cut stump application. Triclopyr 600g/L at 1.0L:120L diesel, Triclopyr + Picloram 240 g/l + 120 g/l at 1.0L:60L diesel, Picloram 45 g/kg undiluted (ref 5).
159	Simaroubaceae	Ailanthus altissima (tree of heaven)	1?	T/O	Seedlings: Hand pull	Seedlings: CS&P (G1.5); Trees: F/I (G1.5); Seedlings: spray G200 or MM (ref 1).
160	Poaceae	Echinochloa colona (awnless barnyard grass)	9	H/A	Hand or mechanical removal of small infestations	Spray: glyphosate @ 13mL/1L water (ref 2.)
161	Cyperaceae	Cyperus brevifolius (Mullumbimby couch)	8	H/O	Each has to be dug out with a spade and the entire plant turned over, exposing the root system while making sure all aerial parts of the plant are completely covered.	Aquatic areas - Glyphosate ipa Land—commercial/industrial, rights of way - Glyphosate-ipa, glyphosate-mas, imazapyr
162	Moraceae	Morus alba (white mulberry)	3	T/O	N/A	Trees: F/I (G1.5), stack cut branches above the ground to dry; Saplings: CS&P (G1.5); Seedlings: spray G200 (ref 1).
163	Arecaceae	Colocasia esculenta (taro)	3	H/AO	Hand pull.	Cut at base and apply glyphosate or metsulfuron methyl. Plant often occurs in waterways so consult DERM prior to application (ref 6).
164	Cannaceae	Canna indica (canna lily)	3	H/O	Dig out entire plant	Cut/Slash and spay regrowth G200 or G200 + MM; Collect and bad seeds. Resistant to herbicide (ref 1).
165	Buddlejaceae	Buddleja madagascariensis (buddleja)	5	S,V/O	N/A	Stems: CS&P (1:1.5); Vines: spray or cut down and spray regrowth G200 (ref 1).
166	Bignoniaceae	Tecoma capensis (Cape honeysuckle)	3	ST/O	N/A	Stems: CS&P (G1.5) or spray G200; Seeds: collect, bag and remove (ref 1).

REHABILITATION METHODOLOGY - SITE WORKS - WEED NOTES

QUEENSLAND HERBARIUM INVASIVE NATURALISED PLANTS IN SOUTH EAST QUEENSLAND

RANK	FAMILY	SCIENTIFIC & COMMON NAME	SUBREGION	LIFE FORM & SOURCE	NON-CHEMICAL CONTROL	CHEMICAL CONTROL
167	Cactaceae	Harrisia martinii (harrisia cactus)	2?	S/O	The use of the biological mealy-bug agent is recommended	Triclopyr + picloram at 1.0L:60L diesel, Dichlorprop 600 g/l at 1.0L/60L water, metsulfuron methyl 600 g/l at 2.0L:100L water Ref 5).
168	Acanthaceae	Thunbergia laurifolia (laurel clock vine)	1	V/O	N/A	CS&P (G1.5); spray G200 (ref 1).
169	Fabaceae	Erythrina crista-galli (cockspur coral tree)	2?	T/O	N/A	F/I (G1.5) or C&P stumps. Cut and stack branches above ground to dry to prevent resprouting. F/I sprouted branches (G1.5) or spray regrowth G200 + MM or MM. Trial Tordon (ref 1).
170	Sapindaceae	Koelreuteria elegans (Chinese rain tree)	1?	T/O	Seedlings: Hand pull	Trees: F/I (G1.5) or C&P stumps (G1.5); Saplings: CS&P (G1); stack cut branches above ground to dry; Seedlings: spray (G200) (ref 1).
171	Zingiberaceae	Hedychium gardnerianum (ginger lily)	1?	H/O	Small Plants: Hand pull and dispose	Small Plants: spray G200 or G200 + MM; Large Plants: cut and spray regrowth. If rhizomes are at ground level, cut stem and gouge rhizome - fill hole with G1.5 with injector kit or similar (ref 1).
172	Acanthaceae	Hypoestes phyllostachya (polka-dot plant	3	H/O	Hand pull or crown and dispose	Spray G200 or G200 + MM (ref 1).
173	Caprifoliaceae	Sambucus canadensis (American elder)	3	ST/O	Vines and Runners: hand pull, roll up and hang to dry.	Vines and Runners: CS&P (G1.5); Larger Stems, Roots and Nodes: spray G100 + MM or MM (ref 1).
174	Asteraceae	Conyza sumatrensis (tall fleabane)	9	H/U	Hand or mechanical removal of small infestations	Seedlings: Altrazine or Chlorosulfuron in combination with competitive native species; Plants: Glyphosate and Tordon 75-D mix. Glyphosate ration depends on other weeds present (ref 2).
175	Fabaceae	Tipuana tipu (tipuana)	2	T/O	Seedlings: Hand pull	Saplings: CS&P (G1.5); Trees: F/I (G1.5); Seedlings: spray G200 (ref 1).
176	Asteraceae	Tagetes minuta (stinking roger)	8	H/U	Hand pull and hang to dry.	Spray MM or G200 or G200 + MM if other weeds such as Lantana or Camphor Laurel are present (ref 1).
177	Caesalpiniaceae	Chamaecrista rotundifolia (round-leaf cassia)	6	ST/A	Seedlings: Hand pull	Shrubs: CS&P or F/I (G1.5); Seedlings: spray G200 or G200 + MM or MM; collect and bag seeds (ref 1).
178	Poaceae	Cenchrus echinatus (Mossman river grass)	8	H/A	Hand or mechanical removal of young plants	Herbicide Control - Glyphosate 7mL/L water; Dichlobenil 600g/100m2; Fluazifop 50-100mL/10L water (ref 2).

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Notes:
Note: Herbicides must be applied by appropriately qualified/ supervised persons in accordance with the Agricultural Chemicals and Distribution Control Act 1966 at rates identified on registered products (such rates supersede those noted in above tables), or on an Australian Pesticides and Veterinary Medicines Authority (APVMA) issued off-label permit where applicable.
Note: Source for information contained on this page from Queensland Herbarium (Qld Gov't).

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Issue	Date	Details	Approved
B	17.08.2018	Revised Tender	GC
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Date Jun15

Plan of: Harry Ratnam Park
Weed Treatment & Removal Strategy
Sheet 3

Drawn by. FW
Checked by GC / MS
Project: Woodlinks Village Estate H.R.Park
Client: Canberra Estate Consortium No. 36

SCALE: AS NOTED

North

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Woodlinks Village Estate - Harry Ratnam Park

Weed Treatment & Removal Strategy - Sheet 4

REHABILITATION METHODOLOGY - SITE WORKS - WEED NOTES

QUEENSLAND HERBARIUM INVASIVE NATURALISED PLANTS IN SOUTH EAST QUEENSLAND

RANK	FAMILY	SCIENTIFIC & COMMON NAME	SUBREGION	LIFE FORM & SOURCE	NON-CHEMICAL CONTROL	CHEMICAL CONTROL
179	Asteraceae	Conyza canadensis (Canadian fleabane)	10	H/U	Hand or mechanical removal of small infestations	Seedlings: Altrazine or Chlorosulfuron in combination with competitive native species; Plants: Glyphosate and Tordon 75-D mix. Glyphosate ration depends on other weeds present (ref 2).
180	Euphorbiaceae	Euphorbia cyathophora (painted spuge)	8	H/O	Hand pull	Spray G100 (ref 1).
181	Poaceae	Setaria palmifolia (palm leaf setaria)	5	H/O	Hand pull or dig up	Spray G100 (ref 1).
182	Euphorbiaceae	Euphorbia heterophylla (milk weed)	5	H/O?	Hand pull	Spray G100 (ref 1).
183	Fabaceae	Desmodium intortum (greenleaf desmodium)	4	H/A	Hand pull or crown and dispose	CS&P tuberous roots (G1.5); spray G200 or G200 + MM or MM; collect and bag seeds. Monitor regrowth over 2 - 3 years (ref 1).
184	Poaceae	Pennisetum setaceum (fountain grass)	3	H/O	Hand Pull	Spot Spray: glyphosate or 2,2-DPA (ref 3)
185	Asteraceae	Conyza bonariensis (flax-leaf fleabane)	7	H/U	Hand or mechanical removal of small infestations	Seedlings: Altrazine or Chlorosulfuron in combination with competitive native species; Plants: Glyphosate and Tordon 75-D mix. Glyphosate ration depends on other weeds present (ref 2).
186	Solanaceae	Solanum erianthum (a tobacco bush)	7	S/O	Hand pull	Spray G100 (ref 1).
187	Poaceae	Stenotaphrum secundatum (buffalo grass)	3	H/AO	Hand or mechanical removal of small infestations	Spray: glyphosate @ 13mL/1L water (ref 2.)
188	Apocynaceae	Cascabela thevetia (syn. Thevetia peruviana) (yellow oleander)	5	ST/O	Hand pull small infesttions. Slashing can be used but should be followed up by herbicide application.	Basal bark application of fluroxypyr (35mL:1L Diesel); Stem injection Glyphosate (1L:2L Water); Cut stump application of fluroxypyr (1L:55L Diesel; Foliar Spray of fluroxypyr 1:100 for larger plants. 1:200 for seedlings (ref 2).
189	Rubiaceae	Coffea arabica (coffee)	3	ST/A	Saplings: Hand pull	Shrubs: F/I (G1) between flower and fruit set; Saplings: CS&P (G1); Seedlings: spray G200 or G200 + MM (ref 1).
190	Bignoniaceae	Spathodea campanulata (African tulip tree)	1?	T/O	N/A	Saplings: CS&P (G1.5); Trees: F/I (G1.5); Seedlings: spray G200 (ref 1).
191	Fabaceae	Macrotyloma axillare (perennial horse gram)	4	V,H/A	N/A	Vines: CS&P (1:1.5) or spray G100 + MM or MM (ref 1).
192	Iridaceae	Watsonia meriana var. bulbillifera (bulbil watsonia)	2	H/O	Dig up, bag and remove	Spray G200 + MM (ref 1).
193	Passifloraceae	Passiflora edulis (passion fruit)	6	V/AO	Hand Pull	CS&P (G1.5); spray G200 or G200 + MM (ref 1).
194	Asteraceae	Zinnia peruviana (wild zinnia)	6	H/O	Seedlings: Hand pull	Shrubs: CS&P or F/I (G1); Seedlings: CS&P (G1.5) or spray G200 (ref 1).

