LENDLEASE COMMUNITIES

SPRINGFIELD RISE - MOUNTAIN CREEK SEWER

SITE BASED MANAGEMENT PLAN

saunders havill group

01 CONTENTS

02 INTRODUCTION

Introduction

This phase specific Site Based Management Plan (SBMP) has been prepared for the sewer connection from Grande Avenue which runs parallel to Mountain Creek between Villages 9 and 12 and is required to service development within Springfield Rise at Spring Mountain Estate. This SBMP incorporates the management intent, objectives and specifications detailed within the overarching environmental management plans prepared for the development.

The aim of this SMBP is to set out and guide the implementation of effective measures to ameliorate any impacts, and to ensure and manage the long term sustainability of the project and its natural environment, specifically for Matters of National Environmental Significance (MNES) listed species known to occur within the Spring Mountain project site namely:

Phascolarctos cinereus (Koala)
Pteropus poliocephalus (Grey-headed Flying-fox)
Plectranthus habrophyllus

The document has been developed in accordance with the Spring Mountain SMBP, prepared by Yurrah, as an updated and re-issued phase specific management plan.

The purpose of this SBMP is to provide a single, consolidated management document which incorporates requirements of numerous ecological management plans prepared for Spring Mountain. From these documents, this SBMP extracts management objectives, implementation requirements, performance indicators and monitoring and auditing actions relevant to the specific the development of the Mountain Creek Sewer both construction and operational phases.

Environmental Pre-Start Checklist

This Site Based Management Plan has been prepared to create an on-site working document with easy to find references to management measures without the comprehensive details of the assessment and approval. Core to contractors working under this SBMP is completion of the Spring Mountain Pre-Start Environmental Checklist. Completion and sign off of this checklist, inclusive of attachments should will warrant compliance with this SBMP and broader approval parameters.`

Details on this SBMP can be found within the following documents:

- Site Based Management Plan for Spring Mountain Community, prepared by **Yurrah** (July 2015)
- Threatened Flora Management Plan for Spring Mountain, prepared by **Yurrah** (July 2015)
- Fauna Management Plan for Spring Mountain, prepared by **Saunders Havill Group** (July 2015)
- Code of practice for Welfare of Animals effected by Land Clearing and Other Habitat Impacts, and Wildlife/ Spotter Catchers (Draft) prepared by **Wildlife Warriors and Voiceless** (2009)
- Offsets Management Plan prepared for Spring Mountain, prepared by **Saunders Havill Group** (July 2015)
- Bushfire Management Plan for Spring Mountain, prepared by **Cardno** (2016)

This SBMP should also be read in conjunction with all relevant approvals and conditions for the Mountain Creek sewer including approved civil, landscape, vegetation management and rehabilitation plans and specifications.

This SBMP has also been prepared to meet compliance and auditing requirements of the Spring Mountain Commonwealth Department of the Environment and Energy (DEE) approval under the Environment Protection and Biodiversity Conservation Act 1999 (EPBC) (Ref: 2013/7057), specifically Conditions 3-6.

This SBMP outlines construction measures specific to the Mountain Creek sewer to manage of impacts to native flora and fauna.

<u>Construction</u>

- Vegetation Management (Clearing & Protection)
- Protection of MNES Fauna (Koala and Grey-headed Flying Fox) and Native Wildlife
- Maintenance of Safe Wildlife Movement Opportunities
- Fauna Habitat Rehabilitation
- Threatened Flora Management
- Pest Management
- Fire Management
- Education and Awareness

03 SITE DESCRIPTION

Site Description

The 160-315 diameter PE Trunk Sewer Main will services Villages 6, 8, 9 and 10 of Springfield Rise. The sewer lies between Villages 9 and 12 and continues within the Haul Road road reserve along Villages 10, 8 and 6. The sewer will be serviced by Queensland Urban Utilities and connect to existing services to the north east within the broader Springfield area.

Natural Features and Values
The sewer will primarily run parallel to Mountain Creek however will cross the waterway in a number of locations. Mountain Creek is mapped as an amber waterway under the Fisheries Act 1994 and is defined as a watercourse under the Water Act 2000.

Photo: Grey-headed Flying-fox (listed as Vulnerable under EPBC Act (Cth))

Photo: Plectranthus habrophyllus (listed as Endangered under EPBC Act (Cth))

Photo: Koala (listed as Vulnerable under EPBC Act (Cth) and NCA (Qld))

Extract: Mountain Creek Sewer (provided by Arcadis)

04 ECOLOGICAL VALUES - SUMMARY

Ecological Values

Numerous ecological surveys were undertaken over the site as part broader concept planning for the Spring Mountain project. In addition, pre-clearance flora and fauna surveys for the Mountain Creek Sewer alignment were undertaken by Saunders Havill Group and Queensland Fauna Consultants, respectively. The following comments summarise the ecological values of the site:

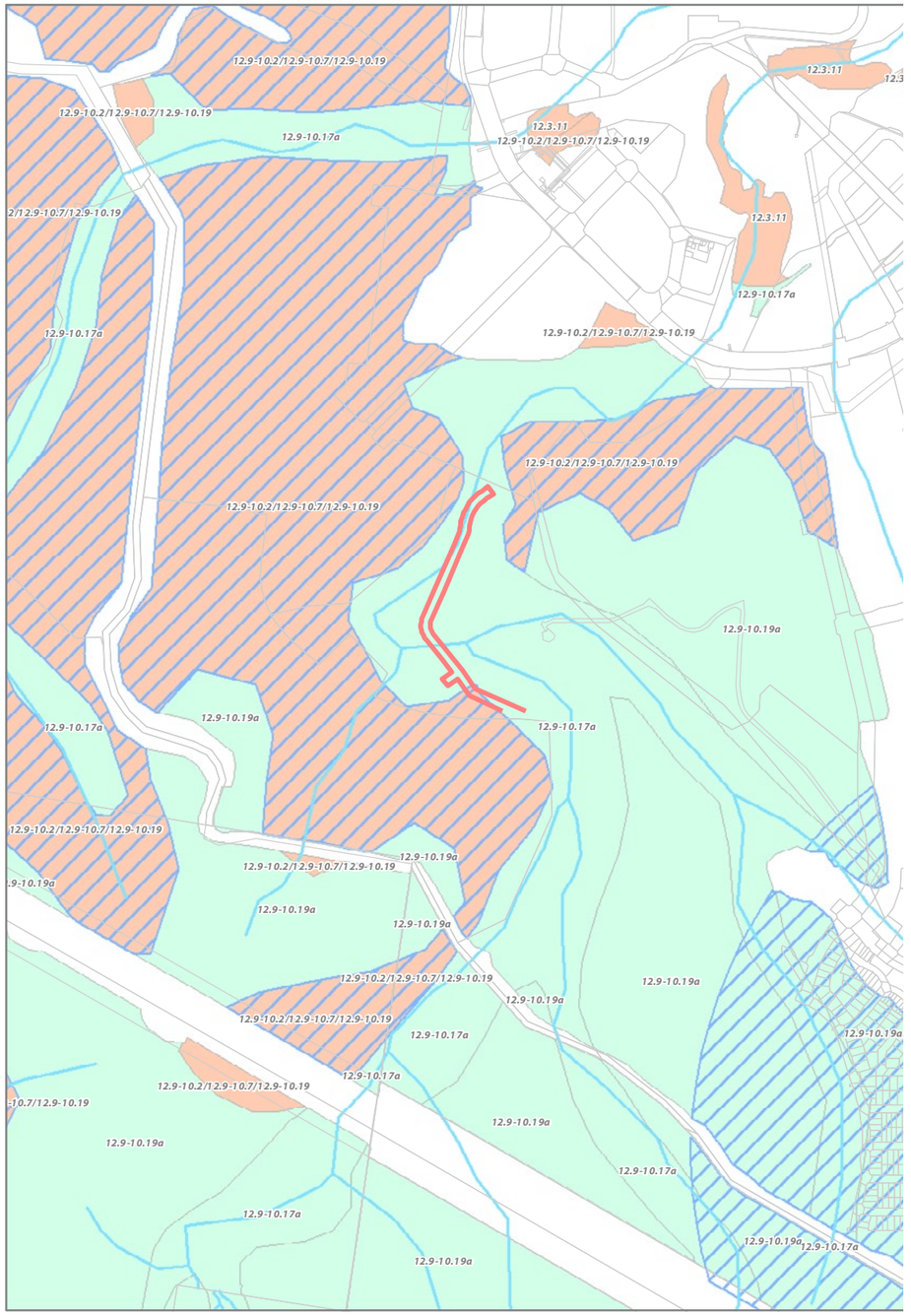
- The Mountain Creek Sewer clearing area is mapped as containing composite Of Concern RE12.9-10.2/12.9-10.7/12.9-10.19 and Least Concern RE12.9-10.17a and RE12.9-10.19a. Field survey confirmed these regional ecosystem communities were present on ground.
- Mountain Creek is mapped as a Stream Order 3 watercourse under the Vegetation Management Act 1999 and an Amber (Moderate) Risk waterway for waterway barrier works under the Fisheries Act 1994. Mountain Creek is also defined as a watercourse under the Water Act 2000.
- Extremely dense weed infestations Lantana camara were recorded throughout the survey. These infestations were in parts impenetrable for field survey and up to 2m in height.
- The ridgelines within the assessment contained a mix of Corymbia and Eucalypt species with dense understorey of Acacia species. Rocky outcrops were observed throughout the ridgelines. The ridgeline areas were targeted during the field the survey due to these areas being preferred habitat for a number of the listed flora species
- Several old tracks and firebreaks were observed during the traverse of the area.
- It is noted that potential patches of Plectanthus habrophyllus were identified by Yarrah (2015) along Mountain Creek. These mapped patches, as well as other areas of suitable habitat, were checked by Saunders Havill Group for Plectanthus habrophyllus. The species was not recorded within the Mountain Creek Sewer works extent of within a 20m buffer of the works area.
- No other State or Commonwealth threatened flora or fauna species were identified within the Mountain Creek Sewer works extent or 20m buffer as part of pre-clear surveys.

Photo: Waterway areas dominated by dense Lantana camara (Lantana)

Regional Ecosystem Descriptions

Least Concern RE 12.9-10.17a	*Lophostemon confertus or Lophostemon suaveolens dominated open forest usually with emergent Eucalyptus and/or Corymbia species. Occurs in gullies and southern slopes on Cainozoic and Mesozoic sediments.*
Least Concern RE 12.9-10.2	*Corymbia citriodora subsp. variegata open forest or woodland usually with Eucalyptus crebra. Other species such as Eucalyptus tereticornis, Eucalyptus moluccana, Eucalyptus acmenoides and Eucalyptus siderophloia may be present in scattered patches or in low densities. Understorey can be grassy or shrubby. Shrubby understorey of Lophostemon confertus (whipstick form) often present in northern parts of bioregion. Occurs on Cainozoic and Mesozoic sediments.*
Of Concern RE 12.9-10.7	*Eucalyptus crebra +/- Eucalyptus tereticornis, Corymbia tessellaris, Angophora leiocarpa, Eucalyptus melanophloia woodland. Occurs on Cainozoic and Mesozoic sediments.*
Least Concern RE 12.9-10.19	*Eucalyptus fibrosa subsp. fibrosa woodland +/- Corymbia citriodora subsp. variegata, E. acmenoides or E. portuensis, Angophora leiocarpa, E. major. Understorey often sparse.*

Photo: Rock outcrops within the ridgeline areas observed along western facing slope.



Extract: Regional Ecosystem Mapping

05 ENVIRONMENTAL MANAGEMENT

Management – General

This SMBP sequences through details on a number of site specific outcomes for fauna, vegetation management and operational controls associated with the development of the Mountain Creek Sewer. Logically, the document works through construction processes and has been prepared as a sub-plan to the SBMP for Spring Mountain prepared by Yurrah.

Environmental Training
This SBMP is to be issued to all site contractors (and sub-contractors) and kept within site construction offices. Elements of compliance with the document will form part of the responsibility of the Principal Site Contractor. Training on the management measures outcomes in this SBMP will occur as part of the broader site environmental management and workplace health and safety procedures. This will include the following steps:

1. Copy of the SBMP made available to all site contractors (and sub-contractors)
2. Outline of the SBMP and its requirement relative to the site and / or particular scope of a contract forming part of the site induction requires contractors to read, acknowledge and sign the document prior to commencement of site works.
3. Requirements of the SBMP to be incorporated into workplace checklists, work method statements and toolbox talks.
4. Weekly review and report on compliance with the SBMP by the Principle Contractor.

Spring Mountain Risk Management Process

Adaptive Management

Adaptive management refers to a way of managing natural resources where management actions are regularly revised and, if necessary, modified based on monitored changes in environmental condition and/or changes in base knowledge which underpins the original management approach. This SBMP has been based on, as far as practical, the current state of knowledge of the species ecology and best practice habitat management approaches. When new facts emerge from future research, they should be immediately integrated into the plan so it remains consistent with the current state of knowledge (and best practice).

Statutory Requirements

Activities associated with this SBMP will comply with the relevant provisions of legislation and regulations and policies of the following:

- Environment Protection and Biodiversity Conservation Act 1999 (Cth) with regard to species listed under the provisions of this Act;
- Nature Conservation Act 1992 (Qld) with regard to species listed under the provisions of this Act;
- Water Act 2000 with regards riverine protected permit requirements for activities within a watercourse,
- Fisheries Act 19994 with regard to waterway barrier works for an amber mapped waterway,
- Biosecurity Act 2014 with regard to weeds and pests; and
- The requirements of the Commonwealth, State and / or Local Government decision notices including any relevant "conditions of approval".

Roles and Responsibilities

Proponent	**Lendlease Communities Pty Ltd**	**Lendlease Communities Pty Ltd** Contact: Graeme Knox
Contractor	Appointed party or company that performs the construction works on site and included all employees of the Contractor and sub-contractors.	**Shadforth Civil** Contact: Tony Hopper
Site Supervisor	Appointed party contracted by the Proponent to oversee daily site operations and site management.	**Arcadias** Contact: Christo Louw
Environmental Representative	Appointed party contracted by the Proponent to oversee environmental compliance.	**Saunders Havill Group** Contact: Murray Saunders
Fauna/Spotter Catcher	Appointed Contractor employed to implement fauna welfare responsibilities with vegetation clearing operations. The Fauna Spotter Catcher is a person who holds a rehabilitation permit with an extended authority issued by **EHP** specifying the gilder may take, keep or use an animal whose habitat is about to be destroyed by a human activity.	**Queensland Fauna Consulting** Contact: Bryan Robinson
Koala Spotter	Appointed Contractor employed to implement Koala welfare responsibilities associated with vegetation clearing operations. The Koala Spotter is a person who holds a tertiary qualification in Biology or Zoology, or who is demonstrably experienced in the identification and location of Koalas in their natural habitat and has an authorisation from **EHP** to conduct such activities. For example, demonstrably experienced may include a Koala keeper employed by a licensed wildlife exhibitor (i.e. zoo) may be capable of demonstrating competence in locating Koalas.	**Queensland Fauna Consulting** Contact: Bryan Robinson
Council	**Ipswich City Council (ICC)**	**Ipswich City Council (ICC)** Contact: Tim Foote

06 PRE-CLEARANCE - VEGETATION MANAGEMENT

P1– Vegetation Management (General)

Vegetation clearing must be undertaken in accordance with approved plans to ensure protection of areas of ecological significance and agreed retained linear open space corridors. Habitat trees where marked for retention must not be damaged as a result of tree clearing and or are to be removed at the specification and control of the appointed Fauna Spotter.

Table 1 describes the relevant management requirements to address this issue.

<u>Objective</u>

1. To identify clearing in the plans and specification, trees to be retained and trees to be cleared. Areas of retention should be clearly marked and fenced.
2. To ensure that all contractors understand the requirements of protection and retention and install protective devices to ensure no additional clearing occurs.
3. To ensure that the work program is such as to minimise the time between when clearing occurs and the cleared ground is stabilised.
4. To ensure that cleared material is mulches or wood-chipped as appropriate for recycling
5. To protect linear open space from construction damage and run-off.

<u>Management Strategy</u>

- Clearing to be undertaken in accordance with measures outlined in the EPBC Management Plans.
- Install stormwater management devices as per Mountain Creek Sewer Stormwater Management Plan.

<u>Performance Indicators</u>

- Integrity of protective devices.
- Existing vegetation and trees retained in good health, with no scars from earthworks machinery and no erosion and sediment deposited within linear open space/retention areas.

Clearing activities should be undertaken in accordance with the with all management plan requirements and associated approval conditions. This SMBP shows the phase 1 clearing of V15 of Spring Mountain. It is acknowledged this clearing line is offset 10m from the ultimately clearing line. Additional lineal clearing will be completed as part of phase 2 works.

