Annual Compliance Report EPBC 2017/8095

15 March 2022 – 14 March 2023

Hayfield

Ripley Road Residential Development, Ripley Valley, Qld
Jolifields Development Pty Ltd & The Trustee for Morehampton Capital & Trustee for the Goldfields QLD Trust
Year 4

8 June 2023

SHG Ref: 8844

saunders havill group

Document Control

Document: Annual Compliance Report EPBC 2017/8095 Year 4 (15 March 2022 – 14 March 2023), Hayfield Ripley Road Residential Development, prepared by Saunders Havill Group Pty Ltd for Jolifields Development Pty Ltd & The Trustee for Morehampton Capital & Trustee for the Goldfields QLD Trust, dated 8 June 2023.

Document Issue

Issue	Date	Prepared By	Checked By
Issue A – Client Issue	30.05.2023	JG	AW
Issue B	08.06.2023	JG	AW

Prepared by

ABN 24 144 972 949
www.saundershavill.com

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

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Acronyms and Abbreviations

ACR	Annual Compliance Report
BMP	Bushland Management Plan
DCCEEW	Department of Climate Change, Energy, the Environment and Water
EDQ	Economic Development Queensland
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999* (Cth)
ha	hectares
ICC	Ipswich City Council
kilometres	km
m	metres
PMAV	Property Map of Assessable Vegetation
RVPDA	Ripley Valley Priority Development Area
SHG	Saunders Havill Group
VCFMP	Vegetation Clearing and Fauna Management Plan
VMA	*Vegetation Management Act 1999* (Qld)

Approved Documents:

OMP	*Offset Management Plan Ripley Road Residential Development (Hayfield) (Peak Crossing & Burnett Creek offset sites) version H, dated 3 December 2021*

1. Introduction

This Annual Compliance Report (ACR) Year 4 (15 March 2022– 14 March 2023) has been prepared on behalf of Jolifields Development Pty Ltd & The Trustee for Morehampton Capital & Trustee for the Goldfields QLD Trust 'Goldfields' (the Proponent) for the Ripley Road Residential Development, Ripley Valley Queensland (EPBC 2017/8095), known as 'Hayfield' (the project).

The project comprises a residential development with open space, conservation and a small commercial precinct. Additionally, the project area will include a future school site, which will not be developed as part of this approved action. The project is estimated to be carried out over a 4-year period and at completion will include:

- residential allotments;
- local parks and open space;
- commercial precinct;
- conservation area;
- internal roads; and
- stormwater detention basins and natural treatment area.

Contextually, the project is located in South East Queensland, approximately 5 km south of Ipswich City (refer **Figure 1**). The project area is 109 ha and was subject to historical disturbance. The surrounding landscape contains a mix of cleared agricultural land and vegetated land. The approved action is located within the Ripley Valley Priority Development Area (RVPDA) which is earmarked for urban development.

1.1. Reporting Period

This ACR has been prepared in accordance with the approval granted on 12 February 2019 under the *Environment Protection and Biodiversity Act 1999* (EPBC Act), as specifically required by Condition 18 which states:

> *"The approval holder must prepare a compliance report for each 12 month period following the date of commencement of the action, or as otherwise agreed to in writing by the Minister. […] "*

This ACR details the status and compliance of the project for the 12-month period between 15 March 2022 and 14 March 2023.

The ACR must be published within 60 business days of the 12-month anniversary of the commencement of the action, being the 12 June 2023. Once published, the Department of Climate Change, Energy, the Environment and Water (DCCEEW, 'the Department') must be notified within 5 business days.

1.2. EPBC Act Approval

As the Proponent of the Project (EPBC 2017/8095), Jolifields Development Pty Ltd & The Trustee for Morehampton Capital & Trustee for the Goldfields QLD Trust was issued with an approval by the Department on 12 February 2019, subject to conditions.

Key details related to EPBC 2017/8095 approval are provided in **Table 1**.

Table 1: Approval Details

Commonwealth Reference	EPBC 2017/8095
Approval Holder	Jolifields Development Pty Ltd & The Trustee for Morehampton Capital & Trustee for the Goldfields QLD Trust
ABN	60 371 946 969
Project Name on the Approval	Ripley Road Residential Development, Ripley Valley Queensland
Approved Action	To construct a residential development on approximately 109 ha on Lot 2 SP237241, Ripley Valley, Queensland.
Controlling Provision(s)	Listed threated species and communities (sections 18 & 18A)
Approval Date	12 February 2019
Expiry Date of the Approval	30 January 2041
Date of Commencement of the Action	15 March 2019
Address	Ripley Road, Ripley Valley
Local Government Area	Ipswich City Council

1.3. Declaration of Accuracy

This declaration has been signed by the approval holder.

In making this declaration, I am aware that sections 490 and 491 of the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (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 no knowledge of that authorisation being revoked at the time of making this declaration.

Signed

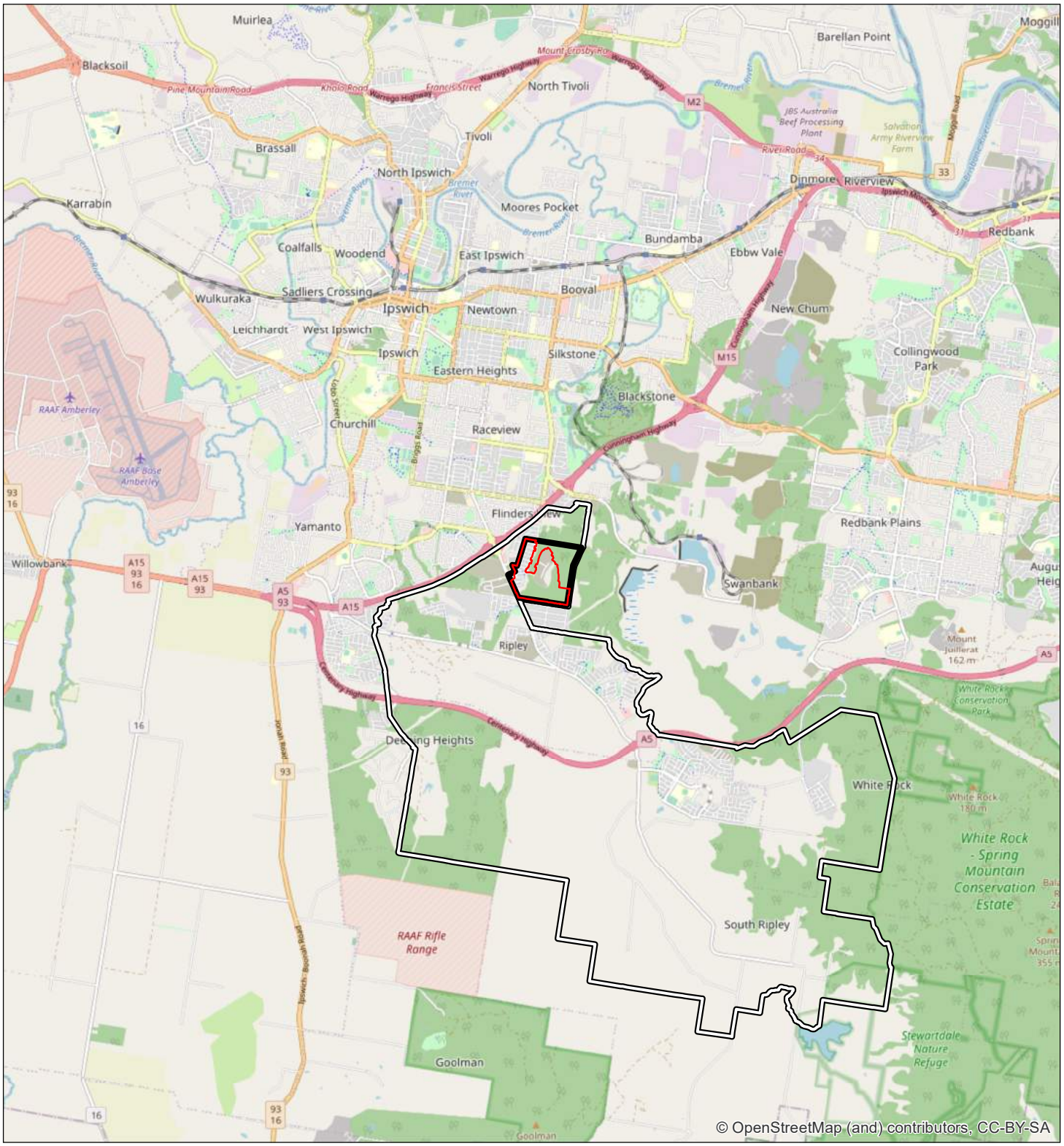
Full name (please print) Murray Saunders

Position (please print) Director

Organisation Saunders Havill Group

ABN 24 144 972 949

Date 08 / 06 / 2023



Legend

- Project Site
- Referral Area
- Ripley Valley PDA

Figure 1

Site Context

Jolifields Development Pty Ltd & The Trustee for Morehampton Capital & Trustee for the Goldfields QLD Trust

File ref. 8844 E Figure 1 Site Context ACR YR 4 A
Date 30/05/2023
Project Hayfield, Ripley

0 1 2 3 4 km

N

Scale (A4): 1:100,000 [GDA 1994 MGA Z56]

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Layer Source: © State of Queensland 2023

Legend

Referral Area

Qld DCDB

Figure 2

Site Aerial

Jolifields Development Pty Ltd & The Trustee for Morehampton Capital & Trustee for the Goldfields QLD Trust

File ref. 8844 E Figure 2 Site Aerial ACR YR 4 A
Date 30/05/2023
Project Hayfield, Ripley

0 60 120 180 240 m

Scale (A4): 1:7,500 [GDA 1994 MGA Z56]

N

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2. Current Status of the Project

2.1. Offsets Legally Secured

As required by Condition 2 of the EPBC Act approval (refer **Table 2** for further detail), to compensate for the loss of Koala and Grey-headed Flying-fox habitat on the project site, the Peak Crossing offset site and the Burnett Creek offset site were legally secured via a voluntary declaration under the *Vegetation Management Act 1999* (VMA) prior to the commencement of the action.

The Peak Crossing offset site means 109.72 ha at Lot 2 on CH312424, Lot 173 on CH312424 and Lot 151 on RP892014 (as per Attachment B of the EPBC Act approval). The Chief Executive of the Queensland Department of Natural Resources, Mines and Energy (DNRME, now Department of Resources) declared the Peak Crossing offset site as an area of high nature conservation value in accordance with section 19F(1) of the VMA in a Declared Area Map (DAM 2019/0000557) and Property Map of Assessable Vegetation (PMAV 2019/000448) under section 20B of the VMA on 20 March 2019.

The Burnett Creek offset site means 49.25 ha at Lot 100 on WD682 (as per Attachment C of the EPBC Act approval). The Chief Executive of DNRME declared the Burnett Creek offset site as an area of high nature conservation value in accordance with section 19F(1) of the VMA in a Declared Area Map (DAM 2019/000446) and Property Map of Assessable Vegetation (PMAV 2019/000558) under section 20B of the VMA on 20 March 2019.

Refer to the Year 1 ACR for further details on the securement of the offset sites.

2.2. Commencement of the action

The action formally commenced on 15 March 2019 and the Department was notified in writing of the date of commencement on 1 April 2019 in accordance with Condition 12 of the approval.

2.3. Development actions

Project actions within the Year 4 reporting period can be summarised as following:

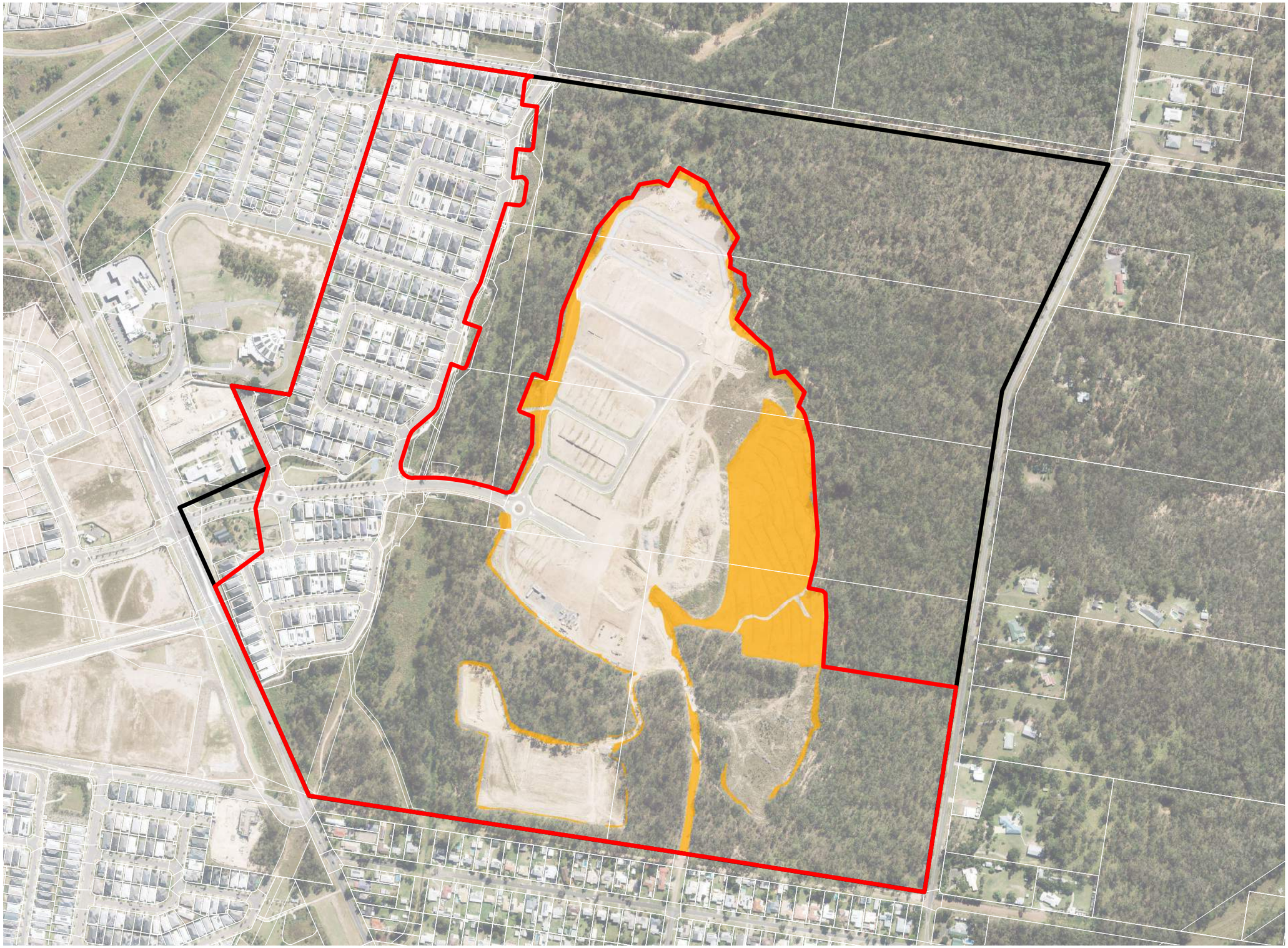
- Commencement of future development stages located to the east of existing Stages 1-5. This area of vegetation clearing is referred to as the 'Spoil Area' (refer **Plan 1**).
- Continuation of Stages 1 to 5 housing construction (approximately 408 houses under construction or constructed).
- Maintenance of open space including parks, wetlands and stormwater devices located across Stages 1-5.

Table 2 summarises the current status of the project. **Plan 1** shows the clearing that occurred within the Year 4 reporting period.

Table 2: Development details

Dwellings under construction/constructed	~408
Total site area	109.4 ha
Development area	71.78 ha
Approved total clearing of Koala and Grey-headed Flying-fox habitat	62.79 ha
Clearing of Koala and Grey-headed Flying-fox habitat in year 4	6.58 ha
Total current clearing of critical Koala habitat	42.79 ha

1. Measured Volume of Clearing



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

Layer Sources
© State of Queensland (Department of Resources) 2023.
Updated data available at
http://qldspatialinformation.qld.gov.au/catalogue/
© Metromap, 2023

Legend

- Project Site
- Referral Area
- Qld DCDB
- Year 4 - Cleared Koala Critical Habitat [6.58 ha]

Issue	Date	Description	Drawn	Checked
A	30/05/2023	Preliminary	LS	LT

0 50 100 150 m

Transverse Mercator | GDA 1994 | Zone 56 | 1:5,500 @ A3

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Jolifields Development Pty Ltd & The Trustee for
Morehampton Capital & Trustee for the Goldfields QLD Trust

Hayfield.

Address / RPD: Ripley Road, Ripley

30/05/2023 | 8844 E 01 ACR YR4 Measured Volume of Clearing A

2.4. Management of Impacts

Management measures specific to ecological values that have the potential to be impacted by the project have been considered throughout all stages of the planning, design and construction phases. Detailed management plans have and will continue to be implemented during the construction and operational phases of the project. Numerous terrestrial ecology studies were completed for the referral site to inform the planning and design of the project and inform the detailed management plants.

2.4.1 Vegetation Clearing and Fauna Management Plan

As the project site is located within the RVPDA, the preparation and implementation of detailed management plans also form part of the approval process under the Economic Development Queensland (EDQ) approval process. Site specific Vegetation Clearing and Fauna Management Plans (VCFMP) form part of a broader management documentation as part of the operation works stage including vegetation removal. The VCFMP includes information on vegetation and fauna management protocols and includes the following details:

- Clearly show all trees to be removed and retained
- Details of all civil works to impact on vegetation
- Temporary and permanent exclusion and protection fencing
- Roles and responsibilities for site contractors, the client and the consultant group
- Stockpiling and site access locations
- A clearing sequence plan showing the commencement of clearing and direction of removal (this should be in conjunction with the Fauna Management Plan component to allow for the appropriate flushing of fauna towards surrounding safe haven areas.
- Links to weed management and revegetation proposals
- The stock piling and reuse of cleared vegetation
- Specific details on the removal of previously identified potential fauna habitat trees
- Where trees are shown to be retained within disturbance zones they should be accompanied by necessary arborist specifications incorporated into the VCFMP
- Summary of species surveyed as using the site and which of those are likely to be impacted by works occurring within each stage of works.
- List relevant State and Federal legislation constraints and controls for the above listed fauna
- A plan showing existing habitat opportunities and locations
- Detail the threats for existing fauna species
- Specify management and mitigation measures – could include temporary use of fauna exclusion fencing
- Details of fauna spotter role and contacts and certification
- Specific fauna management procedures for potential or known habitat trees
- Clearing procedures in accordance with recognised Koala Plan guidelines and specifications

During the Year 4 reporting period, vegetation clearing was undertaken within a portion of the future development stages ('Spoil Area').

2.4.2 Pre and Post-clearing Reporting

Prior to clearing of vegetation, a pre-clearance survey is undertaken by the engaged DES approved Fauna Spotter Catcher and Level 5 Australian Qualifications Framework (AQF) Arborist where needed. The Fauna Spotter Catcher is also required to be on-site during vegetation clearing works to ensure the appropriate management of fauna. The Fauna Spotter Catcher pre-clearance survey and post-works reports for the Year 4 reporting period are provided at **Appendix A**. The vegetation clearing

undertaken during the reporting period was associated with the Spoil Area only. No EPBC Act listed threatened fauna were recorded during pre-clearing surveys or during vegetation clearing.

2.4.3 Sediment Rectification Works

The South East Queensland region experienced extreme weather over a period of five days from 23 February to 28 February 2022. Whilst coastal areas were the worst affected, inland areas also received higher than average rainfall. The Harding Street Alert weather station (ID: 040873) at Raceview is the closest weather station to the project area and online data showed approximately 625 mm of total rainfall for the area during that period. A further 40 mm was also recorded 3 March 2022. As a result of this unprecedented rainfall the Erosion and Sediment Control (ESC) measures across the Spoil Area failed in some locations. Sediment escaped from the development area causing excess runoff into the ecological corridor coinciding with two stream order one drainage lines.

In March 2022, the Approval Holder engaged a bushland contractor (Evolve) to carry out rectification works within flood damaged areas which included the removal of silt and plantings (refer **Appendix B** for rehabilitation photos). The ecological corridor will continue to be managed in accordance with the Natural Environment Site Strategy and site-specific Bushland Management Plans.

2.5. Annual Reporting Site Inspection

2.5.1 Impact area

An inspection of the project area and on-site conversation area was conducted by two SHG ecologists on 21 March 2023 to confirm the extent of works completed. To confirm the extent of works, the ecologists traversed Stages 1-5 and the Spoil Area. The inspection confirmed the extent of clearing works carried out within this reporting period (15 March 2022 – 14 March 2023) was within development area shown on Attachment A of the EPBC Act approval. Tree protection fencing in the form of orange bunting was installed around the perimeter of the clearing areas and remained in place during the site inspection (refer **Photo Set 1**).

Photo Set 1: Bunting and tree protection fencing within clearing area (Year 4).

2.5.2 Ecological Corridor

Fauna Movement Infrastructure

To maintain wildlife habitat and connectivity for potential threatened species and local fauna, the site retains approximately 35 ha of bushland as ecological corridor and includes two stream order one drainage lines. The central ecological corridor maintains north to south fauna linkages, allowing for ongoing fauna movement opportunities within and across the site.

Trunk road, Trigona Drive was constructed during Year 1 of the project and bisects the central ecological corridor. A fauna underpass culvert was constructed at the intersection of Trigona Drive and the ecological corridor in accordance with the relevant approvals (refer **Photo Set 2**). Details of construction and location are provided in the approved *Fauna Movement Plan* ('8844 E 01 FMP D') dated 25 September 2019, prepared by SHG. The underpass culvert was inspected and found to be in accordance with the FMP and *Fauna Sensitive Road Design Manual Volume 2* (Department of Transport and Main Roads, 2010). The northern side contains an extended timber ledge which crosses the adjoining drainage line. The southern side contains a timber ledge/ramp connecting to the internal concrete ledge (refer **Photo Set 3**). Plantings were strategically located within areas of disturbance surrounding the culvert for stabilisation and to promote fauna movement opportunities at this location. Other plantings were established within the central ecological corridor along the residential interface (refer **Photo Set 4**).

Photo Set 2: Trigona Drive crossing including fauna underpass culvert and stormwater culverts and stabilisation planting.

Photo Set 3: **Fauna underpass culvert and fauna movement furniture – dry ledge attaching to wingwall and concrete ledge on southern side (left); dry ledge extending north towards drainage line on northern side (right).**

Photo Set 4: **Stabilisation planting and pedestrian path west of retained central ecological corridor.**

Rehabilitation – Ecological Corridor

The project retains a large riparian corridor running north-south throughout the site known as 'Greenwood'. Vegetated communities at this location are mapped as remnant vegetation as they achieve the structure, composition and floristic diversity of recognised regional ecosystems. However, this remnant status does not reflect the mid and understorey condition which has been modified and exhibits signs of historically disturbance.

While the northern portion of the central ecological corridor is located outside the referral area, the entire corridor is included in rehabilitation objectives for the project and is managed in accordance with the endorsed Concept Rehabilitation Plan (CRP). Rehabilitation actions proposed include but are not limited to removal of weed infestations, stabilisation of erosion prone areas with weed matt and mulching and support native plant regeneration. Upon completion, Greenwood will provide a large native bushland open space with over 4 km of walking tracks for residents and will include 25,000 new plantings comprising Koala food trees and Grey-headed Flying-fox foraging species. To guide more specific rehabilitation actions within management areas under the CRP, Bushland Management Plans (BMPs) are to be prepared in consultation with Ipswich City Council (ICC). The Stages 6 - 11 BMP was prepared and lodged with ICC for approval in August 2022. The BMP was endorsed

by ICC on 25 January 2023, with rehabilitation actions proposed to be implemented throughout 2023. Refer to **Appendix C** for endorsed plan.

Rehabilitation within Greenwood commenced at the end of 2020 with the planting of tube stock throughout the central ecological corridor as part of the Phase 1 Rehabilitation works. Contemporary photos taken during the Year 4 site inspection are shown on **Photo Set 5** and **Photo Set 6**.