REHABILITATION METHODOLOGY - SITE WORKS - WEED NOTES

QUEENSLAND HERBARIUM INVASIVE NATURALISED PLANTS IN SOUTH EAST QUEENSLAND

RANK	FAMILY	SCIENTIFIC & COMMON NAME	SUBREGION	LIFE FORM & SOURCE	NON-CHEMICAL CONTROL	CHEMICAL CONTROL
195	Dracaenaceae	Sansevieria trifasciata (sansevieria)	2?	H/O	Hand pull or dig up	Spray G100 + MM (ref 1).
196	Poaceae	Digitaria eriantha (pangola grass)	5	H/A	Hand pull or cultivation	Spot Spray: glyphosate or 2,2-DPA (ref 3)
197	Rosaceae	Eriobotrya japonica (loquat)	3	T/O	Seedlings: Hand pull	Saplings: CS&P (G1.5); Trees: F/I (G1.5); Seedlings: spray G200 or G200 + MM or MM (ref 1).
198	Cactaceae	Acanthocereus tetragonus (sword pear)	1	S/O	Biological controls available: cactoblastis cactorum successful. Mechanical control difficult. Fire can be used.	Spray; Basal Bark application; Injection: Triclopyr: .8L/60L diesel. Picloram + Triclopyr: 1L/60L diesel. Amitrole: 1mL/3cm (ref 3).
199	Mimosaceae	Acacia nilotica subsp. indica (prickly acacia)	3	T/A	Mechanical or chain removal.	Basal Bark or cut stump application. Triclopyr 600g/L at 1.0L:120L diesel, Triclopyr + Picloram 240 g/l + 120 g/l at 1.0L:60L diesel, Picloram 45 g/kg undiluted (ref 5).
200	Mimosaceae	Acacia farnesiana (mimosa bush)	6	T/A	Mechanical removal of small plants.	Basal Bark or cut stump application of Triclopyr + Picloram 240 g/l + 120 g/l at 1.0L:60L diesel. Foliar application of Clopyralid 300g/L at 500mL:1L water ref 5).

REHABILITATION METHODOLOGY - SITE WORKS - WEED NOTES

QUEENSLAND HERBARIUM INVASIVE NATURALISED PLANTS IN SOUTH EAST QUEENSLAND

Explanatory notes:

Sub-region: Number of the ten sub-regions of the Southeast Queensland bioregion (Young and Dillewaard 1999) within which species recorded (Queensland Herbarium data).

Rec no.: Total number of records for species within study area, Queensland Herbarium CORVEG and HERBRECS data.

Scores: Based on panel data of invasiveness, 5 (highest) to 3 (moderate). ? indicate doubtful scores.

Life forms: T-tree (woody plant >5m), ST-small tree (2-5m), S-shrub (woody <2m), H-herb (grasses & forbes), Ha-aquatic herbs.

Source: A-agriculture, O-ornamental and landscaping, F-fish aquarium, U-unintentional introduction and/or contaminant.

QUEENSLAND HERBARIUM INVASIVE NATURALISED PLANTS IN SOUTH EAST QUEENSLAND

Abbreviations: Control Methods

CS&P = cut scrape and paint
S&P = scrape and paint
C&P = cut and paint
F/I = frill or inject stem

Abbreviations: Herbicides

G = Glyphosate, eg. Roundup Biactive, Weedmaster Duo
MM = Metsulfuron methyl, eg, Brushoff
F = Fluroxypyr, eg. Starane

Abbreviations: Herbicide Dilution Rates for High Concentration Applications

GU = Glyphosate undiluted
G1 = 1 part water to 1 part glyhphosate
G1.5 = 1.5 parts water to 1 part glyphosate
G4 = 4 parts water to 1 part glyphosate

Abbreviations: Herbicide Spray Concentrations

G100 = 100mL glyphosate per 10L of water + surfuctant, eg 20mL LI 700 per 10L
G200 = 200mL glyphosate per 10L of water + surfuctant, eg 50mL LI 700 per 10L
G100 + MM = 100mL glyphosate + 1.5g metsulfuron methyl per 10L of water + wetting agent, eg. 2mL Agral per 10L water
G200 + MM = 200mL glyphosate + 1.5g metsulfuron methyl per 10L of water + wetting agent, eg. 2mL Agral per 10L water
MM = 1.5g metsulfuron methyl per 10L water + wetting agent, eg. 2mL Agral per 10L water
F100 = 100mL fluroxypyr per 10L water
F150 = 150mL fluroxypyr per 10L water

Other Abbreviations

= Locally non-indigenous native species

Ref. 1. Big Scrub Rainforest Landcare Group (2008), 'Common Weeds of Subtropical Rainforests of Eastern Australia: A practical manual on their identification and control'
Ref. 2. Department of Primary Industries and Fisheries (QLD), 'Weeds and pest animals and ants'.
Ref. 3. Holland et al. (1996), 'Suburban Weeds', DPI QLD.
Ref 4. Port Stephens Council (NSW), 'Weed Busters'.
Ref 5. Department of Primary Industries (NSW), 'Noxious and Environmental Weed Handbook, 3rd Edition'.
Ref 6. Department of Environment and Conservation, 'Florabase', (DEC- WA)
Ref 7. Vitelli, J.S. and Madigan, B.A. and Van Haaren, P.E. and Setter, S. and Logan, P. (2009) Control of the invasive liana, Hiptage benghalensis. Weed Biology and Management, 9 (1). pp. 54-62.

REHABILITATION METHODOLOGY - SITE WORKS - WEED NOTES

All Herbicides are to be applied by an appropriately qualified / supervised person in accordance with the Agricultural Chemicals and Distribution Control Act 1966 at rates as identified on registered product labels or an Australian Pesticides and Veterinary Medicines Authority (APVMA) issued off-label permit where applicable. Refer to SEQ Ecological Restoration Framework for additional guidance.

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Plan of: Harry Ratnam Park
Weed Treatment & Removal Strategy
Sheet 4

Drawn by. FW
Checked by. GC / MS
Project: Woodlinks Village Estate H.R.Park
Client: Canberra Estate Consortium No. 36

SCALE: AS NOTED

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Woodlinks Village Estate - Harry Ratnam Park — Rehabilitation Notes

NOTE:
- ALL WORKS ARE TO BE CONSTRUCTED IN ACCORDANCE WITH THE ACCESS DEED FOR PARK REHABILITATION BETWEEN CANBERRA ESTATES CONSORTIUM NO. 36 PTY LTD & IPSWICH CITY COUNCIL.
- REFER TO SHG LANDSCAPE SPECIFICATIONS AND PRELIMINARIES DESCRIPTION FOR ADDITIONAL REQUIREMENTS FOR CONSTRUCTION AND SITE MANAGEMENT.

REHABILITATION DESIGN & LAYOUT

This Site Based Rehabilitation Plan has been prepared for Canberra Estate Consortium No. 36 Pty Ltd and is designed to enhance and expand the Goodna Creek existing native vegetation areas within the existing Harry Ratnam Park adjacent to the Woodlinks Village Estate.

This plan set has been produced by overlaying existing site data with proposed works to determine impacts and disturbance.

This Site Based Rehabilitation Plan is to identify and control necessary site disturbance as provided for the site plan layout. Where existing native vegetation is already established, low impact weed removal and rehabilitation techniques are required.

In patches that have undergone previous clearing and disturbance, a more aggressive approach to weed removal and revegetation will be applied.

The planting densities and species selection for Rehabilitation Zones have been chosen to maximise habitat, linkage and movement opportunities.

Rehabilitation treatment is to generally include the following points:
- A number of weeds are recorded for removal within shrub & ground layer.
- Weed removal and management will utilise low impact methods preventing further degradation to the riparian corridor.
- Revegetation species will include a variety of ground, shrub and canopy species selected from pre-clear vegetation communities and specific species - Refer to rehabilitation plant schedules for detail.
- Planting densities to achieve an ultimate established tiered vegetation structure.
- Low impact weed removal techniques will be applied within this zone. This method is used to eliminate, or greatly reduce, further degradation to the soil and "riparian" zone.
- Native trees will replace all woody weeds removed from vegetated zones.
- Ground layer and shrub layer weeds will be removed utilising low impact weed removal methods and replaced with locally occurring native species.

Ecologists from Saunders Havill Group assessed on-site waterways within the Woodlinks Estate providing information on locations of scouring, erosion and disturbances along the drainage lines. This data provides the base information required to compile the various rehabilitation approaches required within this Site Based Rehabilitation Plan. The various approaches are described below:

REHABILITATION INTENT
A combination of the following core rehabilitation methods will be employed throughout the site depending on the level of site disturbance, weed infiltration and existing native species vegetation present.

NATURAL REGENERATION

Applies:
- To relatively large, intact and weed-free areas of native vegetation.
- Where the native plants are healthy and capable of regenerating without human intervention.
- When native plant seed is stored in the soil or will be able to reach the site from nearby natural areas, by birds or other animals, wind or water.
- Where the plant community has a high potential for recovery after any short-lived disturbance, such as a fire or cyclonic winds.
- When preventative action is all that is required to avert on-going disturbance, e.g. erection of fencing to prevent intrusion from cattle.

Planting in such sites can work against the aims of restoration by interfering with natural regeneration.

The re-establishing plant community will be similar in structure, composition and diversity to the original vegetation.

RECONSTRUCTION

Applies:
- Where the site is highly degraded or altered.
- When the degree of disturbance has been so great and long-standing that the pre-existing native plant community cannot recover by natural means.
- To sites such as areas of fill, sites affected by stormwater flow, and areas that have been drastically cleared, either mechanically or by stock even though there may be a few remaining native trees or shrubs.
- When a greater degree of human intervention is required, such as weed removal, cessation of grazing and/or slashing, amelioration of soil conditions such as importation of soils, drainage works or reshaping of the landscape.
- When a major component is the importation of native species through planting.

The re-establishing planted community should be similar to the original vegetation in structure, composition and diversity.

ASSISTED NATURAL REGENERATION

Applies:
- To natural areas where the native plant community is largely healthy and functioning.
- When native plant seed is still stored in the soil or will be able to reach the site from nearby natural areas, by birds or other animals, wind or water.
- Where the natural regeneration processes (seedling germination, root suckering etc.) are being inhibited by external factors, such as weed invasion, soil compaction, cattle grazing, mechanical slashing etc.
- When limited human intervention, such as weed removal, minor amelioration of soil conditions, erection of fencing, cessation of slashing, etc. will be enough to trigger the recovery processes through natural regeneration.
- When major component is weed control.

Planting in such sites can work against the aims of restoration by interfering with natural regeneration.

The re-establishing plant community will be similar in structure, composition and diversity to the original vegetation.

FABRICATION (Type Conversion)

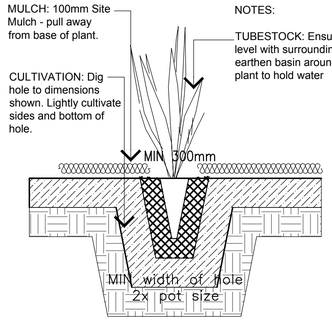
Applies:
- Where site conditions have been irreversibly changed.
- When it is not possible to restore the original native plant community.
- Where a better-adapted local plant community can be planted that will function within the changed conditions.
- In situations such as the construction of a wetland plant community to mitigate increased urban stormwater run-off.
- N.B Revegetation (planting) is the major component in a fabrication program.

The re-establishing planted community should be similar to the naturally occurring plant community of the same type e.g. freshwater wetlands in structure, composition and diversity.