Photo: Control clearing of vegetation

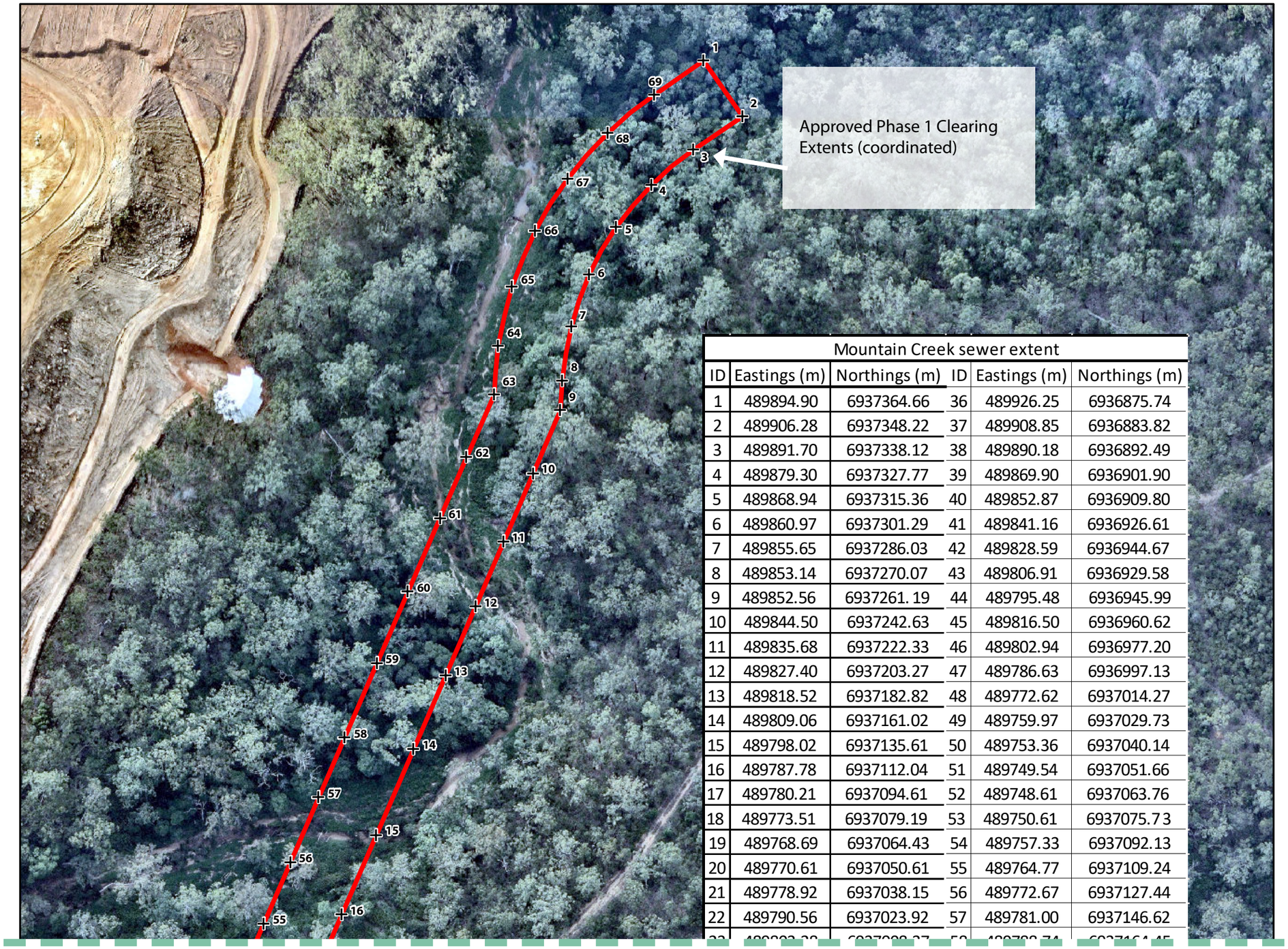
Photo: Erosion control to cleared batter

Photo: Tree protection and erosion fence

<u>Table 1: P1: Vegetation Management (Clearing and Protection)</u>

Issue	Vegetation Management – Clearing and Protection	Responsible Person	Timing
Implementation Requirements	Ensure protective devices are installed and maintained in functional condition.	Contractor	During Clearing & Construction
	Monitor and report on the success, protection and retention, and integrity of protective devices such as fences and sediment fences through		
Monitoring	Weekly inspection and log.	Contractor	During Clearing & Construction
Reporting	Monthly (until operation).	Contractor	During Clearing & Construction
Corrective Action	Repair, replace or reinstate protective devices.	Contractor	During Clearing & Construction
	Appropriate treat any damage to trees or vegetation marked for retention as required.	Contractor	During Clearing & Construction

06 PRE-CLEARANCE - VEGETATION MANAGEMENT



Mountain Creek sewer extent					
ID	Eastings (m)	Northings (m)	ID	Eastings (m)	Northings (m)
1	489894.90	6937364.66	36	489926.25	6936875.74
2	489906.28	6937348.22	37	489908.85	6936883.82
3	489891.70	6937338.12	38	489890.18	6936892.49
4	489879.30	6937327.77	39	489869.90	6936901.90
5	489868.94	6937315.36	40	489852.87	6936909.80
6	489860.97	6937301.29	41	489841.16	6936926.61
7	489855.65	6937286.03	42	489828.59	6936944.67
8	489853.14	6937270.07	43	489806.91	6936929.58
9	489852.56	6937261. 19	44	489795.48	6936945.99
10	489844.50	6937242.63	45	489816.50	6936960.62
11	489835.68	6937222.33	46	489802.94	6936977.20
12	489827.40	6937203.27	47	489786.63	6936997.13
13	489818.52	6937182.82	48	489772.62	6937014.27
14	489809.06	6937161.02	49	489759.97	6937029.73
15	489798.02	6937135.61	50	489753.36	6937040.14
16	489787.78	6937112.04	51	489749.54	6937051.66
17	489780.21	6937094.61	52	489748.61	6937063.76
18	489773.51	6937079.19	53	489750.61	6937075.7 3
19	489768.69	6937064.43	54	489757.33	6937092.13
20	489770.61	6937050.61	55	489764.77	6937109.24
21	489778.92	6937038.15	56	489772.67	6937127.44
22	489790.56	6937023.92	57	489781.00	6937146.62

Adjoin Plan next page

06 PRE-CLEARANCE - VEGETATION MANAGEMENT

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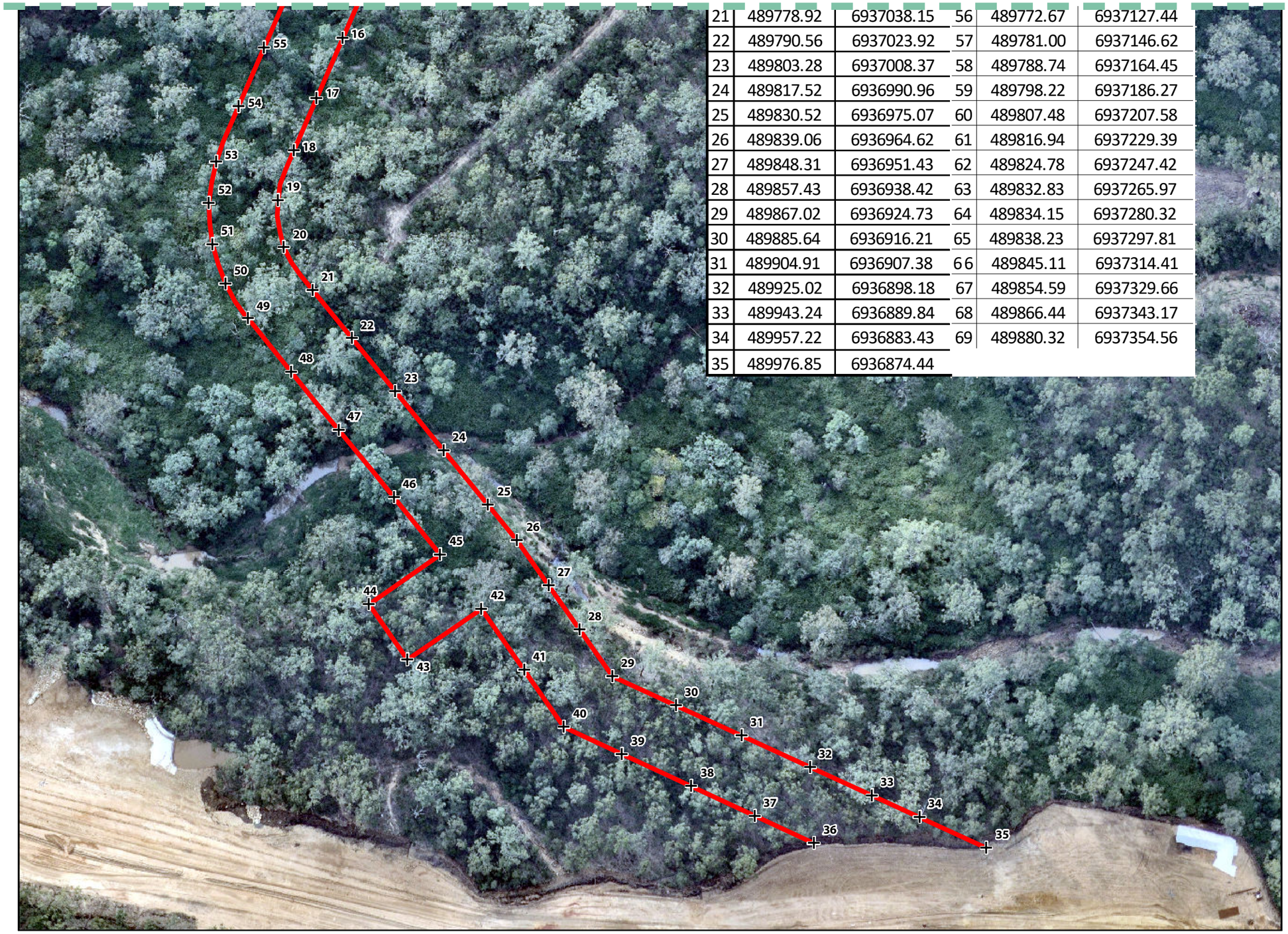


21	489778.92	6937038.15	56	489772.67	6937127.44
22	489790.56	6937023.92	57	489781.00	6937146.62
23	489803.28	6937008.37	58	489788.74	6937164.45
24	489817.52	6936990.96	59	489798.22	6937186.27
25	489830.52	6936975.07	60	489807.48	6937207.58
26	489839.06	6936964.62	61	489816.94	6937229.39
27	489848.31	6936951.43	62	489824.78	6937247.42
28	489857.43	6936938.42	63	489832.83	6937265.97
29	489867.02	6936924.73	64	489834.15	6937280.32
30	489885.64	6936916.21	65	489838.23	6937297.81
31	489904.91	6936907.38	66	489845.11	6937314.41
32	489925.02	6936898.18	67	489854.59	6937329.66
33	489943.24	6936889.84	68	489866.44	6937343.17
34	489957.22	6936883.43	69	489880.32	6937354.56
35	489976.85	6936874.44			

07 PRE-CLEARANCE - FAUNA MANAGEMENT

P2 – Protection of MNES Fauna (Koala and Grey-headed Flying Fox) and Native Wildlife (Vegetation Clearing)

Clearing of native vegetation has the potential to result in direct injury or death to fauna. Clearing of vegetation for the purposes of preparing development areas also has the potential to result in incidental damage to adjacent habitats to be retained.

Development protocols to respond to injured wildlife must be prepared prior to vegetation clearing operations. It is expected that some of these protocols are likely to be applicable to responses required for all injured fauna (including Koala) and must be included within the Animal Welfare Plan (AWP) to be prepared by the appointed fauna spotter catcher.

Table 2 describes the relevant management requirements to address the protection of terrestrial fauna, specifically Koala, during vegetation clearing and

Objective

1. To minimise and mitigate adverse direct and indirect effects of vegetation clearing on terrestrial including Koala and Grey-headed Flying-fox, during clearing and construction.
2. Prevent mortality or injury to terrestrial wildlife, specifically Koala.

Management Strategy

- Prevent damage and/or disturbance to native vegetation and associated habitats outside clearing areas.
- Clearing and construction operations are employed to maximise animal welfare and reduce fauna mortality.
- Informal all personnel of site environmental responsibility.
- Reuse hollows and large rocks for habitat in retained habitat areas/linear open space.
- Safe fauna movement opportunities are provided within linear open space to prevent fauna moving through construction areas.
- Direct clearing activities from open area to less open areas allowing fauna to natural seek shelter in conservation land and linear open space/retained habitat
- Provision of permanent and temporary fencing in accordance with the Mountain Creek Sewer Vegetation Clearing and Fauna Management Plan (VCFMP).
- Undertake clearing works and install fencing in accordance works in accordance with the Mountain Creek Sewer VCFMP, to be informed by the appointed wildlife spotter catcher's pre-clearance reports for the Mountain Creek Sewer.

Performance Indicators

- Prevent fauna mortality and disturbance to terrestrial fauna.
- No injury or death of Koala.
- No damage to linear open space/retained habitat.
- No disturbance to native vegetation outside permitted clearing footprints.

Fauna Management

Lendlease Communities (Springfield) Pty Ltd commits to the use of leading practice methods and processes for the role of Wildlife Spotter Catchers in the engagement of any contractors for native vegetation clearing works. The standards and requirements outlined in this Specification Note are acknowledged as above minimum requirements in most Local Government areas and are applicable despite lessor requirements listed within individual project approval packages.

As a minimum specification Wildlife Spotter Catchers will retain the following Queensland State Government Permits:

1. Animal Ethics
2. Scientific Purposes Permit
3. Scientific User Registration
4. Damage Mitigation Permit
5. Rehabilitation Permit

Wherever practical all clearing works will be coordinated in general accordance with applicable site based components of the DRAFT Code of Practice for the welfare of animals affected by land-clearing and other habitat impacts prepared by the Australia Zoo Wildlife Warriors and Voiceless (and or any contemporary Industry based final version of this Draft Code). This includes mandatory controls on the timing and sequencing of clearing works integrated with a regimented series of fauna management protocols implemented by registered Fauna Spotter / Catchers. The following procedural stages listed in the Draft Code are to be applied to clearing works on all Lendlease Communities (Springfield) Pty Ltd projects:

Action 1 – Engagement Wildlife Spotter Catcher

Action requires that the developer (and or the developer's representative through the principal contractor) engage a Wildlife Spotter Catcher with full registrations and licences provided in accordance with the Queensland Government's National Parks and Wildlife Services.

A Registered Wildlife Spotter Catcher engaged shall have the minimum permits listed in this specification.

Action 2 – Wildlife Spotter Catcher to Prepare a Wildlife Protection and Management Plan (WPMP)

The WPMP should be submitted to the Queensland Department of Environment and Heritage Protection (EHP) or relevant authority and or stakeholder. The WPMP should include the following information:

- Description of the project with reference to impacts on wildlife or wildlife habitat;
- Pre development plan of the site showing habitat areas, features, corridors, riparian habitats and adjacent areas;
- Results of any fauna surveys including pre-clearance surveys; and
- A wildlife and habitat impact assessment based on the proposed development works.

Action 3 – Prepare a Wildlife and Habitat Impact Mitigation Plan

Following completion and endorsement of the WPMP the Wildlife Spotter Catcher should prepare a more specific WHIMP, which will include details on:

- Measures required to be completed to minimise wildlife and habitat impacts during operational works;
- Wildlife capture and removal plan;
- Contingency plan for wildlife requiring euthanasia, other veterinary procedures or captive care;
- Wildlife storage and housing plan;
- Wildlife release and disposal plan; and
- Post works measures to minimise impacts on wildlife.

Lendlease Communities (Springfield) Pty Ltd support the use of innovative leading practice methods minimising and mitigating impacts on all native fauna during clearing operations.

Action 4 – Wildlife Spotter Catcher Role at Pre-Start Meeting

Prior to the commencement of any construction works, a pre-start meeting is to be held between the project manager, site fore-person, plant operators and applicable Local and State Government representatives. At the pre-start meeting, the Wildlife Spotter Catcher is to outline the clearing process and the requirements of the WPMP.

Action 5 – During Construction

The Wildlife Spotter Catcher is to be on-site during all phases of construction which involve potential impacts on wildlife or habitat (unless otherwise specified by the appointed Wildlife Spotter Catcher. This will enable to the Wildlife Spotter Catcher to make any necessary adjustments to the approved Clearing Management Plans and WPMP to cater for any specific issues encountered during the clearing works.

Action 6 – Post Works Reporting

During the course of all site works, including the pre-clearance surveys, the Wildlife Spotter Catcher is to keep an accurate record of all animals encountered, captured, incidents and disposals for each stage of the project. The records should form part of the Wildlife Management Report to be issued under licence requirements to the State Government. The Wildlife Management Report should consist of the following 3 sections, where they are applicable to the project:

1. ***Wildlife Habitat Management Plan*** – Aspects of the planning, design, construction and ongoing operation of the project in which risks to wildlife have been identified. This plan should also include recommendations and outline the type, frequency and timeframes for monitoring

2. ***Wildlife Capture and Disposal Plan*** – Should contain the following details for each captured animals:
   a. Species
   b. Identification name or number
   c. Sex (M, F or unknown)
   d. Approximate Age or Age Class (neonate, juvenile, sub-adult, adult)
   e. Time and date of capture
   f. Method of capture
   g. Exact point of capture (GPS coordinates)
   h. State of health
   i. Incidents associated with capture likely to affect health
   j. Veterinary intervention or treatments
   k. Time held in captivity
   l. Disposal method (euthanasia, translocation, re-release)
   m. Date and time of disposal
   n. Detailed of disposal (GPS points of release)
   o. For released animals, location relative to point of capture

3. ***Animal Injury and Euthanasia Report*** – similar details for the Wildlife Capture and Disposal Plan should be included in this report.

07 PRE-CLEARANCE - FAUNA MANAGEMENT

Koala Management & Welfare

While clearing activities aim to protect and minimise impacts to all terrestrial fauna, specific management measure for Koala are required as part of the EPBC approval and have been specified within the Fauna Management Plan (FMP), prepared by Saunders Havill Group which should be read in conjunction with the plan.

Key outcomes within the FMP for Koala include:

- Koalas on site are protected
- Koala habitats are protected, maintained and their integrity enhanced.
- The abilities for Koalas to move into, within and out of the sit e is maintained.
- All persons involved in construction and operation of the development are aware of the site values, their potential to impact on Koalas and their habitats, and their responsibilities in regard to procedures and strategies within approved management plans.