A portion of the ecological corridor is proposed to be dedicated to ICC as environmental open space in conjunction with Stages 6 - 8 of the project and is currently undergoing the necessary compliance and sign-off checks. The area proposed to be dedicated is indicated on the Stages 6 - 11 BMP.

Photo Set 5: Central ecological corridor south of fauna underpass (Year 4 site inspection)

Photo Set 6: Rehabilitation planting within retained central ecological corridor running north-south through the site (Year 4 site inspection)

<u>Rehabilitation – Trunk Sewer Easement</u>

During the Year 2 reporting period, vegetation clearing was undertaken within the reporting period to establish trunk sewer infrastructure an easement located south of Stage 5 in the south-west portion of the project area. To maintain ecological values, rehabilitation actions within the sewer easement were undertaken in accordance with the *Stage 5 Sewer Rehabilitation*

Management Plan Works for Hayfield Estate, dated 15 September 2020 prepared by SHG. Rehabilitation works within the sewer easement commenced within the Year 2 reporting period with plants and mulch installed adjacent to the central ecological corridor and near future residential stages. Where the easement may be subject to future development / disturbance, grass seeding was used as an interim treatment. Inspection of the easement and planting area identified successful establishment and significant growth of planted specimens. Refer to **Photo Set 7** for contemporary site photos.

Photo Set 7: Established plantings along trunk sewer easement (Year 4 site inspection)

2.6. Offset Site Actions

Offset activities commenced at the Peak Crossing offset site in accordance with the *Offset Management Plan Ripley Road Residential Development (Hayfield) (Peak Crossing & Burnett Creek offset sites) version H, dated 3 December 2021* (OMP) and relevant conditions of the EPBC approval.

2.6.1 Revegetation Works

On 21 March 2022, the offset provider (EnviroCapital) commenced revegetation works via tube stock plantings at the Peak Crossing offset site. Under Condition 4d of the approval, a letter of confirmation was provided to the Department via email correspondence on 14 April 2022 confirming the commencement of planting works at the offset site in accordance with Condition 4a. The letter of confirmation is provided at **Appendix D**. It is acknowledged that this did not occur within 12 months of the commencement of the action as stipulated in Condition 4a due to the extended period for approval of the OMP and ongoing site inaccessibility issues as a result of unfavourable weather conditions. This non-compliance is addressed in Section 4.

Planting works were focused on the Peak Crossing offset site with Burnett Creek largely inaccessible at the commencement of planting works due to damaged access tracks. A total of 600 tube stock of koala foraging species including *Eucalyptus tereticornis*, *E. siderophloia*, *E. propinqua*, *Lophostemon confertus* and *Corymbia intermedia* were planted as part of the initial planting program. The number of tube stock proposed to be planted as part of the tube stock test planting tranches was reduced from 2,500 to 600 due to only a portion of the offset site being accessible during March 2022.

2.6.2 Offset Signage

Signage was installed at accessible entry roads to the offset sites denoting the active management area as part of offset works for EPBC 2017/8095.

3. EPBC Conditions and Compliance

Table 3 documents the compliance with EPBC Act conditions for the Project for the Year 4 reporting period (15 March 2022 – 14 March 2023). Non-compliances identified within the preceding reporting periods have been addressed in previous ACRs. The compliance assessment relates to the approval conditions in force at the time of the fourth anniversary of the commencement of the action.

Table 3: Compliance Audit of EPBC 2017/8095 for Hayfield

Reference	Condition	Is the Project compliant with this condition during the relevant reporting period?	Evidence/ Comments
Part A – Conditions Specific to the action			
1	The approval holder must limit the clearance of vegetation to the area defined as the development area on the map of the project site at Attachment A.	Compliant	Year 4 vegetation clearing was limited to the area defined as the development area on the map of the project site as per Attachment A of the approval.
2	To compensate for the clearing of 62.79 ha of Koala habitat and Grey-headed Flying-fox foraging habitat within the development area of the project site, the approval holder must: a. Legally secure the Peak Crossing offset site and Burnett Creek offset site prior to the commencement of the action;	Not Applicable	The commencement of the action and associated legal securement of the offset sites occurred prior to this reporting period and is detailed in the Year 1 ACR.
	b. Within 20 business days of legally securing the Peak Crossing offset site and Burnett Creek offset site, provide the Department with evidence of the date both sites were legally secured and shape files of the Peak Crossing offset site and Burnett Creek offset site.	Not Applicable	The legal securement of the offset sites and subsequent notification to the Department occurred prior to this reporting period and is detailed in the Year 1 ACR.

Reference	Condition	Is the Project compliant with this condition during the relevant reporting period?	Evidence/ Comments
3	Within 6 months of the commencement of the action, the approval holder must complete and provide the Department with the results and dates of the following surveys: a. Baseline Koala density survey; b. Baseline Grey-headed Flying-fox presence survey; c. Baseline Koala food tree survey; d. Baseline Grey-headed Flying-fox foraging tree survey; e. Baseline non-native plant survey; f. Baseline survey of non-native Koala predators. Note. The surveys must be conducted by a suitably qualified person, consistent with the Department's approved survey guidelines and designed to provide results that are representative of the entire areas of the Peak Crossing offset site and the Burnett Creek offset site.	Compliant	In response to Condition 3a-f, baseline surveys were undertaken on the offset sites in August and October 2018 and again in May 2019, and provided to the Department in the *Offset Management Plan Ripley Road Residential Development (Hayfield) (Peak Crossing & Burnett Creek offset sites) version dated 18 July 2019* on 15 August 2019. This occurred 5 months after commencement of the action. The baseline surveys were assessed by the Department as insufficient and a request for further information was issued to the offset provider, EnviroCapital, on 27 September 2019. Additional information in relation to baseline survey methodology was provided to the Department and included in the updated *Offset Management Plan Ripley Road Residential Development (Hayfield) (Peak Crossing & Burnett Creek offset sites) version dated 4 March 2019* on 5 March 2020. Further information was requested from EnviroCapital by the Department on 30 April 2020. Additional baseline surveys were conducted from March to May 2021 to resolve the outstanding matters and gain approval for the OMP. The OMP was approved by the Department on 23 December 2021.
4	To ensure an increase in the number of available Koala food trees at the Peak Crossing offset site and Burnett Creek offset site, the approval holder must: a. Within 12 months of the commencement of the action, commence planting at the Peak Crossing offset site and the Burnett Creek offset site of seed, sapling or tube stock (or equivalent) tree species suitable for the eventual establishment of new Koala food trees.	Non-compliant	The OMP was approved by the Department on 23 December 2021, therefore, planting works could not commence within the 12 months of the commencement of the action. Planting works at the Peak Crossing offset site and Burnett Creek offset site commenced in March 2022.

Reference	Condition	Is the Project compliant with this condition during the relevant reporting period?	Evidence/ Comments
	b. Within 5 years of the commencement of the action, complete the planting of the following number of seed, sapling or tube stock (or equivalent) tree species suitable for the eventual establishment of new Koala food trees: i. At least 15,000 at the Peak Crossing offset site ii. At least 2,500 at the Burnett Creek offset site	Not Applicable	It is noted that the timeframe for Condition 4b is 5 years. Planting works at the Peak Crossing offset site and Burnett Creek offset site commenced in March 2022 and is predicted to be completed by 14 March 2024.
	c. Implement measures to ensure the ongoing maintenance and survival over the life of the approval of at least 90 per cent of the planted seed, sapling or tube stock (or equivalent) tree species at the Peak Crossing offset site and Burnett Creek offset site.	Not Applicable	Planting works at the Peak Crossing offset site and Burnett Creek offset site commenced in March 2022 and is predicted to be completed by 14 March 2024. EnviroCapital will implement measures to ensure the survival of tube stock and plantings throughout the duration of revegetation works.
	d. Inform the Department in writing of the commencement and completion of the planting of seed, sapling or tube stock (or equivalent) tree species at the Peak Crossing offset site and the Burnett Creek offset site.	Compliant	Planting works at the Peak Crossing offset site and Burnett Creek offset site commenced in March 2022 (Year 4). The Department was notified on 14 April 2022 via written notification and will be notified of the completion of planting on the offset sites. The notification letter is provided at **Appendix D**.
	e. Ensure the planting, monitoring and maintenance planting of seed, sapling or tube stock (or equivalent) tree species for the eventual establishment of new Koala food trees is undertaken by a suitably qualified person.	Compliant	Planting works at the Peak Crossing offset site and Burnett Creek offset site are being undertaken by EnviroCapital. Personnel are suitably qualified in environmental rehabilitation works.
5	Within 10 years of the commencement of the action, ensure at least 90 % of the non-native plants, relative to the baseline non-native plant survey are removed from the Peak Crossing offset site and the Burnett Creek offset site. This level of non-native plant cover must be maintained until the requirements of condition 6 have been met.	Not Applicable	It is noted that the timeframe for this condition is 10 years from commencement of the action. Non-native plant cover on the offset sites were determined by baseline surveys and management actions to achieve Condition 5 have been outlined in the approved OMP. Non-native plant management actions are scheduled to commence in Year 5 (15 March 2023 – 14 March 2024).

Reference	Condition	Is the Project compliant with this condition during the relevant reporting period?	Evidence/ Comments
6	Within 15 years of the date of the baseline Koala food tree survey and baseline Grey-headed Flying-fox foraging tree survey ensure the following outcomes are achieved relative to the baselines determined by the baseline Koala food tree survey and baseline Grey-headed Flying-fox foraging tree survey: a. 20 per cent increase in the number of Koala food trees and Grey-headed Flying-fox forging trees and the Peak Crossing offset site; b. 5 per cent increase in the number of Koala food trees and Grey-headed Flying-fox foraging trees at the Burnett Creek offset site	Not Applicable	It is noted that the timeframe for this condition is 15 years of the date of the baseline surveys. Actions towards this condition are ongoing.
7 (varied 23.12.2021)	Within 15 years of the date of the baseline Koala density survey, ensure an increase of at least 50 per cent of Koala density is achieved at both the Peak Crossing offset site and Burnett Creek offset site relative to the baseline determine by the baseline Koala density survey.	Not Applicable	It is noted that the timeframe for this condition is 15 years of the date of the baseline surveys. Actions towards achieving this condition are ongoing.
8	Demonstrate a reduction, maintained for nine consecutive years from the date of completion of the baseline survey of non-native Koala predators, in the number of non-native Koala predators over both the Peak Crossing offset site and Burnett Creek offset site, relative to the baseline determined by the baseline survey of non-native Koala predators.	Not Applicable	It is noted that the reduction is to be maintained for 9 consecutive years from the date of the baseline surveys. Actions towards this condition are ongoing.
Offset Management Plan			
9	The approval holder must, within 6 months of the commencement of the action, submit to the Department of Koala and Grey-headed Flying-fox Offset Management Plan for the Minister's approval. The Koala and Grey-headed Flying-fox Offset Management Plan must address both the Peak Crossing Offset site and Burnett Creek offset site, be written in accordance with the Department's *Environmental Management Plan*	Compliant	The *Offset Management Plan Ripley Road Residential Development (Hayfield) (Peak Crossing & Burnett Creek offset sites version dated 18 July 2019* was submitted to the Department on 15 August 2019 (5 months after commencement of the action), however, was assessed by the Department as inadequate and requiring further information and data.

Reference	Condition	Is the Project compliant with this condition during the relevant reporting period?	Evidence/ Comments
	Guidelines and be consistent with the EPBC Act *Environmental Offset Policy*. The approved Koala and Grey-headed Flying-fox Offset Management Plan (or revised version if approved by the Minister) must be implemented.		Additional information in relation to baseline survey methodology was provided to the Department and included in the updated *Offset Management Plan Ripley Road Residential Development (Hayfield) (Peak Crossing & Burnett Creek offset sites) version dated 4 March 2019* on the 5 March 2020. Further information was requested from EnviroCapital by the Department on the 30 April 2020. Additional baseline surveys were conducted from March to May 2021 to resolve the outstanding matters and gain approval for the OMP. The OMP was approved by the Department on 23 December 2021.
10 (varied 23.12.2021)	The Koala and Grey-headed Flying-fox Offset Management Plan must include: a. a description of the offset, including location, size, condition, environmental values present and surrounding land uses;	Compliant	The OMP was approved by the Department on 23 December 2021, ensuring compliance with Condition 10.
	b. details to demonstrate how the offset compensates for the impact to Koala habitat and Grey-headed Flying-fox foraging habitat, in accordance with the EPBC Act Environmental Offset Policy;	Compliant	
	c. details of how the offset area will provide connectivity with other habitats and biodiversity corridors and/or will contribute to a larger strategic offset for the Koala and Grey-headed Flying-fox;	Compliant	
	d. maps and shapefiles to clearly define the location and boundaries of the offset area, accompanied by offset attributes;	Compliant	

Reference	Condition	Is the Project compliant with this condition during the relevant reporting period?	Evidence/ Comments
	e. Mitigation and management measures to achieve the outcomes required under conditions 4, 5, 6, 7 and 8 risk management strategies` that will be applied;	Compliant	
	f. An assessment of the risks to achieving the outcomes required under conditions 4, 5, 6, 7 and 8 and risk management strategies that will be applied;	Compliant	
	g. An annual monitoring program that measures the progress of achieving the outcomes required under conditions 4, 5, 6, 7 and 8 and includes: i. Results of the baseline surveys required under condition 3; ii. Measurable, timebound performance indicators including 5, 10 and 15 year milestone achievements, from the date of commencement of the action, of the specific outcomes required by conditions 4, 5, 6, 7, and 8; iii. Completion criteria determined when and how the outcomes required by conditions 4, 5, 6, 7, and 8 have been fully achieved; iv. The timing, methods and frequency of monitoring to detect changes in the performance indicators; v. Reporting and review mechanisms; vi. Trigger values for corrective actions; and vii. Proposed corrective actions, if the trigger values are reached.	Compliant	

Reference	Condition	Is the Project compliant with this condition during the relevant reporting period?	Evidence/ Comments
	h. evidence of how management measures and corrective actions take into account and are consistent with relevant conservation advices, recovery plans and threat abatement plans for the Koala and Grey-headed Flying-fox.	Compliant	
Variation of Plan			
11	If, at any time during the life of the approval, the Minister is not satisfied that any of the requirements or outcomes under conditions 3, 4, 5, 6, 7 and 8 are likely to be achieved or maintained, the Minister may request (in writing) further evidence from the approval holder on how the requirements or outcomes of these conditions will be achieved or maintained. If requested by the Minister the approval holder must: a. Provide a report to the Department that documents the cause of the potential non-compliance, the corrective actions to be taken (including timeframes for reporting to the Department the success of those actions) and the contingency measures that will be implemented to prevent further occurrences;	Not applicable	A request for a variation of an approved plan was not made by the Minister during this reporting period.
	b. Revise the Koala and Grey-headed Flying-fox Offset Management Plan, in consultation with a suitable qualified person and within a timeframe determined by the Minister, to include the corrective actions and contingency measures;	Not applicable	A request for a variation of an approved plan was not made by the Minister during this reporting period.
	c. Submit the revised Koala and Grey-headed Flying -fox Offset Management Plan to the Department for the Minister's approval, within a timeframe determined by the Minister;	Not applicable	A request for a variation of an approved plan was not made by the Minister during this reporting period.

Reference	Condition	Is the Project compliant with this condition during the relevant reporting period?	Evidence/ Comments
	d. Inform the Department in writing of the when and how relevant contingency measures and corrective actions have been implemented.	Not applicable	A request for a variation of an approved plan was not made by the Minister during this reporting period.
Part B – Administrative Conditions			
Notification of the date of commencement of the action			
12	The approval holder must notify the Department in writing of the date of the commencement of the action within 10 business days after the date of the commencement of the action.	Non-compliant (administrative)	The action commenced the 15 March 2019. The Department was informed in writing on the 1 April 2019 (11 business days after commencement of the action). This non-compliance was addressed in the preceding ACR and no further action is required.
13	If the commencement of the action does not occur within 5 years from the date of this approval, then the approval holder must not commence the action within the prior written agreement of the Minister.	Not Applicable	The approval was granted on the 12 February 2019 and the action commenced on the 15 March 2019.
Compliance records			
14	The approval holder must maintain accordance and complete compliance records.	Compliant (ongoing)	All records substantiating all activities associated with or relevant to the conditions of approval are maintained by the Proponent. If required by the Minister, these records can be made available to allow a third-party audit of the Project.
15	If the Department makes a request in writing, the approval holder must be provided electronic copies of compliance records to the Department within the timeframe specified in the request. Note. Compliance records may be subject to audit by the Department or an independent auditor in accordance with section 485 of the EPBC Act, and or used to verify compliance with the conditions. Summaries of the results of an audit may be published on the Department's website or through general media.	Not applicable	A request for an independent audit of the Project was not made by the Minister during the reporting period.
Preparation and publication of plans			

Reference	Condition	Is the Project compliant with this condition during the relevant reporting period?	Evidence/ Comments
16	The approval holder must: a. Submit plans electronically to the Department for approval by the Minister;	Compliant (ongoing)	The OMP was approved by the Department on 23 December 2021, ensuring compliance with Condition 10 and 16.
	b. Publish each plan on the website within 20 business days of the date of the plan is approved by the Minister or the date of a revised action management plan is submitted to the Minister, unless otherwise agreed to in writing by the Minister;	Non-compliant	The Offset Management Plan for the action was approved on 23 December 2021. Publication of this plan was outside of the 20 business days of the approval date. The approval holder became of a non-compliance with condition 16b on 30 March 2022 and notified the Department on 1 April 2022, within two business days in accordance with condition 19. The non-compliance with Condition 16b was rectified on 4 April 2022 by publication of the approved OMP on the project website. The Department decided to take no further action regarding this matter.
	c. Exclude or redact sensitive ecological data from plans published on the website or provided to a member of the public; and	Not Applicable	Information contained within the OMP, ACRs and supporting documentation does not contain sensitive ecological data and therefore was not redacted prior to publishing.
	d. Keep plans published on the website until the end date of this approval.	Compliant	The approved OMP remains published on the project website.
17	The approval holder must ensure that any monitoring data (including sensitive ecological data), surveys, maps and other spatial metadata required under a plan and conditions of this approval, is prepared in accordance with the Department's *Guidelines for biological survey and mapped data (2018)* and submitted electronically to the Department in accordance with the requirements of this plan.	Not applicable	No monitoring occurred during the reporting period. Any future data will be prepared in accordance with the Department's Guidelines and reported in accordance with the OMP requirements.
Annual compliance reporting			

Reference	Condition	Is the Project compliant with this condition during the relevant reporting period?	Evidence/ Comments
18	The approval holder must prepare a compliance report for each 12 month period following the date of commencement of the action, or as otherwise agreed to in writing by the Minister. The approval holder must: a. Publish each compliance report on the website within 60 business days following the relevant 12 month period; b. Notify the Department by email that a compliance report has been published on the website within five business days of the date of publication.; c. Keep all compliance reports publicly available on the website until this approval expires; d. Exclude or redact sensitive ecological data from compliance reports published on the website; and e. Where any sensitive ecological data has been excluded from the version published, submit the full compliance report to the Department within 5 business days of publication. Note: Compliance reports may be published on the Department's website.	Compliant (ongoing)	This ACR demonstrates compliance with Condition 18. The ACR will be published on the Project website within 60 business days following the relevant 12 month period, being the 11 June 2020 and remain on the project website for the life of the approval. All sensitive information will be redacted from the published report and the Department will be notified once the report is published.
Reporting non-compliance			
19	The approval holder must notify the Department in writing of any: incident, non-compliance with the conditions; or non-compliance with the commitments made in plans. The notification must be given as soon as practicable, and no later than two business days after becoming aware of the incident or non-compliance. The notification must specify: a. The condition which is or may be in breach; and b. A short description of the incident and / or non-compliance.	Compliant	The approval holder became aware of a non-compliance with condition 16b on 30 March 2022 and notified the Department within the two business days. The non-compliance with Condition 16b was rectified on 4 April 2022 by publication of the approved OMP on the project website. Non-compliances occurred in relation to Condition 1, Condition 2a, Condition 4a and Condition 12 in Year 1. Of these, 1 non-compliance has carried over to the relevant reporting period (15 March 2022 – 14 March 2023), being condition 4a. Works to satisfy condition 4a commenced within the current reporting period.

Reference	Condition	Is the Project compliant with this condition during the relevant reporting period?	Evidence/ Comments
20	The approval holder must provide to the Department of the details of any incident or non-compliance with the conditions or commitments made in plans as soon as practical and no later than 10 business days after becoming aware of the incident or non-compliance, specifying: a. Any corrective action or investigation which the approval holder has already taken or intends to take in the immediate future; b. The potential impacts of the incident or non-compliance; and c. The method and timing of any remedial action that will be undertaken by the approval holder.	Compliant	The approval holder became aware of a non-compliance with condition 16b on 30 March 2022 and notified the Department within the two business days. The non-compliance with Condition 16b was rectified on 4 April 2022 by publication of the approved OMP on the project website.
Revision of plans			
21	The approval holder may, at any time, apply to the Minister for a variation to a plan approved by the Minister under condition 9, or as subsequently revised in accordance with these conditions, by submitting an application in accordance with the requirements of section 143A of the EPBC Act. If the Minister approved a revised plan then, from the date specified, the approval holder must implement the revised plan in place of previous plan.	Not applicable	The Proponent did not revise an approved plan under Condition 9 during the reporting period.
22	The approval holder may choose to revise a plan approved by the Minister under condition 9, or as subsequently revised in accordance with these conditions without submitting for approval under section 143A of the EPBC act, if the taking of the action in accordance with the plan would not be likely to have a new or increased impact.	Not applicable	The Proponent did not revise an approved plan under Condition 9 during the reporting period.
23	If the approval holder makes the choice under condition 22 to revise a plan without submitting it for approval, the approval holder must: a. Notify the Department in writing that the approved plan has been revised and provide the Department with: i. An electronic copy of the revised plan;	Not applicable	The Proponent did not revise an approved plan under Condition 9 during the reporting period.

Reference	Condition	Is the Project compliant with this condition during the relevant reporting period?	Evidence/ Comments
	ii. An electronic copy of the revised plan marked up with track changes to show the differences between the approved plan and the revised plan; iii. An explanation of the differences between the approved plan and the revised plan' iv. The reasons the approval holder considers that taking the action in accordance with the revised plan would not be likely to have a new or increased impact; and v. Written notice of the date on which the approval holder will implement the revised plan (revised plan implementation date), being at least 20 business day after the date of providing notice of the revision of the approved plan, or date agreed to in writing with the Department.		
	b. Subject to condition 25, implement the revised plan from the revised plan implementation date.	Not applicable	The Proponent did not revise an approved plan under Condition 9 during the reporting period.
24	The approval holder may revoke their choice to implement a revised plan under condition 22 at any time by giving written notice to the Department. If the approval holder revokes the choice under condition 22, the approval holder must implement the most recent plan approved by the Minister.	Not applicable	The Proponent did not revise an approved plan under Condition 9 during the reporting period.
25	If the Minister gives a notice to the approval holder that the Minister is satisfied that the taking of the action in accordance with the revised plan would be likely to have a new or increased impact, then: a. Condition 22 does not apply, or creases to apply, in relation to the revised plan; and	Not applicable	The Proponent did not revise an approved plan under Condition 9 during the reporting period. The Minister did not give notice under Condition 25.

Reference	Condition	Is the Project compliant with this condition during the relevant reporting period?	Evidence/ Comments
	b. The approval holder must implement the plan specified by the Minister in the notice.		
26	At the time of giving the notice under condition 25, the Minister may also notify that for a specified period of time, condition 22 does not apply for more specified plans.	Not applicable	The Proponent did not revise an approved plan under Condition 9 during the reporting period. The Minister did not give notice under Condition 25.
Independent audit			
27	The approval holder must ensure that independent audits of compliance with the conditions are conducted as requested in writing by the Minister.	Not applicable	A request for an independent audit of the Project was not made by the Minister during the reporting period.
28	For each independent audit, the approval holder must: a. Provide the name and qualifications of the independent auditor and draft audit criteria to the Department; b. Only commence the independent audit once the audit criteria have been approved in writing by the Department; and c. Submit and audit report to the Department within the timeframe specified in the approved audit criteria.	Not applicable	A request for an independent audit of the Project was not made by the Minister during the reporting period.
29	The approval holder must publish the audit report on the website within 10 business days of receiving the Department's approval for the audit report and keep the audit report published on the website until the end date of this approval.	Not applicable	A request for an independent audit of the Project was not made by the Minister during the reporting period.
Completion of the action			

Reference	Condition	Is the Project compliant with this condition during the relevant reporting period?	Evidence/ Comments
30	Within 30 days after the completion of the action, the approval holder must notify the Department in writing and provide a completion date.	Not applicable	Noted. The action is ongoing therefore this condition is not applicable at this time.