SITE PREPARATION

Areas designated for revegetation have undergone various stages of disturbance whether it be affected by introduced species of through the necessary development process.
Once planting locations have been determined each planting location is to be spot sprayed (1 square metre) prior to soil cultivation. (knockdown, non residual hebercide = Glyphosate or equivalent used at minimum rate of 2 litres per ha of spot spraying) Several herbicide applications maybe required to ensure appropriate kill rates where long grass exists. Note: Weed spray to single plantings only at top of bank.
However, if individual weeds have been identified throughout the existing established native vegetation, then manual removal should be applied and replaced with a native revegetation species as identified on this drawing sheet.

CULTIVATION AND PLANTING



Coat sides of holes and incorporate Gypsum at 5kg per m^3 and water crystals to maintenance recommendations.

Each individual planting location should be spot cultivated to at least 2 times the depth and twice the width of the plant stock size. Refer detail for more specifications:

WATERING: At the time of planting soak the root ball of each plant in a diluted solution of liquid seaweed according to the directions on product label to assist in establishment. Plants are to be watered deeply only once at the time of planting and then allowed to establish within the prevailing climatic conditions. If it is observed during the maintenance process that the plant is under stress then a subsequent watering is allowed to assist in establishment.

MULCHING & MATTING

Areas to be blanket mulched to a minimum depth of 100mm leaving a 50mm gap surrounding the trunk of planted stock. Areas which are deemed as too steep or not suitable for mulching due to frequent overland flows may utilise a combination of mulch and Jute mat and / or suitably anchored natural fibre weed mat installed to manufacturer's specifications have been specified.

PLANTING STOCK

All planting species to be selected in accordance with the species sizes and numbers setout on the species schedules. Refer to individual schedules for proposed proportions of groundcovers, shrubs and trees within planting areas. Revegetation planting locations shall be generally setout in accordance with a random grid pattern.

All stock shall be true scheduled nomenclature, well formed, hardened off to suit final revegetation location, nursery stock. The root system should be well formed without being tube bound or large roots extruding from the tube container. The landscape coordinator has the right to inspect and reject stock prior to planting.

INSTALLATION METHODOLOGY

To maximise plant establishment success rates and minimise plant failure, installation methodology for revegetation works within rehabilitation areas shall include:

- Revegetation works shall be either undertaken or directly supervised by an experienced and qualified contractor.
- All works shall be in accordance with the provisions of this Site Based Rehabilitation Plan & local government policies.
- Plants are to be vigorous, well established, hardened off, consistent with species or variety, free from disease and insect pests, with large root systems and no evidence of damage.
- Plants are to be planted immediately after delivery to the planting site. Otherwise, they shall be stored in shade and watered sufficiently.
- Excavate planting medium to a depth suitable for the installation of tube or pot specimens. In areas where planting substrate is deemed to be very poor (compacted, nutrient depauperate, hydrophobic etc.) and above areas of potential frequent inundation and water flow, topsoil may be used or the ground mechanically ripped where access is feasible.
- Pre-water plant hole to decrease root stress and assess infiltration through soil.
- Incorporate into plant hole, water crystals / hydrating product to manufacturer's recommendations (Hortex 'Rainsaver' / 'Moisturaid' or similar approved).
- Place plant into hole and backfill ensuring that the plant is upright and the stem is not covered in less than 10mm or any more than 20mm of planting medium.
- Plants are to be watered thoroughly immediately after planting (deep irrigation) and thereafter as required during establishment depending on climatic conditions. Creation of a concave hollow around the base of each plant will aid water infiltration to the plant roots.
- A complete, slow release fertiliser is to be applied during planting to manufacturer's recommendations (Nutricote or similar approved) .
- To ensure successful establishment, all planting surfaces must be covered in:
  - a 100mm layer of high quality weed-free composted mulch (site mulch) - Note: avoid possible stem rot ensure mulch is 'dished' and not covering plant stem by more than 20mm.
  - suitable individual anchored natural fibre weed mat; or
- Seedlings and saplings to be encouraged and maintained throughout the establishment period.

MAINTENANCE SCHEDULE

MAINTENANCE SCHEDULE	
Maintenance schedule for revegetation areas of the proposed development as specified on the Landscape Plans	
ESTABLISHMENT	*Establishment is to occur at the completion of the primary and secondary weed removal phases and any rehabilitation planting. During this period any failed stock are to be replaced and/ or defects identified then reparations are to be made to site works.*
1. Watering	Watering shall be carried out to ensure establishment of revegetation.
	At the time of planting soak the root ball of each plant in a diluted solution of liquid seaweed according to the directions on product label to assist in establishment.
	Plants are to be watered deeply only once at the time of planting and then allowed to establish within the prevailing climatic conditions. If it is observed during the maintenance process that the plant is under stress then a subsequent watering is allowe
2.Weed Removal	Weeds evident during the Establishment period but should be removed as part of a monthly weed management program. Best Practice weed management techniques should be employed for weed removal amongst revegetation areas.
	Where grass seeding or turf establishes within planted areas it should be treated with approved herbicide for waterways.
MAINTENANCE	
1. Watering	No specified watering regime is provided during the maintenance period. The intent is for the area to become self sufficient in utilising natural rain patterns and run off. Watering should occur during extended dry periods to ensure continued establishm
2. Weed Removal	Weeds should be tended to on a monthly program. Treatment techniques vary within the landscape planted areas versus revegetation and retention areas.
3. Management	Throughout the establishment and maintenance periods areas where planting stock has not achieved a 90% success survival additional planting shall be installed.
4. Erosion Control	Prior to the commencement of works and to remain throughout the establishment and maintenance period an erosion and sediment control measures shall be employed over the rehabilitaion area of the site.

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Date Jun15

Plan of: Harry Ratnam Park
Rehabilitation General Notes
Sheet 1

Drawn by. FW
Checked by GC / MS
Project: Woodlinks Village Estate H.R.Park
Client: Canberra Estate Consortium No. 36

SCALE: AS NOTED

North

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Dwg No. 8051 L 09 E

Woodlinks Village Estate - Harry Ratnam Park

Rehabilitation Zones Notes Sheet 2

ZONES DESCRIPTION

In keeping with the Core Rehabilitation Methods described above, 5 Distinct Zones are applied throughout the rehabilitation areas describing a range of work in Harry Ratnam Park. Refer to Drawing sheets 8051 L 10-17 for an associated full description of proposed plant species, sizes, densities and numbers.

ZONES 1, 1A & 1B Ex.Veg.

Existing Vegetation Areas with Infill Planting and Assisted Natural Regeneration
This large area of intact Vegetation is predominantly weed free with the exception of isolated occurrences of weed species (Lantana, Pepper Trees, Chinese Elms, Blue Billy Goats weed, Singapore Daisy etc) mainly along the creek banks. In the majority of the Zone 1 area the intent is for ongoing native species re-growth to be encouraged from the existing intact seed bank, through the elimination of competition from weed species.

Allowance will be made to allocate reinforcement and re-planting tubestock for this zone. The exact revegetation area and number will be determined following weed management and detailed assessment on site following the initial weed management phase, to revegetate bare areas.

Re-planting in Zone 1 is to be undertaken in two (or possibly more) broad phases:

Intial phases - Higher proportion of tree species in planting mix to increase canopy cover and Follow-up phases - Higher proportion of Shrubs Planting to introduce mid storey open forest structure.

Minor disturbances within Zone 1 will occur as a result of removal of larger areas of weed infestation. Weed treatment will be hand removal and follow up spot spraying. Where significant areas of weed removal occurs such as bare ground areas greater than 10m2, Blanket mulching (or Coir matting in overland flow areas) and tubestock is to be installed.

It is noted that in the majority of locations, a generally continuous layer of existing groundcovers of native grasses such as Blady Grass is present, providing topsoil stability. Accordingly the intent is to install revegetation as single hole plantings amongst retained and protected existing groundcovers and to only install new groundcovers to replace removed weeds. The Planting Mixes for these zones are all weighted primarily towards tree species with some shrub layer species and minimal groundcovers.

Where larger sections of weeds (such as Singapore Daisy) are to be removed in overland flow areas, Coirmatting and high density tubestock planting to min. 3 per m^2 may be required for stablisation.

Within the broader Zone 1 area there are some sections where Canopy cover is more open. In these areas specific higher density revegetation planting mixes are proposed (Zones 1A and 1B as indicated on plan). The exact extent of areas requiring re-planting will be determined following the initial weed management phase.

ZONE 1A Ex.Veg. **(Lower Creek Bank)**

Mainly canopy planting is allowed in this zone to create upper level shade cover through individual plantings typically with 1M dia. mulch circles within existing native grass cover.

The species mix in these locations utilise a higher proportion of plants tolerant of frequent innundation.

ZONE 1B Ex.Veg. **(Mid Creek Bank)**

Mainly canopy planting is allowed in this zone to create upper level shade cover through individual plantings typically with 1M dia. mulch circles within existing native grass cover.

The species mix in these locations utilise a higher proportion of open Eucalypt forest species plants.

ZONES DESCRIPTION CONTINUED

ZONES 2 to 5 Revegetation Planting

As a result of previous land uses, clearing and weed treatments works, these areas are to be rehabilitated through reconstruction procedures. Areas to be rehabilitated include those that are denuded, disturbed and or where bare areas exist following the weed management. Any weed species regrowth is to be eradicated and the area mulched (or matted where nominated in overland flow zones) and revegetated with Koala food and habitat trees, and native shrubs and ground covers. Planting zones are to be dominated by trees, shrub and ground cover species with species selected from pre clear species. Initial Phase planting will focus on the tree planting to promote canopy cover and establish the structure. The ultimate outcome will replicate an established Open Eucalypt Forest.

ZONE 2 Mulch Planting Areas

EXISTING CLEARED AREAS TO BE CONVERTED FROM GRASS TO TIERED PLANTING

MULCHED PLANTING AREAS, TIERED PLANTING STRUCTURE:
Ultimate species mix of Trees, Shrubs and Groundcovers.
75mm Tubestock Rehabilitation, 100mm Site Mulch on Modified Site Topsoil to 1: 4 Max. batters.
Refer to Plant Schedules for species composition and density.

ZONE 2A **(Mid Creek Bank)**

These zones are located between the creek and the mapped Q100 high inundation line. The species mix in these locations utilise a higher proportion of plants tolerant of frequent innundation.

ZONE 2B **(Upper Creek Bank)**

These zones are located between the mapped Q100 high inundation line and the pathway edges to the east. The species mix in these locations utilise a higher proportion of open Eucalypt forest species plants.

ZONE 3 Mulch Plant. Power. **POWERLINE EASEMENT - MULCHED**

DISTURBED AREAS FOLLOWING EARTHWORKS (OUTSIDE OF FLOW PATHS)
PLANTING AREAS - NOTE: NOT PART OF INITIAL PHASE WORKS

ZONES DESCRIPTION CONTINUED

ZONE 4 Tree Planting

MULCHED SINGLE AND GROUPED TREES IN EXISTING GRASSED AREAS:
In areas between existing pathway and house lots, tree species are proposed into existing grassed areas with no understorey planting, trees will be set back from pathway edges and rear lot boundaries to allow for safe management and CPTED sightlines.