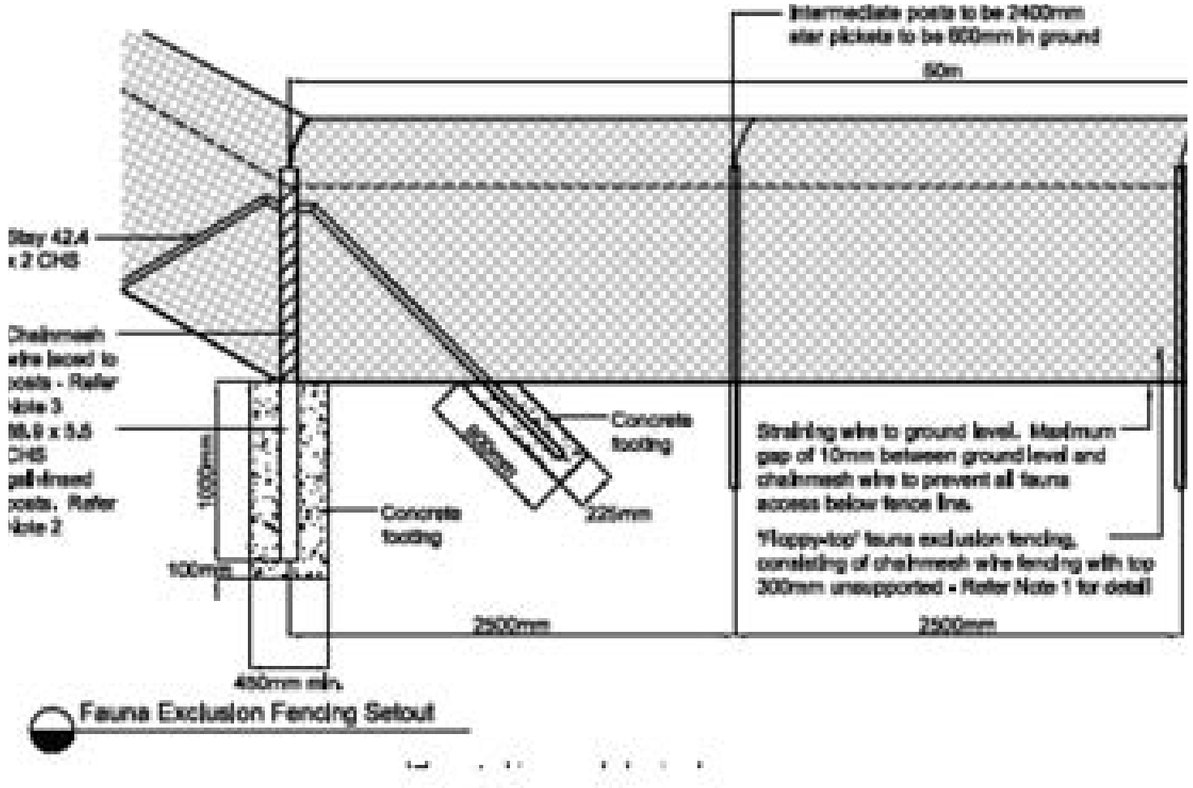
Koala Signage

Significant Tree Protection Fencing

Fauna Spotter During Tree Clearing

Fauna Spotters Retrieving Fauna

Fauna Exclusion Fencing



Construction fencing detail

Fauna Signage

Fauna Exclusion Fencing

07 PRE-CLEARANCE - FAUNA MANAGEMENT

Table 2: P2 – Protection of MNES Fauna and Native Wildlife (Vegetation Clearing)

Issue	P2 - Protection of MNES Fauna and Native Wildlife	Responsible Person	Timing
Implementation Requirements	No vegetation removal shall occur until relevant approvals have been obtained All permit conditions will be followed	Proponent	Prior to Clearing
	To prevent damage and / or disturbance to native vegetation and associated habitats outside clearing areas: a. Clearing boundaries will be delineated on all drawings and in the field to define the authorised clearing extent. b. Installation of vegetation clearance markers (e.g. high visibility poly-web fencing) prior to the commencement of vegetation clearance to identify and protect remnant vegetation for retention. c. Along the interface between clearing precincts and open space / Environmental Corridors, trees are to be felled towards the clearing precinct to avoid damage to these areas. d. Clearing vegetation is to be stockpiled so as not to impede damage to drainage channels.	Contractor	Prior to Clearing & During Clearing
	No clearing of vegetation is to commence without the presence of an **EHP** approved Fauna Spotter Catcher, or where clearing includes non-juvenile Koala habitat trees, a Koala Spotter. a. An appointed Site Superintendent will be responsible for ensuring that all trees scheduled for removal will be checked on the day of their removal for the presence of fauna by an **EHP** approved Fauna Spotter Catcher / Koala Spotter as vegetation characteristics dictate. b. The **EHP** approved Fauna Spotter will check and clear vegetation prior to its felling and, if required, will relocate native wildlife (other than Koala) into appropriate habitat areas within the site which are to be retained. In the case of a Koala being present, translocation of the individual/s must occur in accordance with requirements for Koala. c. Hollow-bearing (habitat) trees are to be identified in the field and by plan prior to commencement of clearing operations. These shall be marked and dismantled using a cherry picker and a suitably qualified arborist and Fauna Spotter Catcher. If fauna is present, the tree will either be left standing overnight to allow the animal to leave via their own volition, or will be encouraged from the tree by shaking or other methods deemed suitable by the fauna spotter. Where no signs of fauna are identified, machinery operators will be instructed to fell trees in a manner directed by the fauna spotter to minimise potential risk to fauna.	Fauna Spotter Catcher	Prior to Clearing
	All construction personnel shall attend environmental training as part of the site induction process prior to entering the work site. As part of this training, all personnel will be instructed on their obligations in regard to vegetation clearing protocols and to protect native fauna. Areas identified for vegetation clearance are to be clearly defined and detailed in site inductions.	Contractor	Prior to Clearing
	Conduct vegetation clearing in sequential stages for sites with an area of more than 3 hectares. Vegetation clearing is to conform with the following: d. The direction of clearing should be away from threatening processes or hostile environments, and towards the clearing precinct to avoid damage to adjacent retained habitat links, ensuring that: i. Fauna are not required to cross roads or move through developed areas or disturbed areas. Such as residential areas or areas that require movement of greater than 100m over cleared ground to reach suitable habitat; ii. Fauna area not left occupying an "island" of habitat between hostile environments, such as a road and a cleared area, unless there are no other more suitable habitat areas in which to direct fauna, and iii. Fauna can safely leave the site of clearing and relocate to adjacent habitat.	Contractor	During Clearing

Table 2: P2 – Protection of MNES Fauna and Native Wildlife (Vegetation Clearing)

Issue	P2 - Protection of MNES Fauna and Native Wildlife	Responsible Person	Timing
	e. Cleared vegetation is to be stockpiled so as not to impede fauna movement. f. Where vegetation to be cleared includes non-juvenile Koala habitat trees, implement sequential clearing as per the requirements for Koala.		
	Companion animals (e.g. dogs) are to be banned from all construction areas.	Contractor	At all times
	Vehicle access within retained habitat/linear open space will be limited and appropriately signed.	Contractor	Prior to Clearing & During Clearing
	Conduct vegetation clearing in accordance with Section 4 of the Spring Mountain FMP (prepared by **Saunders Havill Group** dated July 2015) which outlines specific implementation requirements for Koala including clearing in sequential stages for sites. For a site more than 6ha vegetation clearing is to conform with the following: a. Is carried out in a way the ensures Koalas on the area being cleared have enough time to move out of the clearing with without human intervention and involves i. Ensuring not more than 3ha or 3% of the sites area (whichever is greater) in any one stage ii. Ensuring that between each stage and the next there is at least one period of 12 hours at starts at 6pm on a day and ends at 6am on the following day, during which no trees are cleared on the site b. Is implanted in a way that ensures, while clearing is being carried out, appropriate habitat links are maintained within the clearing site and between the site and its adjacent areas allowing Koalas living on the site to move out of the site c. Ensures that no tree in which a Koala is present, or a tree with a crown overlapping a tree in which a Koala is present, is cleared until the tree is vacated by the Koala. d. Ensures that vegetation clearing is directed away from threatening processes, or hostile environments, and towards any retained vegetation or habitat links, ensuring that: i. Koalas are not pressured, through loss of habitat, to cross roads or move through developed or disturbed areas, such as residential areas or areas that require movement of greater than 100m over cleared ground to reach suitable habitat; ii. Koalas are not left occupying an "island" of habitat between hostile environments, such as road and cleared areas, unless there are no other more suitable habitat areas in which direct Koalas; and iii. Koalas can safely leave the site of clearing and relocate to adjacent habitat. e. The Koala spotter is responsible for ensuring, throughout the duration of clearing operations, that no tree in which a Koala is present, or a tree identified as being a risk to Koalas if felled, should not be felled, damaged or interfered with until the Koala has moved from the felling site of its own volitation. f. Where a Koala is present in a tree scheduled for removal, the tree will be marked with distinctive flagging tape (and other advisory means as required) and machinery operators will be briefed on the location of such trees and it will be clearly confirmed with operators that the subject tree(s) are to remain undisturbed until the Koala has moved of its own volition (where the strategy is to allow the Koala to move of its own accord, overnight). On the following day, such trees are to be checked again prior to their removal and, if necessary, the procedure is to be repeated until the Koala has moved g. A Koala spotter is not to be involved in the clearing of vegetation while they are responsible for identify Koalas on site.	Contractor / Fauna Spotter Catcher/ Koala Spotter	During Clearing

Table 2: P2 – Protection of MNES Fauna and Native Wildlife (Vegetation Clearing)

Issue	P2 - Protection of MNES Fauna and Native Wildlife	Responsible Person	Timing
	A requirement that a permit to interfere with wildlife from **EHP** will be mandatory for the wildlife handing activities as will the appropriate Animal Ethics Permit from **DAF**. Construction personnel shall not attempt to handle any wildlife. a. Fauna / Koala handling and relocation activities must only be undertaken by those identified on a current site-specific Damage Mitigation Permit (Removal and Relocation of Wildlife) from **EHP**. b. Koala Spotter/Fauna Spotter Catchers are required to relocate injured wildlife to the nearest designated veterinary clinic of wildlife hospital. Full contacts will be provided within the AWP. c. A register of fauna incidents / interactions is to be maintained daily during clearing operations.	Fauna Spotter Catcher/Koala Spotter	During Clearing & Construction
	The timing of vegetation clearance should be selected in order to minimise impacts (direct and indirect) to affected fauna habitats during optimum breeding period.	Contractor	During Clearing
	Avoid clearing of vegetation between the hours of 6pm and 6am.	Contractor	During Clearing
Monitoring	For each day of native vegetation clearing operations, a daily audit log is to be completed by the Contractor either prior to, or on completion of daily operations. Audit of key requirements, e.g. clearing contained within designated limits, integrity of clearing boundary devices, no damage to vegetation outside clearing boundary, Fauna Spotter Catcher present.	Contractor	During Clearing
Reporting	Animal Welfare Plan is prepared prior to clearing operations by the appointed Fauna Spotter Catcher.	Proponent / Fauna Spotter	Prior to Clearing
	Weekly report by the Fauna Spotter Catcher/ Koala Spotter to the Contractor on the clearing of any native vegetation and any animals encountered, injured or relocated is to be submitted.	Contractor	During Clearing
	Monthly report by the Contractor the Site Superintendent on native vegetation operations, including compliance, non-compliance incidents (fauna injury and responses) and corrective actions, outcomes of Fauna Spotter Catcher activities.	Contractor	During Clearing & Construction
	Bi-annual report by the Site Superintendent to the Proponent. Report to consider incident patterns, if any, and provide recommended solutions and a description of the corrective actions taken.	Contractor	During Clearing & Construction
	Annual site audit by the Environmental Representative and report to the Proponent	Environmental Representative	During Clearing & Construction
Corrective Action	In the event that monitoring identifies practices inconsistent with the strategies developed for this FMP, the Contractor shall take the necessary corrective steps and note them in the monthly report to be reviewed by the Site Superintendent.	Contractor	During Clearing & Construction
	In the event that monitoring identifies practices inconsistent with the strategies developed for this SBMP, the Contractor shall take the necessary corrective steps and note them in the monthly report to be reviewed by the Site Superintendent	Contractor	During Clearing & Construction

08 FAUNA MANAGEMENT - CONSTRUCTION

P3 – Maintenance of Safe Wildlife Movement Opportunities (Site Preparation Operations)

The following suite of best practice measures will be employed throughout the site to minimise fauna habitat fragmentation, facilitated fauna movement and reduce related injury and mortality. Management requirements are considered in the context of:

- Site preparation operations (i.e. during vegetation clearing and earthworks phases); and
- Design treatments and strategies for the built phase of the development

Table 3 describes the relevant management requirements in regard to site preparation operations. The following should be read in conjunction with the requirements for Koala design treatments and strategies for the built phase of the development.

Retention and rehabilitation of the Mountain Creek Corridor to the west, in addition to the 293ha of offset land for Conservation to the south, will occur as a result of the Spring Mountain development to maintain fauna movement and connectivity within and between the development site.

Objective

1. To avoid the impact of habitat fragmentation by roads and maintain safe movement opportunities for native wildlife (including Koala and Grey-headed Flying-fox) between linear open space.
2. To maintain fauna movement opportunities within retained habitat areas and minimise fauna movement opportunities through site preparations.

Management Strategy

- Develop a track plan for retained habitat areas/linear open space which allows fauna movement to be maintained
- Restrict access to retained habitat areas/linear open space for environmental management only.
- Reduce road speeds
- Increase driver awareness and education

Performance Indicators

- Minimal fauna mortality.

Temporary Fencing

Prior to the commencement of vegetation clearing a temporary fauna exclusion fence will be erected around the area of clearing and works and be maintained until the completion of major civil works. The purpose of the fence is to minimise any native fauna (including koala) from entering into the clearing and or post clearing construction zone during a time when potential risks of impact are at their highest.

The fencing proposed is a "floppy-top" temporary fauna exclusion fencing as per the details and photos shown on this drawing sheet. This fencing type is preferred as it continues to allow any fauna within the impact zone to exit, however prevents new or re-entry once the fence is erected. The fencing type can also be erected along random alignments and relocated to new areas as the clearing areas expand in future clearing and development events. This fencing type has been successfully used as a temporary barrier on other koala related projects within the vicinity of major roads and housing areas.

Fauna exclusion fencing

Table 3: P3 – Maintenance of Safe Fauna Movement Opportunities – Site Preparation Operations

Issue	P2 – Maintenance of Safe Fauna Movement Opportunities – Site Preparation Operations (Roads and Vehicle Interactions)	Responsible Person	Timing
Implementation Requirements	A site access plan is to be developed for the Environmental Corridors.	Proponent	Prior to Clearing
	Site protocols are to be established which restrict authorised area access to the approved track network identified with the plan.	Contractor	Prior to Clearing
	All construction personnel shall attend environmental training as part of the site induction process prior to entering the work site. As part of this training, all personnel will be instructed on their obligations in regard to vehicle movement restrictions and construction speed limits.	Contractor	Prior to Clearing
	Erect temporary exclusion fencing around the area of clearing and works and be maintained until the completion of major civil works.	Contractor	Prior to Clearing
	Vehicle movements outside designated operational areas (other than for land management purposes) will be prohibited.	Contractor	During Clearing & Construction
	Road speeds throughout construction areas and through retained habitat areas will be restricted to 50km/hr.	Contractor	During Clearing & Construction
	Strategic use of awareness signage is to be implemented along the interface between operational areas and Environmental Corridors and access restriction signage at all track entry points to Environmental Corridors during construction works.	Contractor	During Clearing & Construction
	Proposed construction access roads will be subject to design treatments to ensure safe fauna crossing opportunities. Construction of an elevated portion (or portions) in the form of bridging structures (culverts) in associated with guide fencing will be incorporated to ensure the provision of safe crossing opportunities.	Contractor	During Clearing & Construction
Monitoring	Weekly inspection and log.	Contractor	During Clearing
Reporting	Monthly report by the Contractor to the Site Superintendent in regard to development / maintenance of structures implemented to facilitate fauna movement, review of fauna / vehicle incident patters, if any, and provide recommended solutions, an a description of corrective actions taken.	Contractor	During Clearing & Construction
	Bi-annual audit report by the Site Superintendent to the Proponent. Report to include compliance with site access restrictions, integrity of structure implemented to facilitate fauna movement, review of fauna/ vehicle incident patterns, if any, and provide recommended solutions, and a description of corrective actions taken.	Contractor	During Clearing
	Annual site audit by Environmental Representative and report to the Proponent.	Environmental Representative	During Clearing & Construction
Corrective Action	In the event that monitoring identifies practices inconsistent with the strategies developed for this SBMP, the contractor shall take the necessary corrective steps and note them in the monthly report to be reviewed by the Site Superintendent.	Contractor	During Clearing & Construction

09 THREATENED FLORA MANAGEMENT

P5 – Threatened Flora Management

Plectranthus habrophyllus, a herb listed as Endangered under the EPBC Act, has been recorded at several locations across the Spring Mountain project site. Core populations have been identified within Core Conservation areas by Yurrah. The majority of these locations are associated with waterways within linear open space and the habitat is to be protected.

Pre-clearance Survey

In accordance with the EPBC approved Threatened Flora Management Plan, prepared by Yurrah, pre-clearance surveys for each development precinct must occur by a suitable qualified person prior to the commencement of clearing. Any additional individuals must be recorded and translocated where necessary.

Translocation

Where plants are located within the development footprint of near the edge of the footprint, and are at risk of impact, these plants will be translocated to establish a new population in suitable habitat within the proposed Linear Open Space. The habitat for both translocated individuals and in situ individuals will be protected within a Core Conservation Area.

As an added habitat protection measures, Buffer Areas, with an offset width of 20m, will be established around Core Conservation Areas. No Go Zones must be marked out by the 20m buffer around know populations within Core Conservation areas. No work apart from conservation management activities is to be permitted within Core Conservation Areas.