4. Correcting Non-Compliances

The Year 3 ACR (15 March 2021 – 14 March 2022) recorded one (1) non-compliance relating to approval condition 4a. As noted within **Table 3**, this non-compliance has carried over to Year 4 reporting period (15 March 2022 – 14 March 2023). In addition, one other instance of non-compliance was recorded at the beginning of the Year 4 reporting period relating to Condition 16b. This was reported on in the Year 3 ACR as it occurred at the time the ACR was being written, however, occurred during Year 4. Details of both non-compliances are provided in the following subsections.

4.1. Condition 4a

To ensure an increase in the number of available Koala food trees at the Peak Crossing offset site and Burnett Creek offset site, the approval holder must:

a. Within 12 months of the commencement of the action, commence planting at the Peak Crossing offset site and the Burnett Creek offset site of seed, sapling or tube stock (or equivalent) tree species suitable for the eventual establishment of new Koala food trees.

Planting at the Peak Crossing offset site and the Burnett Creek offset site did not commence within the timeframe stipulated under Condition 4a. This was attributed to delay in the extended assessment period for the OMP approval. Multiple iterations of the OMP were submitted to the Department for approval resulting in a request for further information dated 30th April 2020 requiring further surveys to be completed. The Department's primary concern was that the baseline surveys were not comprehensive enough to satisfy the approval conditions and performance criteria.

Additional baseline surveys were undertaken again from March to May 2021 to resolve the outstanding matters and gain approval for the OMP. For most of this reporting period the OMP was assessed by the Department for adequacy. The OMP was approved on the 23 December 2021. The Christmas and New Years shutdown period followed the approval of the OMP delayed implementation of the OMP. The Ongoing COVID-19 situation and severe weather across south-east Queensland further delayed these actions. Works to satisfy Condition 4a commenced in the current reporting period.

The approval holder is aware under condition 4b that within 5 years of the commencement of the action planting of the following number of Koala food tree species must be completed:

- At least 15,000 at the Peak Crossing offset site
- At least 2,500 at the Burnett Creek offset site

Planting across both offset sites has commenced (refer **Section 2.6.1**) and will be completed by 14 March 2024.

a. Any corrective action or investigation which the approval holder has already taken or intends to take in the immediate future;

The offset provider (EnviroCapital) commenced planting in March 2022. Approximately 700 trees have been planted at the Peak Crossing offset site and up to 200 trees have been planted at the Burnett Creek offset site. Subsequent offset area monitoring and ACRs will report further progress of planting. Further, in accordance with condition 4d, the Department was informed in writing of the commencement and completion of the planting of seed, sapling or tube stock (or equivalent) tree species at the Peak Crossing offset site and the Burnett Creek offset site.

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

It is acknowledged the Department are aware of the implications the delay has caused to commencing the offset (refer ACR Year 1). Since the approval of the OMP, revegetation works have commenced.

Although the works within the Peak Crossing offset site and Burnett Creek offset Site have been delayed, the OMP and approval condition timeframes linked within the commencement of the action will be maintained (Condition 4b). Commitment to these timeframes and performance criteria have been outlined within the approved OMP ensuring the approval conditions are achieved.

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

The offset provider, EnviroCapital has commenced planting at the beginning of Year 4 (March 2022).

4.2. Condition 16b

Publish each plan on the website within 20 business days of the date of the plan is approved by the Minister or the date of a revised action management plan is submitted to the Minister, unless otherwise agreed to in writing by the Minister;

The Offset Management Plan for the action was approved on 23 December 2021. Under Condition 16b of the approval, the plan was required to be published on the project website within 20 business days of the plan being approved. During the initial assessment for this ACR, it was identified that the approved *Offset Management Plan Ripley Road Residential Development (Hayfield) (Peak Crossing & Burnett Creek offset sites), version H, dated 3 December 2021* had not been published on the project website.

a. Any corrective action or investigation which the approval holder has already taken or intends to take in the immediate future;

The approval holder became aware of a non-compliance with condition 16b on 30 March 2022 and notified the Department on 1 April 2022, within two business days in accordance with condition 19. The non-compliance with Condition 16b was rectified on 4 April 2022 by publication of the approved OMP on the project website. The approved OMP will remain accessible via the project website until the end date of the approval in accordance with condition 16d.

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

The non-compliance is considered an administrative error which was rectified as soon as possible after becoming aware of the non-compliance and no impacts at the action or offset sites have occurred as a result.

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

The non-compliance was rectified via the publication of the approved OMP on the project website on 4 April 2022 within 3 business days of becoming aware of the non-compliance. Given the nature of the contravention and circumstances surrounding the breach of condition 16b, the Department has decided to take no further action regarding this matter.

5. Appendices

Appendix A

Spoil Area Fauna Spotter Catcher Pre-clearing Reports

Appendix B

Ecological Corridor Sediment Rectification Works Photos

Appendix C

Stages 6 – 11 Bushland Management Plan

Appendix D

Commencement of Planting – Confirmation Letter

Appendix A

Spoil Area Fauna Spotter Catcher Pre-clearing Reports

February 2023

Fauna Spotter Catcher Pre-clearance and Habitat Values Survey

Hayfield (Stages 9-11)
Trigona Drive, Ripley, Queensland

Report prepared for Winslow

Report prepared by

QLD Fauna Consultancy Pty Ltd

Phone: (07) 3376 9780

Email: fauna@qfc.com.au

Date:	21/02/2023
Title:	Fauna Spotter Catcher Pre-clearance and Habitat Values Survey Hayfield (Stages 9-11) – Trigona Drive, Ripley, Queensland
Author/s:	Bryan Robinson, Jasmine Zeleny
Reviewed by:	Bryan Robinson
Field personnel:	Rebecca Ferris
Status:	Final Report
Filed as:	QFC FHA Winslow Ripley Feb 2023.docx

Contents

1. Introduction

1.1 Project Background

Queensland Fauna Consultancy Pty Ltd has been engaged by Winslow to conduct a Fauna Spotter Catcher Pre-clearance and Habitat Values Survey and present a subsequent report for Hayfield Stages 9-11 at Trigona Drive, Ripley, 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), formerly the Department of Environment and Heritage Protection (DEHP), and the Department of Employment, Economic Development and Innovation (DEEDI). 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	207015	16th April 2023

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 17th February 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 *Eucalyptus, Corymbia, Acacia*, and *Alphitonia excelsa* regrowth with sections exhibiting dense cover provided by dense grass (Figure 1). Dense leaf litter and bark exfoliations also feature on site being present in abundance and at variable depths (Figure 2 and Figure 3), 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 4 to Figure 6), hollow logs (Figure 7 and Figure 8), rock piles (Figure 9) and artificial debris (Figure 10 and Figure 11) that may provide habitat opportunities for reptiles and small mammals.

Several terrestrial termite mounds are present within the clearing area; however, no mounds exhibited any excavations at the time of the inspection (Figure 12 to Figure 14).

Mammal assemblages may comprise both native and introduced species. Macropod presence within the clearance zone was indicated by tracks (Figure 15 and Figure 16) and scat (Figure 17). Macropod species likely to occur on site include the Red-necked Wallaby *Notamacropus rufogriseus,* Eastern Grey Kangaroo *Macropus giganteus,* and Swamp Wallaby *Wallabia bicolor*.

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*, Eastern Blue-tongued Lizard *Tiliqua scincoides*, Common Tree Snake *Dendrelaphis punctulatus,* Coastal Carpet Python *Morelia spilota mcdowelli*, Yellow-faced Whip Snake *Demansia psammophis,* Eastern Small-eyed Snake *Cryptophis nigrescens,* and Eastern Bearded Dragon *Pogona barbata*.

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	-27.659805297851562,152.78843250063198
2	Artificial Debris	-27.660232543945312,152.78793883812966
3	Artificial Debris	-27.659976406926813,152.7878817984852
4	Hollow Log	-27.65875244140625,152.7880294674024
5	Hollow Log	-27.65973352410573,152.78869684573766
6	Hollow Log	-27.6617924783881,152.78871069910994
7	Hollow Log	-27.660675048828125,152.7881739253371
8	Rock Pile	-27.661407470703125,152.78848874464407
9	Terrestrial Termitaria	-27.660873054399552,152.78822382090942
10	Terrestrial Termitaria	-27.660842895507812,152.78781690740544
11	Terrestrial Termitaria	-27.663534116194676,152.7869676900764
12	Terrestrial Termitaria	-27.661376953125,152.78764484892466
13	Woody Debris	-27.658912712521538,152.7877975162446
14	Woody Debris	-27.66157097049124,152.78823244267184
15	Woody Debris	-27.661529541015625,152.78781496997877

Figure 1: Dense grass

Figure 2: Dense leaf litter

Figure 3: Bark exfoliations

Figure 4: Woody debris

Figure 5: Woody debris

Figure 6: Woody debris

Figure 7: Hollow log

Figure 8: Hollow log

Figure 9: Rock pile

Figure 10: Artificial debris

Figure 11: Artificial debris

Figure 12: Terrestrial termitaria

Figure 13: Terrestrial termitaria

Figure 14: Terrestrial termitaria

Figure 15: Macropod tracks

Figure 16: Macropod tracks

Figure 17: Macropod scat

3.2 Arboreal Habitat Features

The clearance site consists predominantly of regrowth Eucalypt and *Acacia* woodland (Figure 18 to Figure 22). Onsite trees exhibit potential feeding and nesting resources for a number of bird and mammal species. 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* and Common Ringtail Possum *Pseudocheirus peregrinus.*

Hollow-bearing trees and stag trees are present in the clearance area and may provide habitat opportunities for arboreal mammals, reptiles, and birds (Figure 23 to Figure 28). Exfoliating bark on tree trunks may provide refugial opportunities for reptile species including skinks and geckos (Figure 29).

Arboreal termite mounds are also present across the site (Figure 30 and Figure 31), with numerous mounds exhibiting excavations (Figure 32 and Figure 33). 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 such as the Common Brushtail Possum *Trichosurus vulpecula* and Squirrel Glider *Petaurus norfolcensis* have also been known to utilise these features for shelter where hollows are not readily available.

No avian stick nests or possum dreys were located during the inspection. However, further inspections are recommended immediately prior to clearing commencement. Possum activity on site was evident in the form of scratchings on several tree trunks (Figure 34 and Figure 35). A number of avian species were observed utilising the site at the time of the inspection (foraging or perching) these species are presented in Table 4.

Koala food trees located in the clearance area include *Eucalyptus tereticornis, E. moluccana, E. crebra, Corymbia citriodora, C. intermedia, C. tesselaris, Angophora leiocarpa, Melaleuca quinquenervia,* and *Lophostemon suaveolens.* However, no evidence was observed to indicate recent use of these trees by koalas. No koala scats were found during 'drip zone' searches and characteristic scratchings were not found during trunk investigations. 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	-27.658680801102577,152.78803933087408
2	Arboreal Termitaria	-27.658816926270255,152.78837919262838
3	Arboreal Termitaria	-27.658935546875,152.78845765966946
4	Arboreal Termitaria	-27.66093407406946,152.7887640639329
5	Arboreal Termitaria	-27.661178588867188,152.78794111887035
6	Arboreal Termitaria	-27.660704369889157,152.78802780258508
7	Arboreal Termitaria	-27.660129526035142,152.78794613383923
8	Arboreal Termitaria	-27.661317722394518,152.78797778214346
9	Arboreal Termitaria	-27.660797119140625,152.78771728691044
10	Arboreal Termitaria (with excavation)	-27.66061216368501,152.78757934656358
11	Arboreal Termitaria (with excavation)	-27.65987991561806,152.78777315164896
12	Arboreal Termitaria (with excavation)	-27.660570632841885,152.78865970601012
13	Arboreal Termitaria (with excavation)	-27.661636352539062,152.7886276127307
14	Arboreal Termitaria (with excavation)	-27.660491943359375,152.78840056861824
15	Arboreal Termitaria (with excavation)	-27.659181751224704,152.78819810240756
16	Arboreal Termitaria (with excavation)	-27.659771040794173,152.7881276240547
17	Arboreal Termitaria (with excavation)	-27.6601074921398,152.78791113890188
18	Arboreal Termitaria (with excavation)	-27.661325507944078,152.78776577755832
19	Dead Stag	-27.660437779181077,152.78872535123432
20	Dead Stag	-27.66133438357449,152.7884513619449
21	Dead Stag	-27.66070556640625,152.78816999736912
22	Dead Stag	-27.659406311499342,152.7884175269036
23	Dead Stag	-27.659330739799717,152.78828395123008
24	Dead Stag	-27.66070226577368,152.78792828060608
25	Exfoliating Bark (Arboreal)	-27.659015307528623,152.78872223428445
26	Exfoliating Bark (Arboreal)	-27.65948270496174,152.7886035700305

27	Exfoliating Bark (Arboreal)	-27.661627977551575,152.78877476365867
28	Exfoliating Bark (Arboreal)	-27.660873413085938,152.78846964383214
29	Exfoliating Bark (Arboreal)	-27.6640625,152.78676107031956
30	Hollow Bearing Tree	-27.660675048828125,152.78756038601944
31	Hollow Bearing Tree	-27.659011840820312,152.78775277667356
32	Hollow Bearing Tree	-27.65876912723128,152.78842615720288
33	Hollow Bearing Tree	-27.658782958984375,152.7885799077027
34	Hollow Bearing Tree	-27.659255981445312,152.78858568092434
35	Hollow Bearing Tree	-27.66064235889053,152.78854034704094
36	Hollow Bearing Tree	-27.658952876084747,152.78837516032476
37	Hollow Bearing Tree	-27.664306640625,152.7867862078698

Figure 18: Site overview

Figure 19: Site overview

Figure 20: Site overview

Figure 21: Site overview

Figure 22: Site overview

Figure 23: Hollow-bearing tree

Figure 24: Hollow-bearing tree

Figure 25: Hollow-bearing tree

Figure 26: Stag tree

Figure 27: Stag tree

Figure 28: Stag tree

Figure 29: Exfoliating bark

Figure 30: Arboreal termite mound

Figure 31: Arboreal termite mound

Figure 32: Arboreal termite mound with excavation

Figure 33: Arboreal termite mound with excavation

Figure 34: Possum scratches

Figure 35: Possum scratches

Table 4: **Arboreal Fauna Species Observed**

Number	Common Name and *Scientific Name*	Conservation Status	
		NCA	EPBC
1	Torresian Crow *Corvus orru*	Least Concern	Not Listed
2	Blue-faced Honeyeater *Entomyzon cyanotis*	Least Concern	Not Listed
3	Rainbow Lorikeet *Trichoglossus haematodus*	Least Concern	Not Listed
4	Willie Wagtail *Rhipidura leucophrys*	Least Concern	Not Listed
5	Superb Fairy-wren *Malurus cyaneus*	Least Concern	Not Listed

3.3 Aquatic Habitat Features

No aquatic habitat features were identified within the clearing area.

3.4 Endangered, Vulnerable and Near Threatened (EVNT) Species

It is not envisaged that any EVNT fauna species will be detrimentally impacted by the proposed works. However, one 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.

Although evidence was not found during the site inspection of recent Koala use, the species has previously been recorded 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 5: **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*.	***Possible*** Known food trees for the transient Koala (*Phascolarctos cinereus)* occur on the clearance site and the species is well documented within the 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. 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 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 5, will require specific management during vegetation clearing activities.

However, specific management for those identified EVNT 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.

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 medium 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 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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Queensland Museum (2007) *Wildlife of Greater Brisbane,* 2nd edition, Brisbane: Queensland Museum Publishers.

6. Appendix A: Koala Habitat Values

Legend

Koala priority area

Core koala habitat area

Identified koala broad-hectare area

Locally refined koala habitat area

Road Crossing

Bridge

Tunnel

Road

Highway

Main

Local

Private

Railway

Cities and Towns

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: 21-Feb-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:	7
Listed Threatened Species:	46
Listed Migratory Species:	17

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:	3
Commonwealth Heritage Places:	None
Listed Marine Species:	22
Whales and Other Cetaceans:	None
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:	44
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
Swamp Tea-tree (Melaleuca irbyana) Forest of South-east Queensland	Critically Endangered	Community likely to occur within area	In buffer area only
White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland	Critically Endangered	Community may 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 likely 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 buffer area only
Cyclopsitta diophthalma coxeni Coxen's Fig-Parrot [59714]	Endangered	Species or species habitat may occur within area	In feature area
Erythrotriorchis radiatus Red Goshawk [942]	Vulnerable	Species or species habitat likely to occur within area	In feature area
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

Scientific Name	Threatened Category	Presence Text	Buffer Status
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat likely to occur within area	In feature area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area	In feature area
Rostratula australis Australian Painted Snipe [77037]	Endangered	Species or species habitat known to occur within area	In feature area
Turnix melanogaster Black-breasted Button-quail [923]	Vulnerable	Species or species habitat likely to occur within area	In feature area
FISH			
Neoceratodus forsteri Australian Lungfish, Queensland Lungfish [67620]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
FROG			
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

Scientific Name	Threatened Category	Presence Text	Buffer Status
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
Potorous tridactylus tridactylus Long-nosed Potoroo (northern) [66645]	Vulnerable	Species or species habitat may occur within area	In buffer area only
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 may 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
Cupaniopsis shirleyana Wedge-leaf Tuckeroo [3205]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Cupaniopsis tomentella Boonah Tuckeroo [3322]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
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
Notelaea ipsviciensis Cooneana Olive [81858]	Critically Endangered	Species or species habitat known to occur within area	In feature area
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
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 may 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			

Scientific Name	Threatened Category	Presence Text	Buffer Status
Delma torquata Adorned Delma, Collared Delma [1656]	Vulnerable	Species or species habitat likely to occur within area	In feature area
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

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
Migratory Terrestrial Species			
Cuculus optatus Oriental Cuckoo, Horsfield's Cuckoo [86651]		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
Monarcha melanopsis Black-faced Monarch [609]		Species or species habitat known to occur within area	In feature area
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

Scientific Name	Threatened Category	Presence Text	Buffer Status
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 may occur within area	In feature area
Calidris acuminata			
Sharp-tailed Sandpiper [874]		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
Calidris melanotos			
Pectoral Sandpiper [858]		Species or species habitat may 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 buffer area only
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 may occur within area	In feature area
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

Commonwealth Lands [Resource Information]

The Commonwealth area listed below may indicate the presence of Commonwealth land in this vicinity. Due to the unreliability of the data source, all proposals should be checked as to whether it impacts on a Commonwealth area, before making a definitive decision. Contact the State or Territory government land department for further information.

Commonwealth Land Name	State	Buffer Status
Defence		
Defence - AMBERLEY - AP90 SMALL ARMS RANGE (PURGA) [31817]	QLD	In buffer area only
Defence - Commonwealth Centre - 3rd Floor [31877]	QLD	In buffer area only
Defence - IPSWICH TRAINING DEPOT [31953]	QLD	In buffer area only

Listed Marine Species [Resource Information]

Scientific Name	Threatened Category	Presence Text	Buffer Status
Bird			
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat may 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
Bubulcus ibis as Ardea ibis Cattle Egret [66521]		Species or species habitat may occur within area overfly marine area	In feature area
Calidris acuminata Sharp-tailed Sandpiper [874]		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 overfly marine area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may 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 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
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

Scientific Name	Threatened Category	Presence Text	Buffer Status
Numenius madagascariensis			
Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area	In feature area
Pandion haliaetus			
Osprey [952]		Species or species habitat known to occur within area	In buffer area only
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
Tringa nebularia			
Common Greenshank, Greenshank [832]		Species or species habitat likely to occur within area overfly marine area	In feature area

Extra Information

State and Territory Reserves [Resource Information]

Protected Area Name	Reserve Type	State	Buffer Status
Denmark Hill	Conservation Park	QLD	In buffer area only

EPBC Act Referrals [Resource Information]

Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Barrams Road Residential Development	2021/9005		Post-Approval	In buffer area only
Greater Brisbane Greyhound Centre	2022/09252		Completed	In buffer area only
Greater Brisbane Greyhound Centre	2022/09321		Completed	In buffer area only

Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Ripley Valley PDA Providence East and South	2018/8347		Post-Approval	In buffer area only
Controlled action				
AV JENNINGS PTY LTD - Coleman Road, South Ripley - Residential Development	2021/9061	Controlled Action	Assessment Approach	In buffer area only
Casino Ipswich Pipeline	2007/3877	Controlled Action	Completed	In feature area
CROCODILE 03 Military Training Exercise	2002/888	Controlled Action	Post-Approval	In buffer area only
Cumner Road mixed use subdivision, Whiterock,Ripley Valley,Qld	2014/7388	Controlled Action	Post-Approval	In buffer area only
ECCO Ripley Residential Development, Ipswich, QLD	2015/7513	Controlled Action	Post-Approval	In buffer area only
Grampian Drive Deebing Heights Residential Development, Qld	2015/7628	Controlled Action	Post-Approval	In buffer area only
Hayfield School Site	2021/9070	Controlled Action	Assessment Approach	In feature area
Paradise Waters Residential Estate, Gampian Drive, Deebing Heights	2013/6864	Controlled Action	Post-Approval	In buffer area only
Providence West Residential Development	2020/8698	Controlled Action	Further Information Request	In buffer area only
Redbank Plains	2021/9065	Controlled Action	Further Information Request	In buffer area only
Residential development, Rawlings Road, Ripley Valley	2016/7723	Controlled Action	Post-Approval	In buffer area only
Residential Development, Ripley	2020/8791	Controlled Action	Assessment Approach	In buffer area only
Ripley Road Residential Development	2019/8539	Controlled Action	Post-Approval	In feature area
Ripley Road residential development, Ripley Valley, Qld	2017/8095	Controlled Action	Post-Approval	In feature area
Ripley View Residential Subdivision	2020/8615	Controlled Action	Further Information Request	In feature area
Southern Regional Water Pipeline	2006/2593	Controlled Action	Post-Approval	In buffer area only
Not controlled action				

Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Not controlled action				
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
Daleys Road Residential Development	2010/5638	Not Controlled Action	Completed	In buffer area only
Divestment of Ipswich Post Office	2006/2750	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
Grampian Drive residential development, Deebing Heights, Qld	2016/7634	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
Inland Rail Gowrie to Kagaru Geotechnical Project, QLD	2018/8263	Not Controlled Action	Completed	In buffer area only
Master planned residential community, Ripley Valley, QLD	2014/7325	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	2005/2137	Not Controlled Action	Completed	In feature area
Residential/Commercial development Binnies Road, Ripley, Qld	2016/7669	Not Controlled Action	Completed	In buffer area only
Residential Subdivision on Monterea Road, Ripley	2012/6644	Not Controlled Action	Completed	In feature area
Ripley Town Centre,Ipswich, QLD	2015/7471	Not Controlled Action	Completed	In buffer area only
South West Transport Corridor	2006/2547	Not Controlled Action	Completed	In feature area
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

Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Not controlled action				
To develop the Paradise Heights residential subdivision, QLD	2014/7310	Not Controlled Action	Completed	In buffer area only
Underground Bus and Train Project, Brisbane	2013/7106	Not Controlled Action	Completed	In buffer area only
Not controlled action (particular manner)				
168 Lot Residential and Commercial Development at Deebing Heights	2009/4818	Not Controlled Action (Particular Manner)	Post-Approval	In buffer area only
Construction & Operation 275/330kV Transmission Line	2006/2820	Not Controlled Action (Particular Manner)	Post-Approval	In feature area
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.