Trees planted in Tree Guards
75mm Tubestock Rehabilitation species, 100mm Site Mulch x 1.0M Dia. circles into Modified Site Topsoil planting holes.
Refer to Plant Schedules and Typical Layout Plan 8051 L 18 for species composition and density.

ZONE 5 Future Works

STORMWATER REHABILITATION & SHARED USE AREAS BY ICC
These areas have been designated by ICC for future works to install stormwater devices and local recreational park outcomes. These areas will be maintained as slashed open grass to maintain flexibililty for construction outcomes by ICC in the future.

NOTE: Coir Mat Plant.

COIR MATTING PLANTING AREAS IF REQUIRED ON SITE
If during site investigations following weed removal or during construction works it is considered by the Site Superintendant that site mulch should be substituted with a bio-degradable matting solution, Coir matting will be installed. Matting will be installed to manufacturer's recommendations to existing & disturbed ground in areas only where frequent overland flows are expected.

PLANTING DETAILS:
75mm Tubestock Rehabilitation species mix of Trees, Shrubs and Groundcovers.
"Coir Matting Polyfabrics Tecmat TMC9" (Thickest Version rated to cater for flow velocity of 4.8m/s).

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amendments:

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B	09.07.2018	Phase 1 Tender	GC
C	17.08.2018	Revised Tender	GC
E	15.06.2021	Revised Tender	GC

Date Jun 15

Plan of: Harry Ratnam Park
Rehabilitation Zone Notes Sheet 2

Drawn by. FW
Checked by GC / MS
Project: Woodlinks Village Estate H.R.Park
Client: Canberra Estate Consortium No. 36

SCALE: AS NOTED

North

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Dwg No. 8051 L 10 E

Woodlinks Village Estate - Harry Ratnam Park

Rehabilitation Plan - Sheet 1

JOIN LINE: REFER DWG 8051 L 11

WOODLINKS ESTATE DEVELOPMENT STAGE 1 to 7 OPEN SPACE CORRIDOR ALONG GOODNA CREEK:

Subject to Detailed Rehabilitation Works Operational Works Approvals approved by ICC and completed in conjunction with adjoining staged development. Works being monitored.

ZONE 1 Existing Vegetation: 7700 m2 Approx.

ZONE 2A Mulch Plant (Mid Bank Mix): 1,600 m2 Approx.

ZONE 5 Future Works by others: 13,500 m2 Approx.

Goodna Creek

Approximate Park Boundary
Top of Bank (Confirm on Site)
Limit of Planting Works

Existing Residences (rear boundary)

15m buffer - clear offset from Rear Boundary to edge of Planting Area (slashed existing grass maintenance area)

Henty Drive

100 Year ARI

100 Year ARI

100 Year ARI

Planting Area - Temporary Protection Fence: Confirm on site

Fire Trail location indicative - generally level grassed area existing for majority of buffer

Existing Pathway continues to Woodlinks Estate Linear Park and pathway

15m buffer - clear offset from Rear Boundary to edge of Planting Area (slashed existing grass maintenance area)

Limit of Works

Proposed Future Stormwater Treatment Area by others

Existing Park Frontage Maintenance Access Point

LEGEND

LEGEND: to be read in conjunction with accompanying SHG & ICC Detail Drawings, Specifications and Schedules that form part of the detailed landscape documentation set.

REFER TO DWG 8051 L 09 & 10
REHABILITATION NOTES FOR DETAILED DESCRIPTIONS
REFER TO DWGS 8051 L 15 to 17
FOR DETAILED PLANT SCHEDULES

INTIAL PHASE WORKS

ZONE 1Ex.Veg. (See Notes)
EXISTING VEGETATION COVER -
INFILL OPEN AREAS WITH FUTURE PHASE WORKS, REINFORCEMENT PLANTING AS REQUIRED TO EXISTING BARE AREAS & BARE AREAS AFTER INITIAL WEED MANAGEMENT

ZONE 2A (Mid Bank) & ZONE 2B (Upperbank)
BROAD SCALE REVEGETATION -
MULCHED PLANTING AREA

ZONE 3 - NOT PART OF INITIAL WORKS
POWERLINE EASEMENT -
MULCHED PLANTING AREAS, NO TREES OR LARGE SHRUBS PLANTING STRUCTURE

ZONE 4
TREE PLANTING -
MULCHED SINGLE TREES WITHIN MANAGED EXISTING GRASS (NON-FIBROUS BARK TREES)

ZONE 5
FUTURE WORK BY OTHERS -
STORMWATER & REHABILITATION SHARED USE AREAS: BY ICC

EXISTING GRASSED AREAS TO BE RETAINED-
MAINTAIN AS MOWN GRASS BUFFERS AND CIRCULATION AREAS WHERE SHOWN WITHIN PARKS

CONCRETE PEDESTRIAN / CYCLE PATH -
EXISTING 2M / 2.2M WIDE PATHS WITHIN PARKS

FIRE TRAIL ACCESS - 6M CLEARED WIDTH AND 4M MIN. FORMED WIDTH -
ACCESS TO BUSHLAND / REVEGETATION FOR FIRE-FIGHTING OPERATIONS. CONNECTIONS BACK TO HENTY DRIVE AT PARK FRONTAGE LOCATIONS SHOWN.

2.5 TO 3M WIDE MAINTENANCE TRACKS -
THROUGH REHABILITATION AND GRASSED AREAS FOR ONGOING MANAGEMENT
FINISHES DEPEND ON LOCATIONS: I.E.
- EXISTING GRASS SLASHED TRACKS OR
- MULCH SPREAD ON EXISTING GROUND (WEED SPRAY & 100MM)

EXISTING DRAINAGE SWALES -
AREAS EXCLUDED FROM WORKS TO ALLOW UNIMPEDED FLOWS AND PREVENT SCOURING TO REHABILITATION AREAS.

TOP OF BANKS-
PLANTING LIMIT OF WORKS APPROXIMATE ONLY - CONFIRM LOCATION ON SITE. BASED ON ACTUAL TOP OF BANK LIMIT.

TEMPORARY PROTECTION FENCING -
REFER TO DETAILS. APPROXIMATE EXTENT SHOWN. CONFIRM EXACT REQUIRED LOCATIONS ON SITE.

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C	09.07.2018	Phase 1 Tender	GC
D	17.08.2018	Revised Tender	GC
E	15.06.2021	Bushfire Tender	GC

Date Jun 15

Plan of: Harry Ratnam Park
Rehabilitation Plan LOT 7000
Sheet 1

Drawn by. FW
Checked by GC / MS
Project: Woodlinks Village Estate H.R.Park
Client: Canberra Estate Consortium No. 36

SCALE:
1:500@A1
1:1000@A3
0 5 10 25m

North

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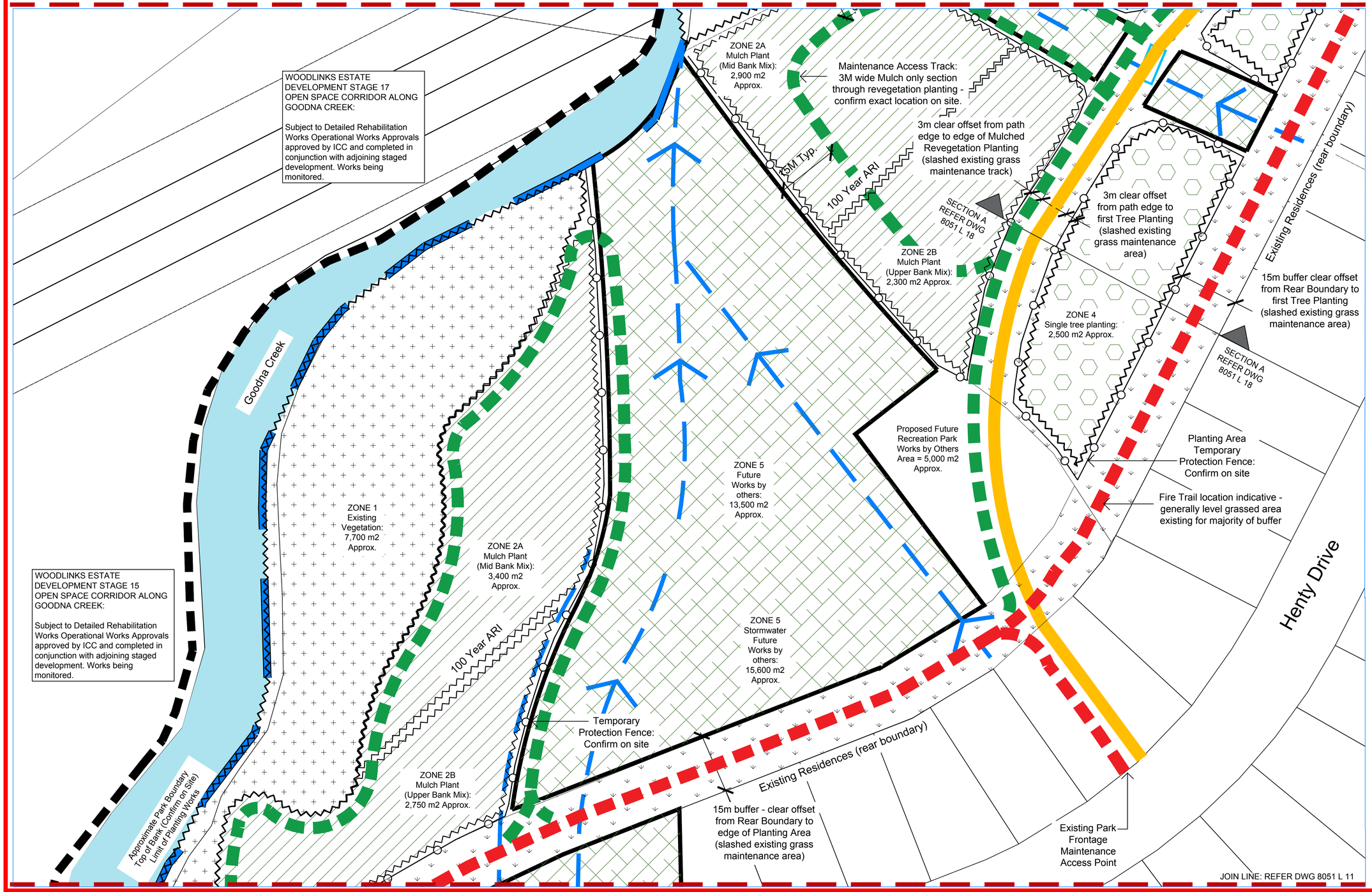
Dwg No. 8051 L 11 E