Clearing and Construction

Plectranthus habrophyllus is to be protected from impacts of construction. Stormwater Management Plans, Bushfire Management Plans and Weed Management are to address threatened flora management.

Table 5 describes the relevant management requirements to address this issue.

Objective

1. To encourage the locally resident populations of threatened flora species to increase at a natural rate to a desired level on site.

Management Strategy

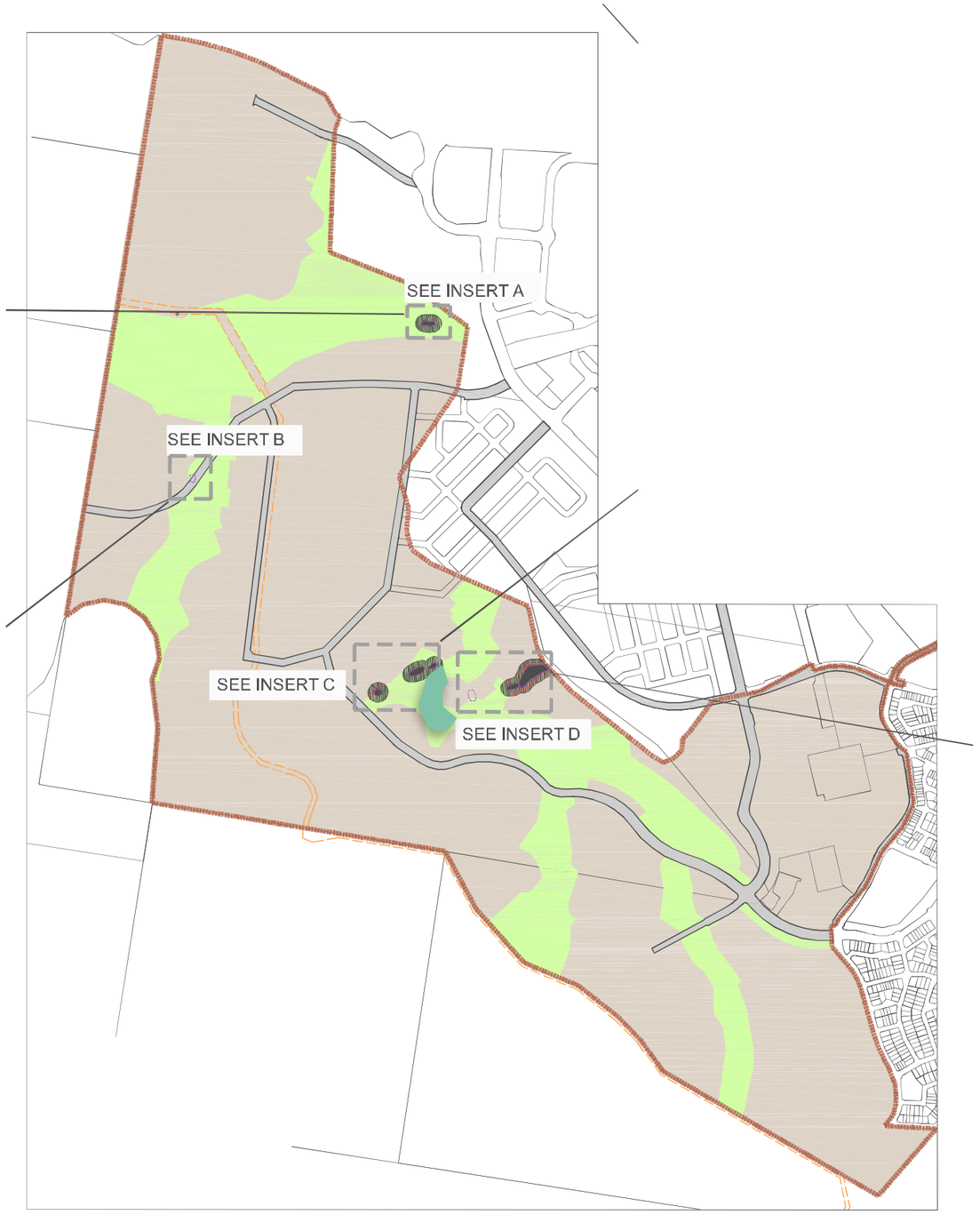
- Threatened flora habitat to be protected through the approved Threatened Flora Management Plan
- Recognise and protect all linear open space through management of interface between linear open space and development for bushfire, weeds and access issues.
- Establish Core Conservation Areas and Buffer Areas at threatened flora locations to target management activities.
- Design a network for fire-trails to defined spatial blocks to prevent damage caused by uncontrolled fire and allow access for maintenance.
- Awareness and education of threatened flora presence.
- Ensure all responsible persons are aware of the significance of this issue and are fully aware of any likely impacts of scheduled works.

Performance Indicators

- 0% weed cover in Core Conservation Areas and Buffers
- No evidence of damage from stormwater run-off construction
- Recruitment of threatened flora seedlings in Core Conservation Area
- No damage from uncontrolled access
- Condition of protective fencing remains undamaged.

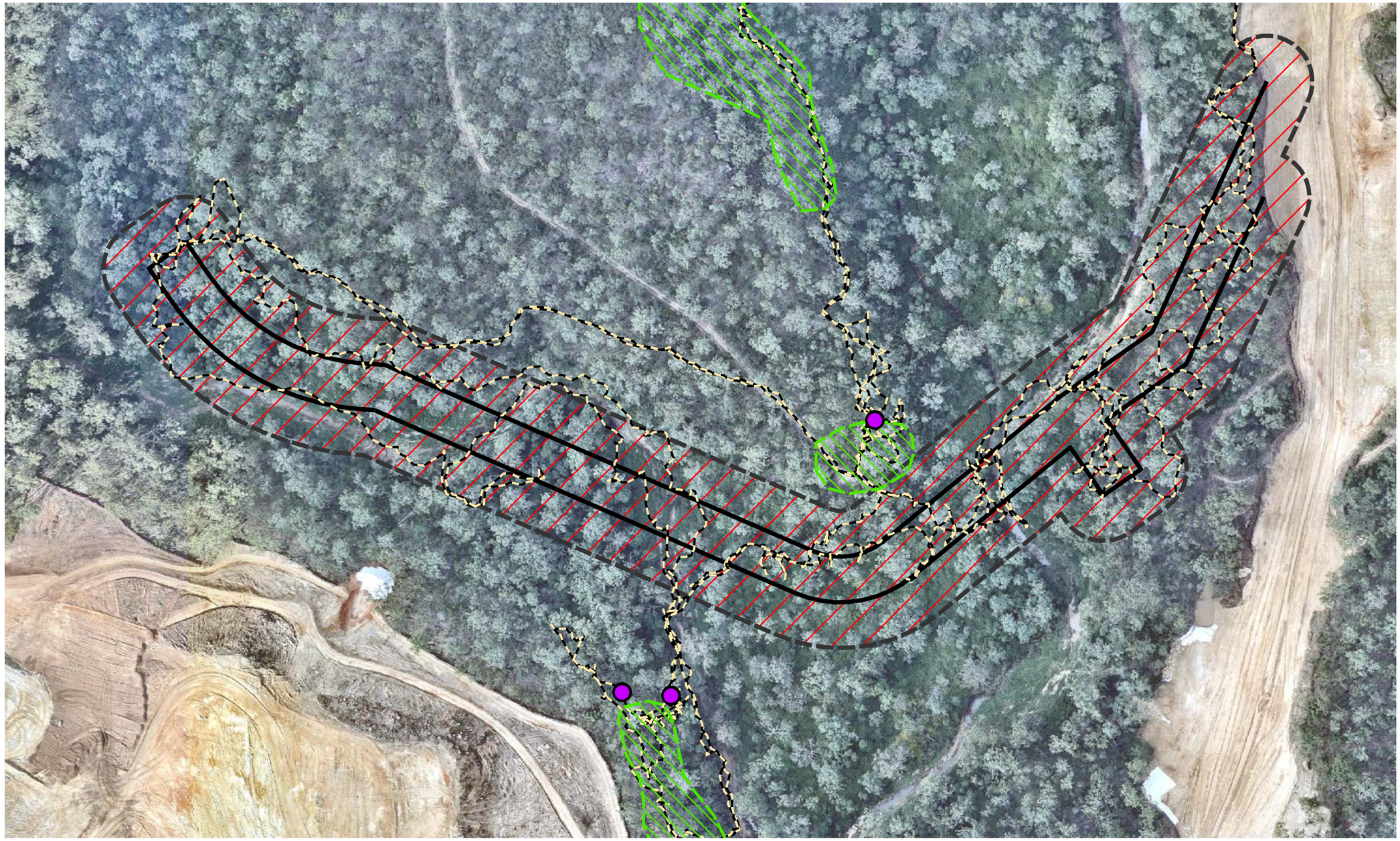
It is noted that potential patches of Plectanthus habrophyllus were identified by Yarrah (2015) along Mountain Creek. These mapped patches, as well as other areas of suitable habitat, were checked by Saunders Havill Group for Plectanthus habrophyllus as part of pre-clearance surveys for the Mountain Creek Sewer Saunders Havill Group in a 2017. Plectranthus habrophyllus was not recorded within the Mountain Creek sewer works extent or within a 20m buffer of the works extent.

Photo: Plectranthus habrophyllus (listed as Endangered under the EPBC Act (Cth))



09 THREATENED FLORA MANAGEMENT

Plan 2 – Core populations (outside V13)



NOTES
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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: QLD GIS Layers (QLD Gov. Information Service 2017), Aerial (Nearmap 2017)

* This note is an integral part of this plan/data. Reproduction of this plan or any part of it without this note being included in full will render the information shown on such reproduction invalid and not suitable for use.

LEGEND

- Trunk sewer alignment
- Trunk sewer alignment 20 metre buffer line
- Historically reported Plectranthus populations
- No Plectranthus recorded in 20 metre buffer
- Survey tracklog (2017.11.08)
- Plectranthus sample locations (2017.11.08)

PLAN ISSUE:

Issue	Date	Description	Drawn	Checked
A	10/11/2017	Prelim Draft	MC	AR

0 20 40 60 80 m

Universal Transverse Mercator GDA 1994 MGA Zone 56 1:1,800 @ A3

Table 5: P5 – Threatened Flora Management

Issue	P5 Threatened Flora Management	Responsible Person	Timing
Implementation Requirements	Core Conservation Areas located within 20m of land proposed for uses other than conservation, identified as areas for additional interface management including: 1. A detailed survey of threatened plant locations by a registered surveyor. 2. Where interfacing with residential, a fence with a minimum 50% transparency to be erected along interface boundary. Signage to be erected identifying area as 'Significant Ecological Area' and 'Dumping of Rubbish Prohibited' and where further information can be obtained. 3. Where interfacing with road verge or park landscaping, design and plant selection considers and avoids any potential impact upon the threatened flora species. Landscape plant species selected will be non-invasive, existing trees to be retained where possible to maintain microclimate, and clear edge formed that discourages access. Mulch to be preferably sourced from the site and is to be weed free.	Proponent	Design /Prior to Clearing &
	Undertake pre- clearing surveys. 1. Once the line of clearing (including construction of parks, pedestrian tracks and fire trails) is marked out by a registered surveyor, an additional survey for threatened species is to be undertaken within the clearing area, and Linear Open Space within 10m of the clearing line. 2. Additional individuals, or groups of individuals located to be recorded with a GPS, given a unique ID number, and flagged with marking tape. Where necessary individuals will be translocated in accordance with protocols in the Threatened Flora Management Plan. 3. The boundary of the Core Conservation Areas will be adjusted as necessary (if not within construction footprint), to include any additional individuals located during of the pre-clearing survey.	Proponent	Prior to Clearing
	Establish No Go Zones. 1. Core Conservation Areas less than 20m from of the clearing and construction footprint will be identified on construction drawings and through signage on site as 'No Go Zones'. Their associated Buffer Areas will be identified as 'Proceed with Caution Zones'. 2. Work within the Buffer Area will require supervision by the Project Ecologist. 3. No work apart from conservation management activities is to be permitted within the Core Conservation Areas.	Contractor	Prior to Clearing
	Erect exclusion fencing and signage. 1. Where Linear Open Space has not been fenced as part of general vegetation protection, temporary fencing must be installed around the Core Conservation Area, where practical, and necessary (i.e. steep terrain may form natural barrier). The temporary fence shall be a minimum of star pickets with 3 strand wire and high visibility mesh attached to the top wire (with minimum gap of 500mm along the bottom) and erected prior to clearing. 2. The required alignment and extent of the fencing is to be undertaken in consultation by the project ecologist and inspected before the start of clearing. 3. Signage is to be attached to fencing clearly identifying the site as a significant ecological area and a 'No Go Zone', and no entry permitted unless approval given by Proponent. Mapping will be produced identifying location of threatened flora and alignment of protective fencing during detailed design for each Phase of the Spring Mountain	Contractor	Prior to Clearing

09 THREATENED FLORA MANAGEMENT

Table 5: P5 – Threatened Flora Management

Issue	P5 Threatened Flora Management	Responsible Person	Timing
	Stormwater Management controls to be installed through implementation of an Approved Stormwater Management Plan for Spring Mountain. 1. The Stormwater Management Plan will outline management required to ensure water quality and quantity flowing into Core Conservation Areas and all areas of proposed conservation are at predevelopment levels. 2. All stormwater management devices are to be installed and inspected prior to clearing and construction. Stormwater management devices to be regularly checked and maintained to ensure they perform their intended function.	Contractor	Prior to Clearing
	Induct all site workers and visitors in the presence and significance of threatened species on site, and on the management measures being implemented at the present time. All personal associated undertaking works within a Buffer Area are to be made aware of the presence of threatened plants, and are to be educated on protective measures in place, prior to entering area. No personnel to enter Core Conservation Area without approval.	Contractor	Prior to Clearing
	Fire trails will be installed in accordance with the Final Bushfire Management Plan with locked gates and structures to prevent access to vehicles, other than emergency and maintenance vehicles, into all Linear Open Space areas.	Contractor	During Clearing
Monitoring	Core Conservation Areas and Buffers will be monitored on a 3 monthly basis for the first year, and annual thereafter for 2 years subject to satisfactory performance including: ▪ Provide general photographic descriptive record ▪ Establish permanent sample quadrats located in each management block, according to an agreed sample strategy ▪ Confirm the absence of environmental weeds ▪ Measure species richness of the ground layer. ▪ Measure abundance of flowing threatened species. ▪ Measure abundance of threatened species seedlings ▪ General observations.	Contractor	During Construction / Operation
Reporting	Every 3 months by the Environmental Representative to the Proponent for the first year, every 6 months in the second year and once in the third year.	Environmental Representative	During Clearing & Construction
	Annually by the Proponent to the DoE including non-conformances, corrective actions and assessment of monitoring results.	Proponent	During Clearing
Corrective Action	In the event that monitoring identifies practices inconsistent with the strategies developed for this SBMP, the contractor shall take the necessary corrective steps and note them in the monthly report to be reviewed by the Site Superintendent.	Contractor	During Clearing & Construction

10 FLORA & FAUNA CHECKLIST

Pre-Clearance Checklist:

This Site Based Management Plan (V6) contains only a small portion of information included within existing assessment management plans for Spring Mountain. Subsequently, the volume of requirements remains complex and overlapping. To ensure compliance with approval requirements and provide a record trail for reporting to the Commonwealth Department of the Environment the following pre-clearance checklist is to be completed with each phase of works.

The checklist is to be completed by the principal contractor and requires sign off by the Environmental Coordinator and Fauna Spotter. To complete the checklist a number of items need to be issued from various parties to the principal contractor (eg confirmation of pre-clearance surveys).

The pre-clearance checklist is established in a format which enables direct annual reporting to the Department of the Environment and will include a number of attachments.

Springfield RISE
At Spring Mountain

Springfield Rise - Environmental Pre-Start Checklist

Project Area: Village 6	**Date:**			
Contractor: Shadforths	**Construction Stage/ Activity:** Early works bulk earthworks			
Date work is to start:				
Date work is to cease:	**Compliance**			
#	**Control Measure**	**Yes**	**No**	**N/A**	**Comments**
1	Are clearing extents marked out and fenced? (N.B. Fencing is required as per ICC permits unless instructed otherwise by Council, Fauna Spotter or Environmental Coordinator)	✓			Completed by Wolter Consulting on DATE
2	Has the fencing of clearing extents demarcation been inspected by the Environmental Coordinator?	✓			Completed by SHG on DATE
3	Has sign off been provided by the Environmental Coordinator for demarcation areas?	✓			See Attachment 1
4	Has certification for pre-clearance flora been provided? (N.B. Exemptions/permits for protected plants under the NCA must be obtained by EHP where works occur in a High Risk Area). Please provide date and reference.	✓			See Attachment 2. **EHP Reference: AR082999 22 January 2016**
5	Have pre-clearance checks surveys for *Plectanthus habrophyllus* been completed over the clearing area?	✓			Completed by SHG on 8 July 2015. See Attachment 3.
6	Are there 'no-go' zones identified within the clearing area?		✓		
7	If yes, have 'no-go' zones been demarcated, fenced, signed and inspected by the Environmental Coordinator and Contractor?			✓	
8	Has the appointed Fauna Spotter completed pre-clearance surveys and reports?				
9	Has the appointed Fauna Spotter identified any				


saunders havill group


From: FNUM
Sent: Friday, 22 January 2016 3:27 PM
To: Keira Grundy
Subject: RE: AR082999 Exempt Clearing Email Lot 33 on SP269190

Dear Mr Ian Murray

Thank you for your email. Please retain this email as acknowledgement of receipt of a protected plant exemption notification submitted under section 202A of the Nature Conservation (Wildlife Management) Regulation 2006. Clearing of a protected plant under this section must be conducted within two years after the flora survey report was submitted to the Department of Environment and Heritage Protection.