Department of Climate Change, Energy, the Environment and Water
GPO Box 3090
Canberra ACT 2601 Australia
+61 2 6274 1111

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: -27.6593
Longitude: 152.7879
Distance: 5
Email: jasmine@qfc.com.au
Date submitted: Tuesday 21 Feb 2023 11:47:06
Date extracted: Tuesday 21 Feb 2023 11:50:10

The number of records retrieved = 4

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	birds	Apodidae	*Hirundapus caudacutus*	white-throated needletail		V	V	4
animals	birds	Rostratulidae	*Rostratula australis*	Australian painted-snipe		E	E	7
animals	birds	Strigidae	*Ninox strenua*	powerful owl		V		1
animals	mammals	Phascolarctidae	*Phascolarctos cinereus*	koala		E	E	187

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.

Page 1 of 1
Queensland Government Species lists (WildNet database) - Extract Date 21/02/2023 at 11:50:10

Feb – Mar 2023

Fauna Management and Spotter/Catcher Services Report

Hayfield Estate - Trigona Drive, Ripley

Report prepared for Winslow

Report prepared by

QLD Fauna Consultancy Pty Ltd

Phone: (07) 3376 9780

Email: fauna@qfc.com.au

Date:	21/03/2023
Title:	Fauna Management and Spotter/Catcher Services Report Hayfield Estate - Trigona Drive, Ripley
Author/s:	Bryan Robinson, Willow Sorbello
Reviewed by:	Jasmine Zeleny
Field personnel:	Diamantina ward, Anna Lukan, Jane Messina, Madelynne O'Neill
Status:	Final Report
Filed as:	QFC FMR Winslow Ripley Feb-Mar 2023

Contents

1 Introduction

Qld Fauna Consultancy Pty Ltd has been engaged by Winslow to conduct Fauna Spotter/Catcher and Fauna Management activities for works at Hayfield Estate - Trigona Drive, Ripley.

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 February and March 2023

2 Methodology

2.1 Clearance Investigations

A standard set of observational and active searching techniques were employed on the 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.

Tuesday 21st February 2023

- Pre-clearance activities carried out (refer to Methodology) at Trigona Drive, Ripley
- Vegetation clearance carried out at Trigona Drive, Ripley
- Refer to **Fauna Register** for fauna found.
- 2 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
Terrestrial Microhabitats: Hollow logs ☐Y ☒N Woody debris ☐Y ☒N Rock piles ☐Y ☒N Burrows ☐Y ☒N Other: Dense Leaf Litter, Bark Exfoliations, Terrestrial Termitaria, Artificial Debris
Aquatic habitat/s: Dam ☐Y ☒N Creek ☐Y ☒N Wetland ☐Y ☒N

Wednesday 22nd February 2023

- Pre-clearance activities carried out (refer to Methodology) at Trigona Drive, Ripley
- Vegetation clearance carried out at Trigona Drive, Ripley
- 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 Others: Exfoliating Bark, Fissure No. & size of hollow/s (mm): 0
Terrestrial Microhabitats: Hollow logs ☐Y ☒N Woody debris ☒Y ☐N Rock piles ☐Y ☒N Burrows ☐Y ☒N Others: Timber Stockpiles, Bark Exfoliations, Artificial Debris, Terrestrial Termitaria, Dense Leaf Litter
Aquatic habitat/s: Dam ☐Y ☒N Creek ☐Y ☒N Wetland ☐Y ☒N

Thursday 23rd February 2023

- Pre-clearance activities carried out (refer to Methodology) at Trigona Drive, Ripley
- Vegetation clearance carried out at Trigona Drive, Ripley
- 2 trees flagged
- One personnel in attendance

Arboreal Microhabitats: No. flagged tree/s felled: 6 Nest ☐Y ☒N Hollows ☒Y ☐N Arboreal termitaria ☒Y ☐N Others: Exfoliating Bark, Fissure No. & size of hollow/s (mm): 0-49: 2, 50-99: 3, 100-149: 3, 150-199: 1
Terrestrial Microhabitats: Hollow logs ☒Y ☐N Woody debris ☒Y ☐N Rock piles ☐Y ☒N Burrows ☐Y ☒N Others: Terrestrial Termitaria, Dense Leaf Litter, Artificial Debris, Bark Exfoliations
Aquatic habitat/s: Dam ☐Y ☒N Creek ☐Y ☒N Wetland ☐Y ☒N
No Fauna Found

Monday 27th February 2023

- Pre-clearance activities carried out (refer to Methodology) at Trigona Drive, Ripley
- Vegetation clearance carried out at Trigona Drive, Ripley
- Refer to **Fauna Register** for fauna found
- 1 tree flagged
- One personnel in attendance

Arboreal Microhabitats: No. flagged tree/s felled: 5 Nest ☐Y ☒N Hollows ☒Y ☐N Arboreal termitaria ☒Y ☐N Others: Exfoliating Bark, Fissure No. & size of hollow/s (mm): 0-49: 1
Terrestrial Microhabitats: Hollow logs ☒Y ☐N Woody debris ☒Y ☐N Rock piles ☐Y ☒N Burrows ☒Y ☐N Others: Bark Exfoliations, Dense Leaf Litter, Artificial Debris
Aquatic habitat/s: Dam ☐Y ☒N Creek ☐Y ☒N Wetland ☐Y ☒N

Tuesday 28th February 2023

- Pre-clearance activities carried out (refer to Methodology) at Trigona Drive, Ripley
- Vegetation clearance carried out at Trigona Drive, Ripley
- 0 trees flagged
- One personnel in attendance

Arboreal Microhabitats: No. flagged tree/s felled: 7 Nest ☐Y ☒N Hollows ☒Y ☐N Arboreal termitaria ☒Y ☐N Others : Exfoliating Bark, Fissure No. & size of hollow/s (mm): 0-49: 2, 50-99: 3, 100-149: 1, 150-199: 1
Terrestrial Microhabitats: Hollow logs ☒Y ☐N Woody debris ☒Y ☐N Rock piles ☐Y ☒N Burrows ☒Y ☐N Others: Dense Leaf Litter, Bark exfoliations, Artificial Debris, Terrestrial Termitaria
Aquatic habitat/s: Dam ☐Y ☒N Creek ☐Y ☒N Wetland ☐Y ☒N
No Fauna Found

Wednesday 1st March 2023

- Pre-clearance activities carried out (refer to Methodology) at Trigona Drive, Ripley
- Vegetation clearance carried out at Trigona Drive, Ripley
- Refer to **Fauna Register** for fauna found
- 1 tree flagged
- One personnel in attendance

Arboreal Microhabitats: No. flagged tree/s felled: 2 Nest ☐Y ☒N Hollows ☐Y ☒N Arboreal termitaria ☐Y ☒N No. & size of hollow/s (mm): 50-99: 1, 200-249: 1
Terrestrial Microhabitats: Hollow logs ☐Y ☒N Woody debris ☐Y ☒N Rock piles ☐Y ☒N Burrows ☐Y ☒N Others: Terrestrial termitaria
Aquatic habitat/s: Dam ☐Y ☒N Creek ☐Y ☒N Wetland ☐Y ☒N

Thursday 2nd March 2023

- Pre-clearance activities carried out (refer to Methodology) at Trigona Drive, Ripley
- Vegetation clearance carried out at Trigona Drive, Ripley
- 4 trees flagged
- One personnel in attendance

Arboreal Microhabitats: No. flagged tree/s felled: 4 Nest ☐Y ☒N Hollows ☒Y ☐N Arboreal termitaria ☒Y ☐N Others: Exfoliating bark No. & size of hollow/s (mm): 0-49: 2
Terrestrial Microhabitats: Hollow logs ☐Y ☒N Woody debris ☒Y ☐N Rock piles ☐Y ☒N Burrows ☐Y ☒N
Aquatic habitat/s: Dam ☐Y ☒N Creek ☐Y ☒N Wetland ☐Y ☒N
No Fauna Found

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**
Diamantina Ward	21/02/2023	08:34	Hayfield Estate – Trigona Drive, Ripley	-27.6594	152.7875	Euthanised	Least Concern	Ornate Burrowing Frog *Platyplectrum ornatum*	1	NA	NA	NA			X			Humanely euthanised by FSC due to fatal injuries
Diamantina Ward	21/02/2023	08:43	Hayfield Estate – Trigona Drive, Ripley	-27.6592	152.7876	Alive	Least Concern	Striped Rainbow Skink *Carlia munda*	1	21/02/2023	-27.6583	152.7886	X				Released into dense leaf litter outside of clearing area	
Diamantina Ward	21/02/2023	09:39	Hayfield Estate – Trigona Drive, Ripley	-27.6588	152.7877	Alive	Least Concern	Common Nobbi Dragon *Diporiphora nobbi*	1	21/02/2023	-27.6583	152.7885			X		Released onto ground timber outside of clearing area	Juvenile
Diamantina Ward	21/02/2023	09:55	Hayfield Estate – Trigona Drive, Ripley	-27.6586	152.7880	Alive	Least Concern	Striped Marsh Frog *Limnodynastes peronii*	1	21/02/2023	-27.6583	152.7886	X				Released next to creek, under leaf litter	

Diamantina Ward	21/02/2023	10:23	Hayfield Estate – Trigona Drive, Ripley	-27.6587	152.7880	Alive	Least Concern	Sacred Kingfisher *Todiramphus sanctus*	3	21/02/2023	NA	NA	X				Self-Relocation. flew out of ATM when cracked open; unable to be found after flushing from ATM.	Juveniles fledgling age
Diamantina Ward	21/02/2023	10:37	Hayfield Estate – Trigona Drive, Ripley	-27.6580	152.7882	Alive	Least Concern	Coastal Carpet Python *Morelia spilota mcdowelli*	1	21/02/2023	NA	NA	X				Self-Relocation. Slithered into hollow log on border of clearing zone.	
Diamantina Ward	21/02/2023	10:42	Hayfield Estate – Trigona Drive, Ripley	-27.6584	152.7881	Deceased	Least Concern	Red-bellied Black Snake *Pseudechis porphyriacus*	1	NA	NA	NA			X		NA	Found deceased, had been run over by excavator.
Diamantina Ward	21/02/2023	11:21	Hayfield Estate – Trigona Drive, Ripley	-27.6597	152.7877	Alive	Least Concern	Common Nobbi Dragon *Diporiphora nobbi*	1	21/02/2023	-27.6584	152.7885	X				Released onto ground timber outside of clearing area	Juvenile

Diamantina Ward	22/02/2023	07:46	Hayfield Estate – Trigona Drive, Ripley	-27.6593	152.7880	Alive	Least Concern	Scarlet-sided Pobblebonk *Limnodynastes terraereginae*	1	22/02/2023	-27.6583	152.7887	X				Released into dense leaf litter beside creek	
Diamantina Ward	22/02/2023	08:00	Hayfield Estate – Trigona Drive, Ripley	-27.6592	125.787	Alive	Least Concern	Graceful Tree Frog *Litoria gracilenta*	1	22/02/2023	-27.6583	152.7886	X				Released onto plant beside creek	
Diamantina Ward	22/02/2023	10:26	Hayfield Estate – Trigona Drive, Ripley	-27.659	152.7876	Euthanised	Least Concern	Eastern Bearded Dragon *Pogona barbata*	1	NA	NA	NA			X		NA	Humanely euthanised by FSC due to fatal injuries.
Diamantina Ward	22/02/2023	11:06	Hayfield Estate – Trigona Drive, Ripley	-27.6597	152.7877	Deceased	Least Concern	Bird Egg/s (species unidentifed)	1	NA	NA	NA			X			Old rotten egg found within ATM. Not viable and not related to clearing activities. Likely a Laughing Kookaburra egg.

Anna Lukan	27/02/2023	09:55	Hayfield Estate – Trigona Drive, Ripley	-27.6597	152.7885	Alive	Least Concern	Eastern Bearded Dragon *Pogona barbata*	1	27/02/2023	-27.6595	152.7894	X				Onto tree trunk	
Anna Lukan	27/02/2023	16:35	Hayfield Estate – Trigona Drive, Ripley	-27.6604	152.7879	Alive	Least Concern	Yellow-footed Antechinus *Antechinus flavipes*	1	27/02/2023	-27.608	152.7894	X				Into hollow log	
Jane Messina	01/03/2023	10:13	Hayfield Estate – Trigona Drive, Ripley	-27.6641	152.7867	Alive	Least Concern	Common Nobbi Dragon *Diporiphora nobbi*	2	01/03/2023	-27.6641	152.7867	X				Released onto ground timber outside of clearing area	Juveniles

5 Conclusion

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

No Koalas were observed during clearance. 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.

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

Anstis, M. (2013) *Tadpoles and Frogs of Australia*, Sydney: New Holland Publishers.

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

Coastal Carpet Python
Morelia spilota mcdowelli

Striped Marsh Frog
Limnodynastes peronii

Yellow-footed Antechinus
Antechinus flavipes

Eastern Bearded Dragon
Pogona barbata

Common Nobbi Dragon
Diporiphora nobbi

Common Nobbi Dragon
Diporiphora nobbi

Striped Rainbow Skink
Carlia munda

Common Nobbi Dragon
Diporiphora nobbi

Scarlet-sided Pobblebonk
Limnodynastes terraereginae

Graceful Tree Frog
Litoria gracilenta

Appendix B

Ecological Corridor Sediment Rectification Works Photos

Section 1 Fill Area – Silt removed, and area planted out by Evolve.

Section 2 Stage 6 – Area planted out by Evolve.

Section 3 Stage 7 – Area planted out by Evolve.

Appendix C

Stages 6 – 11 Bushland Management Plan

RIPLEY ROAD - HAYFIELD ESTATE
STAGES 6 - 11
BUSHLAND MANAGEMENT PLAN

ISSUE C 15/08/2022
ICC OM RESPONSE ISSUE

DRAWING SCHEDULE

DWG NO.	DRAWING TITLE	ISSUE	DATE
10994 L BMP 01	BMP Cover Sheet	C	15/08/2022
10994 L BMP 02	BMP Works - Sheet 1	C	15/08/2022
10994 L BMP 03	BMP Works - Sheet 2	C	15/08/2022
10994 L BMP 04	BMP Works - Sheet 3	C	15/08/2022
10994 L BMP 05	BMP Works - Sheet 4	C	15/08/2022
10994 L BMP 06	BMP Works - Sheet 5	C	15/08/2022
10994 L BMP 07	BMP Rehabilitation Notes - Sheet 1	C	15/08/2022
10994 L BMP 08	BMP Rehabilitation Notes - Sheet 2	C	15/08/2022
10994 L BMP 09	BMP Rehabilitation Notes - Planting	C	15/08/2022
10994 L BMP 10	BMP Scour Protection Detail	C	15/08/2022
10994 L BMP 11	BMP Weed Treatment & Removal - Sheet 1	C	15/08/2022
10994 L BMP 12	BMP Weed Treatment & Removal - Sheet 2	C	15/08/2022
10994 L BMP 13	BMP Weed Treatment & Removal - Sheet 3	C	15/08/2022
10994 L BMP 14	BMP Weed Treatment & Removal - Sheet 4	C	15/08/2022
10994 L BMP 15	BMP Scoured Track Protection Detail	A	15/08/2022

BUSHLAND MANAGEMENT PLAN
PROPOSED RIPARIAN CORRIDOR DEDICATION & TIMING OF WORKS:
Note - Program estimates are a guide based on current construction timeframes and are subject to change.

The intent is for the whole Riparian Corridor dedication (stages 6 to 8) to be dedicated along with stage 6 (Refer dashed orange line this sheet).

Refer to the latest survey plan of development for the exact riparian corridor lot description. Generally, the boundary of riparian corridor lot dedication will extend from the road reserve interface on the new development side (stages 6-8) and west to the existing stages 1, 2 & 3 boundaries previously established.

Whilst the corridor will be dedicated with initial stage 6, rehabilitation works will occur progressively in conjunction with adjoining stage works. Refer to dashed Red Lines across the corridor for proposed extent of rehabilitation works to be completed with each civil and landscape works stage.

Practical Completion inspections of staged rehabilitation works are proposed at time of plan sealing to enable lodgement of maintenance bonds and progressive handover of the riparian corridor to Council. Alternatively, Incomplete Works Bonds to be submitted to Council in lieu of Practical Completion.

Stage 6 Riparian Corridor:
Estimated Completion of Initial Phase Works Late 2022 / Early 2023 **(*)**

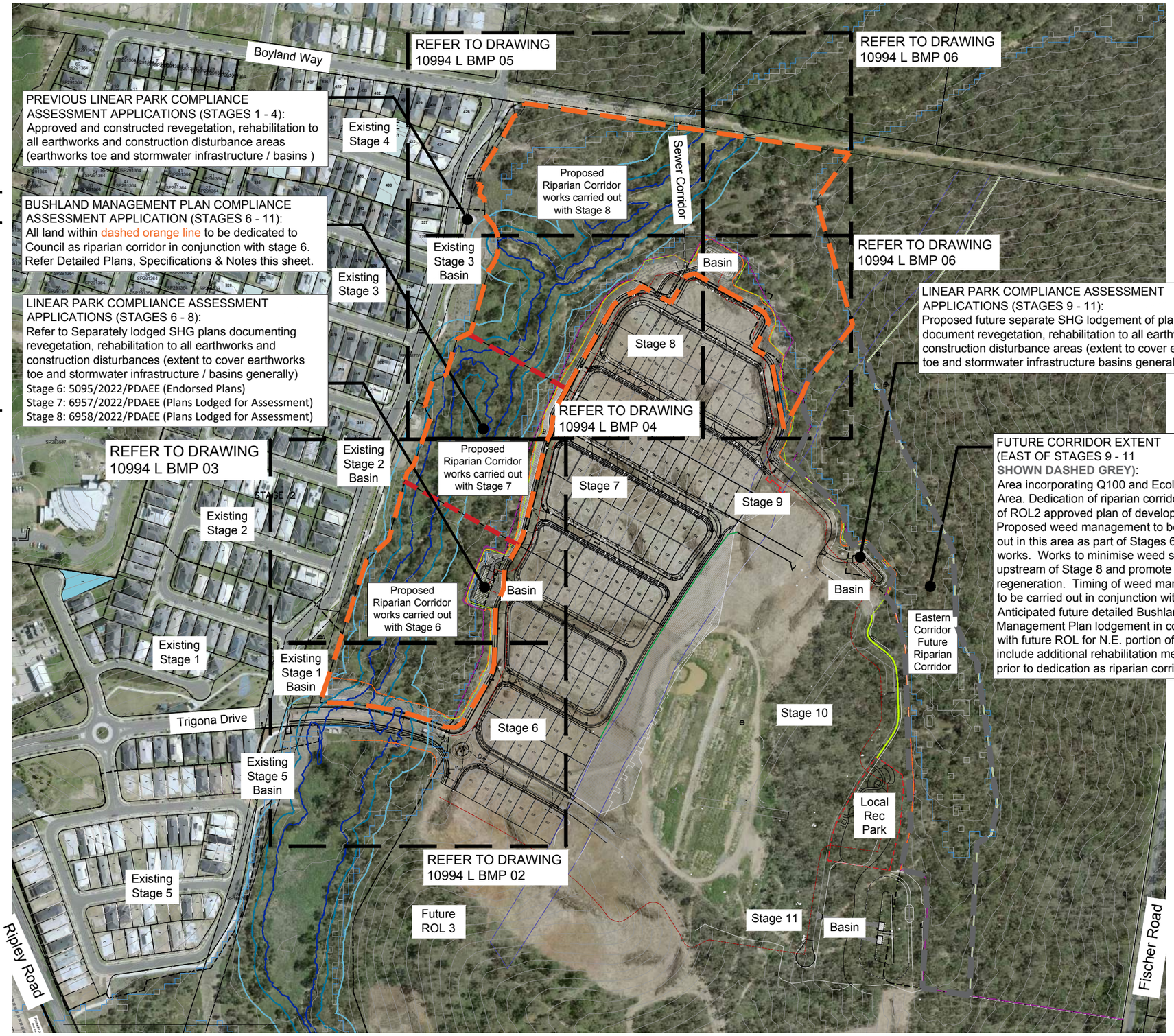
Stage 7 Riparian Corridor:
Estimated Completion of Initial Phase Works Early 2023 **(*)**

Stage 8 Riparian Corridor:
Estimated Completion of Initial Phase Works Mid 2023 **(*)**

(*) Establishment Period of 12 Weeks and Council's nominated Maintenance Period to apply to proposed staged works areas following successful Council Practical Completion Inspections per stage.

Eastern Corridor Weed Management Initial Phase:
In conjunction with Stage 8 - Estimated Completion Mid 2023.

Ongoing weed management for the duration of Stages 6 to 8 in accordance with Developer Maintenance Periods.



SHEET LAYOUT PLAN
Scale 1: 2000 @ A1 / Scale 1: 4000 @ A3

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ISO 14001 ENVIRONMENT Management System SOUTHPAC certifications
AS 4801 OHS Management System SOUTHPAC certifications
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SCALE:
1:1250@A1
1:2500@A3
0 10 20 60m

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CLIENT: GOLDFIELDS RIPLEY PROJECTS PTY LTD
Goldfields

PROJECT: STAGES 6 -11 BUSHLAND MANAGEMENT PLAN
Hayfield.

DRAWING: **BMP COVER SHEET**
DRAWN: GC
CHECKED: TL
DRAWING #: **10994 L BMP 01 C**

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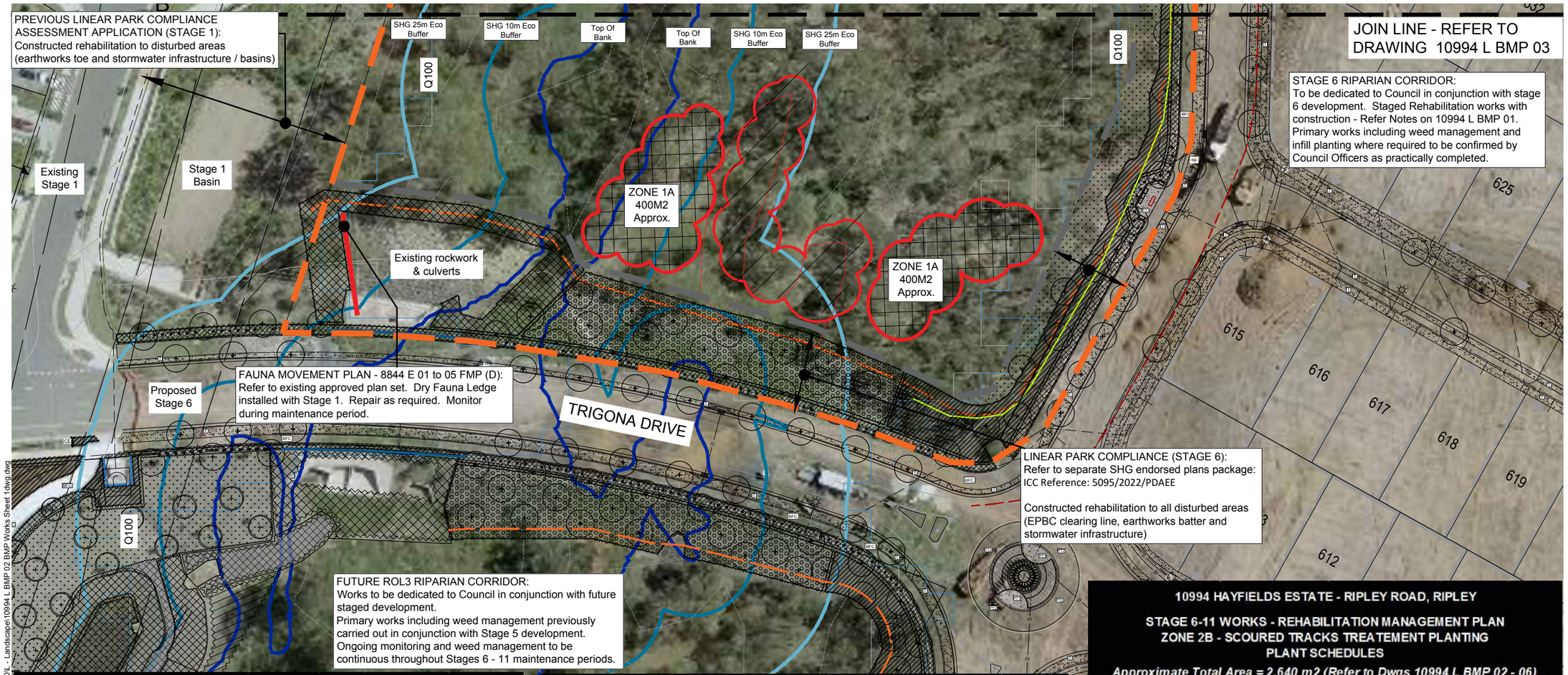
PHONE 1300 123 SHG WWW.SAUNDERSHAVILL.COM



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LEGEND: to be read in conjunction with full SHG detailed landscape documents: Detail Drawings, Specifications and Schedules.