Woodlinks Village Estate - Harry Ratnam Park

Rehabilitation Plan - Sheet 2

JOIN LINE: REFER DWG 8051 L 13



JOIN LINE: REFER DWG 8051 L 11

LEGEND

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REFER TO DWG 8051 L 09 & 10
REHABILITATION NOTES FOR DETAILED DESCRIPTIONS
REFER TO DWGS 8051 L 15 to 17
FOR DETAILED PLANT SCHEDULES

INTIAL PHASE WORKS

ZONE 1Ex.Veg. (See Notes)
EXISTING VEGETATION COVER -
INFILL OPEN AREAS WITH FUTURE PHASE WORKS, REINFORCEMENT PLANTING AS REQUIRED TO EXISTING BARE AREAS & BARE AREAS AFTER INITIAL WEED MANAGEMENT

ZONE 2A (Mid Bank) & ZONE 2B (Upperbank)
BROAD SCALE REVEGETATION -
MULCHED PLANTING AREA

ZONE 3 - NOT PART OF INITIAL WORKS
POWERLINE EASEMENT -
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ZONE 4
TREE PLANTING -
MULCHED SINGLE TREES WITHIN MANAGED EXISTING GRASS (NON-FIBROUS BARK TREES)

ZONE 5
FUTURE WORK BY OTHERS -
STORMWATER & REHABILITATION SHARED USE AREAS: BY ICC

EXISTING GRASSED AREAS TO BE RETAINED-
MAINTAIN AS MOWN GRASS BUFFERS AND CIRCULATION AREAS WHERE SHOWN WITHIN PARKS

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EXISTING 2M / 2.2M WIDE PATHS WITHIN PARKS

FIRE TRAIL ACCESS - 6M CLEARED WIDTH AND 4M MIN. FORMED WIDTH -
ACCESS TO BUSHLAND / REVEGETATION FOR FIRE-FIGHTING OPERATIONS. CONNECTIONS BACK TO HENTY DRIVE AT PARK FRONTAGE LOCATIONS SHOWN.

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THROUGH REHABILITATION AND GRASSED AREAS FOR ONGOING MANAGEMENT
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A	12.02.2016	Preliminary	GC
B	20.11.2017	Tender (Stage 7)	GC
C	09.07.2018	Phase 1 Tender	GC
D	17.08.2018	Revised Tender	GC
E	15.06.2021	Revised Bushfire / Tender	GC

Date Jun 15

Plan of: Harry Ratnam Park
Rehabilitation Plan LOT 7000
Sheet 2

Drawn by. FW
Checked by GC / MS
Project: Woodlinks Village Estate H.R.Park
Client: Canberra Estate Consortium No. 36

SCALE:
1:500@A1
1:1000@A3
0 5 10 25m

North

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Dwg No. 8051 L 12 E

Woodlinks Village Estate - Harry Ratnam Park

Rehabilitation Plan - Sheet 3

WOODLINKS ESTATE
DEVELOPMENT STAGE 18
OPEN SPACE CORRIDOR ALONG
GOODNA CREEK:

Subject to Detailed Rehabilitation Works Operational Works Approval approved by ICC. Works to commence in this area May 2021.

Goodna Creek

Approximate Park Boundary
Top of Bank (Confirm on Site)
Limit of Planting Works

SECTION B
REFER DWG
8051 L 18

ZONE 1
Existing
Vegetation:
13,500 m2
Approx.

ZONE 3
Mulch
Plant
Power:
1,100 m2
Approx.

ZONE 1
Existing
Vegetation:
13,500 m2
Approx.

ZONE 2A
Mulch Plant
(Mid Bank Mix):
1,700 m2
Approx.

100 Year ARI

ZONE 2B
Mulch Plant
(Upper Bank Mix):
2,400 m2 Approx.

3m clear offset from path
edge to edge of Mulched
Revegetation Planting
(slashed existing grass
maintenance track)

JOIN LINE: REFER DWG 8051 L 14

Fire Trail location indicative -
generally level grassed area
existing for majority of buffer

15M
Approx.

ZONE 3
Mulch
Plant
Power:
250 m2
Approx.

30m buffer in this location-
clear offset from Rear
Boundary to Powerline
understorey Planting
(slashed existing grass
maintenance area)

Existing Residences (rear boundary)

Henty Drive

15M
Approx.

ZONE 3
Mulch
Plant
Power:
1300 m2
Approx.

5m clear offset from Conductor
Shadow Area
(slashed existing grass
maintenance area)

SECTION B
REFER DWG
8051 L 18

3m clear offset from path
edge to edge of Mulched
Revegetation Planting
(slashed existing grass
maintenance track)

ZONE 3
Mulch
Plant
Power:
900 m2
Approx.

20m Min. clear offset
from towers
(slashed existing grass
maintenance area)

Planting Area -
Temporary
Protection Fence:
Confirm on site

ZONE 3
Mulch Plant Power:
350 m2 Approx.

ZONE 2B
Mulch Plant
(Upper Bank Mix):
2,250 m2 Approx.

ZONE 2A
Mulch Plant
(Mid Bank Mix):
1,600 m2
Approx.

15m buffer - clear offset from
Rear Boundary to first Tree
Planting
(slashed existing grass
maintenance area)

15M
Approx.

ZONE 3
Mulch Plant Power:
450 m2 Approx.

ZONE 4
Single tree
planting:
1,000 m2
Approx.

3m clear offset from path edge
to first Tree Planting
(slashed existing grass
maintenance area)

30M Typ.

JOIN LINE: REFER DWG 8051 L 12

LEGEND

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REFER TO DWG 8051 L 09 & 10
REHABILITATION NOTES FOR DETAILED DESCRIPTIONS
REFER TO DWGS 8051 L 15 to 17
FOR DETAILED PLANT SCHEDULES

INTIAL PHASE WORKS

ZONE 1Ex.Veg. (See Notes)
EXISTING VEGETATION COVER -
INFILL OPEN AREAS WITH FUTURE PHASE WORKS, REINFORCEMENT PLANTING AS REQUIRED TO EXISTING BARE AREAS & BARE AREAS AFTER INITIAL WEED MANAGEMENT

ZONE 2A (Mid Bank) & ZONE 2B (Upperbank)
BROAD SCALE REVEGETATION -
MULCHED PLANTING AREA

ZONE 3 - NOT PART OF INITIAL WORKS
POWERLINE EASEMENT -
MULCHED PLANTING AREAS, NO TREES OR LARGE SHRUBS PLANTING STRUCTURE

ZONE 4
TREE PLANTING -
MULCHED SINGLE TREES WITHIN MANAGED EXISTING GRASS (NON-FIBROUS BARK TREES)

ZONE 5
FUTURE WORK BY OTHERS -
STORMWATER & REHABILITATION SHARED USE AREAS: BY ICC

EXISTING GRASSED AREAS TO BE RETAINED-
MAINTAIN AS MOWN GRASS BUFFERS AND CIRCULATION AREAS WHERE SHOWN WITHIN PARKS

CONCRETE PEDESTRIAN / CYCLE PATH -
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FIRE TRAIL ACCESS - 6M CLEARED WIDTH AND 4M MIN. FORMED WIDTH -
ACCESS TO BUSHLAND / REVEGETATION FOR FIRE-FIGHTING OPERATIONS. CONNECTIONS BACK TO HENTY DRIVE AT PARK FRONTAGE LOCATIONS SHOWN.

2.5 TO 3M WIDE MAINTENANCE TRACKS -
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EXISTING DRAINAGE SWALES -
AREAS EXCLUDED FROM WORKS TO ALLOW UNIMPEDED FLOWS AND PREVENT SCOURING TO REHABILITATION AREAS.

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Date Jun 15

Plan of: Harry Ratnam Park
Rehabilitation Plan LOT 7000
Sheet 3

Drawn by. FW
Checked by GC / MS
Project: Woodlinks Village Estate H.R.Park
Client: Canberra Estate Consortium No. 36

SCALE:
1:500@A1
1:1000@A3
0 5 10 25m

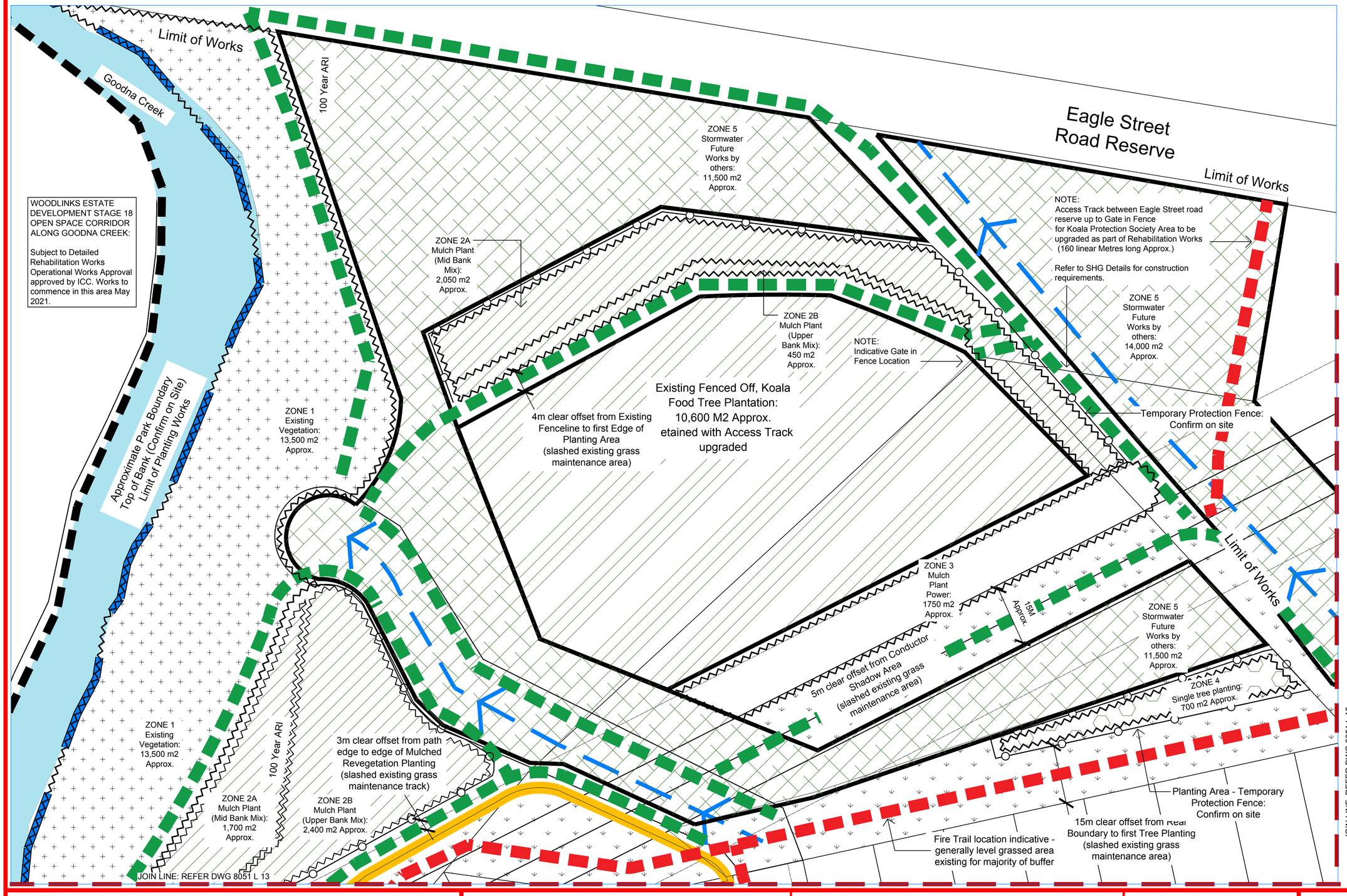
North

saunders havill group

Dwg No. 8051 L 13 E

Woodlinks Village Estate - Harry Ratnam Park

Rehabilitation Plan - Sheet 4



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REFER TO DWG 8051 L 09 & 10
REHABILITATION NOTES FOR DETAILED DESCRIPTIONS
REFER TO DWGS 8051 L 15 to 17
FOR DETAILED PLANT SCHEDULES