It is strongly recommended for audit purposes that you keep this email together with the relevant flora survey trigger map, flora survey report and any other documentation relating to the clearing in question.

Please visit www.ehp.qld.gov.au for information about available online services.

Kind regards
Katrina

Queensland Government


DOCUMENT REGISTER & TRANSMITTAL RECORD
ARCADIS


Ipswich City Council

Springfield Land Corporation (No 2) Pty Ltd
C/- Caroline (Qld) Pty Ltd
PO Box 4480
SPRINGFIELD QLD 4300

11 December 2015

SUSTAINABLE PLANNING ACT 2009

DEVELOPMENT APPLICATION DECISION NOTICE

Application Details

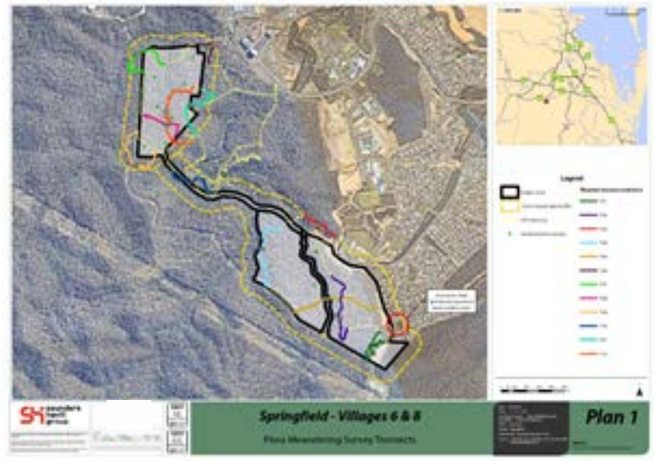
Application No:	6147/2015/ADF
Real Property Description:	Lot 22 SP 234042 PAR SPRYLTON
Property Location:	7001 Sinnathamby Boulevard, SPRING MOUNTAIN QLD 4306
Decision Date:	3 December 2015
Decision:	This application is approved subject to the conditions listed below
Decision Authority:	Engineering and Environment Manager

1. Decision Details

Development	Approval Type	Decision	Relevant Period
Bulk Earthworks (Section 2.6)	Development Permit	Approved subject to the conditions set out in Attachment A - Assessment Manager Conditions	Two (2) years

2. Preliminary Approval Affecting the Planning Scheme

Not applicable to this decision.



Springfield Rise

Environmental Pre-Start Checklist

Project Area: Mountain Creek Sewer		**Date:**			
Contractor: Shadforths		**Construction Stage/ Activity:** Clearing and construction of Mountain Creek Sewer (refer Attachment 1).			
Date work is to start: 2/1/2018					
Date work is to cease: 16/1/2018		**Compliance**			
#	**Control Measure**	**Yes**	**No**	**N/A**	**Comments**
1	Is the works extent within the EPBC 2013/7057 referral area?	✓			Refer Attachment 2.
2	Are clearing extents marked out and fenced? (N.B. Fencing is required as per ICC permits unless instructed otherwise by Council, Fauna Spotter or Environmental Coordinator)	✓			Completed by Walters RPS and Shadforths on 11th December 2017.
2	Has the fencing of clearing extents demarcation been inspected by the Environmental Coordinator?	✓			Completed by SHG on 12th December 2017.
3	Has sign off been provided by the Environmental Coordinator for demarcation areas?	✓			Refer Attachment 3 for sign off by the Environmental Coordinator.
4	Has certification for pre-clearance flora been provided? (N.B. Exemptions/permits for protected plants under the NCA must be obtained by EHP where works occur in a High Risk Area). Please provide date and reference.	✓			See Attachment 4 for Protected Plants Exemption Notification Confirmation from EHP. EHP Reference: AR098350 1st March 2017.
5	Have pre-clearance checks surveys for *Plectranthus habrophyllus* been completed over the clearing area?	✓			Completed by SHG on 31st October 2017. See Attachment 5 for Sign off by the Environmental Coordinator.
6	Are *Plectranthus habrophyllus* 'no-go' zones identified within the clearing area been demarcated, fenced, signed and inspected by the Environmental Coordinator and Contractor?			✓	'No-go' zones are identified within 20m of the works extent and have been flagged to provide additional safeguards. See Attachment 5. These have been checked by the Environmental Coordinator.
7	Will works involve clearing within a Fisheries mapped waterway for waterway barrier works? If so, are works compliant with applicable self-assessable codes and / or permits?	✓			Works will be undertaken within an amber 'moderate risk' waterway for WWBW. See Attachment 6 for confirmation from Arcadis that works will be undertaken within accepted development requirements for

					fisheries developments and Attachment 7 for copies of the accepted development notifications for 3 x bed level crossings to Fisheries.
8	Will works involve clearing within a watercourse defined under the Water Act 2000? If so, are works compliant with applicable exemptions and / or permits?	✓			Works will be undertaken in a defined watercourse. See Attachment 6 for confirmation from Arcadis that works will be undertaken within riverine protected permit exemption requirements.
8	Has the appointed Fauna Spotter completed pre-clearance surveys and reports?	✓			Fauna Spotter Catcher Pre-Clearance and Habitat Values Survey, completed by QFC (15 December 2017). See Attachment 8 for a copy to the WPMP.
9	Has the appointed Fauna Spotter identified any sensitive areas for consideration in clearing methods? Please provide a summary.	✓			Fauna Spotter Catcher WHIMP, completed by QFC (15 December 2017). See Attachment 9 for details.
10	Have all contractors, subcontractors and associated personnel been instructed on environmental procedures and controls?	✓			Environmental Awareness Acknowledgement Notice, signed by Shadforths (December 2017). See Attachment 10.
11	Has a Council pre-start been completed?	✓			~~See Attachment 11 for confirmation that no pre-start is required has been obtained from ICC.~~ Refer to Note 1

NOTE: if the answer to any question above is NO then the clearing activity will not proceed.

Note 1: Pre-start arrangements with QUU for trunk sewer works (refer to Attachment 11)

Springfield Rise

Environmental Pre-Start Checklist

Compliance Awareness

All works are to be undertaken in accordance with the Mountain Creek Sewer Environmental Pre-Start Package which includes the 'Mountain Creek Sewer Site Based Management Plan, prepared by Saunders Havill Group, dated November 2017' and this Mountain Creek Sewer Environmental Pre-Start Checklist and attachments.

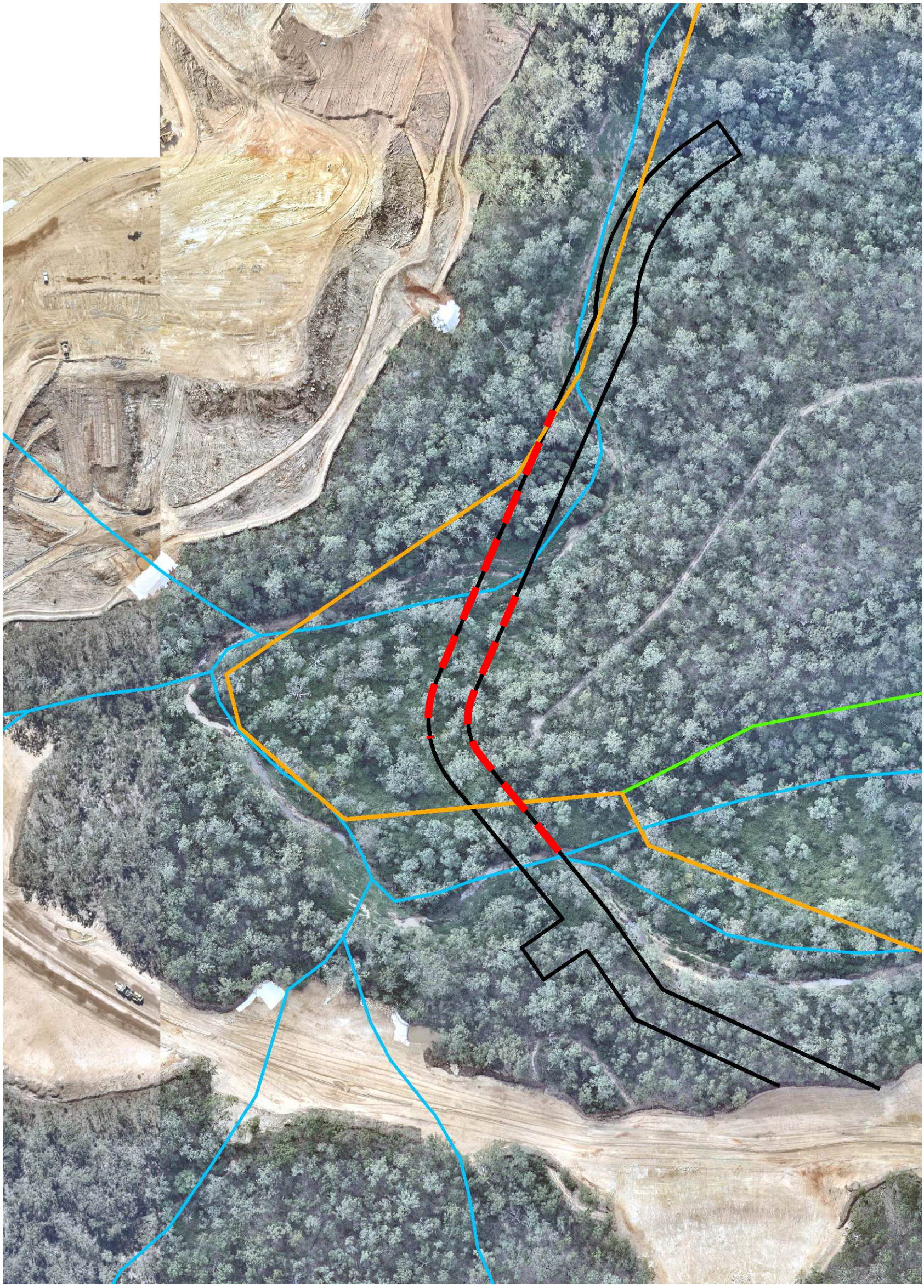
Signing below demonstrates acknowledgement of the environmental pre-start procedures and requirements listed in the checklist above and associated attachments.

Name	Company	Position	Signature	Date
DARYL LANGHORNE	LENDLEASE	Client Representative		19/12/17
SAM SCHROTER	SHADFORTHS	Site Contractor		18/12/17
SAM SCHROTER	SHADFORTHS.	Clearing Contractor		18/12/17
BRYAN ROBINSON	QFC	Fauna Spotter Catcher		19/12/17
Dan O'Malley	Arcadis	Project Engineer		18/12/2017
Murray Saunders	Saunders Havill Group	Environmental Coordinator		18/12/2017

Attachment 1

Mountain Creek Sewer Works Extent

I. MOUNTAIN CREEK SEWERLINE



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Layer Sources: QLD GIS Layers (QLD Gov. Information Service 2017), Aerial (Nearmap 2017)

* This note is an integral part of this plan/data. Reproduction of this plan or any part of it without this note being included in full will render the information shown on such reproduction invalid and not suitable for use.

LEGEND

- Lantana clearing for demarcation flagging
- Additional flagging for plectranthus habrophyllus awareness
- NRM Watercourse

Waterways (SEQ region)

Risk of Impact

- 1 - Low
- 2 - Moderate
- 3 - High
- 4 - Major

PLAN ISSUE:

Issue	Date	Description	Drawn	Checked
A	28/11/2017	Prelim Draft	MC	AR

0 20 40 60 80 m

Universal Transverse Mercator GDA 1994 MGA Zone 56 1:2,100 @ A3

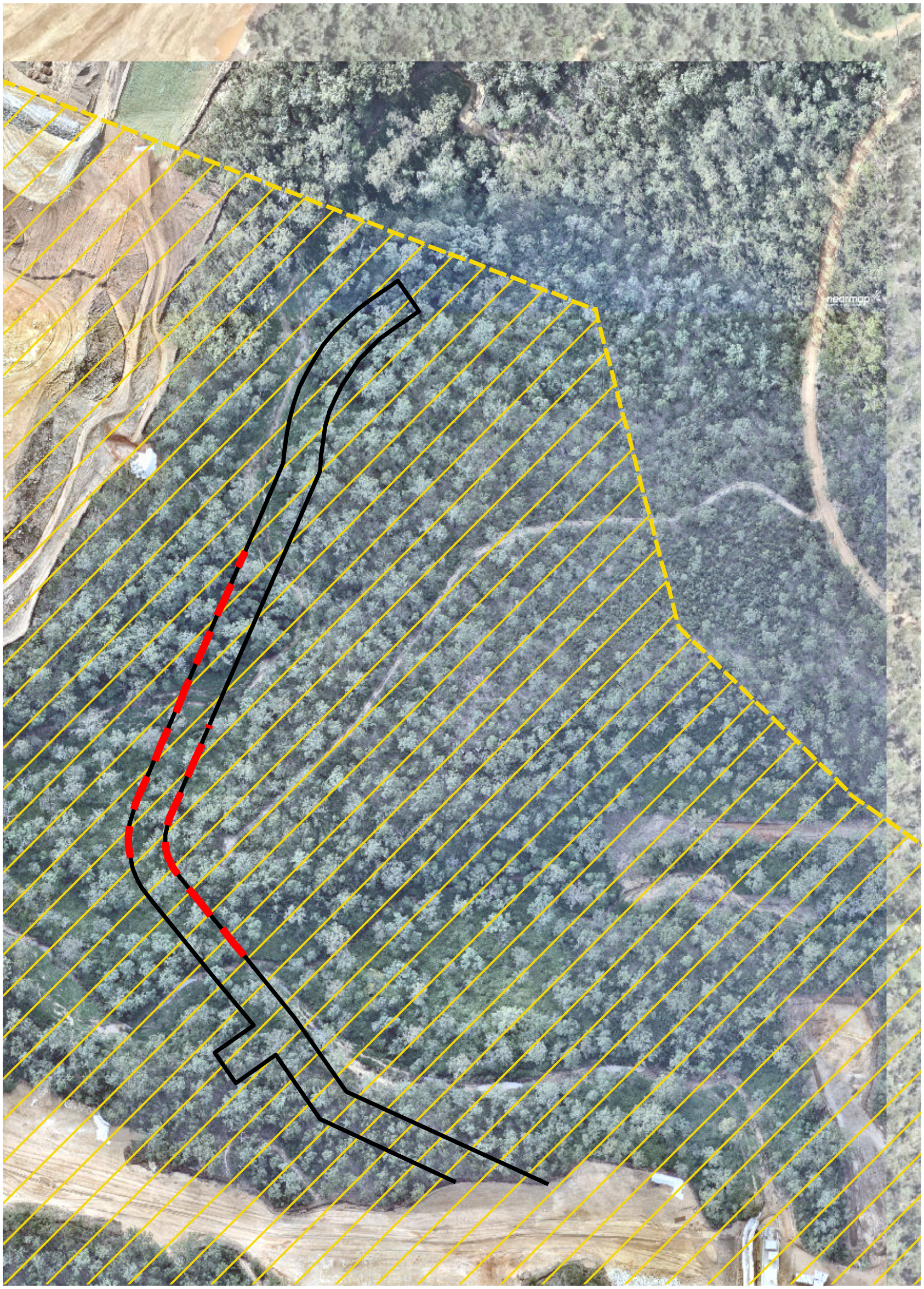
saunders havill group

Address: Spring Mountain Estate, Greenbank | 28/11/2017 | 7522 E 01 Mountain Creek A

Attachment 2

Mountain Creek Sewer Works Extent - EPBC Referral Area

2. SPRINGFIELD RISE REFERRAL AREA



NOTES

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Layer Sources: QLD GIS Layers (QLD Gov. Information Service 2017), Aerial (Nearmap 2017)

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LEGEND

- Referral area
- Lantana clearing for demarcation flagging
- Additional flagging for plectranthus habrophyllus awareness

PLAN ISSUE:

Issue	Date	Description	Drawn	Checked
A	29/11/2017	Prelim Draft	MC	AR

0 20 40 60 80 m

Universal Transverse Mercator GDA 1994 MGA Zone 56 1:2,250 @ A3

saunders havill group

Address: Spring Mountain Estate, Greenbank 29/11/2017 7522 E 02 Referral Area A

Attachment 3

Demarcation Flagging Check – Saunders Havill Group

saunders havill group

Saunders Havill Group Pty Ltd ABN 24 144 972 949
address 9 Thompson St Bowen Hills Q 4006
phone (07) 3251 9444 email mail@saundershavill.com
web www.saundershavill.com fax (07) 3251 9455

surveying town planning urban design environmental management landscape architecture

Date: 13 December 2017
Site: Springfield Rise
Client: Lendlease Communities
EPBC Ref: 2013/7057
SHG Ref: 7243
SHG Contact: Murray Saunders (07 3251 9444)

Attention: Ian Murray
Regional Development Manager, Communities
Level 4, Kings Gate,
King Street
Bowen Hills QLD 4006

Springfield Rise: Mountain Creek Sewer –Inspection of flagging for demarcation of clearing extents, 7002 Grande Avenue, Springfield (Lot 9008 on SP290386)

Dear Ian,

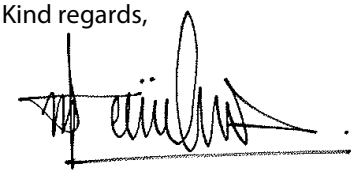
The *Environmental Management Division* of **Saunders Havill Group** was engaged by **Lendlease Communities** to carry out an inspection of flagging for demarcation fencing for the Mountain Creek Sewer clearing extent associated with Springfield Rise.