STAGE 6-11 REHABILITATION AREA: Riparian Corridor Dedication Extents

TYPHA SPECIES — SPECIFIC SPECIES WEED MANAGEMENT AREAS:

Approximate areas of historic weed infestation. Primary treatment complete with Stage 4. Ongoing monitoring and follow-up treatment required

GROUNDSEL SPECIES

Note: Weed treatment not limited only to areas shown - remove all weeds from whole of site. Weed management to cover all weeds present on site not just those listed in the:
- "Biosecurity Act 2014"; and
- QLD Herbarium invasive weed species lists

PRIMARY WORKS TO BE COMPLETED WITH STAGES 6 - 11

ZONE 1A - INDIVIDUAL TREE & SHRUB PLANTING AREAS: Infill planting to open canopy areas.

ZONE 2A - OVERLAND FLOW & SCOUR PROTECTION LOCATIONS: Locations to be confirmed -Refer Detail Dwg 10994 L BMP 10 & plant schedule.

ZONE 2B - SCOURED TRACKS REHABILITATION LOCATIONS: Locations to be confirmed -Refer Detail Dwg 10994 L BMP 15 & plant schedule.

PRIMARY WORKS COMPLETED WITH STAGE 4: Monitor for weed management and regeneration.

ZONE 1 - INDIVIDUAL TREE & SHRUB PLANTING AREAS: Infill planting to open canopy areas.

ZONE 2 - EXISTING PONDS COIRMAT PLANTING AREAS: Planting strips upstream existing ponds.

ZONE 3 - EXISTING PONDS INDIVIDUAL PLANTINGS: Trees to perimeter of existing ponds.

ZONE 4 - SCOURED TRACK PROTECTION DETAIL LOCATIONS: Refer Detail Drawing 10994 L BMP 10.

ZONE 5 - SCOURED TRACK EDGE: Planting area along top of scoured track edge.

DUMPED ROCK SCOUR PROTECTION: 75-200 dia. typical mattress rock installed to overland flow path at key locations identified by "Hydrobiology". Ongoing monitoring by "Hydrobiology" to determine additional dumped rock locations if required during maintenance period.

GENERAL NOTES:

- Corridor work undertaken in conjunction with Stage 4 focused on weed management, natural regeneration and selective tree planting.
- Focus for works proposed for implementation in conjunction with Stages 6 to 11 will be:
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- All works to be carried out generally in accordance with previously approved SHG Concept Rehabilitation Plan Set 8844 E 01 RMP 01 to 08 & A01 to A03.
- For details of plant species and densities to nominated Zones refer plant schedules. Proposed planting mixes to be dominated by the following site tree species contributing to Koala and Flying Fox habitat including:
  - Eucalyptus tereticornis,
  - Lophostemon suaveolens,
  - Melaleuca quinquinervia and
  - Corymbia tessellaris.

10994 HAYFIELDS ESTATE - RIPLEY ROAD, RIPLEY

STAGE 6-11 WORKS - REHABILITATION MANAGEMENT PLAN
ZONE 1A - INDIVIDUAL TREE & SHRUB PLANTING AREAS
PLANT SCHEDULES

Approximate Total Area = 9,150 m2
(Refer to Dwgs 10994 L BMP 02 TO 06)

NOTES - CONFIRM PLANTING LOCATIONS ON SITE WITH ICC ENVIRONMENTAL OFFICERS & LANDSCAPE ARCHITECT: Species selected based on lower slopes and flood plains pre-clear R.E. Description 12.3.3 & site observations. Proposed tree and larger shrub species plantin

SPECIES	COMMON NAME	PLANT FORM	POT SIZE	PLANTING DENSITY OVERALL @ 1.0 PER 12.0M² MINIMUM	QUANTITY
LARGE TREES				**1/18m2**	
EUCALYPTUS tereticornis	Forest Red Gum	Tree	Tube	1/50m2	183
LOPHOSTEMON suaveolens	Swamp Box	Tree	Tube	1/70m2	131
MELALEUCA quinquenervia	Broad-leaved Paperbark	Tree	Tube	1/140m2	65
CORYMBIA tessellaris	Moreton Bay Ash	Tree	Tube	1/70m2	131
				SUBTOTAL	**510**
LARGER SHRUBS & SMALL TREES				**1/35m2**	
ACACIA concurrens	Black Wattle	Shrub	Tube	1/140m2	65
ACACIA disparrima	Hickory Wattle	Shrub	Tube	1/140m2	65
CALLISTEMON viminalis	Red Bottlebrush	Shrub	Tube	1/140m2	65
CALLISTEMON salignus	White Bottlebrush	Shrub	Tube	1/140m2	65
				SUBTOTAL	**261**
				OVERALL TOTAL	**771**

10994 HAYFIELDS ESTATE - RIPLEY ROAD, RIPLEY

STAGE 6-11 WORKS - REHABILITATION MANAGEMENT PLAN
ZONE 2A - SCOUR TREATEMENT PLANTING
PLANT SCHEDULES

(Refer to Dwgs 10994 L BMP 02 - 06)

NOTES - CONFIRM PLANTING LOCATIONS ON SITE WITH ICC ENVIRONMENTAL OFFICERS & LANDSCAPE ARCHITECT: Species selected based on lower slopes and flood plains pre-clear R.E. Des

SPECIES	COMMON NAME	PLANT FORM	POT SIZE	PLANTING DENSITY OVERALL @ 3 PER M² MINIMUM	QUANTITY PER 10M×5M WIDE MODULE (50M2)	OVERALL QUANTITY BASED ON NO. OF MODULES BELOW
LARGE TREES				**1/2.5m2**		**10**
MELALEUCA quinquenervia	Broad-leaved Paperba	Tree	Tube	1/2.5m2	20	200
				SUBTOTAL	**20**	**200**
LARGER SHRUBS & SMALL TREES				**1/2m2**		
CALLISTEMON viminalis	Red Bottlebrush	Shrub	Tube	1/4m2	12	120
CALLISTEMON salignus	White Bottlebrush	Shrub	Tube	1/4m2	12	120
				SUBTOTAL	**24**	**240**
GROUNDCOVERS				**1/1.4m2**		
CAREX appressa	Tall Sedge	Sedge	Tube	1/4m2	21	210
IMPERATA cylindrica	Cogon grass	Grass	Tube	1/4m2	21	210
JUNCUS usitatus	Juncus Usitatus	Sedge	Tube	1/4m2	21	210
LOMANDRA hystrix	Creek Matrush	Grass	Tube	1/4m2	21	210
PHILYDRUM lanuginosum	Frogsmouth Sedge	Sedge	Tube	1/4m2	21	210
				SUBTOTAL	**105**	**1050**
				OVERALL TOTAL	**149**	**1490**

10994 HAYFIELDS ESTATE - RIPLEY ROAD, RIPLEY

STAGE 6-11 WORKS - REHABILITATION MANAGEMENT PLAN
ZONE 2B - SCOURED TRACKS TREATEMENT PLANTING
PLANT SCHEDULES

Approximate Total Area = 2,640 m2 (Refer to Dwgs 10994 L BMP 02 - 06)

NOTE - CONFIRM PLANTING LOCATIONS ON SITE WITH ICC ENVIRONMENTAL OFFICER & LANDSCAPE ARCHITECT: Species selected based on lower slopes and flood plains pre-clear R.E. Desc

SPECIES	COMMON NAME	PLANT FORM	POT SIZE	PLANTING DENSITY OVERALL @ 1 PER M² MINIMUM	OVERALL QUANTITY BASED ON AREA
LARGE TREES				**1/6m2**	
CORYMBIA tessellaris	Moreton Bay Ash	Tree	Tube	1/30m2	88
EUCALYPTUS tereticornis	Forest Red Gum	Tree	Tube	1/30m2	88
LOPHOSTEMON confertus	Brush Box	Tree	Tube	1/30m2	88
LOPHOSTEMON suaveolens	Swamp Box	Tree	Tube	1/30m2	88
MELALEUCA quinquenervia	Broad-leaved Paperbark	Tree	Tube	1/30m2	88
				SUBTOTAL	**440**
LARGER SHRUBS & SMALL TREES				**1/4m2**	
ACACIA concurrens	Black Wattle	Shrub	Tube	1/12m2	220
ACACIA disparrima	Hickory Wattle	Shrub	Tube	1/12m2	220
CALLISTEMON salignus	White Bottlebrush	Shrub	Tube	1/30m2	88
CALLISTEMON viminalis	Red Bottlebrush	Shrub	Tube	1/20m2	132
				SUBTOTAL	**660**
GROUNDCOVERS				**1/1.66m2**	
CAREX appressa	Tall Sedge	Sedge	Tube	1/20m2	132
IMPERATA cylindrica	Bladygrass	Grass	Tube	1/5m2	528
JUNCUS usitatus	Juncus Usitatus	Sedge	Tube	1/20m2	132
LOMANDRA hystrix	Creek Matrush	Grass	Tube	1/5m2	528
THEMEDA australis	Kangaroo Grass	Sedge	Tube	1/10m2	264
				SUBTOTAL	**1584**
				OVERALL TOTAL	**2684**

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ISO 14001 ENVIRONMENT Management System — SOUTHPAC certifications
AS 4801 OHS Management System — SOUTHPAC certifications
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AMENDMENTS:

ISSUE	DATE	DESCRIPTION	CHECKED
A	02/02/2022	CLIENT ISSUE	GC
B	25/03/2022	COUNCIL ISSUE	GC
C	15/08/2022	ICC OM RESPONSE ISSUE	GC

CLIENT: GOLDFIELDS RIPLEY PROJECTS PTY LTD — Goldfields

PROJECT: STAGES 6 -11 BUSHLAND MANAGEMENT PLAN — Hayfield.

DRAWING: **BMP WORKS SHEET 1**

DRAWN: GC | CHECKED: TL

DRAWING #: **10994 L BMP 02 C**

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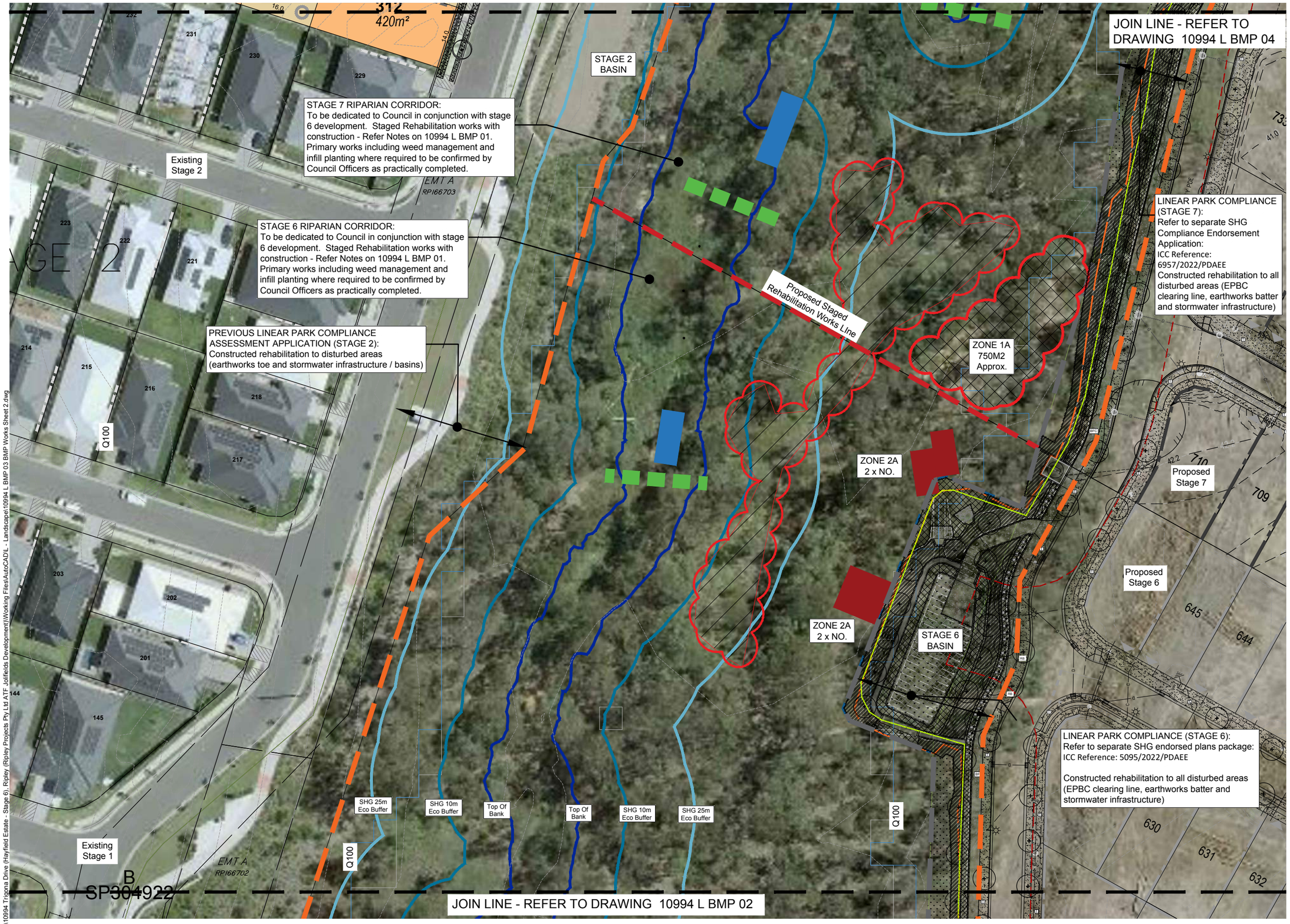
PHONE 1300 123 SHG WWW.SAUNDERSHAVILL.COM



LEGEND: to be read in conjunction with full SHG detailed landscape documents: Detail Drawings, Specifications and Schedules.

STAGE 6-11 REHABILITATION AREA: Riparian Corridor Dedication Extents

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ZONE 2B - SCOURED TRACKS REHABILITATION LOCATIONS: Locations to be confirmed -Refer Detail Dwg 10994 L BMP 15 & plant schedule.

PRIMARY WORKS COMPLETED WITH STAGE 4: Monitor for weed management and regeneration.

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J:\10994 Trigona Drive (Hayfield Estate - Stage 6), Ripley (Ripley Projects Pty Ltd ATF Jolifields Development)\Working Files\AutoCAD\L - Landscape\10994 L BMP 03 BMP Works Sheet 2.dwg

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CLIENT: GOLDFIELDS RIPLEY PROJECTS PTY LTD — Goldfields

PROJECT: STAGES 6 -11 BUSHLAND MANAGEMENT PLAN — Hayfield.

DRAWING: **BMP WORKS SHEET 2**

DRAWN: GC CHECKED: TL

DRAWING #: **10994 L BMP 03 C**

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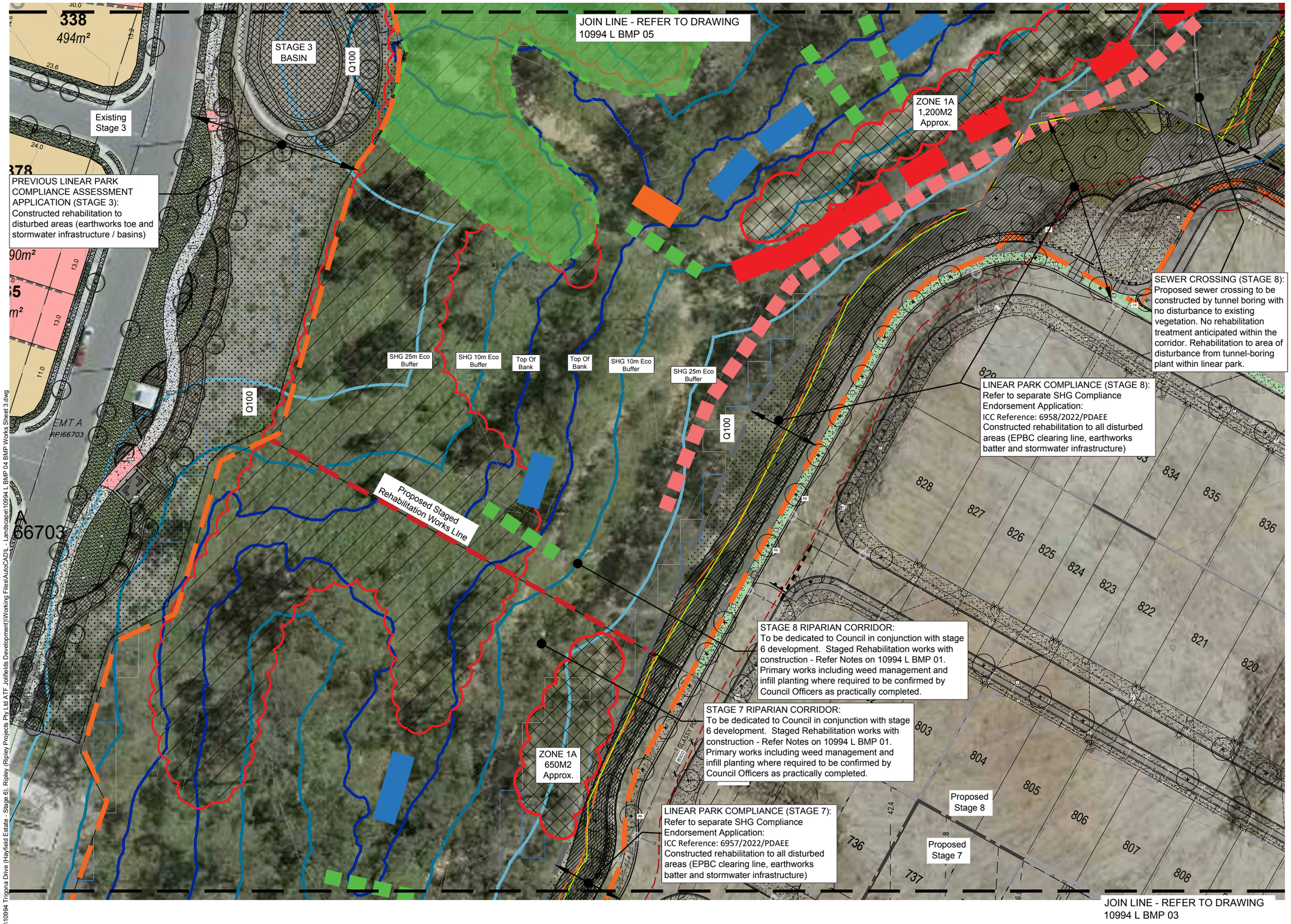

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B	25/03/2022	COUNCIL ISSUE	GC
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CLIENT: GOLDFIELDS RIPLEY PROJECTS PTY LTD — Goldfields

PROJECT: STAGES 6 -11 BUSHLAND MANAGEMENT PLAN — Hayfield.

DRAWING: **BMP WORKS SHEET 3**

DRAWN: GC CHECKED: TL

DRAWING #: **10994 L BMP 04 C**

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LANDSCAPE ARCHITECTURE
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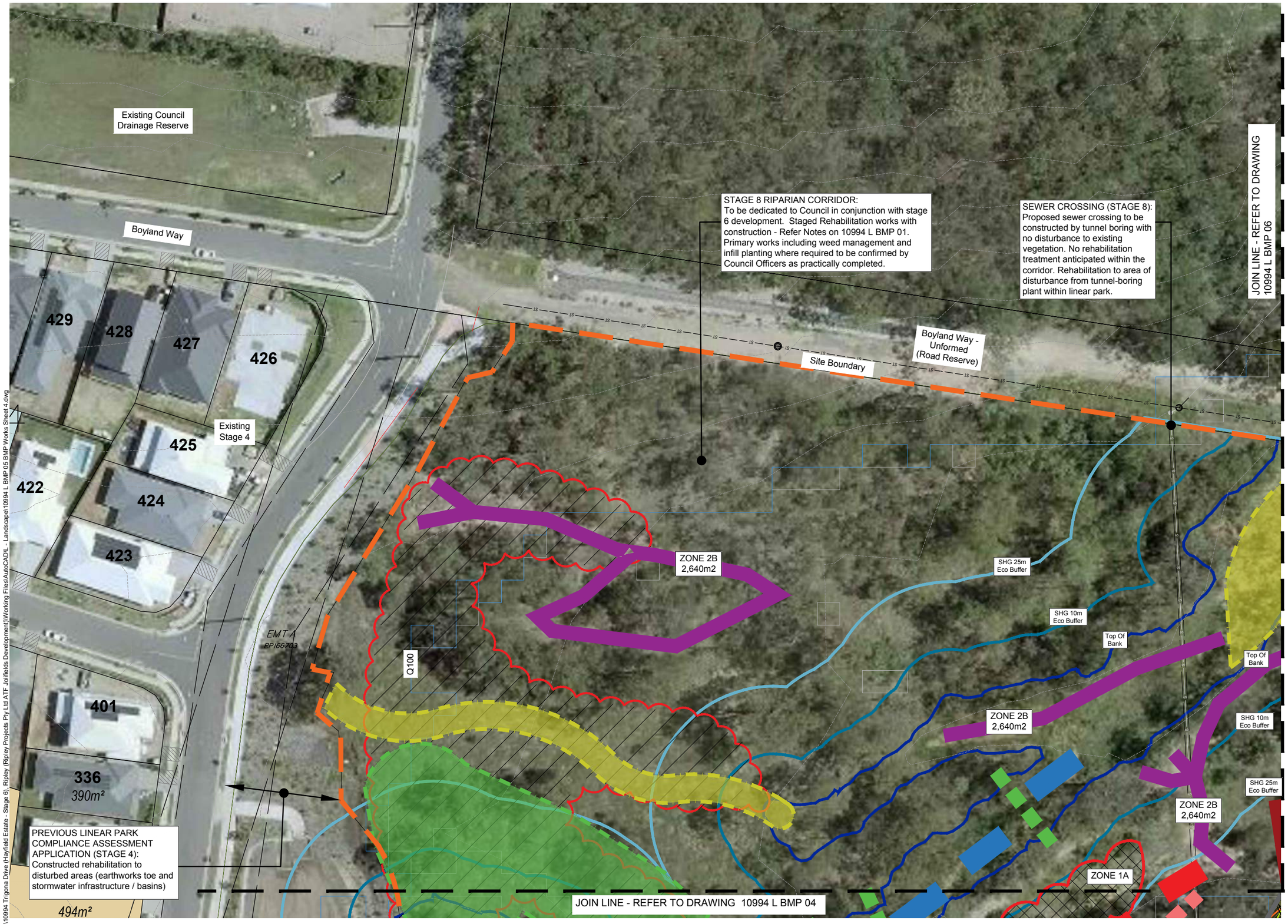
PHONE 1300 123 SHG WWW.SAUNDERSHAVILL.COM



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LEGEND:

to be read in conjunction with full SHG detailed landscape documents: Detail Drawings, Specifications and Schedules.

STAGE 6-11 REHABILITATION AREA: Riparian Corridor Dedication Extents

SPECIFIC SPECIES WEED MANAGEMENT AREAS:

TYPHA SPECIES

GROUNDSEL SPECIES

Approximate areas of historic weed infestation. Primary treatment complete with Stage 4. Ongoing monitoring and follow-up treatment required

Note: Weed treatment not limited only to areas shown - remove all weeds from whole of site. Weed management to cover all weeds present on site not just those listed in the:

- "Biosecurity Act 2014"; and
- QLD Herbarium invasive weed species lists

PRIMARY WORKS TO BE COMPLETED WITH STAGES 6 - 11

ZONE 1A - INDIVIDUAL TREE & SHRUB PLANTING AREAS: Infill planting to open canopy areas.