INTIAL PHASE WORKS

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ZONE 5
FUTURE WORK BY OTHERS -
STORMWATER & REHABILITATION SHARED USE AREAS: BY ICC

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Date Jun 15

Plan of: Harry Ratnam Park
Rehabilitation Plan LOT 7000
Sheet 4

Drawn by. FW
Checked by GC / MS
Project: Woodlinks Village Estate H.R.Park
Client: Canberra Estate Consortium No. 36

SCALE:
1:500@A1
1:1000@A3
0 5 10 25m

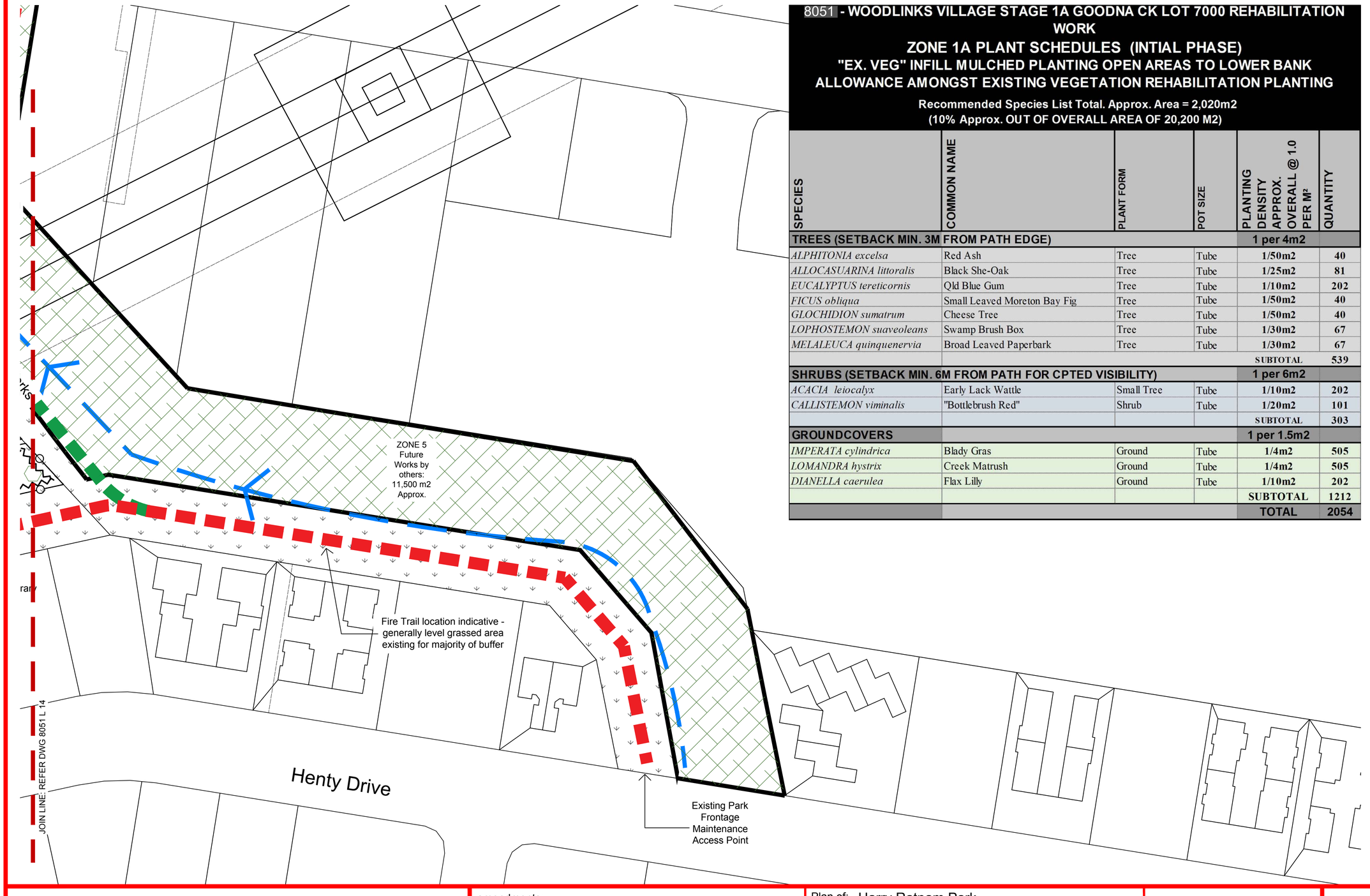
North

saunders havill group

Dwg No. 8051 L 14 E

Woodlinks Village Estate - Harry Ratnam Park

Rehabilitation Plan - Sheet 5



8051 - WOODLINKS VILLAGE STAGE 1A GOODNA CK LOT 7000 REHABILITATION WORK

ZONE 1A PLANT SCHEDULES (INTIAL PHASE)

"EX. VEG" INFILL MULCHED PLANTING OPEN AREAS TO LOWER BANK ALLOWANCE AMONGST EXISTING VEGETATION REHABILITATION PLANTING

Recommended Species List Total. Approx. Area = 2,020m2
(10% Approx. OUT OF OVERALL AREA OF 20,200 M2)

SPECIES	COMMON NAME	PLANT FORM	POT SIZE	PLANTING DENSITY APPROX. OVERALL @ 1.0 PER M²	QUANTITY
TREES (SETBACK MIN. 3M FROM PATH EDGE)				**1 per 4m2**	
ALPHITONIA excelsa	Red Ash	Tree	Tube	1/50m2	40
ALLOCASUARINA littoralis	Black She-Oak	Tree	Tube	1/25m2	81
EUCALYPTUS tereticornis	Qld Blue Gum	Tree	Tube	1/10m2	202
FICUS obliqua	Small Leaved Moreton Bay Fig	Tree	Tube	1/50m2	40
GLOCHIDION sumatrum	Cheese Tree	Tree	Tube	1/50m2	40
LOPHOSTEMON suaveoleans	Swamp Brush Box	Tree	Tube	1/30m2	67
MELALEUCA quinquenervia	Broad Leaved Paperbark	Tree	Tube	1/30m2	67
				SUBTOTAL	539
SHRUBS (SETBACK MIN. 6M FROM PATH FOR CPTED VISIBILITY)				**1 per 6m2**	
ACACIA leiocalyx	Early Lack Wattle	Small Tree	Tube	1/10m2	202
CALLISTEMON viminalis	"Bottlebrush Red"	Shrub	Tube	1/20m2	101
				SUBTOTAL	303
GROUNDCOVERS				**1 per 1.5m2**	
IMPERATA cylindrica	Blady Gras	Ground	Tube	1/4m2	505
LOMANDRA hystrix	Creek Matrush	Ground	Tube	1/4m2	505
DIANELLA caerulea	Flax Lilly	Ground	Tube	1/10m2	202
				SUBTOTAL	1212
				TOTAL	2054

LEGEND

LEGEND: to be read in conjunction with accompanying SHG & ICC Detail Drawings, Specifications and Schedules that form part of the detailed landscape documentation set.

REFER TO DWG 8051 L 09 & 10
REHABILITATION NOTES FOR DETAILED DESCRIPTIONS
REFER TO DWGS 8051 L 15 to 17
FOR DETAILED PLANT SCHEDULES

INTIAL PHASE WORKS

ZONE 1Ex.Veg. (See Notes)
EXISTING VEGETATION COVER -
INFILL OPEN AREAS WITH FUTURE PHASE WORKS, REINFORCEMENT PLANTING AS REQUIRED TO EXISTING BARE AREAS & BARE AREAS AFTER INITIAL WEED MANAGEMENT

ZONE 2A (Mid Bank) & ZONE 2B (Upperbank)
BROAD SCALE REVEGETATION -
MULCHED PLANTING AREA

ZONE 3 - NOT PART OF INITIAL WORKS
POWERLINE EASEMENT -
MULCHED PLANTING AREAS, NO TREES OR LARGE SHRUBS PLANTING STRUCTURE

ZONE 4
TREE PLANTING -
MULCHED SINGLE TREES WITHIN MANAGED EXISTING GRASS (NON-FIBROUS BARK TREES)

ZONE 5
FUTURE WORK BY OTHERS -
STORMWATER & REHABILITATION SHARED USE AREAS: BY ICC

EXISTING GRASSED AREAS TO BE RETAINED-
MAINTAIN AS MOWN GRASS BUFFERS AND CIRCULATION AREAS WHERE SHOWN WITHIN PARKS

CONCRETE PEDESTRIAN / CYCLE PATH -
EXISTING 2M / 2.2M WIDE PATHS WITHIN PARKS

FIRE TRAIL ACCESS - 6M CLEARED WIDTH AND 4M MIN. FORMED WIDTH -
ACCESS TO BUSHLAND / REVEGETATION FOR FIRE-FIGHTING OPERATIONS. CONNECTIONS BACK TO HENTY DRIVE AT PARK FRONTAGE LOCATIONS SHOWN.

2.5 TO 3M WIDE MAINTENANCE TRACKS -
THROUGH REHABILITATION AND GRASSED AREAS FOR ONGOING MANAGEMENT
FINISHES DEPEND ON LOCATIONS: I.E.
- EXISTING GRASS SLASHED TRACKS OR
- MULCH SPREAD ON EXISTING GROUND (WEED SPRAY & 100MM)

EXISTING DRAINAGE SWALES -
AREAS EXCLUDED FROM WORKS TO ALLOW UNIMPEDED FLOWS AND PREVENT SCOURING TO REHABILITATION AREAS.

TOP OF BANKS-
PLANTING LIMIT OF WORKS APPROXIMATE ONLY - CONFIRM LOCATION ON SITE. BASED ON ACTUAL TOP OF BANK LIMIT.

TEMPORARY PROTECTION FENCING -
REFER TO DETAILS. APPROXIMATE EXTENT SHOWN. CONFIRM EXACT REQUIRED LOCATIONS ON SITE.