Flagging of the Mountain Creek Sewer clearing extent was undertaken by the appointed surveys, **Wolter Consulting Group**, and civil contractors, **Shadforths Civil**, between the 5th and 8th December 2017 in accordance with the Mountain Creek Sewer Environmental Pre-Flagging Checklist. A specific checklist for Pre-Flagging this extent was created due to dense infestations of *Lantana camera* which made traverse of the flagging extent impossible.

Ecologists from **Saunders Havill Group** checked the clearing extent on the 12th December 2017 to confirm the works extent was correct and complies with relevant Commonwealth and Council permit boundaries.

The GPS track log of the inspection extent shown in the plan provided as **Attachment 1**. A post-inspection notification is provided as **Attachment 2** to be kept for your records.

Kind regards,



Murray Saunders
Director – Saunders Havill Group

Attachment I –

Demarcation Fencing Inspection Track Log

Legend

Demarcation check GPS log

Mountain Creek sewer works extent

N

W E

S

Attachment 2 –

Demarcation Flagging Inspection Notification

Area Inspected:	Springfield Rise – Mountain Creek Sewer
Location:	Grande Avenue, Springfield (Lot 9008 on SP290386)
Date of Inspection:	12 December 2017
Appointed Surveyor:	Wolter Consulting Group– Glenn Hanton
Environmental Representative:	Saunders Havill Group – Dr Andrew Ridley
Environmental features:	The Mountain Creek sewer traverses Mountain Creek at 3 points. Mountain Creek is a mapped amber waterway under the *Fisheries Act 1994* and defined watercourse under the *Water Act 2000*. *Plectranthus* sp. have been recorded within 100m of the works extent. A 20m no-go zone has been installed around these areas.

Photos of flagging prior to demarcation fencing:

Attachment 4

NCA Protected Plants Exemption Notification – EHP

Keira Grundy

From: PALM <palm@ehp.qld.gov.au>
Sent: Wednesday, 1 March 2017 3:46 PM
To: Keira Grundy
Subject: RE: AR098350 7522: Exempt Clearing Notification - Springfield Rise V7 & V12

Exempt Clearing Notification (protected plants)

Applicant: Lend Lease Communities (Springfield) Pty Ltd

Where clearing is to be conducted –
Street Address: Sinnathamby Boulevard, Springfield
Lot/Plan: Lot 12 and 13 on SP257480

EHP Reference: AR098350

Dear Mr Murray

Thank you for your request for an Exempt Clearing Notification for protected plants.

Please retain this email as acknowledgement of receipt of a protected plant exemption notification submitted under *Section 261ZA* of the *Nature Conservation (Wildlife Management) Regulation 2006*.

Clearing of a protected plant under this section must be conducted within two years after the flora survey report was submitted to the Department of Environment and Heritage Protection.

It is strongly recommended that for audit purposes you keep this email together with the relevant flora survey trigger map, flora survey report and any other documentation relating to the clearing in question.

Please visit www.ehp.qld.gov.au for information about available online services.

Kind regards

Queensland Government

Katrina Theilemann
Administration Officer
Customer Service Team I Regulatory Capability and Customer Service
Department of Environment and Heritage Protection

P 1300 130 372 (option 4) **F** (07) 3330 5875 **E** Palm@ehp.qld.gov.au
400 George Street BRISBANE QLD 4000
GPO Box 2454, BRISBANE QLD 4001

From: Keira Grundy [mailto:keiragrundy@saundershavill.com]
Sent: Friday, 17 February 2017 3:09 PM
To: PALM
Subject: AR098350 7522: Exempt Clearing Notification - Springfield Rise V7 & V12

Hi,

On behalf of Lendlease Communities, please accept this exempt clearing notification (protected plants) for the site area known as Springfield Rise – Village 7 & Village 12. Attached are the following documents:

- Notification form completed and signed
- Protected Plants Flora Survey Report

If you have any questions, please do not hesitate to contact me.

Kind regards,

Keira Grundy Environmental Planner **Saunders Havill Group**
direct line (07) 3251 9468 mobile 0437 822 880 email keiragrundy@saundershavill.com
phone 1300 123 SHG web www.saundershavill.com head office 9 Thompson St Bowen Hills Q 4006

Brisbane / Emerald / Rockhampton

Surveying / Town Planning / Urban Design / Environmental Management / Landscape Architecture

Attachment 5

Plectranthus habrophyllus Clearance Check – Saunders Havill Group

saunders havill group

Saunders Havill Group Pty Ltd ABN 24 144 972 949
address 9 Thompson St Bowen Hills Q 4006
phone (07) 3251 9444 email mail@saundershavill.com
web www.saundershavill.com fax (07) 3251 9455

surveying town planning urban design environmental management landscape architecture

Date: 14 November 2017
Site: Springfield Rise
Client: Lendlease Communities
EPBC Ref: 2013/7057
SHG Ref: 7243
SHG Contact: Murray Saunders (07 3251 9444)

Attention: Ian Murray
Regional Development Manager, Communities
Level 4, Kings Gate,
King Street
Bowen Hills QLD 4006

Springfield Rise: Mountain Creek Sewer –*Plectanthus habrophyllus* pre-clearance survey, 7002 Grande Avenue, Springfield (Lot 9008 on SP290386)

Dear Ian,

This letter provides confirmation that the *Environmental Management Division* of **Saunders Havill Group** was engaged by **Lendlease Communities** to undertake a pre-clearance survey for *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) threatened flora species *Plectanthus habrophyllus* within the proposed clearing extent for the Mountain Creek Sewer alignment to meet Condition 6 of the EPBC Act approval (Ref: 2013/7057).

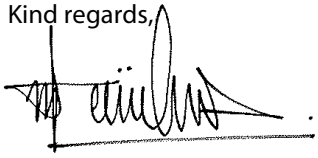
While *Plectanthus habrophyllus* populations were previously recorded in close proximity to the works area as part of the Spring Mountain EPBC survey by **Yurrah** and by contemporary field survey by **Saunders Havill Group** (refer to **Attachment 1**), we can confirm that no *Plectanthus habrophyllus* specimens were recorded within, or within a 20m buffer of, the proposed Mountain Creek Sewer works extent.

The following provides relevant details of the survey:

Applicant: Lend Lease Communities (Springfield) Pty Ltd
Site Details: 7002 Grande Avenue, Springfield (Lot 9008 on SP290386)
Development Area: Mountain Creek Sewer

***Plectanthus habrophyllus* Pre-Clearance Survey Results:**
Survey Completed by: David Havill (Senior Ecologist) & Dr Andrew Ridley (Senior Ecologist)
Survey Completion Date: 31st October 2017
Was the survey undertaken in accordance with EPBC Act survey guidelines? Yes
Were any *Plectanthus habrophyllus* specimens identified within the clearing area? No

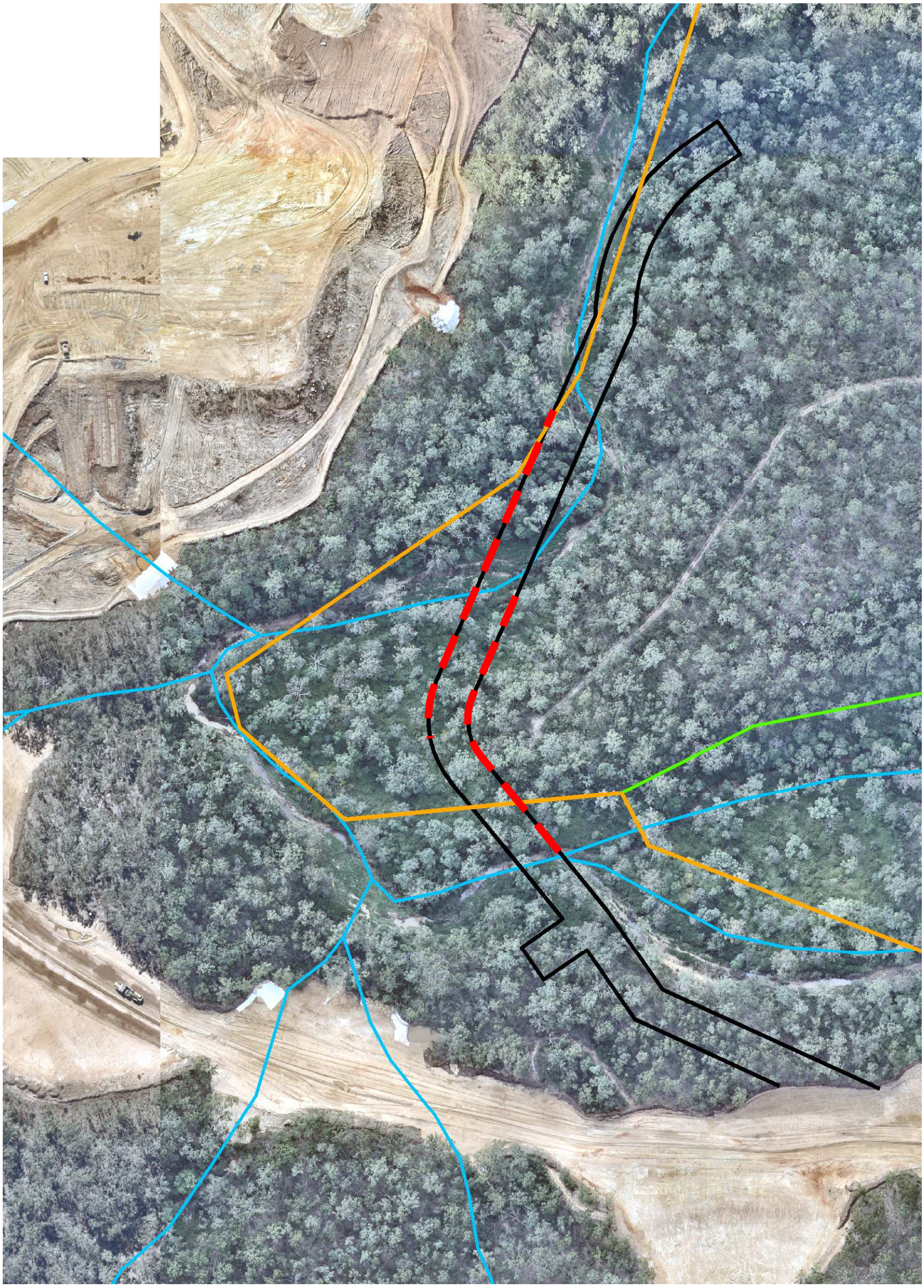
Kind regards,



Murray Saunders
Director – Saunders Havill Group

Attachment I –
Plectranthus habrophyllus Pre-clearance Survey Extent

I. MOUNTAIN CREEK SEWERLINE



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Layer Sources: QLD GIS Layers (QLD Gov. Information Service 2017), Aerial (Nearmap 2017)

LEGEND

- Lantana clearing for demarcation flagging
- Additional flagging for plectranthus habrophyllus awareness
- NRM Watercourse

Waterways (SEQ region)

Risk of Impact

- 1 - Low
- 2 - Moderate
- 3 - High
- 4 - Major

PLAN ISSUE:

Issue	Date	Description	Drawn	Checked
A	28/11/2017	Prelim Draft	MC	AR

0 20 40 60 80 m

Universal Transverse Mercator GDA 1994 MGA Zone 56 1:2,100 @ A3

saunders havill group

Address: Spring Mountain Estate, Greenbank 28/11/2017 7522 E 01 Mountain Creek A

Attachment 6

Waterway Compliance Notification for WWBW and RRP – Arcadis

Keira Grundy

From: Daniel O'Malley <Daniel.OMalley@arcadis.com>
Sent: Monday, 20 November 2017 11:19 AM
To: Keira Grundy
Cc: Shane Miley; Knox, Graeme; Murray Saunders; Christo Louw; AA008228; Langhorne, Daryl; Duffy, Tom (Tom.Duffy@lendlease.com)
Subject: RE: 7522 Mountain Creek Sewer SBMP
Attachments: Pages from AA008228 Spring Mountain Trunk Sewer Main.pdf; xcde-aa008228-bnx-TrunkSewerDes.dwg

Follow Up Flag: Follow up
Flag Status: Flagged

Hi Keira

We have reviewed the applicable codes and make the following comments. I have also attached the trunk sewer layout plan which shows the 3 x bed level crossings in question and the base plan in CAD for coordinates;

1. *Riverine Protection Permit Exemption Requirements WSS/2013/726, Version 1.04 (26/10/17), compiled by DNRM.*

We believe we are exempt from the Riverine Protection Permit because:

- the net excavation is less than 500m^3;
- the net fill is less than 150m^3;
- only the minimum area required to reasonably carry out the works will be disturbed;
- sediment and erosion controls will be used;
- all areas of disturbed bed and banks will be stabilised to protect against erosion;
- all fill placed will be free from contamination – I don't believe any fill will be imported as excavated material will be used to backfill the sewer trench;
- disturbed banks will be returned to a profile similar to the pre-disturbance condition;
- natural stream bed controls or features that create natural waterholes will not be lowered or removed;
- any excavated material that is not removed as water will be spread evenly within the bed and banks of the watercourse so that it does not interfere with the flow of water;
- fill placed in the bed of the stream will not redirect flow into an adjacent bank;
- crossings will not interfere with the low flow of water;
- all disturbed areas will be revegetated with trees, shrub and grasses endemic to the area, sufficient to re-establish a riparian environment and protect bed and banks from erosion.

2. *Accepted development requirements for operational works that is constructing or raising waterway barrier works (3 July 2017), compiled by DAF*

- Our design complies with the accepted development requirements
- Our bed level crossings (3 no.) do not involve road pavement and are limited to stream bed scour protection which abuts the stream bed at the same level, is installed at a gradient no steeper than 1 in 20, incorporates a low flow channel and will be constructed with clean rocks, at least 100mm in diameter (300mm DN is specified on the attached drawings). The rock armouring will not be over compacted, but left proud and uneven
- Works will commence and finish within 360 days. Instream sediment control measures associated with the works will be removed within this period.
- Temporary waterway barriers will be limited to the minimum dimensions practicable for the site and purpose.

- The most downstream waterway barrier will be removed first.
- All waterway barrier material will be removed from within the waterway and disposed of at least 50m away from the waterway.

Saunders will need to issue the pre-works notifications (3 x Bed Level Crossings & Temporary Waterway Barrier Works) to DAF within 20 business days of commencement of works. There is currently dense lantana within the alignment preventing flagging however your guys should be able to access the 3 crossings via the creek alignment (Wolters recently access the crossings for survey). In terms of the 20 day timeframe we will coordinate this timing with you once we know the clearing commencement date/works program etc.

Any questions let me know.

Regards

Dan O'Malley | Civil Engineer | BE(Civil) MIEA | daniel.omalley@arcadis.com
Arcadis | Level 5/120 Edward Street Brisbane 4000 | Australia
T. + 61 7 3337 0834 | M. + 61 402 294 773
www.arcadis.com

From: Keira Grundy [mailto:keiragrundy@saundershavill.com]
Sent: 14 November 2017 4:48 PM
To: Knox, Graeme <Graeme.Knox@lendlease.com>; Murray Saunders <murraysaunders@saundershavill.com>; Daniel O'Malley <Daniel.OMalley@arcadis.com>; Christo Louw <Christo.Louw@arcadis.com>
Cc: Shane Miley <Shane.Miley@arcadis.com>
Subject: 7522 Mountain Creek Sewer SBMP

Hi Dan,

In preparation of the Mountain Creek Sewer Environmental Pre-Clearance Package it is noted that Mountain Creek is identified as an amber 'moderate risk' waterway for waterway barrier works under the *Fisheries Act 1994* and a defined watercourse under the *Water Act 2000*.

I have attached the most recent copies of the applicable codes.

Could you please review the requirements of the attached guidelines and confirm that all works required for the Mountain Creek Sewer will be undertaken in accordance with:

- Accepted development requirements for operational works that is constructing or raising waterway barrier woks (3 July 2017), compiled by DAF.
- Riverine Protection Permit Exemption Requirements WSS/2013/726, Version 1.04 (26/10/17), compiled by DNRM.

Cheers,

Keira Grundy Environmental Planner **Saunders Havill Group**
direct line (07) 3251 9468 mobile 0437 822 880 email keiragrundy@saundershavill.com
phone 1300 123 SHG web www.saundershavill.com head office 9 Thompson St Bowen Hills Q 4006

Brisbane / Emerald / Rockhampton

Surveying / Town Planning / Urban Design / Mapping / Environmental Management / Landscape Architecture

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From: Knox, Graeme [mailto:Graeme.Knox@lendlease.com]
Sent: Thursday, 9 November 2017 1:29 PM
To: Murray Saunders <murraysaunders@saundershavill.com>; Keira Grundy <keiragrundy@saundershavill.com>; 'daniel.omalley@arcadis.com' <daniel.omalley@arcadis.com>; Christo Louw (Christo.Louw@arcadis.com) <Christo.Louw@arcadis.com>
Cc: Shane Miley (Shane.Miley@arcadis.com) (Shane.Miley@arcadis.com) <Shane.Miley@arcadis.com>
Subject: Sewer

Hi, just letting you know we are hoping to have an approval back from QUU by end this week/early next week
Obviously once that lands we will be looking to get going with tree clearing etc very soon after. So just checking in on plectranthus review and SBMPs
Christo – do we have a fee from Shaddies?