ZONE 2A - OVERLAND FLOW & SCOUR PROTECTION LOCATIONS: Locations to be confirmed -Refer Detail Dwg 10994 L BMP 10 & plant schedule.

ZONE 2B - SCOURED TRACKS REHABILITATION LOCATIONS: Locations to be confirmed -Refer Detail Dwg 10994 L BMP 15 & plant schedule.

PRIMARY WORKS COMPLETED WITH STAGE 4: Monitor for weed management and regeneration.

ZONE 1 - INDIVIDUAL TREE & SHRUB PLANTING AREAS: Infill planting to open canopy areas.

ZONE 2 - EXISTING PONDS COIRMAT PLANTING AREAS: Planting strips upstream existing ponds.

ZONE 3 - EXISTING PONDS INDIVIDUAL PLANTINGS: Trees to perimeter of existing ponds.

ZONE 4 - SCOURED TRACK PROTECTION DETAIL LOCATIONS: Refer Detail Drawing 10994 L BMP 10.

ZONE 5 - SCOURED TRACK EDGE: Planting area along top of scoured track edge.

DUMPED ROCK SCOUR PROTECTION: 75-200 dia. typical mattress rock installed to overland flow path at key locations identified by "Hydrobiology". Ongoing monitoring by "Hydrobiology" to determine additional dumped rock locations if required during maintenance period.

GENERAL NOTES:

- Corridor work undertaken in conjunction with Stage 4 focused on weed management, natural regeneration and selective tree planting.
- Focus for works proposed for implementation in conjunction with Stages 6 to 11 will be:
  - Ongoing rubbish removal;
  - Weed Management (including but not limited to Typha and Groundsel Bush species);
  - Promote natural regeneration (No additional planting proposed where natural regeneration is already occurring). Individual tree and shrub plantings to increase canopy cover in open areas. Extent of new plantings to be determined on site following weed management to target openings in canopy cover.
  - Revegetation rehabilitation to earthworks;
  - Monitoring and infill planting of existing ponds perimeter planting carried out in line with "Hydrobiology's" Geomorphic Inspection & Recommendation 08.08.19.
- All works to be carried out generally in accordance with previously approved SHG Concept Rehabilitation Plan Set 8844 E 01 RMP 01 to 08 & A01 to A03.
- For details of plant species and densities to nominated Zones refer plant schedules. Proposed planting mixes to be dominated by the following site tree species contributing to Koala and Flying Fox habitat including:
  - Eucalyptus tereticornis,
  - Lophostemon suaveolens,
  - Melaleuca quinquinervia and
  - Corymbia tessellaris.

ISO 9001 QUALITY Management System SOUTHPAC certifications
ISO 14001 ENVIRONMENT Management System SOUTHPAC certifications
AS 4801 OHS Management System SOUTHPAC certifications
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SCALE: 1:1250@A1 1:2500@A3 0 10 20 60m

AMENDMENTS:

ISSUE	DATE	DESCRIPTION	CHECKED
A	02/02/2022	CLIENT ISSUE	GC
B	25/03/2022	COUNCIL ISSUE	GC
C	15/08/2022	ICC OM RESPONSE ISSUE	GC

CLIENT: GOLDFIELDS RIPLEY PROJECTS PTY LTD

Goldfields

PROJECT: STAGES 6 -11 BUSHLAND MANAGEMENT PLAN

Hayfield.

DRAWING: **BMP WORKS SHEET 4**

DRAWN: GC CHECKED: TL

DRAWING #: **10994 L BMP 05 C**

saunders havill group
LANDSCAPE ARCHITECTURE
9 THOMPSON STREET, BOWEN HILLS QLD 4006
PHONE 1300 123 SHG WWW.SAUNDERSHAVILL.COM

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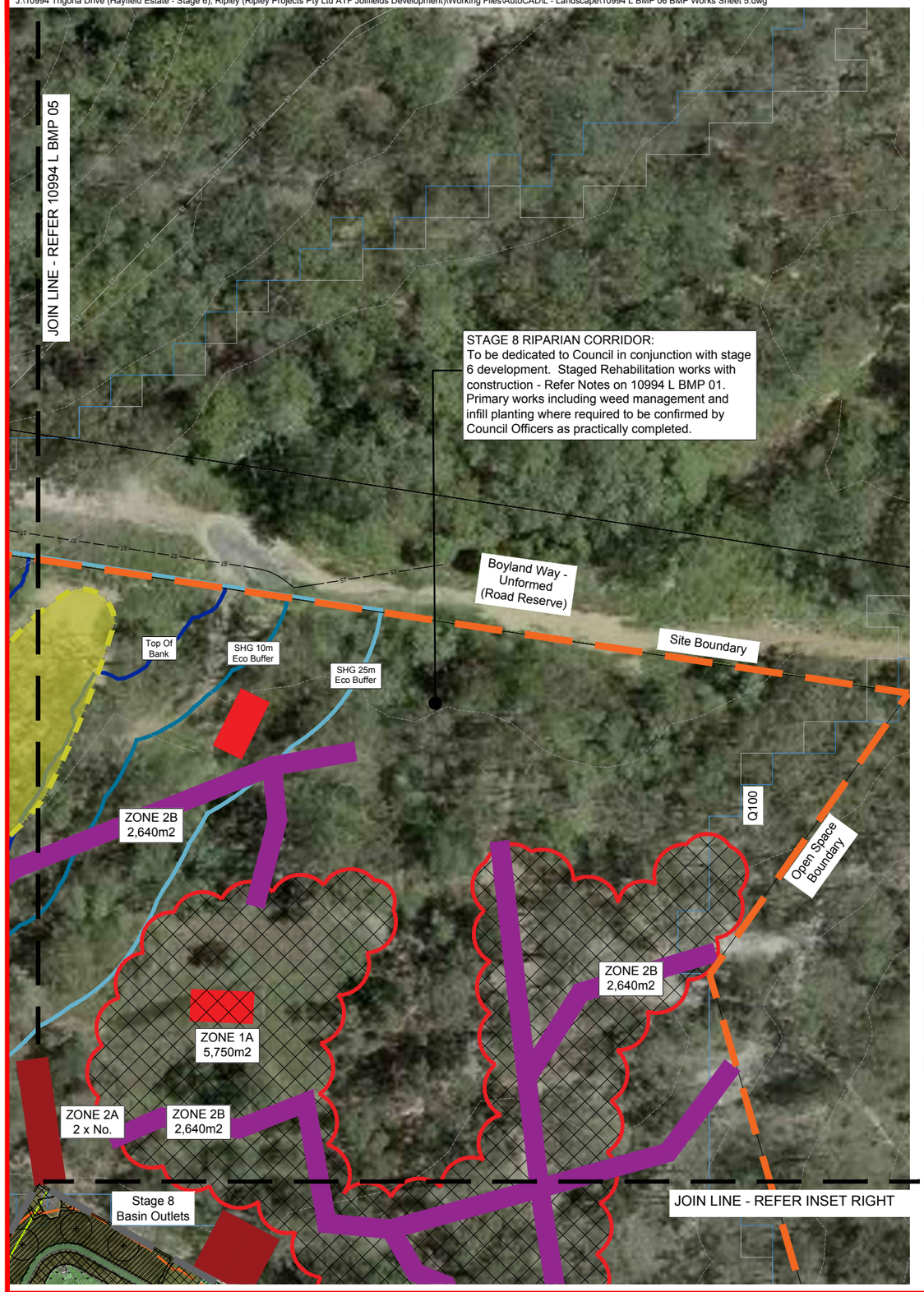

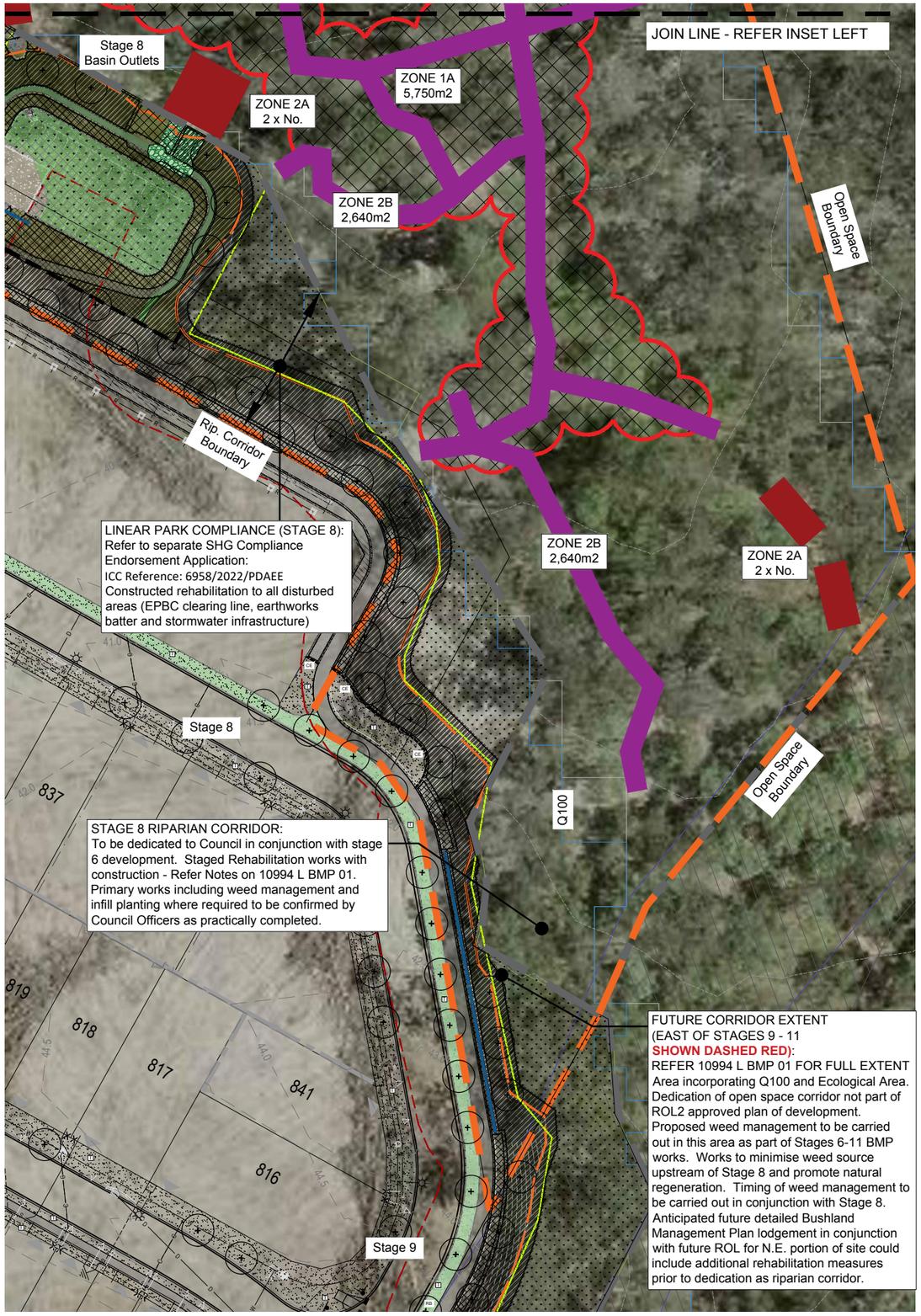

LEGEND:

to be read in conjunction with full SHG detailed landscape documents: Detail Drawings, Specifications and Schedules.

STAGE 6-11 REHABILITATION AREA: Riparian Corridor Dedication Extents

TYPHA SPECIES

SPECIFIC SPECIES WEED MANAGEMENT AREAS:

GROUNDSEL SPECIES

Approximate areas of historic weed infestation. Primary treatment complete with Stage 4. Ongoing monitoring and follow-up treatment required

Note: Weed treatment not limited only to areas shown - remove all weeds from whole of site. Weed management to cover all weeds present on site not just those listed in the:

- "Biosecurity Act 2014"; and
- QLD Herbarium invasive weed species lists

PRIMARY WORKS TO BE COMPLETED WITH STAGES 6 - 11

ZONE 1A - INDIVIDUAL TREE & SHRUB PLANTING AREAS: Infill planting to open canopy areas.

ZONE 2A - OVERLAND FLOW & SCOUR PROTECTION LOCATIONS: Locations to be confirmed -Refer Detail Dwg 10994 L BMP 10 & plant schedule.

ZONE 2B - SCOURED TRACKS REHABILITATION LOCATIONS: Locations to be confirmed -Refer Detail Dwg 10994 L BMP 15 & plant schedule.

PRIMARY WORKS COMPLETED WITH STAGE 4: Monitor for weed management and regeneration.

ZONE 1 - INDIVIDUAL TREE & SHRUB PLANTING AREAS: Infill planting to open canopy areas.

ZONE 2 - EXISTING PONDS COIRMAT PLANTING AREAS: Planting strips upstream existing ponds.

ZONE 3 - EXISTING PONDS INDIVIDUAL PLANTINGS: Trees to perimeter of existing ponds.

ZONE 4 - SCOURED TRACK PROTECTION DETAIL LOCATIONS: Refer Detail Drawing 10994 L BMP 10.

ZONE 5 - SCOURED TRACK EDGE: Planting area along top of scoured track edge.

DUMPED ROCK SCOUR PROTECTION: 75-200 dia. typical mattress rock installed to overland flow path at key locations identified by "Hydrobiology". Ongoing monitoring by "Hydrobiology" to determine additional dumped rock locations if required during maintenance period.

GENERAL NOTES:

- Corridor work undertaken in conjunction with Stage 4 focused on weed management, natural regeneration and selective tree planting.
- Focus for works proposed for implementation in conjunction with Stages 6 to 11 will be:
  - Ongoing rubbish removal;
  - Weed Management (including but not limited to Typha and Groundsel Bush species);
  - Promote natural regeneration (No additional planting proposed where natural regeneration is already occurring). Individual tree and shrub plantings to increase canopy cover in open areas. Extent of new plantings to be determined on site following weed management to target openings in canopy cover.
  - Revegetation rehabilitation to earthworks;
  - Monitoring and infill planting of existing ponds perimeter planting carried out in line with "Hydrobiology's" Geomorphic Inspection & Recommendation 08.08.19.
- All works to be carried out generally in accordance with previously approved SHG Concept Rehabilitation Plan Set 8844 E 01 RMP 01 to 08 & A01 to A03.
- For details of plant species and densities to nominated Zones refer plant schedules. Proposed planting mixes to be dominated by the following site tree species contributing to Koala and Flying Fox habitat including:
  - Eucalyptus tereticornis,
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SCALE:
1:1250@A1
1:2500@A3
0 10 20 60m

AMENDMENTS:

ISSUE	DATE	DESCRIPTION	CHECKED
A	02/02/2022	CLIENT ISSUE	GC
B	25/03/2022	COUNCIL ISSUE	GC
C	15/08/2022	ICC OM RESPONSE ISSUE	GC

CLIENT: GOLDFIELDS RIPLEY PROJECTS PTY LTD

PROJECT: STAGES 6 -11 BUSHLAND MANAGEMENT PLAN

DRAWING: **BMP WORKS SHEET 5**

DRAWN: GC CHECKED: TL

DRAWING #: **10994 L BMP 06 C**

saunders havill group
LANDSCAPE ARCHITECTURE
9 THOMPSON STREET, BOWEN HILLS QLD 4006
PHONE 1300 123 SHG WWW.SAUNDERSHAVILL.COM

HAYFIELD ESTATE
STAGE 6 - 11 BUSHLAND MANAGEMENT PLAN REHABILITATION WORKS

BACKGROUND AND APPROVAL CONDITION RESPONSE

This Rehabilitation and Maintenance Plan (BMP) has been prepared by Saunders Havill Group (SHG) for Ripley Project Pty. Ltd. to provide a formal response to Condition 38 Rehabilitation of DA 7231/2020/PDA.

The Primary objective of this BMP is to provide details for proposed rehabilitation works to the area of Riparian Corridor land proposed for dedication to Council. Rehabilitation works are proposed to be delivered in conjunction with the progressive construction and delivery of development stages 6 - 11.

Refer to Detailed Notes on Drawing 10994 L BMP 01 Cover Sheet for Proposed Timing of dedication and construction.

Refer to Separately lodged SHG plans associated with Linear Open Park Compliance Assessment Applications documenting revegetation and rehabilitation to all earthworks and construction disturbance (extent to cover earthworks toe and stormwater infrastructure / basins generally):

- Stage 6: 5095/2022/PDAEE (Endorsed Plans)
- Stage 7: 6957/2022/PDAEE (Plans Lodged for Assessment)
- Stage 8: 6958/2022/PDAEE (Plans Lodged for Assessment)

The BMP is in accordance with the previously approved Natural Environmental Site Strategy.

7231/2020/PDA (CONDITION 38. REHABILITATION RESPONSES)

a) The applicant must rehabilitate the retained ecological corridors to a natural bushland setting consistent with regional ecosystems present on site.

"Natural and Assisted Natural Regeneration" will be the primary method for corridor rehabilitation. Weed removal and management along with stabilisation of overland flow paths will be the focus for rehabilitation works. Refer to additional notes below in relation to Regeneration works.

Where existing and proposed openings in native species canopy cover are present on site, "Reconstruction" i.e. revegetation planting will be carried out. Proposed plant species have been selected based on lower slopes & flood plains pre-clear RE Description 12.3.3 & site observation.

Where ground stabilisation measures are proposed, suitable grass and sedge species from site species mixes are proposed to assist with surface stabilisation.

b) The applicant must submit to the MEDQ delegate for compliance assessment an amended 'Bushland Management Plan' (BMP) generally in accordance with section 3.1.1A(4) of Planning Scheme Policy 3 - General Works of the Ipswich Planning Scheme 2006 demonstrating achievement of above.

- *clear and measurable targets for weed management, regeneration, planting, soil improvement, stabilisation, 4wd track remediation and mulching works;*

Refer to Detailed Notes on Drawing 10994 L BMP 08 for proposed milestones and Benchmarks for rehabilitation Works.

- *Reuse of rocks, logs, habitat features from cleared areas and rectification/ installation of fauna furniture infrastructure within the culverts within the corridor;*

Refer to Detailed Notes on Drawing 10994 L BMP 07 for proposed habitat features and timing for fauna furniture rectification.

(iii) Consistency with the requirements of the Environmental Protection and Biodiversity Conservation Act 1999 (EPBC) reference no. 2017/8095);

(iv) Rehabilitation and stabilisation work for all areas within areas to be dedicated to council as retained natural drainage features in accordance with the Geomorphological Assessment prepared by Hydrobiology;

Refer to Detailed Notes on Drawings and 10994 L BMP 11 for proposed scour protection measures

(v) Milestones detailing the proposed timing and delivery of the works consistent with the staging required by Condition 5 - Stages of Reconfiguration.

Refer to Detailed Notes on Drawing 10994 L BMP 01 Cover Sheet for Proposed Timing and Dedications.

REHABILITATION APPROACHES

A substantial amount of rehabilitation research has been conducted and compiled as part of the "South East Queensland Ecological Restoration Framework (SEQERF)" and subsequently endorsed by the majority of South East Queensland councils. Given this, information provided within this Rehabilitation document will largely utilize information derived from this framework.

Rehabilitation or "Ecological Restoration" can be described as "the process of assisting the recovery of an ecosystem that has been degraded, damaged or destroyed" (source: Society for Ecological Restoration International).

In accordance with the South East Queensland Ecological Restoration Framework, four ecological restoration approaches are generally applicable to rehabilitation works:

1. **Natural Regeneration**
(Primary Means To Be Employed On Subject Site)

2. **Assisted Natural Regeneration**
(Primary Means To Be Employed On Site)

3. **Reconstruction**
(Secondary Means To Be Employed On Subject Site in Areas of Scour and Disturbance)

4. **Fabrication**
(Less Relevant To Subject Site)

ECOLOGICAL RESTORATION APPROACHES	
NATURAL REGENERATION	
Applies:	To relatively large, intact and weed-free areas of native vegetation.
	Where 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-live disturbance such as a fire or cyclonic winds.
	When preventative action is all that is required to avert on-going disturbances e.g. erection of fencing to prevent instruction by cattle.
Role of planting:	Planting in such areas can work against the aims of restoration by interfering with natural regeneration.
Goal vegetation community:	The re-establishing plant community will be similar in structure, composition and diversity to the original vegetation.
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 control, minor amelioration of soil conditions, erection of fencing, cessation of slashing, etc. will be enough to trigger the recovery processes through natural regeneration.
	When the main management issue is weed infestation and/or current land use practices.
Role of planting:	Planting in such areas can work against the aims of restoration by interfering with natural regeneration except where species cannot return to site without direct intervention.
Goal vegetation community:	The re-establishing plant community will be substantially 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, areas that have been drastically cleared, even though there may be a few remaining native trees or shrubs.
	When a greater degree of human intervention is required, such as weed control, cessation of grazing and/or slashing, amelioration of soil conditions such as importation of soils, drainage works or re-shaping of the landscape.
Role of planting:	Importation of native species to the area is required, either through planting or direct seeding (in some situations). natural regeneration and recruitment is insufficient to initially re-establish the original vegetation. Depending on the prevailing circumstances, the planting of a broad diversity of species from the target ecosystem may be unnecessary and the use of pioneers may be sufficient to re-establish ecological processes.
Goal vegetation community:	The re-establishing planted community should be similar to the original vegetation in structure, composition and diversity.
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 storm-water run-off.
Role of planting:	Revegetation (planting) is the major component in a fabrication program.
Goal vegetation community:	The re-establishing planted community should be similar to a naturally occurring plant community of the same type (e.g. a constructed freshwater wetland should resemble a natural system in terms of structure, composition and diversity).

Note: Table adapted from a table in the Gold Coast City Council's "Guideline for the preparation of a Rehabilitation Plan"

REHABILITATION METHODOLOGY

As part of most rehabilitation scopes, it is worth considering an appropriate methodology for both compiling documentation and site works. This can be broken down into the following items:

- Site assessment
- Rehabilitation Design / Documentation (this plan)
- Site Works
- Maintenance and monitoring

REHABILITATION METHODOLOGY - SITE ASSESSMENT

Detailed assessment of site conditions prior to commencement of documentation is essential in the establishment of a site specific ecological restoration methodology. In accordance with the SEQERF the following checklist will form part of the site assessment process:

- Describe the history and background of the site;
- Describe the soil, drainage, topography and aspect;
- Describe the native vegetation on the site and along site boundaries;
- Describe the weeds on site;
- Describe the vegetation dispersal and structure;
- Describe the fauna use on site; and
- Describe estimated native regeneration response.

The responses to the above check list will provide the basis of the proposed restoration approach from Natural Regeneration to Fabrication for each treatment area within this Rehabilitation Plan.

Consideration should be made in the importance of integrating site specific measures for fauna habitat and movement. With many fauna species having specific habitat requirements, foraging patterns and movement patterns. During the site assessment process the following provisions should be taken into consideration:

- Fauna movement opportunities via easements, tracks, utility corridors and / or infrastructure pathways;
- Diversity and type of fauna and distribution on site;
- Habitat opportunities eg. dense foliage, roosting areas, log hollows and potential nesting boxes;
- Fauna disturbance and vicinity of works to significant nesting areas and / or fauna movement;
- Distribution of significant specialised food resources eg. Koala trees; and
- Stage weed removal and / or altering of weed control technique if the weeds are currently forming a significant fauna habitat.

For the sake of keeping this Rehabilitation document concise, site analysis results are compiled under a separate template and may or may not be included in this set, however the analysis outcomes derive the Rehabiltiation design methodology.

REHABILITATION METHODOLOGY - SITE ASSESSMENT

This documentation has been compiled through processes outlined in the SEQERF, site analysis and previous rehabilitation project experiences. The primary aims of this documentation is to provide assessment managers, clients and contractors a clear methodology to assist the recovery of an ecosystem that has been degraded, damaged or destroyed.

Existing native trees, shrubs and groundcovers are to be protected and retained in accordance with the an ICC approved BMP.

Weed management will be carried out to the entire zone up front to encourage natural regeneration by reducing competition. Appropriate (sensitive) weed management methodology within this zone to minimize any native vegetation damage / losses. Upon site analysis, the following management zones are applicable to the rehabilitation site:

MANAGEMENT ZONE 1A: INDIVIDUAL TREES AND SHRUB PLANTING AREAS (ASSISTED REGENERATION) Infill planting to open canopy areas where natural regeneration is not successful following ongoing weed management.