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D	17.08.2018	Revised Tender	GC
E	15.06.2021	Bushfire Tender	GC

Date Jun 15

Plan of: Harry Ratnam Park
Rehabilitation Plan LOT 7000
Sheet 5

Drawn by. FW
Checked by GC / MS
Project: Woodlinks Village Estate H.R.Park
Client: Canberra Estate Consortium No. 36

SCALE:
1:500@A1
1:1000@A3
0 5 10 25m

North

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Dwg No. 8051 L 15 E

Zone 2A

8051 - HARRY RATNAM PARK, GOODNA CK REHABILITATION WORK
ZONE 2A (MID BANK - BELOW Q100) PLANT SCHEDULES (INTIAL PHASE)
"MULCH PLANT" MULCHED REHABILITATION PLANTING AREAS
Recommended Species List Total. Approximate Area = 13,250m2

SPECIES	COMMON NAME	PLANT FORM	POT SIZE	PLANTING DENSITY APPROX. OVERALL @ 1.0 PER 1M²	QUANTITY
TREES (SETBACK MIN. 3M FROM PATH EDGE)				**1 per 6m2**	
ALPHITONIA excelsa	Red Ash	Tree	Tube	1/120m2	110
ALLOCASUARINA littoralis	Black She-Oak	Tree	Tube	1/80m2	166
CORYMBIA intermedia	Pink Bloodwood	Tree	Tube	1/80m2	166
CORYMBIA tessellaris	Moreton Bay Ash	Tree	Tube	1/80m2	166
EUCALYPTUS crebra	Narrow Leaved Ironbark	Tree	Tube	1/80m2	166
EUCALYPTUS moluccana	Grey Box	Tree	Tube	1/80m2	166
EUCALYPTUS propinqua	Grey Gum	Tree	Tube	1/120m2	110
EUCALYPTUS siderophloia	Northern Grey Ironbark	Tree	Tube	1/80m2	166
EUCALYPTUS tereticornis	Qld Blue Gum	Tree	Tube	1/30m2	442
GLOCHIDION sumatrum	Cheese Tree	Tree	Tube	1/120m2	110
LOPHOSTEMON confertus	"Brush Box"	Tree	Tube	1/120m2	110
LOPHOSTEMON suaveoleans	Swamp Brush Box	Tree	Tube	1/80m2	166
MELALEUCA quinquenervia	Broad Leaved Paperbark	Tree	Tube	1/80m2	166
				SUBTOTAL	2208
SHRUBS (SETBACK MIN. 6M FROM PATH FOR CPTED VISIBILITY)				**1 per 6m2**	
ACACIA leiocalyx	Early Lack Wattle	Small Tree	Tube	1/40m2	331
BANKSIA integrifolia	Coastal Banksia	Small Tree	Tube	1/75m2	177
CALLISTEMON viminalis	"Bottlebrush Red"	Shrub	Tube	1/40m2	331
DAVIESIA villifera	Prickly Pea	Shrub	Tube	1/75m2	177
DODONAEA triquetra	Forest Hop Bush	Shrub	Tube	1/75m2	177
HOVEA acutifolia	Purple Pea Bush	Shrub	Tube	1/40m2	331
JACKSONIA scoparia	Dogwood	Shrub	Tube	1/75m2	177
LEPTOSPERMUM polygafolium	Wid May	Shrub	Tube	1/40m2	331
PITTOSPORUM undulatum	"Sweet Pittosporum"	Shrub	Tube	1/75m2	177
				SUBTOTAL	2208
GROUNDCOVERS				**1 per 1.5m2**	
BOTHRIOCHLOA sp.	"Beardgrass"	Ground	Tube	1/80m2	166
DIANELLA caerulea	Flax Lilly	Ground	Tube	1/20m2	663
GOODENIA rotundifolia	Star Goodenia	Ground	Tube	1/80m2	166
IMPERATA cylindrica	Blady Gras	Ground	Tube	1/7m2	1893
LOMANDRA hystrix	Creek Matrush	Ground	Tube	1/8m2	1656
LOMANDRA longifolia	Matrush	Ground	Tube	1/8m2	1656
MYOPORUM ellipticum	Boobiala	Ground	Tube	1/10m2	1325
THEMEDA triandra	Kangaroo Grass	Ground	Tube	1/10m2	1325
				SUBTOTAL	8849
				TOTAL	13266

Zone 1B

8051 - WOODLINKS VILLAGE STAGE 1A GOODNA CK LOT 7000 REHABILITATION WORK
ZONE 1B PLANT SCHEDULES (INITIAL PHASE)
"EX. VEG" INFILL MULCHED PLANTING OPEN AREAS TO MID CREEK BANK ALLOWANCE AMONGST EXISTING VEGETATION REHABILITATION PLANTING AREAS
Recommended Species List Total. Approx. Area = 2,020m2 (10% OUT OF OVERALL AREA OF 20,200 M2)

SPECIES	COMMON NAME	PLANT FORM	POT SIZE	PLANTING DENSITY APPROX. OVERALL @ 1.0 PER 1M²	QUANTITY
TREES (SETBACK MIN. 3M FROM PATH EDGE)				**1 per 3m2**	
ALPHITONIA excelsa	Red Ash	Tree	Tube	1/100m2	20
ALLOCASUARINA littoralis	Black She-Oak	Tree	Tube	1/60m2	34
CORYMBIA intermedia	Pink Bloodwood	Tree	Tube	1/60m2	34
CORYMBIA tessellaris	Moreton Bay Ash	Tree	Tube	1/80m2	25
EUCALYPTUS crebra	Narrow Leaved Ironbark	Tree	Tube	1/80m2	25
EUCALYPTUS moluccana	Grey Box	Tree	Tube	1/80m2	25
EUCALYPTUS propinqua	Grey Gum	Tree	Tube	1/100m2	20
EUCALYPTUS siderophloia	Northern Grey Ironbark	Tree	Tube	1/80m2	25
EUCALYPTUS tereticornis	Qld Blue Gum	Tree	Tube	1/40m2	51
GLOCHIDION sumatrum	Cheese Tree	Tree	Tube	1/100m2	20
LOPHOSTEMON suaveoleans	Swamp Brush Box	Tree	Tube	1/60m2	34
MELALEUCA quinquenervia	Broad Leaved Paperbark	Tree	Tube	1/60m2	34
				SUBTOTAL	347
SHRUBS (SETBACK MIN. 6M FROM PATH FOR CPTED VISIBILITY)				**1 per 12m2**	
ACACIA leiocalyx	Early Lack Wattle	Small Tree	Tube	1/35m2	58
CALLISTEMON viminalis	"Bottlebrush Red"	Shrub	Tube	1/20m2	101
				SUBTOTAL	159
GROUNDCOVERS				**1 per 2m2**	
IMPERATA cylindrica	Blady Gras	Ground	Tube	1/4m2	505
LOMANDRA hystrix	Creek Matrush	Ground	Tube	1/4m2	505
LOMANDRA longifolia	Matrush	Ground	Tube	1/4m2	505
				SUBTOTAL	1515
				TOTAL	2020

Woodlinks Village Estate - Harry Ratnam Park

Rehabilitation Plants Sheet 1

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B	17.08.2018	Revised Tender	GC
E	15.06.2021	Revised Tender	GC

Date Jun 15

Plan of: Harry Ratnam
Intial Phase Rehabilitation Plan Plants Sheet 1

Drawn by. FW
Checked by GC / MS
Project: Woodlinks Village Estate H.R.Park
Client: Canberra Estate Consortium No. 36

SCALE: AS NOTED

North

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Dwg No. 8051 L 16 E

Zone 2B

8051 - HARRY RATNAM PARK, GOODNA CK REHABILITATION WORK ZONE 2B (UPPER BANK - ABOVE Q100 LINE) PLANT SCHEDULES (INTIAL PHASE) "MULCH PLANT" MULCHED REHABILITATION PLANTING AREAS Recommended Species List Total. Approximate Area = 10,150m2					
SPECIES	COMMON NAME	PLANT FORM	POT SIZE	PLANTING DENSITY APPROX. OVERALL @ 1.0 PER 1M²	QUANTITY
TREES (SETBACK MIN. 4M FROM PATH EDGE)				**1 per 7.5m2**	
ALPHITONIA excelsa	Red Ash	Tree	Tube	1/60m2	169
CORYMBIA intermedia	Pink Bloodwood	Tree	Tube	1/50m2	203
CORYMBIA tessellaris	Moreton Bay Ash	Tree	Tube	1/50m2	203
EUCALYPTUS crebra	Narrow Leaved Ironbark	Tree	Tube	1/80m2	127
EUCALYPTUS moluccana	Grey Box	Tree	Tube	1/60m2	169
EUCALYPTUS propinqua	Grey Gum	Tree	Tube	1/80m2	127
EUCALYPTUS siderophloia	Northern Grey Ironbark	Tree	Tube	1/80m2	127
EUCALYPTUS tereticornis	Qld Blue Gum	Tree	Tube	1/30m2	338
LOPHOSTEMON confertus	Brush Box	Tree	Tube	1/75m2	135
				SUBTOTAL	1599
SHRUBS (SETBACK MIN. 4M FROM PATH - LOW DENSITY FOR CPTED VISIBILITY				**1 per 6m2**	
ACACIA leiocalyx	Early Lack Wattle	Small Tree	Tube	1/40m2	254
BANKSIA integrifolia	Coastal Banksia	Small Tree	Tube	1/75m2	135
CALLISTEMON viminalis	"Bottlebrush Red"	Shrub	Tube	1/40m2	254
CRYPTOCARYA triplinervis	"Three-veined Cryptocarya"	Shrub	Tube	1/75m2	135
DAVIESIA villifera	Prickly Pea	Shrub	Tube	1/75m2	135
DODONAEA triquetra	Forest Hop Bush	Shrub	Tube	1/75m2	135
HOVEA acutifolia	Purple Pea Bush	Shrub	Tube	1/50m2	203
JACKSONIA scoparia	Dogwood	Shrub	Tube	1/75m2	135
LEPTOSPERMUM polygafolium	Wid May	Shrub	Tube	1/50m2	203
PITTOSPORUM undulatum	"Sweet Pittosporum"	Shrub	Tube	1/75m2	135
				SUBTOTAL	1726
GROUNDCOVERS				**1 per 1.5m2**	
BOTHRIOCHLOA sp.	"Beardgrass"	Ground	Tube	1/25m2	406
CYMOBOPOGON refractus	Barb-wire Grass	Ground	Tube	1/25m2	406
IMPERATA cylindrica	Blady Gras	Ground	Tube	1/7m2	1450
LOMANDRA longifolia	Matrush	Ground	Tube	1/4m2	2538
THEMEDA triandra	Kangaroo Grass	Ground	Tube	1/5m2	2030
				SUBTOTAL	6830
				TOTAL	10154