Graeme Knox
Development Manager, Communities
Level 4, Kings Gate, 2 King Street, Bowen Hills QLD 4006
GPO Box 2777, Brisbane Qld 4001
M +421179432
Graeme.Knox@lendlease.com | www.lendlease.com

Attachment 7

WWBW Accepted Development Pre-Works Notification – Saunders Havill Group

saunders havill group

Saunders Havill Group Pty Ltd ABN 24 144 972 949
address 9 Thompson St Bowen Hills Q 4006
phone (07) 3251 9444 email mail@saundershavill.com
web www.saundershavill.com fax (07) 3251 9455

surveying town planning urban design environmental management landscape architecture

Date: 05 December 2017
Our Reference: 7522

Manager (Planning and Assessment)
Maroochy Fisheries Facility – Nambour
Department of Agriculture and Fisheries
PO Box 5083 SCMC, Nambour QLD 4560
Ph. 07 5453 5860
Email - accepteddevelopment@daf.qld.gov.au

RE: Pre Works Notification Form for Accepted Development (Bed Level Crossing) for Mountain Creek Sewer, Springfield Rise Development at Sinnathamby Boulevard, Springfield

Dear Sir / Madam,

Please find attached the Pre–Works Notification Form for Accepted Development for the construction of three (3) bed level crossings across a moderate impact (amber) waterway for works associated with the Springfield Rise development, located at Sinnathanby Boulevard, Springfield.

The proposed works are for the extension of a trunk sewer main across a moderate impact (amber) mapped waterway known as Mountain Creek. The trunk sewer will be managed by Queensland Urban Utilities and will cross Mountain Creek in three locations requiring the construction of a bed level crossing at each location. The design of the bed level crossings complies with the outcomes of Section 4.2. New and Replacement Bed Level Crossings for amber mapped waterways, of the 'Accepted development requirements for operational work that is construction or raising of waterway barrier works, effective 3 July 2017'.

A Site Based Management Plan has been prepared by Saunders Havill Group (December 2017) to manage and mitigate environmental impacts. Provisions within this management plan require felled trees to be suitably stockpiled away from the waterways.

A Pre Works Notification Form for Accepted Development (Bed Level Crossing) for the Mountain Creek Sewer is included as Attachment 1.

Should you require any further information please do not hesitate to contact me on (07) 3251 9468 or keiragrundy@saundershavill.com.

Yours Sincerely,

Keira Grundy
Environmental Planner
Saunders Havill Group

saunders havill group

Saunders Havill Group Pty Ltd ABN 24 144 972 949
address 9 Thompson St Bowen Hills Q 4006
phone (07) 3251 9444 email mail@saundershavill.com
web www.saundershavill.com fax (07) 3251 9455

surveying town planning urban design environmental management landscape architecture

Attachment I – IOA Pre-Works Notification Form for Accepted Development

You are required to complete all sections of this form and email to Fisheries Queensland, Department of Agriculture and Fisheries at acceptеddevelopment@daf.qld.gov.au.

All applicable fields must be completed. Incomplete forms will not be registered and your works will not be lawful. It is your responsibility to ensure the work complies with all accepted development requirements.

You may be required to obtain approvals from other agencies prior to commencing work.

PART 1. PRE-WORKS NOTIFICATION FORM

Pre-works notification must be provided prior to but no more than 20 business days before commencing works (unless Section 7 Disaster provisions apply and then it must be provided as soon as practicable after commencement).

1. Contact details of person undertaking the works

This person must be contactable and may be contacted by Fisheries Queensland for monitoring purposes.

Name and organisation (if applicable): Sam Schroter (Shadforths Civil Contractors)

Physical address: 99 Sandlewood Lane, Forest Glen, QLD 4556

Postal address: Same as above

Email: sam. schroter@shadcivil.com.au Telephone: 07 5442 3955

2. Work Details ☒ Private or ☐ Public

Attach additional sheet if more space is required

Ensure site photos are attached as per Appendix 4, and a map of the location of the works.

Construction of 3 x bed- level crossings limited to stream bed scour protection which abuts the stream bed at the same level. Scour protection will be installed at a gradient no steeper than 1 in 20, will incorporate a lot flow channel and will be constructed with clean rocks at least 100mm in diameter. The rock armouring will not be over compacted, but left proud and uneven. Refer Attachment 2.

Date works to commence and expected timeframe *e.g. 26/06/17, 220 days*	Lot on Plan or adjacent Lot on Plan; and street address	Co-ordinates (decimal degrees) and datum system used (GDA94 or WGS84)	Colour and name of mapped waterway and specify if tidal	New work or maintenance *(e.g. new work)*	Work type *(e.g. 2.2 replacement of bed level crossing)*	Work size (dimensions), description (including option chosen if applicable) and method
11/ 12 /17, 300 days	Lot 9008 on	Refer Attachment 3	Mountain Creek -	New work	3 x bed level crossing	Refer Attachment 2
	SP290386,	(Plans 1 -3)	Amber			
	Sinnathamby					
	Boulevard,					
	Springfield					

3. Declaration

In completing the pre-works notification form, I confirm the following:

☒ This document has been read

☒ This document has been understood

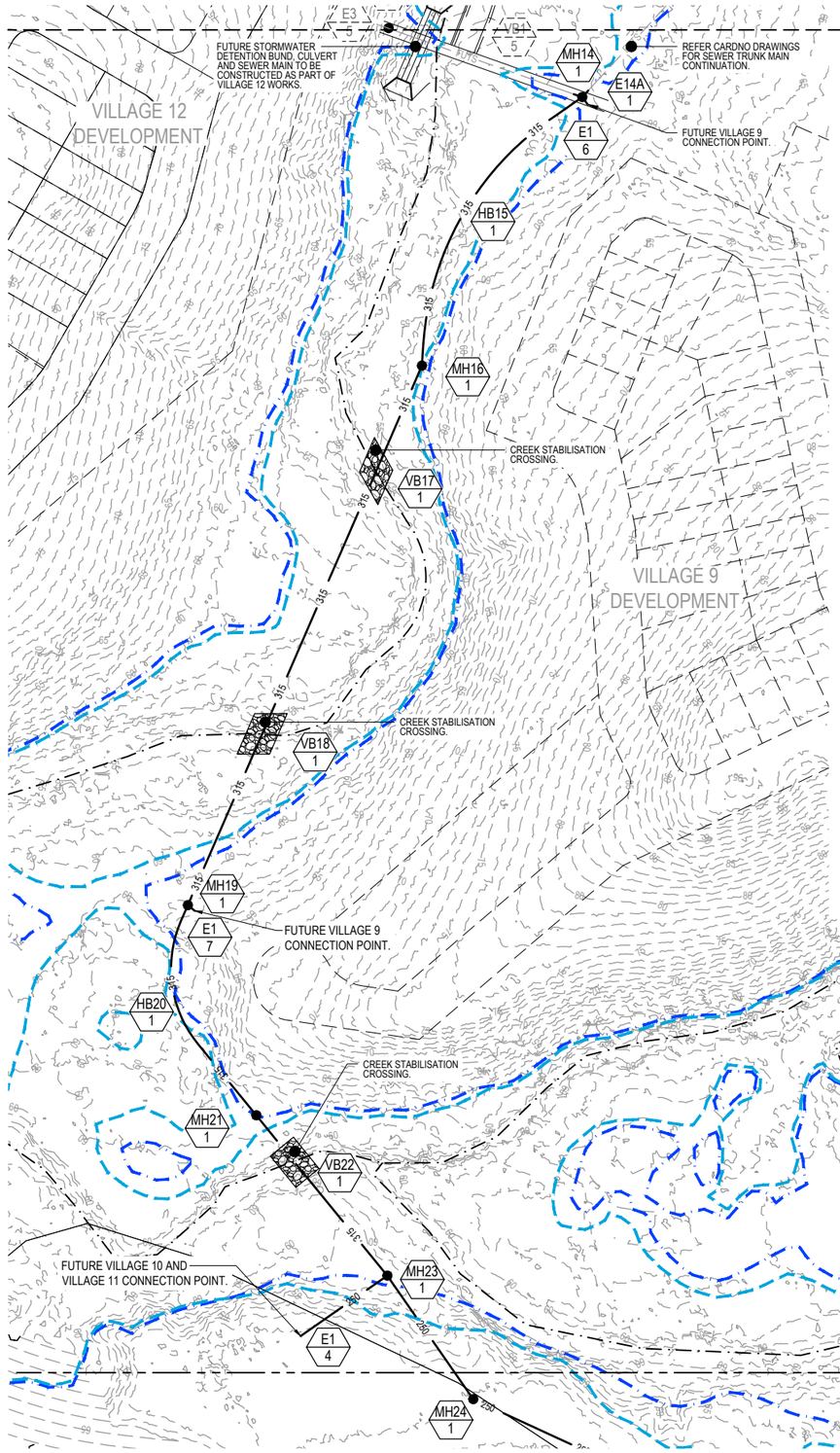
☒ The proposed works meet the work standards and the requirements for accepted development

Name and organisation of person notifying: *Name to be provided in full* Keira Grundy (Saunders Havill Group)

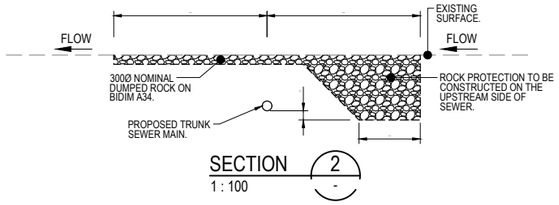
Date of notification: 05 December 2017

You must keep a copy of the pre-work notification form and evidence of the notification date and any reference number you are provided. You must be able to provide this information if requested.

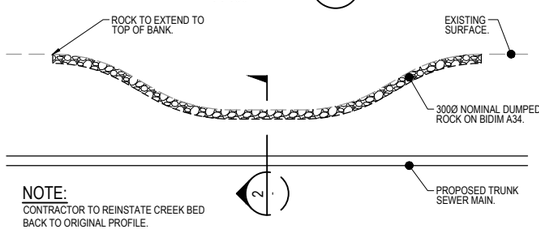
Attachment 2 – Mountain Creek Trunk Sewer Main Plans, prepared by Arcadis



MATCH LINE
REFER BELOW RIGHT FOR CONTINUATION

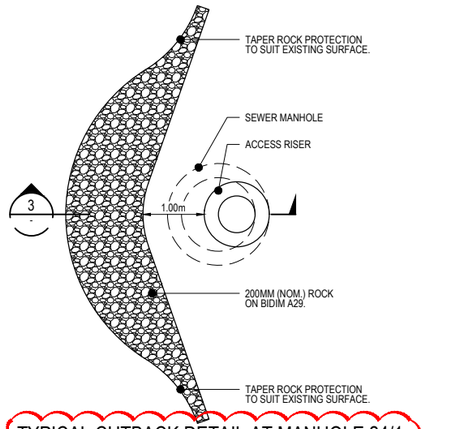


SECTION 2
1 : 100

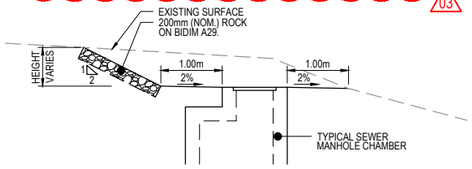


NOTE:
CONTRACTOR TO REINSTATE CREEK BED BACK TO ORIGINAL PROFILE.

TYPICAL CREEK CROSSING STABILISATION DETAIL
SCALE- 1:100



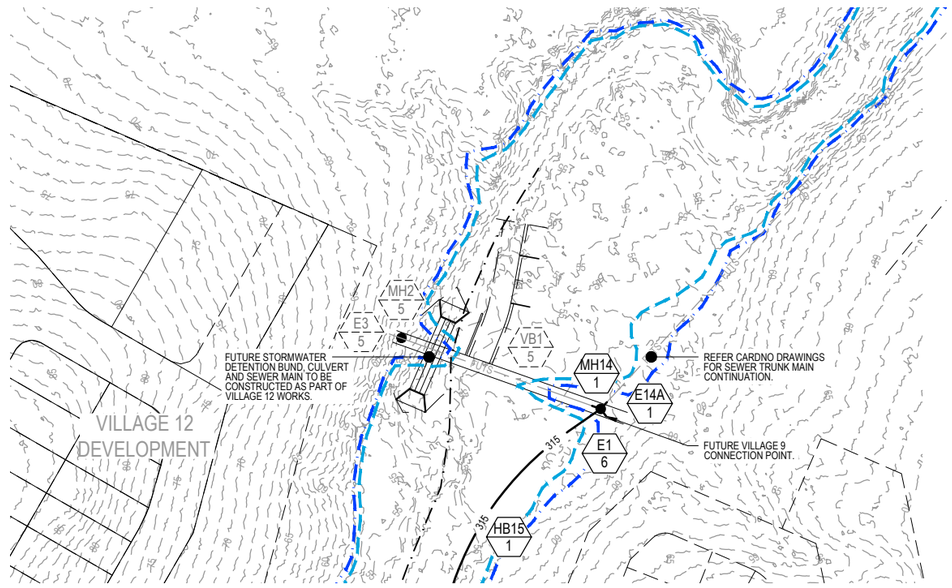
TYPICAL CUTBACK DETAIL AT MANHOLE 24/1
CONTRACTOR TO DETERMINE ON SITE WHERE THIS IS REQUIRED OTHER THAN AT MH21/1.
03



SECTION 3
1 : 50

LEGEND

160	PROPOSED DN160 SEWERAGE TRUNK MAIN
250	PROPOSED DN250 SEWERAGE TRUNK MAIN
315	PROPOSED DN315 SEWERAGE TRUNK MAIN
VB8 1	SEWER STRUCTURE IDENTIFIER
MH1 1	EXISTING SEWER STRUCTURE IDENTIFIER
S	PROPOSED SEWER RETICULATION
SWD	PROPOSED STORMWATER DRAINAGE
W	PROPOSED WATER RETICULATION
5.0	PROPOSED SURFACE CONTOURS
5.0	EXISTING SURFACE CONTOURS
	EXISTING GABION RETAINING WALL
	MOUNTAIN CREEK INVERT
	Q20 DEVELOPED FOODLINE
	Q100 DEVELOPED FLOODLINE
	STAGE BOUNDARY



Issue	Description	By	Ckd	RPEQ	Date
03	DETAIL TITLE REVISED, NOTE ADDED	S.G.	M.G.	S.M.	31/10/17
02	NOTES & DETAILS ADDED, SEWER ALIGNMENT & FLOOD LINES REVISED	SG	MG	SM	10/08/17
01	ORIGINAL ISSUE	SG	MG	SM	22/06/17

100mm on Original

Scale
0 10 20 40 60 80 100m
1 : 1000

Surveyor
WOLTER consulting group
Planning Urban Design Landscape Environment Surveying

Architect

Filename C-ts-015-aa008228-bnd-layout.dwg

Client

Status
FOR APPROVAL
CONSTRUCTION SUBJECT TO APPROVAL

Approved
R.P.E.Q No : 15931

Scales	1 : 1000	Original Issue Signatures	
		Drawn T.PHAN	
Original Size	A1	Designed S. GORMAN	
Height Datum	AHD	Project Manager S. MILEY	
Grid	MGA	© Copyright reserved	

Project
MOUNTAIN CREEK TRUNK SEWER MAIN

Title
TRUNK SEWER LAYOUT PLAN SHEET 2 OF 2

ARCADIS
Arcadis Australia Pacific Pty Limited
Level 5, 120 Edward Street
Brisbane QLD 4000
ABN 76 104 485 289
Tel No: +61 7 3337 0000
Fax No: +61 7 3337 0055
www.arcadis.com

Drawing No.	Project No.	Issue
C-TS-016	AA008228	03

Attachment 3 - Pre-Works Notification Photo Plans, prepared by Saunders Havill Group

1. Waterway Barrier Works Pre-works Notification Plan (South Crossing)

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
Qld State Cadastre and Mapping layers © State of Queensland (Department of Natural Resources and Mines) 2017. Updated data available at http://qldspatial.information.qld.gov.au/catalogue//
Aerial Imagery © Nearmap, 2017

* This note is an integral part of this plan/data. Reproduction of this plan or any part of it without this note being included in full will render the information shown on such reproduction invalid and not suitable for use.