Should there be evidence of a lack of a native seed bank, blanket mulch circles (100mm depth) or Jutemat Squares to suppress weeds during initial establishment period to be installed to bare areas. All jutenetting to be installed to manufacturer's recommendations. Assisted natural regeneration to occur with infill tubestock canopy species to match regional ecosystem mapping for site at the discretion of rehabilitation superintendent.

EXISTING NATIVE SPECIES VEGETATION (NATURAL REGENERATION)
Ongoing weed management to promote native species regeneration from existing seed bank. Any significant bare / denuded areas as a result of weed management or natural disturbance are to be reviewed on site. Minor cultivation (minor 'ripping or raking disturbance' as per SEQERF) within bare areas and external to canopy drip lines to be utilised to encourage native seed germination.

Where required, bushfire considerations should be reviewed by specialist bushfire consultant and species adjusted to minimize risks under their direction. Refer to plant schedule for species and planting densities.

MANAGEMENT ZONE 1A - INDIVIDUAL TREE & SHRUB PLANTING AREAS:
- Infill planting to open canopy areas.
- Tubestock planting with Coreflute Tree Guards of trees and shrubs at wider spacings inclusive of mulched circles or organic jutemat squares,

MANAGEMENT ZONE 2A - OVERLAND FLOW & SCOUR PROTECTION LOCATIONS:
- Refer to 10994 L BMP L 10 for additional details.
- Proposed in locations of localised scour along existing gullyines. Locations to be confirmed on site at Pre-start meeting to ensure stabilisation extents to match site conditions.
- Utilising a combination of minor earthworks, subsoil amelioration, topsoil re-spreading, biodegradable matting, mulching, rock check berms and revegetation planting.

REHABILITATION METHODOLOGY - MANAGEMENT ZONES

FAUNA HABITAT VALUE AND PROTECTION
Consideration for fauna habitat and values should be given during rehabilitation site works and should seek to enhance and restore the existing native vegetation areas and promote safe fauna movement throughout the site and into the larger greenspace corridors where possible.

Rehabilitation Areas to include reuse of site fallen / hollow logs and site rock to create fauna safe havens and cover from predators for small fauna. This approach coupled with additional revegetation works allows greater fauna security and movement within the rehabilitation areas. Consideration for bushfire requirements should be reviewed to confirm no conflict in both the fauna and rehabilitation approaches. Refer indicative images below.

Tree trunks from the approved site clearing works have been stock-piled for re-use in strategic locations as agreed with Council to provide future habitat opportunities and assist with site stabilisation. Logs will be placed generally at perimeter of edge of clearing limit in breaks in vegetation as part of civil contractor's clearing and earthworks phase.

Salvaged Logs From Clearing Process to be re-distributed:
To be distributed in conjunction with Stage 6 - 11 Civil Clearing and Earthworks.

Fauna Furniture (Timber Rail) previously installed as part of Stage 1 Culvert Works requires Repair after recent storm damage (see photo below). Works to be carried out in conjunction with Stage 6.

MANAGEMENT ZONE 2B - SCOURED TRACKS PROTECTION LOCATIONS:
- Refer to 10994 L BMP L 15 for additional details.
- Proposed in locations where unauthorised tracks (vehicle and motorbike) have been created through existing bushland. Locations to be confirmed on site at Pre-start meeting to ensure stabilisation extents to match site conditions.
- In some locations a well-maintained single track is proposed for retention to enable ongoing acces to the central areas of the ecological corridor for weed management, natural regeneration and maintenance of planting areas.
- Utilising a combination of minor earthworks, subsoil amelioration, topsoil re-spreading, site generated mulching, selective coir-log placement and revegetation planting.
- In some locations temporary fencing and the creation of natural barriers such as re-positioned fallen logs and boulders may be considered to assist with ongoing management of unauthorised vehicle use.

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ISO 14001 ENVIRONMENT Management System SOUTHPAC certifications
AS 4801 OHS Management System SOUTHPAC certifications
Australian Institute of Landscape Architects

SCALE: NOT TO SCALE

AMENDMENTS:

ISSUE	DATE	DESCRIPTION	CHECKED
A	10/08/2020	CLIENT ISSUE	GC
B	25/03/2022	COUNCIL ISSUE	GC
C	15/08/2022	ICC OM RESPONSE ISSUE	GC

CLIENT: GOLDFIELDS RIPLEY PROJECTS PTY LTD

PROJECT: STAGES 6 -11 BUSHLAND MANAGEMENT PLAN

DRAWING: **BMP CONCEPT REHABILITATION NOTES - SHEET 1**

DRAWN: SL CHECKED: GC

DRAWING #: **10994 L BMP 07 C**

saunders havill group
LANDSCAPE ARCHITECTURE
9 THOMPSON STREET, BOWEN HILLS QLD 4006
PHONE 1300 123 SHG WWW.SAUNDERSHAVILL.COM

HAYFIELD ESTATE **Weed Management Notes**

STAGE 6 - 11 BUSHLAND MANAGEMENT PLAN REHABILITATION WORKS

NOTES

1. INTRODUCTION

The Saunders Havill Group was engaged by RIPLEY ROAD LAND INVESTMENTS Pty Ltd c/o GOLDFIELDS to prepare this **Rehabilitation and Weed Management Plan** covering the proposed Rehabilitation Works within the **Riparian Corridor** to be dedicated in association with **Stages 6-11 of HAYFIELDS 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.

Note: Weed Management is to cover all weeds present on site not just those listed in the:

- "Biosecurity Act 2014"; and
- QLD herbarium invasive weed species lists

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 Riparian Corridor 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 Riparian Corridor 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:

WEED MANAGEMENT IS TO COVER ALL WEEDS PRESENT ON SITE NOT JUST THOSE LISTED 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 re-growth 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 QLD & have / could have adverse economic, environmental or social impact.
- 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 QLD & have / could have adverse economic, environmental or social impact.
- Primary objective of Class 3 listing is to prevent sale, 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 Herbarium List. NOTE: Weed management is to cover all weeds present on site not just those listed.

MAINTENANCE IS FUNDAMENTAL FOR PROJECT SUCCESS. If maintenance is regular and thorough following initial works and during the first year, maintenance requirements are likely to taper off significantly in following years. Maintenance of planting includes:

- Herbicide spraying to control competing weeds.
- Watering while plants are establishing. This is often highly variable and depends on the species planted, weather conditions and time of year when planted. A watering schedule may consist of watering every day for week 1, twice per week for weeks 2-6 and then weekly from weeks 6-12. Contractor to confirm final watering regime. Ongoing watering may be required subject to weather conditions during maintenance.
- Repair of tree guards if they become damaged / displaced.
- Replenishment of mulch.
- Maintaining exclusion fencing; and
- Additional planting if required to replace plants that do not survive (e.g. to meet survival rate

requirements, or to fill gaps), but it may also be necessary to introduce new species at different stages

of vegetation succession. An adaptive management approach should be utilised, if one plant species consistently dies on a site, consider using in its place a species that is performing well.

BENCHMARK CRITERIA: help to determine rehabilitation success during the maintenance period and assists in prompting when additional maintenance activities are required. Typically accepted benchmarks or performance indicators for dedicated or riparian corridor rehabilitation works include:

- Compliance / **'On Maintenance'** requirements;
  - All required planting completed.
  - 90% plant survival.
  - 100% kill rate of declared environmental weeds.
  - Maintenance access (including tracks, fencing, etc.).
- Ongoing / **"Off Maintenance'** requirements;
  - 80% plant survival.
  - Tree guards, stakes and general rubbish removed.
  - No remaining eroded or degraded areas.
  - 100% kill rate of declared environmental weeds.

The desired end-product is a fully-functioning system that can support itself with minimal maintenance and input required.

NOTES

3. MONITORING AND REPORTING PROCEDURES

PHOTO MONITORING REQUIREMENTS:

Monitoring shall include photo-monitoring locations. Permanent or semi-permanent photopoints are to be established using a star picket marked with fluorescent yellow safety cap or painted timber stakes (or similar), so that a photograph may be taken of the site at regular (QUARTERLY) intervals as it is being restored. A time series of photographs, from a degraded state prior to the commencement of restoration, through the transition stages and into the maintenance stage will assist in assessing the success of the restoration process. A compiled works monitoring report, inclusive of photo point images and other relevant site data collected, should be submitted to the MEDQ delegate for review (QUARTERLY) during the maintenance period.

- Review of the pre-established performance indicators for measuring success of weed removal and control.
- Ensure level of protection for existing and naturally regenerated native vegetation.
- 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 such as erosion stabilisation.

MILESTONE INSPECTIONS (HOLD POINTS) AND MONITORING TIMEFRAMES

(REFER TO ICC PLANNING POLICY DEVELOPMENT GUIDELINES)

ESTABLISHMENT & MAINTENANCE PERIODS TO BE IN ACCORDANCE WITH APPROVAL CONDITIONS.

Required Attendees at Milestone (Hold Point) Inspections:

- ICC's nominated Council Officer as "Assessment Manager";
- Suitably Qualified Bushland Rehabilitation Consultant;
- Suitably Qualified Bushland Rehabilitation Contractor;
- Proponent's Representative (may also be one of the parties above at the Proponent's discretion);
- Geotechnical Engineer (where nominated for inspection and certification of stabilisation areas).

Required Milestone (Hold Point) Inspections:

- PRE-START Inspection - On site meeting prior to the initial commencement of work. Clarification and amendment to scope of works shown on rehabilitation may occur based on site conditions at the time of inspection. Clarifications and any adjustments to scope against approved works to be confirmed following meeting via correspondence to all parties.
- Compliance (PRACTICAL COMPLETION) Inspection - At the completion of the Primary Site Works, an inspection meeting will be held to confirm the works have been upheld and suitably established in accordance with the approved plans (including any changes agreed at the pre-start inspection) and previously agreed benchmarks / performance indicators.
- Compliance (ON MAINTENANCE) Inspection - At the completion of the Establishment period , an inspection meeting will be held to inspect the works on-site in relation to the approved plans and previously agreed benchmarks / performance indicators.
- Ongoing (MONITORING INSPECTIONS) - Informal monitoring on a regular basis as highlighted above. Inspections will generally occur throughout process, specifically before, during and after relevant compliance inspections. (QUARTERLY) Reporting during maintenance period (inclusive of photo points as outlined above) is to be submitted to Council for review from a Qualified Bushland Rehabilitation Consultant / Contractor.
- Compliance (OFF MAINTENANCE) Inspection - At the completion of the Maintenance period and prior to handover to Council, an inspection meeting will be held to inspect the works on-site in relation to the approved plans and previously agreed benchmarks / performance indicators.

NOTES

5. RESOURCES / ROLES & RESPONSIBILITIES

PROPONENT:

- Ensure all consultants, contractors, sub contractors are aware of the Rehabilitation Plan.
- Appoint appropriate consultants & contractors to undertake works as approved 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 when on-site conditions require clarifications..
- 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.
- Reduce and release securities held against works at the completion of successful milestone inspections.
- Accept and review quarterly reports as outlined 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.
- **Knowledge of Relevant Legislation:** It is expected contractors have a depth of knowledge of relevant legislation to complete site rehabilitation works.

This may include occupational Health and Safety laws as well as environmental and heritage protection legislation. Bush regenerators must comply with the requirements of the Workplace Health and Safety Act 2011 or, when working on Commonwealth lands, the Commonwealth's Occupational Health and Safety (Commonwealth Employment) Act 1991. Contractors should also obtain all relevant permits required under State and Commonwealth legislation (e.g. Nature Conservation Act 1992, Fisheries Act 1994, Vegetation Management Act 1999, Biosecurity Act 2014- including Fire Ant Movement Controls). Contractors must also be aware of and adhere to cultural heritage protection obligations under the Aboriginal Cultural Heritage Act 2003 and where chemicals are in use, the Agricultural Chemicals Distribution Control Act 1966.

In addition to the above, contractors should also be familiar with local government body requirements (e.g. Pest Management Plans, Local Codes, Policies and Guidelines) and Classifications of weeds. Refer to adjacent schedules for classification of weeds under the Land Protection Act (superseded by the Biosecurity Act 2014).

PROJECT 10994 HAYFIELDS STAGE 6 to 11

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	MILESTONE: PRACTICAL COMPLETION	Watering and Monitoring and reporting (throughout establishment)	Watering and Monitoring and reporting (throughout establishment)	Watering and Monitoring and reporting (throughout establishment)	MILESTONE: COUNCIL "ON MAINTENANCE"	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		Replacement of Failed Plants				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

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

J:\10994 Trigona Drive (Hayfield Estate - Stage 6), Ripley (Ripley Projects Pty Ltd ATF Jolifields Development)\Working Files\AutoCAD\L - Landscape\10994 L BMP 08 BMP Rehabilitation Notes sheet 2.dwg

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SCALE: NOT TO SCALE

AMENDMENTS:

ISSUE	DATE	DESCRIPTION	CHECKED
A	10/08/2020	CLIENT ISSUE	GC
B	25/03/2022	COUNCIL ISSUE	GC
C	15/08/2022	ICC OM RESPONSE ISSUE	GC

CLIENT: GOLDFIELDS RIPLEY PROJECTS PTY LTD

Goldfields

PROJECT: STAGES 6 -11 BUSHLAND MANAGEMENT PLAN

Hayfield.

DRAWING: **BMP CONCEPT REHABILITATION NOTES - SHEET 2**

DRAWN: SL | CHECKED: GC

DRAWING #: **10994 L BMP 08 C**

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LANDSCAPE ARCHITECTURE
9 THOMPSON STREET, BOWEN HILLS QLD 4006
PHONE 1300 123 SHG WWW.SAUNDERSHAVILL.COM

HAYFIELD ESTATE
STAGE 6 - 11 BUSHLAND MANAGEMENT PLAN REHABILITATION WORKS

REHABILITATION METHODOLOGY - SITE WORKS - PLANTING NOTES

Following Primary weed management works, areas requiring infill planting (assisted natural regeneration), and larger scale planting (reconstruction and fabrication) can be undertaken. Prior to installation, the following items should be considered:

- Species selection
- Sourcing plant material
- Timing of planting
- Site preparation
- Planting density
- Planting installation

Species Selection

Species selection is critical in achieving the desired ecological restoration outcomes for rehabilitation sites. Planting is typically derived from:

- Local Regional Ecosystem (RE) descriptions.
- Observed site native vegetation.
- Bioretention guideline requirements.
- Climatic and weather conditions observed on site (frost, salt-spray, etc.).
- 'Pioneer' species are useful in site stablisation and encouraging native regeneration.
- Utilising flowering and fruiting species are useful to attract wildlife and result in introduction of seeds.
- Diverse vegetation layers (trees, shrubs, groundcovers).
- Species availability from seed propagation and/ or local nurseries.

Refer to plant schedule for species and planting densities.

Sourcing Plant Material

There are a number of options for sourcing plant material for revegetation purposes. Propagation from site seed is a good outcome however is often limited by required timing of works. Sourcing planting from local nurseries is the commonly-chosen option and has the following benefits:

- Awareness of genetic considerations when collecting seed.
- Experience with breaking dormancy mechanisms in hard to germinate seeds.
- Highly successful propagation techniques.
- Ability to provide high quality stock to order
- Draw on industry resources.

Timing of Planting

The timing of planting should ideally be aligned with the wet season in SEQ (summer and autumn). This minimises the need for intensive watering to establishment planting. Planting between February to May is the most beneficial as it also seeks to avoid intense heat periods of summer. Despite this, it is understood planting may occur at various times within rehabilitation areas due to development timing needs.

Site Preparation

Site or planting preparation includes:

- Fencing to exclude grazing animals and people (if required).
- Pre-spraying of exotic grasses and other weeds to planting areas.
- Consideration of source of water for new planting (access tracks, temporary irrigation).
- Arranging delivery of mulch, jutenetting and tree guards (if required).
- Treatment of heavily compacted soils by ripping and/or application of gypsum.
- Soil amelioration as required

Planting Density

Plant density is calculated on a zone by zone basis. This allows planting to cater for various requirements including standard revegetation, infill only requirements such as canopy trees at low densities, as well dense bioretention plantings as per Bioretention Technical Guidelines (where/ if applicable). Refer to plant schedule for species and planting densities.

Planting Installation

The following outlines the preferred installation methodology for revegetation works within the rehabilitation areas. It has been designed to maximise plant establishment success rates and minimise plant mortality. 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 Rehabilitation Plan, and local government policies and Australian Standards.

REHABILITATION METHODOLOGY - SITE WORKS - PLANTING NOTES

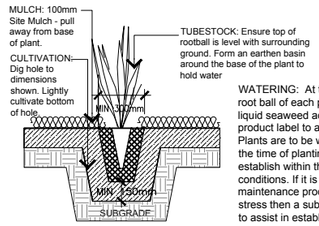
Plant installation methods shall include:

- 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 having been restricted or damaged. The landscape coordinator has the right to inspect and reject stock prior to planting.
- Tubestock is to be disease and pest free and purchased from local nurseries within 10kms of subject sites where possible.
- Plants are to be planted immediately after delivery to the planting site.
- Planting is to be undertaken in accordance with the planting module contained within this drawing sheet.
- 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 deficient, hydrophobic, etc.) and above areas of potential frequent inundation and water flow, topsoil may be used.
- Pre-water plant hole, if soil is dry, to decrease root stress upon planting and assess the infiltration of water through the soil.
- Incorporate into the planting substrate the appropriate quantity of prepared water crystals or other suitable hydrating product such as Hortex 'Rainsaver' or 'Moisturaid'.
- Place plant into hole and backfill ensuring that the plant is upright and the stem is not covered in any less than 10mm or any more than 20mm of planting medium.
- Plants are to be watered thoroughly immediately after planting (ensure deep irrigation) and thereafter as required during the construction phase of the development 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 recommended, and is to be administered appropriately during planting. Top dressing with slow release fertiliser is preferred to avoid toxic levels of fertiliser accumulating in the plant hole around the plant roots.
- To ensure successful establishment, all planting surfaces must be covered in:
  a 100mm layer of high quality weed-free composted chip mulch (site mulch) - Note: to avoid possible stem rot in some 'drier' species ensure mulch is 'dished' and not covering plant stem by more than 20mm. Where available mulch material to be sourced from cleared vegetation material if adequately seasoned (12 weeks minimum).
  •• suitable individual anchored natural fibre weed mat (jutenetting); or
- A long term slow release fertiliser, such as Nutricote or similar product should be used for all plantings after initial plant establishment.
- A minimum 90% survival rate should be achieved.
- Any planting substitutions to be approved by Superintendent and Assessment Manager where applicable.
- Any wheel ruts from site works within rehabilitation areas to be rectified to minimise risk of erosion and use as conduits for introduced species (such as cane toads).
- Consideration for requirements under "Hygiene protocol for handling amphibians" by the Qld Government should be also given including washdown requirements and handling on site as required.

REHABILITATION METHODOLOGY - SITE WORKS - PLANTING NOTES

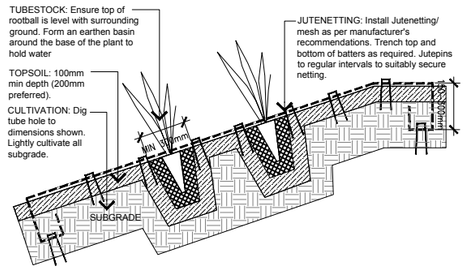
Typical planting details as below for standard medium/ mulch installation and jutenetting. Refer to manufacturer's recommendations for detailed jutenetting installation including pinning, etc.

Each individual planting location should be spot cultivated to at least 2 times the depth and twice the width of the plant stock size.



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.

Where evidence of plant damage is occuring, tree guards/ growtubes to be installed as required.



In Areas of regular innundation and steep batters greater than 1:3 typicaly, Coirmatting or Jutenetting/ mesh to be installed as per manufacturer's recommendations. Indicative detail shown only.

J:\10994 Trigona Drive (Hayfield Estate - Stage 6), Ripley (Ripley Projects Pty Ltd ATF Jolifields Development)\Working Files\AutoCAD\L - Landscape\10994 L BMP 09 BMP Rehabilitation Notes - Planting.dwg

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ISO 14001 ENVIRONMENT Management System SOUTHPAC certifications
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SCALE: NOT TO SCALE

AMENDMENTS:

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A	10/08/2020	CLIENT ISSUE	GC
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C	15/08/2022	ICC OM RESPONSE ISSUE	GC

CLIENT: GOLDFIELDS RIPLEY PROJECTS PTY LTD

PROJECT: STAGES 6 -11 BUSHLAND MANAGEMENT PLAN

DRAWING: BMP CONCEPT REHABILITATION NOTES - PLANTING

DRAWN: SL CHECKED: GC

DRAWING #: 10994 L BMP 09 C

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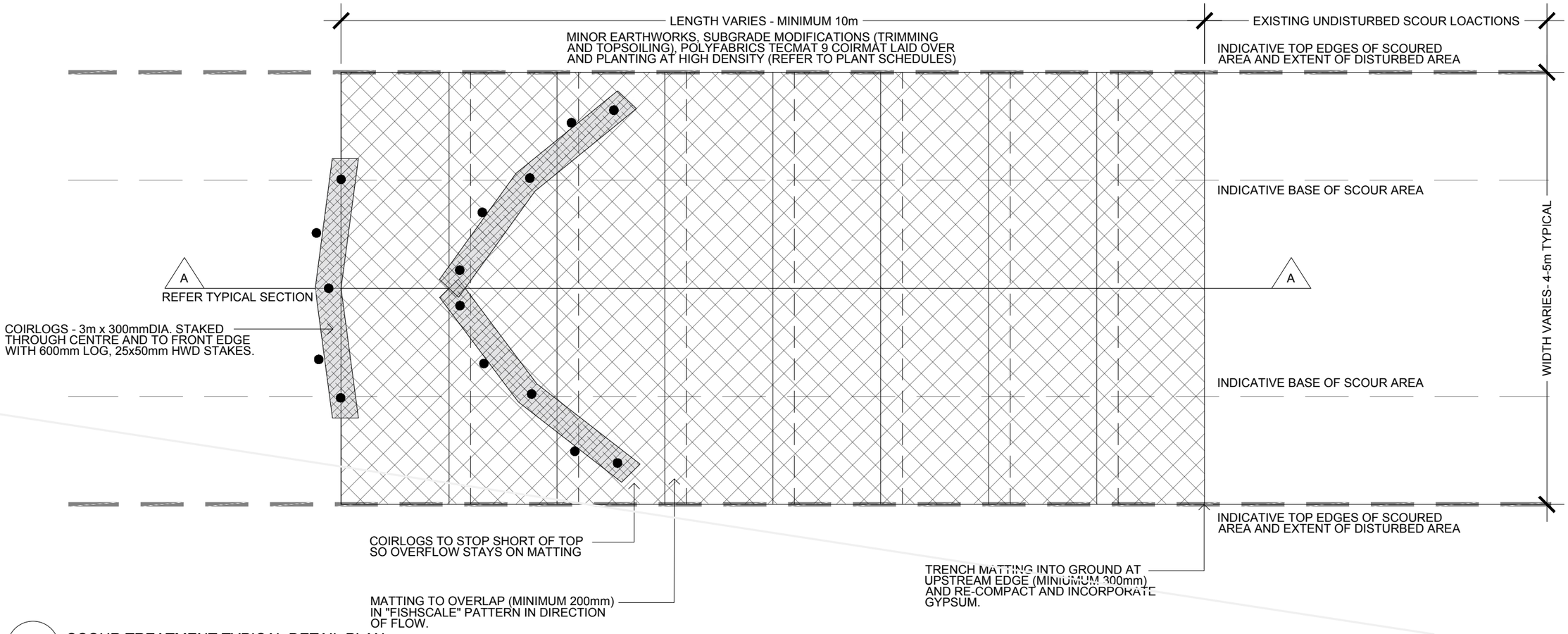
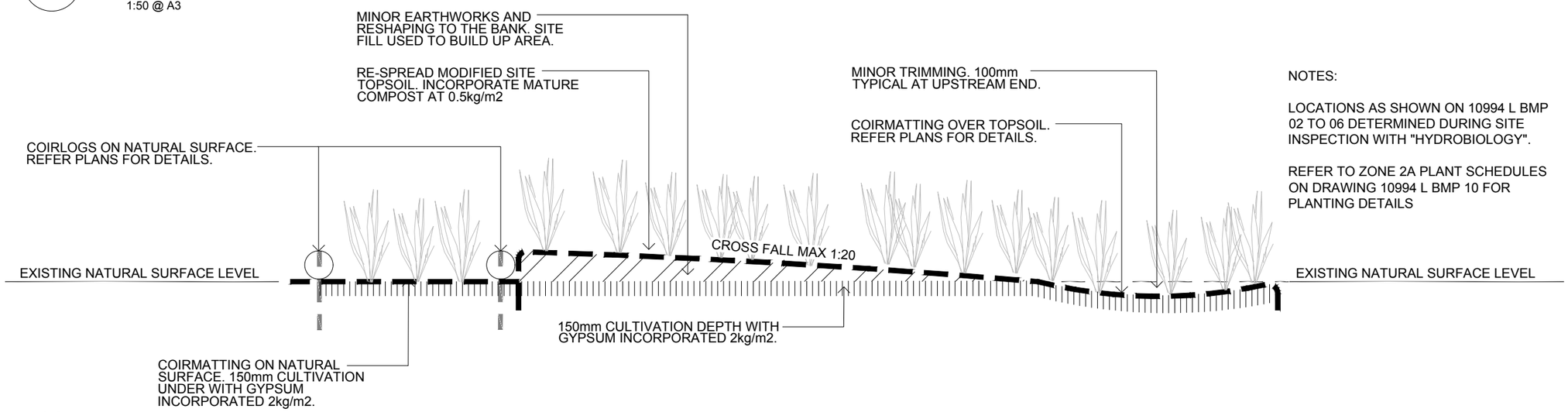
LANDSCAPE ARCHITECTURE
9 THOMPSON STREET, BOWEN HILLS QLD 4006
PHONE 1300 123 SHG WWW.SAUNDERSHAVILL.COM



SCOUR TREATMENT TYPICAL DETAIL PLAN

Scale: 1:25 @ A1
1:50 @ A3



NOTES:

LOCATIONS AS SHOWN ON 10994 L BMP 02 TO 06 DETERMINED DURING SITE INSPECTION WITH "HYDROBIOLOGY".