Single Tree Planting

8051 - HARRY RATNAM PARK, GOODNA CK REHABILITATION WORK ZONE 4 PLANT SCHEDULES SINGLE TREE PLANTING IN OPEN GRASSED AREAS BETWEEN PATH & HOUSE LOTS Recommended Species List Total. Approximate Area = 4,200m2					
SPECIES	COMMON NAME	PLANT FORM	POT SIZE	DENSITY OVERALL @ 1.0 PER 18M²	QTY.
TREES (PHASE 1)					
CORYMBIA intermedia	Pink Bloodwood	Tree	Tube	1/100m2	42
CORYMBIA tessellaris	Moreton Bay Ash	Tree	Tube	1/100m2	42
EUCALYPTUS crebra	Narrow Leaved Ironbark	Tree	Tube	1/200m2	21
EUCALYPTUS moluccana	Grey Box	Tree	Tube	1/200m2	21
EUCALYPTUS siderophloia	Northern Grey Ironbark	Tree	Tube	1/200m2	21
EUCALYPTUS tereticornis	Qld Blue Gum	Tree	Tube	1/100m2	42
LOPHOSTEMON confertus	Brush Box	Tree	Tube	1/100m2	42
				TOTAL	231

Woodlinks Village Estate - Harry Ratnam Park

Rehabilitation Plants Sheet 2

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C	17.08.2018	Revised Tender	GC
E	15.06.2021	Revised Tender	GC

Date Jun 15

Plan of: Harry Ratnam
Intial Phase Rehabilitation Plan Plants Sheet 1

Drawn by. AB
Checked by GC / MS
Project: Woodlinks Village Estate H.R.Park
Client: Canberra Estate Consortium No. 36

SCALE: AS NOTED

North

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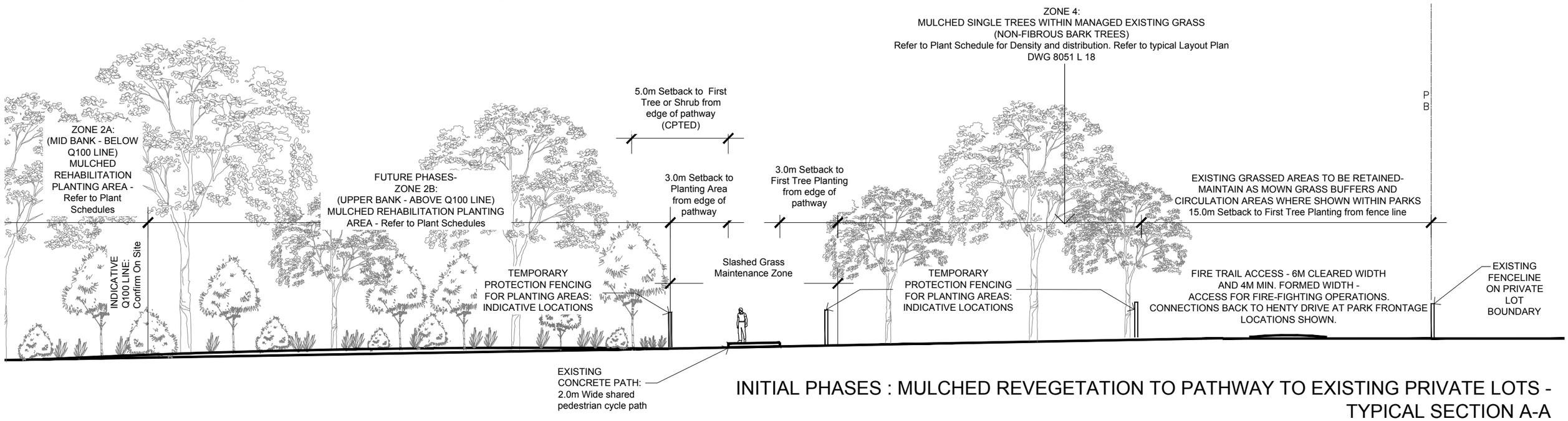
Dwg No. 8051 L 17 E

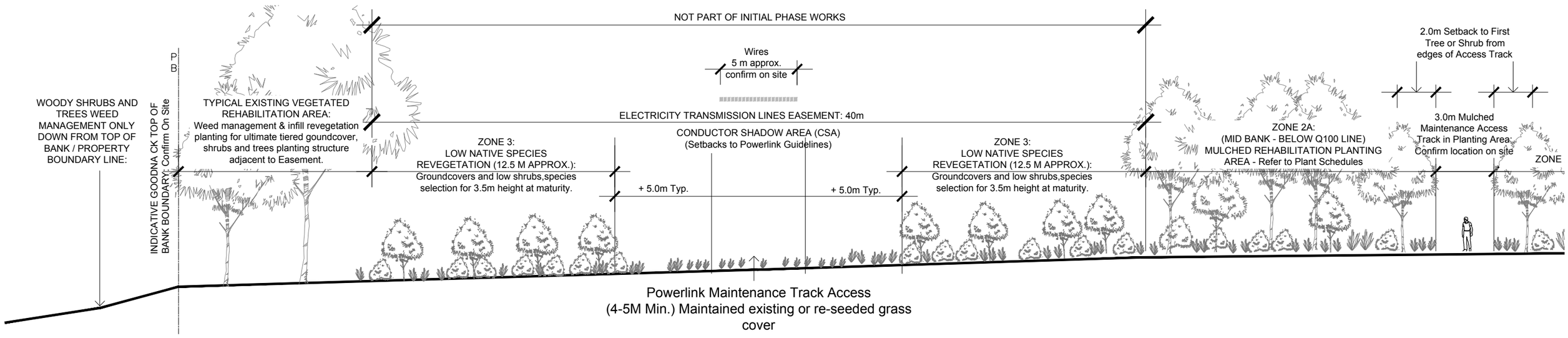
Woodlinks Village Estate - Harry Ratnam Park

Rehabilitation Plan Sections



INITIAL PHASES : MULCHED REVEGETATION TO PATHWAY TO EXISTING PRIVATE LOTS - TYPICAL SECTION A-A

Approximate Scales 1:100 @A1 / 1:200 @ A3



FUTURE PHASES: GOODNA CREEK TO POWERLINK EASEMENT TO MULCHED REVEGETATION - TYPICAL SECTION B-B

Approximate Scales 1:100 @A1 / 1:200 @ A3

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E	15.06.2021	Bushfire Tender	GC

Date Jun 15

Plan of: Harry Ratnam Park
Rehabilitation Sections

Drawn by. FW

Checked by GC / MS

Project: Woodlinks Village Estate H.R.Park

Client: Canberra Estate Consortium No. 36

SCALE:
AS SHOWN

North

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Dwg No. 8051 L 18 E

Woodlinks Village Estate - Harry Ratnam Park

Phase 1 - Single Tree Planting Typical Layout Plan

PLANTING GROUPING NOTES:

- Confirm on site with Landscape Architect
- Overall density for plantings shown on plant schedule; 30x10m typical
- Trees to be located in groups with closer spacing
- Density for tree planting areas alongside creek is higher than areas between pathway and houses; Approximately 20 per 300m^2
- Maintenance operations to consist of both mowing/slashing between planting groups as well as brush cutting fenced areas

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E	15.06.2021	Bushfire Tender	GC

Date Jun 15

Plan of: Harry Ratnam Park
Phase 1 - Single Tree Plating Layout Plan

Drawn by. AB

Checked by GC / MS

Project: Woodlinks Village Estate H.R.Park

Client: Canberra Estate Consortium No. 36

SCALE:
1:250@A1
1:500@A3
0 5 10m

North

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Dwg No. 8051 L 19 E

Appendix G

Lifestyle guidelines for Woodlinks Village

Protecting and supporting

the local koala population at Woodlinks Village

WOODLINKS

Did you know...

koalas have a relatively well-defined home range and regularly visit the same trees?

As a new resident to Woodlinks Village you also form part of the future custodians of the Goodna Creek Environmental Corridor. You may not have seen them yet, however from time to time you will hear or glimpse the local koala population living side by side with residents of Woodlinks. The vegetated land on Goodna Creek has been purposely set aside, protected and rehabilitated to ensure the existing local koala usage of the site continues as the village is constructed and ultimately completed. To ensure Goodna Creek continues to function for koala movement all residents need to play a role in making sure this vulnerable species is able to coexist as the estate evolves into a full community.

Despite the retention of the corridor and trees along Goodna Creek, as a resident there are a simple ways you can help reduce the dangers koalas face when traversing urban environments.

Legislation

The koala is listed as a Vulnerable Fauna Species under the Commonwealth Government's Environment Protection and Biodiversity Conservation Act 1999 and the Queensland Government's Nature Conservation Act 1992. Along with specific controls put in place by Ipswich City Council all of these levels of government have had a role in the assessment and approval of the Woodlinks Village estate. The Goodna Creek Corridor is one of the first environmental offsets approved by the Commonwealth Government since the listing of the Koala in 2012.

Koala Trees in Landscaping

Did you know an adult koala can eat up to 1 kilo of gum leaves each night?

Any tree can provide shelter or refuge for a koala when avoiding predators or adverse weather, however a number of the large Eucalypt and Corymbia species along Goodna Creek are preferred for food and habitat. These trees have been protected and are currently being bolstered for this purpose. Importantly none of the street trees or fresh landscaping away from the Goodna Creek includes new koala food tree plantings. These have been deliberately excluded from the estate to avoid attracting koalas outside of the corridor to where housing occurs and the risk of dog attack or vehicle strike is amplified.

You can support this outcome by ensuring you don't plant large gum trees around your own house and gardens (these species are not that suitable for these areas regardless of the koala).

Road Etiquette & Koala Safety

Did you know koalas are mostly asleep during the day and are actively moving around and feeding at night?

A common cause of koala deaths in urbanised parts of Queensland is being run over by a motor vehicle. When complete you will see signage and traffic calming devices along the Goodna Creek Esplanade Road as a constant reminder for drivers to be aware of the potential for a koala to wander through this area. Residents are encouraged to adhere to the reduced speed limits applied to this road, particularly at night.

Responsible Pet Ownership

Dog attacks on koalas result in death or very serious injuries. All dogs have the ability to cause stress to koalas with medium and large dogs more responsible for physical attacks. The Goodna Creek Corridor Parkland should only be utilised by dogs on a lead in constant control of the pet owner. Once the esplanade road is completed signage explaining these requirements will be installed at all entry and exit points to the parkland.

Dogs can behave differently when their owner is not present, particularly if a strange person or animal enters their territory. You can minimise the potential for your dog to attack a koala by ensuring it's contained to your property when not on a lead, particularly at night.

If You Find a Sick, Injured or Orphaned Koala

Don't try to handle a sick or injured koala, as you may put yourself or the animal in a situation where there is a risk of further injury. Koalas can also become easily stressed. Leave the koala undisturbed and ensure it is safe from further threats then contact either of the following groups for assistance:

The Ipswich Koala Protection Society – Koala Rescue
Phone: (07) 5464 6274 or
(07) 3832 5035

Daisy Hill Koala Centre
Daisy Hill Road,
Daisy Hill Qld 4127
Phone: (07) 3299 1032

Prepared by: saunders havill group