REFER TO ZONE 2A PLANT SCHEDULES ON DRAWING 10994 L BMP 10 FOR PLANTING DETAILS

SCOUR TREATMENT TYPICAL SECTION "A" DETAIL

Scale: 1:25 @ A1
1:50 @ A3

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SCALE: AS NOTED

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CLIENT: GOLDFIELDS RIPLEY PROJECTS PTY LTD

PROJECT: STAGES 6 -11 BUSHLAND MANAGEMENT PLAN

DRAWING: **BMP SCOUR PROTECTION DETAIL**

DRAWN: GC CHECKED: TL

DRAWING #: **10994 L BMP 10 C**

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LANDSCAPE ARCHITECTURE
9 THOMPSON STREET, BOWEN HILLS QLD 4006
PHONE 1300 123 SHG WWW.SAUNDERSHAVILL.COM

RIPLEY ROAD - HAYFIELD ESTATE

STAGE 6 - 11 BMP: WEED TREATMENT & REMOVAL

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	Stems: 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

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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.	Stems: 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	Seedlings: Hand pull; 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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Note: Source for information contained on this page from Queensland Herbarium (Qld Gov't).

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AS 4801 OHS Management System SOUTHPAC certifications
Australian Institute of Landscape Architects

SCALE: NOT TO SCALE

AMENDMENTS:

ISSUE	DATE	DESCRIPTION	CHECKED
A	02/02/2022	CLIENT ISSUE	GC
B	25/03/2022	COUNCIL ISSUE	GC
C	15/08/2022	ICC OM RESPONSE ISSUE	GC

CLIENT: GOLDFIELDS RIPLEY PROJECTS PTY LTD

Goldfields

PROJECT: STAGES 6 -11 BUSHLAND MANAGEMENT PLAN

Hayfield.

DRAWING: **BMP WEED TREATMENT & REMOVAL - SHEET 1**

DRAWN: GC CHECKED: TL

DRAWING #: **10994 L BMP 11 C**

saunders havill group
LANDSCAPE ARCHITECTURE
9 THOMPSON STREET, BOWEN HILLS QLD 4006
PHONE 1300 123 SHG WWW.SAUNDERSHAVILL.COM

RIPLEY ROAD - HAYFIELD ESTATE

STAGE 6 - 11 BMP: WEED TREATMENT & REMOVAL

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-Damine (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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AS 4801 OHS Management System SOUTHPAC certifications
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SCALE: NOT TO SCALE

AMENDMENTS:

ISSUE	DATE	DESCRIPTION	CHECKED
A	02/02/2022	CLIENT ISSUE	GC
B	25/03/2022	COUNCIL ISSUE	GC
C	15/08/2022	ICC OM RESPONSE ISSUE	GC

CLIENT: GOLDFIELDS RIPLEY PROJECTS PTY LTD

PROJECT: STAGES 6 -11 BUSHLAND MANAGEMENT PLAN

DRAWING: **BMP WEED TREATMENT & REMOVAL - SHEET 2**

DRAWN: GC CHECKED: TL

DRAWING #: **10994 L BMP 12 C**

saunders havill group
LANDSCAPE ARCHITECTURE
9 THOMPSON STREET, BOWEN HILLS QLD 4006
PHONE 1300 123 SHG WWW.SAUNDERSHAVILL.COM

RIPLEY ROAD - HAYFIELD ESTATE

STAGE 6 - 11 BMP: WEED TREATMENT & REMOVAL

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).

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).

Note:
Weed Management is to cover all weeds present on site not just those listed in the:
- "Biosecurity Act 2014"; and
- QLD herbarium invasive weed species lists

J:\10994 Trigona Drive (Hayfield Estate - Stage 6), Ripley (Ripley Projects Pty Ltd ATF Jollfields Development)\Working Files\AutoCAD\L - Landscape\10994 L BMP 13 BMP Weed Treatment & Removal sheet 3.dwg

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ISO 14001 ENVIRONMENT Management System SOUTHPAC certifications
AS 4801 OHS Management System SOUTHPAC certifications
Australian Institute of Landscape Architects

SCALE: NOT TO SCALE

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ISSUE	DATE	DESCRIPTION	CHECKED
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C	15/08/2022	ICC OM RESPONSE ISSUE	GC

CLIENT: GOLDFIELDS RIPLEY PROJECTS PTY LTD
Goldfields

PROJECT: STAGES 6 -11 BUSHLAND MANAGEMENT PLAN
Hayfield.

DRAWING: **BMP WEED TREATMENT & REMOVAL - SHEET 3**

DRAWN: GC CHECKED: TL

DRAWING #: **10994 L BMP 13 C**

saunders havill group
LANDSCAPE ARCHITECTURE
9 THOMPSON STREET, BOWEN HILLS QLD 4006
PHONE 1300 123 SHG WWW.SAUNDERSHAVILL.COM

RIPLEY ROAD - HAYFIELD ESTATE

STAGE 6 - 11 BMP: WEED TREATMENT & REMOVAL

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).

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).

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.

REHABILITATION METHODOLOGY - SITE WORKS - WEED NOTES

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
G U = Glyphosate undiluted
G 1 = 1 part water to 1 part glyhphosate
G 1.5 = 1.5 parts water to 1 part glyphosate
G 4 = 4 parts water to 1 part glyphosate

Abbreviations: Herbicide Spray Concentrations
G 100 = 100mL glyphosate per 10L of water + surfactant, eg 20mL U 700 per 10L
G 200 = 200mL glyphosate per 10L of water + surfactant, eg 50mL U 700 per 10L
G 100 + MM = 100mL glyphosate + 1.5g metsulfuron methyl per 10L of water + wetting agent, eg. 2mL Agral per 10L water
G 200 + 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
F 100 = 100mL fluroxypyr per 10L water
F 150 = 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.

Note:
Weed Management is to cover all weeds present on site not just those listed in the:
- "Biosecurity Act 2014"; and
- QLD herbarium invasive weed species lists

ISO 9001 QUALITY Management System SOUTHPAC certifications
ISO 14001 ENVIRONMENT Management System SOUTHPAC certifications
AS 4801 OHS Management System SOUTHPAC certifications
Australian Institute of Landscape Architects

SCALE: NOT TO SCALE

AMENDMENTS:

ISSUE	DATE	DESCRIPTION	CHECKED
A	02/02/2022	CLIENT ISSUE	GC
B	25/03/2022	COUNCIL ISSUE	GC
C	15/08/2022	ICC OM RESPONSE ISSUE	GC

CLIENT: GOLDFIELDS RIPLEY PROJECTS PTY LTD

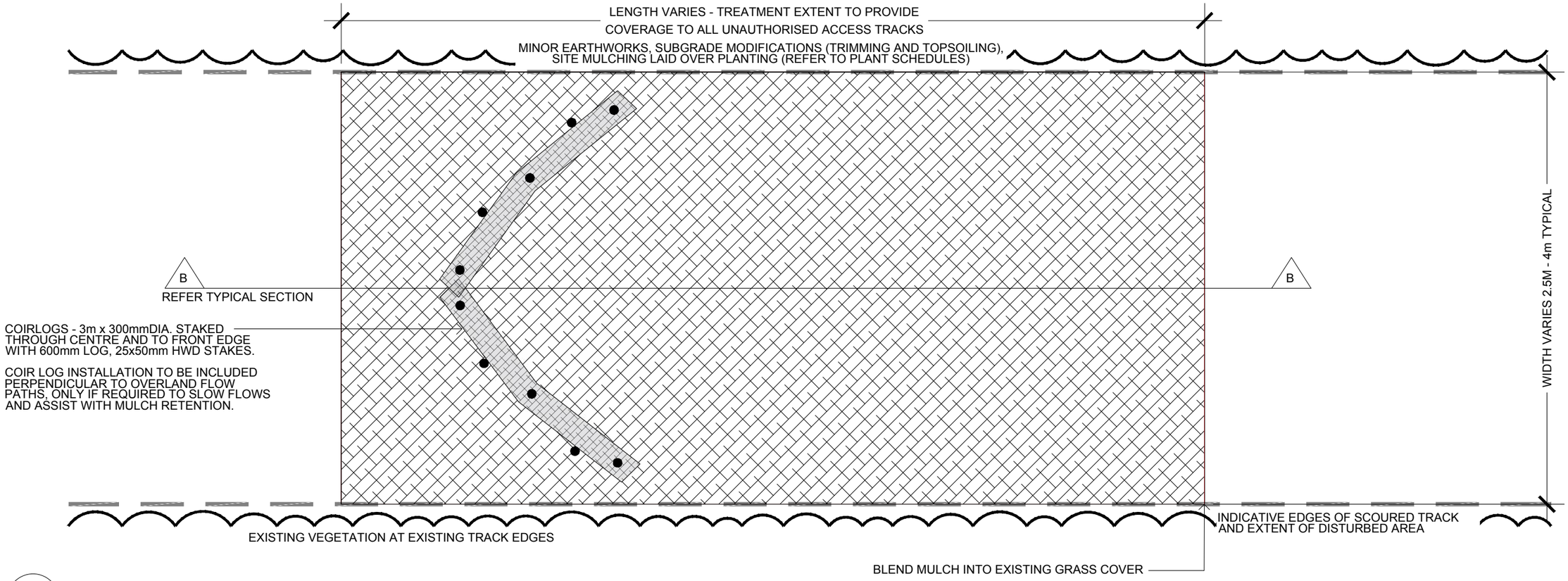
PROJECT: STAGES 6 -11 BUSHLAND MANAGEMENT PLAN

DRAWING: **BMP WEED TREATMENT & REMOVAL - SHEET 4**

DRAWN: GC CHECKED: TL

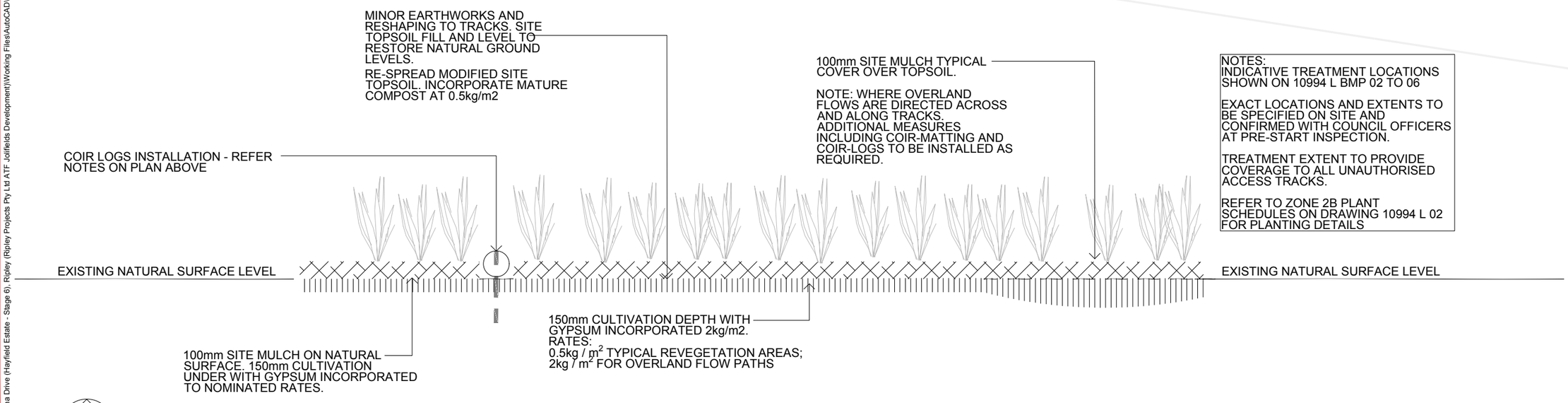
DRAWING #: **10994 L BMP 14 C**

saunders havill group
LANDSCAPE ARCHITECTURE
9 THOMPSON STREET, BOWEN HILLS QLD 4006
PHONE 1300 123 SHG WWW.SAUNDERSHAVILL.COM



SCOURED TRACKS TREATMENT TYPICAL DETAIL PLAN

Scale: 1:25 @ A1
1:50 @ A3



B SCOURED TREATMENT TYPICAL SECTION "B" DETAIL

Scale: 1:25 @ A1
1:50 @ A3

J:\10994 Trigona Drive (Hayfield Estate - Stage 6), Ripley (Ripley Projects Pty Ltd ATF Jolifields Development)\Working Files\AutoCAD\L - Landscape\10994 L BMP 15 BMP Scoured Track Protection Detail.dwg

ISO 9001 QUALITY Management System SOUTHPAC certifications
ISO 14001 ENVIRONMENT Management System SOUTHPAC certifications
AS 4801 OHS Management System SOUTHPAC certifications
Australian Institute of Landscape Architects

SCALE: AS NOTED

AMENDMENTS:

ISSUE	DATE	DESCRIPTION	CHECKED
A	15/08/2022	ICC OM RESPONSE ISSUE	GC

CLIENT: GOLDFIELDS RIPLEY PROJECTS PTY LTD
Goldfields

PROJECT: STAGES 6 -11 BUSHLAND MANAGEMENT PLAN
Hayfield.

DRAWING: **BMP SCOURED TRACK PROTECTION DETAIL**

DRAWN: GC CHECKED: TL

DRAWING #: **10994 L BMP 15 A**

saunders havill group
LANDSCAPE ARCHITECTURE
9 THOMPSON STREET, BOWEN HILLS QLD 4006
PHONE 1300 123 SHG WWW.SAUNDERSHAVILL.COM

Appendix D

Commencement of Planting – Confirmation Letter

Ripley Projects Pty Ltd
c/o Goldfields Group
ATT: Daniel Flanagan
Senior Development Manager
via email[redacted]

Dear Dan

Further to our recent discussions, I write to confirm that on Monday 21 March 2022 EnviroCapital commenced formal revegetation works via new plantings at our Peak Crossing offset site.

As you are aware, there was a protracted assessment process of our Offset Management Plan (OMP) with the Department of Agriculture, Water and Environment (DAWE) which delayed commencement of the revegetation works onsite. During the assessment time, we completed minor works that were unaffected by the OMP including weed management and perimeter fencing reinstatement works.

As you would be aware we recently had historic levels of rain across South East Queensland which, whilst positive for establishing fresh vegetation, meant that lower parts of the site were inaccessible due to flooded tracks and gullies. This required us to alter and reduce our original planting program for this season.

Commencement of planting works has occurred with the installation of the following:

- 100 x Eucalyptus terecticornis (Tube Stock)
- 100 x Eucalyptus siderophloia (Tube Stock)
- 100 x Eucalyptus propinqua (Tube Stock)
- 150 x Lophostemon confertus (Tube Stock)
- 150 x Corymbia intermedia (Tube Stock)
- 600 x Biodegradable / recycled tree guards
- 600 x Hardwood Tree Stakes

The original program was to install 2,500 tube stock at the Peak Crossing site during March 2022, however due to only being able to access the higher topography areas and upper drainage lines this was altered to establish 5 x 100 - 150 tube stock test planting tranches.

Attachment 1 to this letter includes the location of each test planting plot. More locally the test plantings occurred in the following settings:

- Test plot 1 – Existing open area: Weed grass previously sprayed was brush cut to ground level. All grass tussocks removed within a 500mm radius of new planting. Each hole over-excavated and replanted within a blend of higher nutrient imported soil mixed with site soil. Tree guards and stakes installed, and establishment watering provided.
- Test Plot 2 and 4 – Upper catchment drainage lines: Replanting occurred in weed dominated and slightly eroded upper catchment drainage lines (above major drainage lines and site dams). Planting occurred within a 5-7m offset from convergence of contours. Species mixed to match the mesic variation in endemic site trees. Each hole over-excavated and replanted within a blend of higher nutrient imported soil mixed with site soil. Tree guards and stakes installed, and establishment watering provided.

- Test Plot 3 and 5 – Previously treated Lantana Camera clumps: Mass planting at high densities around previously treated major Lantana camera clumps. Major patches (circa 20 to 35 metres squared in area) previously sprayed and showing areas of die back. New plantings provided at tight densities around and within patch. Each hole over-excavated and replanted within a blend of higher nutrient imported soil mixed with site soil. Tree guards and stakes installed, and establishment watering provided.

Site planting works were re-inspected for watering purposes in on Thursday 31 March 2022, however it was determined that ample soil moisture remained present. There has been light yet consistent rain at the site since the planting occurred.

Formal Envirocapital Offset Signage was installed at accessible entry roads. These signs contain a reference to your EPBC Act approval (EPBC 2017/8095) to provide information and evidence that planting activity on the site relates to your conditions of approval. A temporary site compound has been established to support future works.

I have included site photos from the commencement day of planting for your records in Attachment 2.

At this stage, the intent is to plant the remainder of the sourced tube stock at the Burnett Creek Offset Site. Our contractors remain fluid with this program as Burnett Creek's roads have been significantly more damaged in the recent rains. We will keep you updated, however for now wanted to pass on this update as in reading your approval this notification should be passed on to DAWE more formally by either yourself or Saunders Havill Group.

Whilst I am aware that you are relatively new to this project, I wanted to thank you and your predecessors for your patience during the extended assessment of the OMP for this site. We remain committed to our agreement with you and to delivering on the approximately 700ha of land under conservation management via EPBC Act approvals we are responsible for.

Could I also ask you keep us updated with your critical approval timeframes and ideally provide at least 1 months' notice in advance of when you require works reports or other evidence to demonstrate compliance with conditions of approval. We have been caught by other clients more recently who have asked for material to be provided on unrealistic deadlines which can be extremely difficult to acquire given the access challenges of some of our sites.

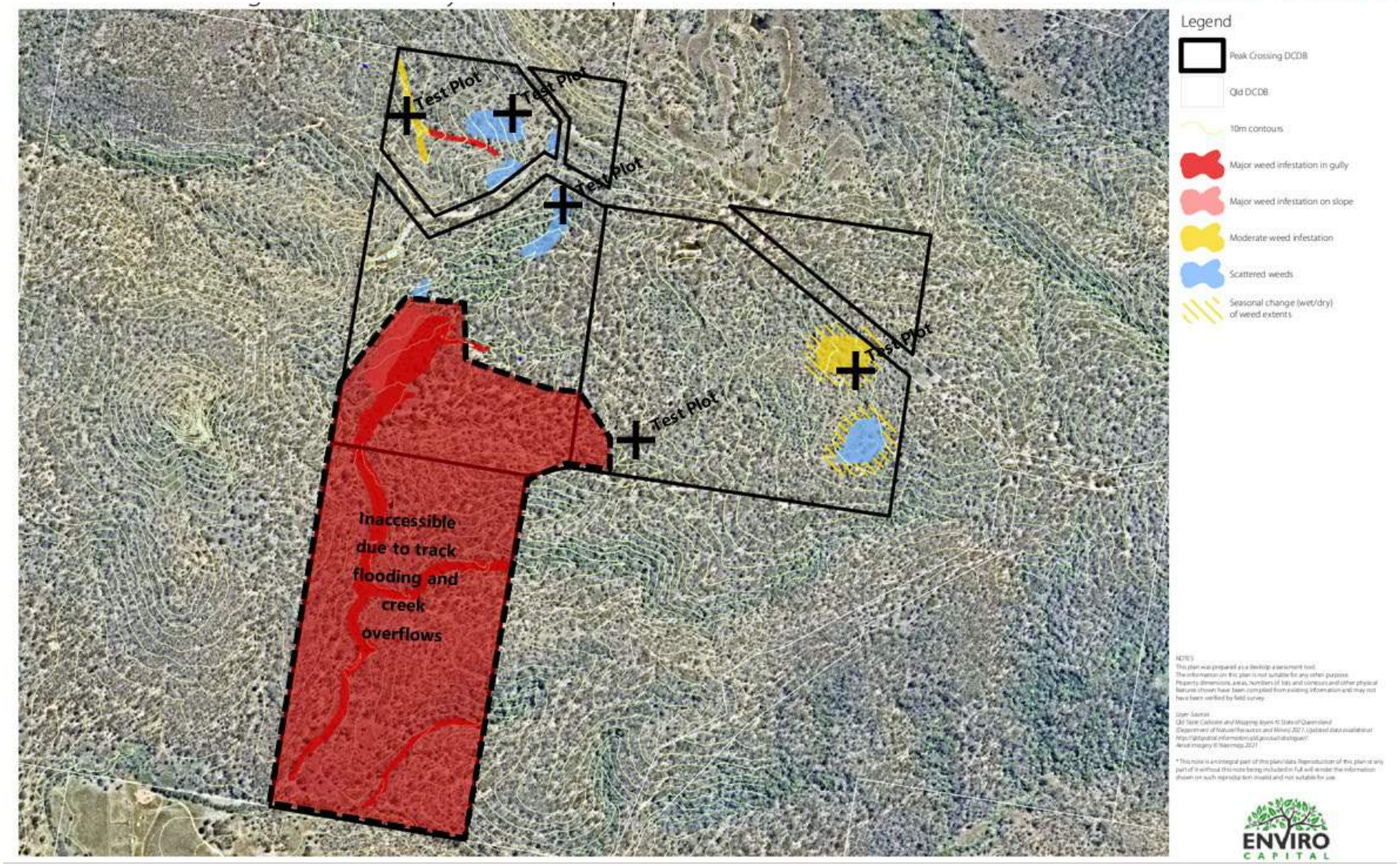
If you have any queries in relation to the above, please do not hesitate to contact me on the below contact details, or my business partner Rob Laffey on 0438 523 364.

Yours sincerely,

Steve Holloway
Director
M [redacted]
E: [redacted]

Date: 13 April 2022
Cc: Laura Thorley – Saunders Havill Group [redacted]

Attachment 1 – Planting Locations



Attachment 2 – Planting Photos


ENVIRO


ENVIRO
CAPITAL
ENVIRONMENTAL OFFSET SITE
The vegetation on this property, weed management works and native species re-vegetation, are approved environmental offset works
(EPBC Act Approval 2017/8095)