Legend

- Extent of temporary works

Waterways

Risk of Impact

- 1 - Low
- 2 - Moderate
- 3 - High
- 4 - Major

A - ACROSS WATERWAY

B - DOWNSTREAM

C - UPSTREAM

Issue	Date	Description	Drawn	Checked
A	1/12/2017	Preliminary	TC	MS

0 5 10 20 m

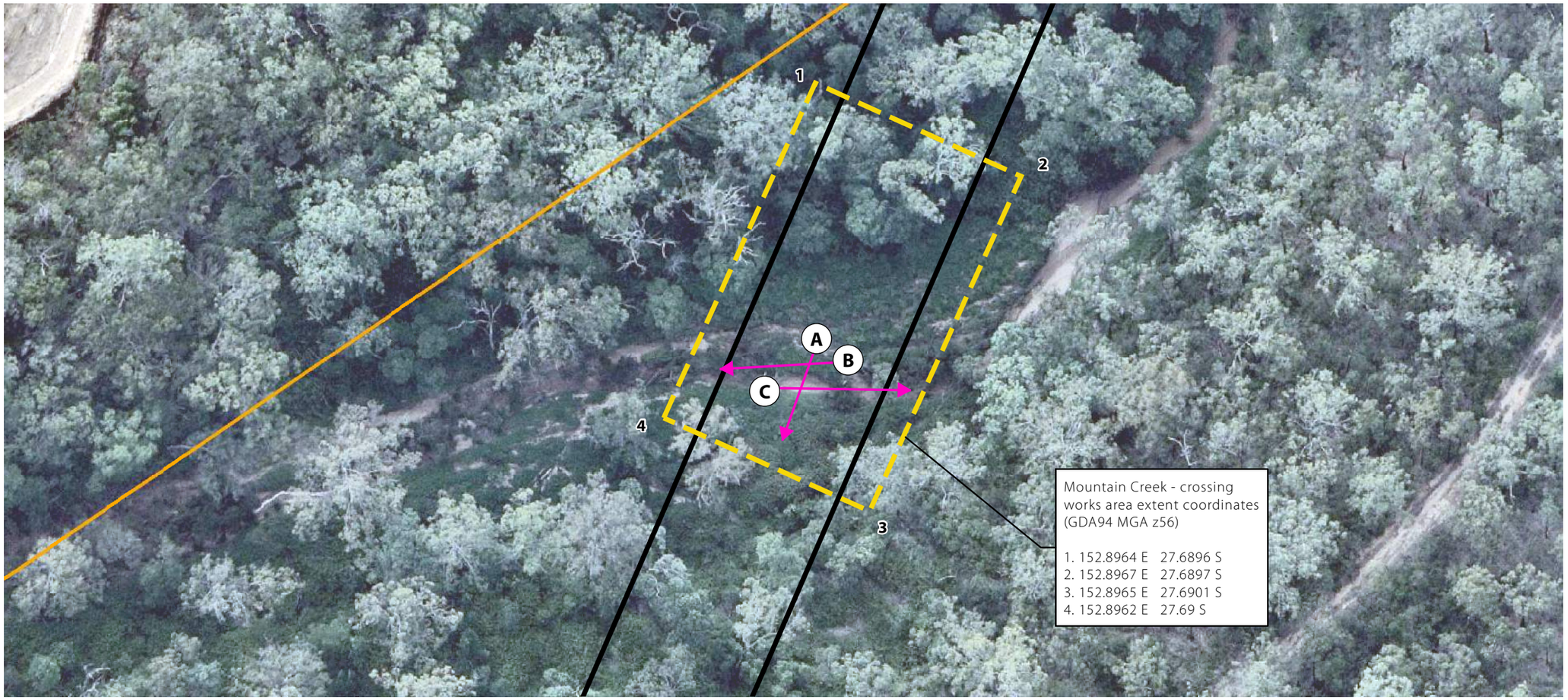
Transverse Mercator | GDA 1994 | Zone 56 | 1:600 @ A3

saunders havill group

SPRINGFIELD RISE, SPRINGFIELD

ADDRESS/RPD: Springfield, Qld *1/12/2017* *7522 E 01 mt creek sewer preworks WWBWs A*

2. Waterway Barrier Works Pre-works Notification Plan (West Crossing)



NOTES
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Aerial Imagery © Nearmap, 2017

* This note is an integral part of this plan/data. Reproduction of this plan or any part of it without this note being included in full will render the information shown on such reproduction invalid and not suitable for use.

Legend

- Extent of temporary works

Waterways

Risk of Impact

- 1 - Low
- 2 - Moderate
- 3 - High
- 4 - Major

A - ACROSS WATERWAY

B - DOWNSTREAM

C - UPSTREAM

Issue	Date	Description	Drawn	Checked
A	1/12/2017	Preliminary	TC	MS

0 5 10 20 m

Transverse Mercator | GDA 1994 | Zone 56 | 1:600 @ A3

saunders havill group

SPRINGFIELD RISE, SPRINGFIELD

ADDRESS/RPD: Springfield, Qld *1/12/2017* *7522 E 02 mt creek sewer preworks WWBWs A*

3. Waterway Barrier Works Pre-works Notification Plan (North Crossing)

Mountain Creek - crossing works area extent coordinates (GDA94 MGA z56)

1. 152.8968 E 27.6889 S
2. 152.8971 E 27.689 S
3. 152.8965 E 27.6901 S
4. 152.8966 E 27.6893 S

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.

Legend

- Extent of temporary works

Waterways

Risk of Impact

- 1 - Low
- 2 - Moderate
- 3 - High
- 4 - Major

A - ACROSS WATERWAY

B - DOWNSTREAM

C - UPSTREAM

Issue	Date	Description	Drawn	Checked
A	1/12/2017	Preliminary	TC	MS

0 5 10 20 m

Transverse Mercator | GDA 1994 | Zone 56 | 1:600 @ A3

saunders havill group

SPRINGFIELD RISE, SPRINGFIELD

ADDRESS/RPD: Springfield, Qld *1/12/2017* *7522 E 03 mt creek sewer preworks WWBWs A*

Attachment 8

Wildlife Habitat Management Plan – Queensland Fauna Consultants

QUEENSLAND FAUNA CONSULTANCY Pty Ltd

December 2017

Fauna Spotter Catcher Pre-clearanceSurvey and Wildlife Protection & Management Plan

Springfield Rise – Mountain Creek Sewer Alignment
Spring Mountain, Queensland

Report prepared for Shadforths Civil Contractors

Report prepared by

QLD Fauna Consultancy Pty Ltd

Phone: (07) 3376 9780

Fax: (07) 3376 9740

Email: fauna@qfc.com.au

Date:	15/12/17
Title:	Fauna Spotter Catcher Pre-clearance and Habitat Values Survey Springfield Rise – Mountain Creek Sewer Alignment, Queensland
Author/s:	Bryan Robinson, Camille Palmer, Ramona Rohwedder
Reviewed by:	Camille Palmer
Field personnel:	Oliver Robertson
Status:	Final Report
Filed as:	QFC FHA Shadforths Springfield Rise Mountain Creek Sewer Alignment Dec 2017.doc

Contents

1. Introduction

1.1 Project Background

Queensland Fauna Consultancy Pty Ltd has been engaged by Shadforths Civil Contractors to conduct a Fauna Spotter Catcher Pre-clearance and Habitat Values Survey and present a subsequent report for the Spring Mountain Sewer Alignment (Trunk Sewer), as part ofSpringfield Rise development, Spring Mountain, Queensland.The site location is presented in Map 1.

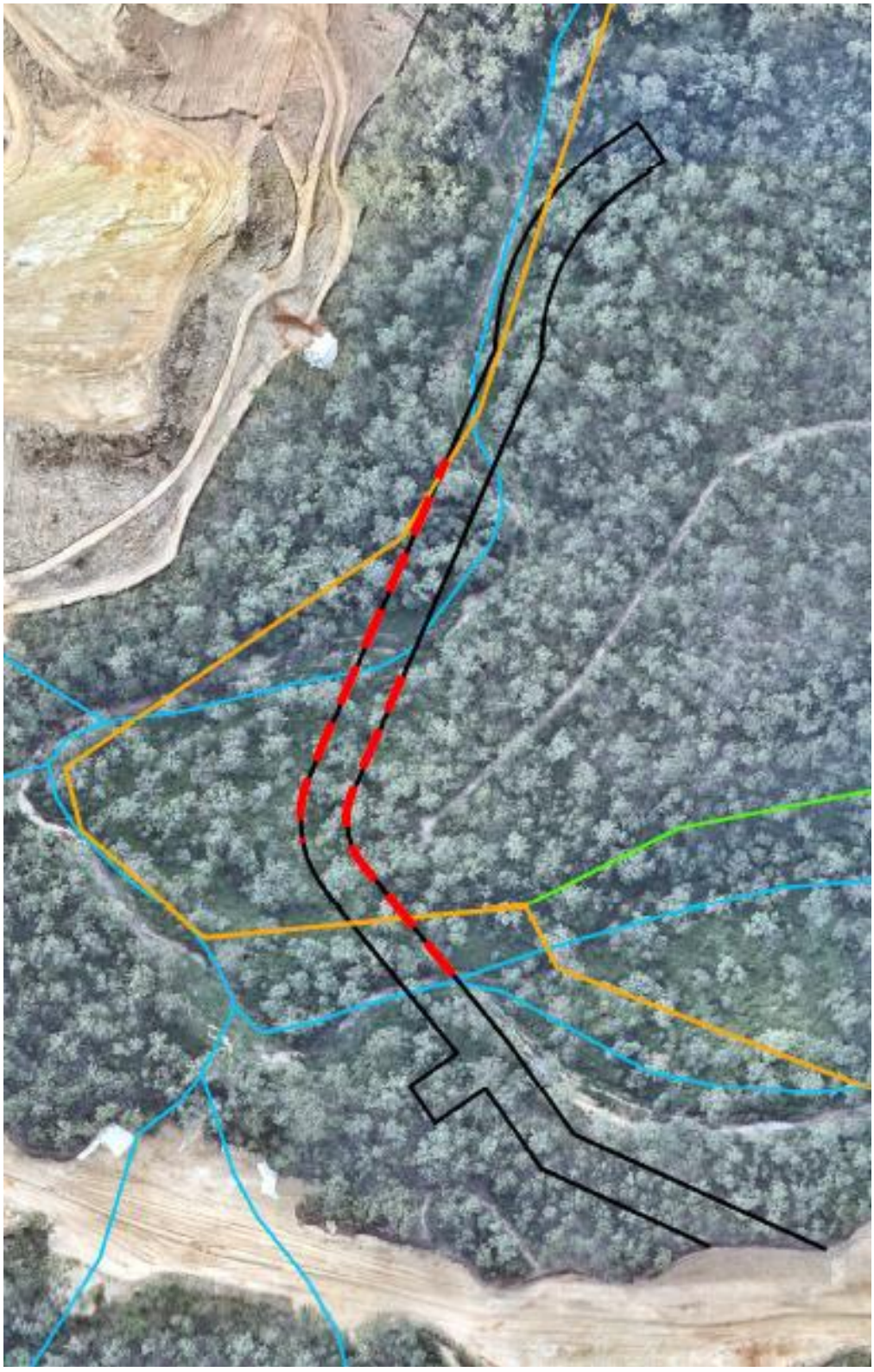
The objective of this report is to summarise the existing fauna values present and assign mitigatory strategies applicable to probable species likely to be encountered during the clearing of identified habitats throughout or within specific localities of the site. Fauna species both common and of elevated 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.

1.2 Project Location and Site Description

The Mountain Creek Sewer Alignment is centrally located within the Springfield Rise precinct and is approximately 20 metres wide and 500 metre long.

Site formation consists of a woodland vegetative complex with an undulating topography and a drainage feature. Understorey vegetation is dominated by Lantana *Lantana camara,* with predominant trees species across several vegetation types including *Angophora leiocarpa, Angophora subvelutina, Eucalyptus tereticornis* and *Melaleuca viminalis.*



Map 1: Project Location (Image supplied by Saunders Havill Group, 2017)

1.3 Current Permits and Authorities

All activities conducted during the site investigations were implemented under the provisions of a number of permits issued to Queensland Fauna Consultancy Pty Ltd by the Department of Environment and Heritage Protection (DEHP) formerly the Department of Environment and Resource Management 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	WIMP17840916	22nd December 2019
Rehabilitation Permit	WA0001454	10th September 2020
Scientific Purposes Permit	WISP16935816	14th February 2021
Scientific User Registration	Registration Number 589	27th February 2019
Animal Ethics	CA 2016/01/939	27th February 2019

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 15th December 2017 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 aradius 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 different components and microhabitat features. These features include dense understorey composed primarily of Lantana *Lantana camara*(Figure 1), with sections exhibiting dense cover provided by grass species such as *Lomandra species* surrounding the drainage features (Figure 2). These features represent a moderate terrestrial fauna habitat value for numerous common reptile, amphibian and small mammal species.

Further the site exhibits some woody debris (Figure 3) and soil cracks that may provide refugial opportunities for reptiles and amphibians. A small number of hollow logs are present providing habitat value for small mammals and reptiles (Figure 4). Leaf litter is also a feature on site, being present at variable depths (Figure 4), providing both refugial opportunities and microhabitat connectivity can be exploited by several different native terrestrial vertebrate and invertebrate species.

Mammal assemblages may comprise both native and introduced species. Native mammals occurring on site include the Northern Brown Bandicoot *Isoodon macrourus* which may be present in localities with significant vegetative ground cover.

Localities for identified terrestrial habitat features are presented in Map 2. GPS coordinates for indicative terrestrial habitat features are shown in Table 2.

A comprehensive list of fauna species recorded in the region can be viewed in Appendix C.

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

Number	Habitat Feature	GPS Coordinates	
		Latitude	Longitude
1	Hollow log	-27.6921	152.8977

Figure 1: Dense Lantana understorey

Figure 2: Dense grass in gully

Figure 3: Woody debris and soil cracks

Figure 4: Hollow log and leaf litter

3.2 Arboreal Habitat Features

The majority of the clearance area consists predominately of dry Eucalypt woodland (Figure 5) consisting of trees of varying height, species and density suitable for feeding and nesting resources.The intermittent contiguous canopy structure within 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 stags (Figure 6to Figure 9) feature at the site providing habitat opportunities for a number of arboreal mammals and reptile species, as well as parrots and Microbats.No avian nests were observed during the survey however further inspections are recommended immediately prior to clearing commencement. No Possum dreys were sighting at the time of the inspection.

Localities for identified (arboreal habitat features are presented in Map 2. GPS coordinates for all indicative arboreal habitat features are shown in Table 3.

Primary and secondary Koala food trees located in the clearance area include *Angophora leiocarpa, Angophora subvelutina* and *Eucalyptus tereticornis.* 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.

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

Number	Habitat Feature	GPS Coordinates	
		Latitude	Longitude
1	Hollow-bearing tree	-27.6913	152.8966
2	Hollow-bearing stag	-27.6915	152.8965
3	Hollow-bearing stag	-27.69057	152.8961
4	Hollow-bearing stag	-27.6895	152.8965

Figure 5: Site overview - woodland

Figure 6: Hollow bearing tree

Figure 7: Hollow bearing stag

Figure 8: Hollow stag

Figure 9: Hollow stag

Map 2: **Localities for identified terrestrial and arboreal habitat features**

3.3 Aquatic Habitat Features

An ephemeral drainage featureis located within the clearance survey area (Figure 10 and Figure 11). Although moist, nopooling of water was present at the time of inspection however the sandy soil associated with the drainage feature is ideal for a range of amphibian species including Tusked Frog *Adelotus brevis.* Intermittent ponded features after rain may provide breeding opportunities for amphibian species.

Figure 10: Drainage feature

Figure 11: Drainage feature

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, seven species identified within the Online EPBC Protected Matters Report and the Queensland Government Wildlife Online Search Tool were considered likely or possible to occur within the site and will require further mitigation during clearing activities.

Although no evidence was found during the site inspection of very recent Koala use the species has previously been recorded in the area. Areas within the site are identified as High Value Bushland features under Koala Habitat in South East Queensland mapping sourced from the DEHP 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 species prior to vegetation clearing activities.

Table 4: **Significant species deemed likely or 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:**Vulnerable **NCA:**Vulnerable	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*.	***Likely*** Known food trees for the transient Koala (*Phascolarctos cinereus)* occur on the clearance siteand the species is well documented within the area.
Grey-headed Flying-fox *Pteropuspoliocephalus* **EPBC:** Vulnerable **NCA:**Least Concern	The Grey-headed Flying-Fox roosts in aggregations of various sizes on exposed branches, commonly of emergent trees. Roost sites are typically located near water, such as lakes, rivers or the coast. Habitat includes open forests, woodlands, urban parks and gardens.	***Possible*** Suitable vegetation communitiescontaining both feeding and roosting resources occur on and adjacent to the clearance site.
Spotted-tail Quoll (SE Mainland Population) *Dasyurus maculates maculatus* **EPBC:** Endangered **NCA:** Vulnerable	Currently known from the Granit Belt and Border Ranges though small numbers may occur from Gympie to the QLD border (Curtis *et al*. 2012). Inhabits vine-forest, wet and dry sclerophyll forests and woodlands containing boulder piles, fallen logs and hollow trees utilised as shelter sites (Curtis *et al.* 2012).	***Possible*** Preferred habitat type and habitat features present and the species is documented within the area.
Greater Glider *Petauroidesvolans* **EPBC:**Vulnerable **NCA:**Least Concern	Largest of the gliders, the Great Glider is found along eastern Australia within a variety of eucalypt dominated forests and tall open woodlands (Lindenmayer 2002)	***Possible*** Preferred habitat type and habitat features present and the species is documented within the area.

Amphibians		
Tusked Frog *Adelotus brevis* **EPBC:** Not Listed **NCA:** Vulnerable	Inhabits permanent ponds and streams within rainforests, wet to dry forests and farmland areas (Anstis 2013). Nests are constructed under leaf litter, vegetation or logs at the edge of ponds or stream pools in concealed locations (Anstis 2013).	***Possible*** Preferred habitat types present and the species is documented within the area.
Birds		
Powerful Owl *Ninoxstrenua* **EPBC:** Not Listed **NCA:** Vulnerable	Inhabits forests and woodlands of eastern and south-eastern Australia (Beruldsen 2003). Breeds once per year in May to July or August. Nests in hollow trunks or limbs of large trees, usually at considerable height (Beruldsen 2003).	***Possible*** Preferred habitat types present and the species is documented within the area.
Reptiles		
Collared Delma *Delma torquata* **EPBC:** Vulnerable **NCA:** Vulnerable	Weathered loose rocks, flattish bedrock outcroppings, logs or mats of leaf litter, or in cracks and crevices among tussock grasses. Lays two eggs around December with hatching in February or March (Curtis *et al.* 2012)	***Possible*** Preferred habitat type and habitat features present.

4. Fauna Impacts

It is important to consider the proposed development surrounding the site and potential for fragmenting habitat and isolating species when investigating potential fauna impacts.

Impacts to fauna as a result of vegetation clearance will include the following:

- Loss of trees for foraging, roosting and nesting;
- Loss of hollow-bearing trees for nesting and refuge;
- Loss of habitat and foraging areas for terrestrial species;
- Loss of overall habitat;
- Potential loss of abundance of some local species.

Other impacts may include:

- Injury or death during felling of trees;
- Injury or death from machinery;
- Alteration of nesting, foraging and general activities due to disturbance.

5. Assessment and Conclusion

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 will be proposed directly for common fauna and species of conservation significance.

The connectivity to adjacent habitat in conjunction with sequential clearing methodologies will aid in the movement of medium to large size fauna such as Koala and Kangaroos. Specific methodologies for these species will be detailed within the Wildlife and Habitat Impact Mitigation Plan (WHIMP).

A number of conclusions and recommendations will be presented in the WHIMP, 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.

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

6. References

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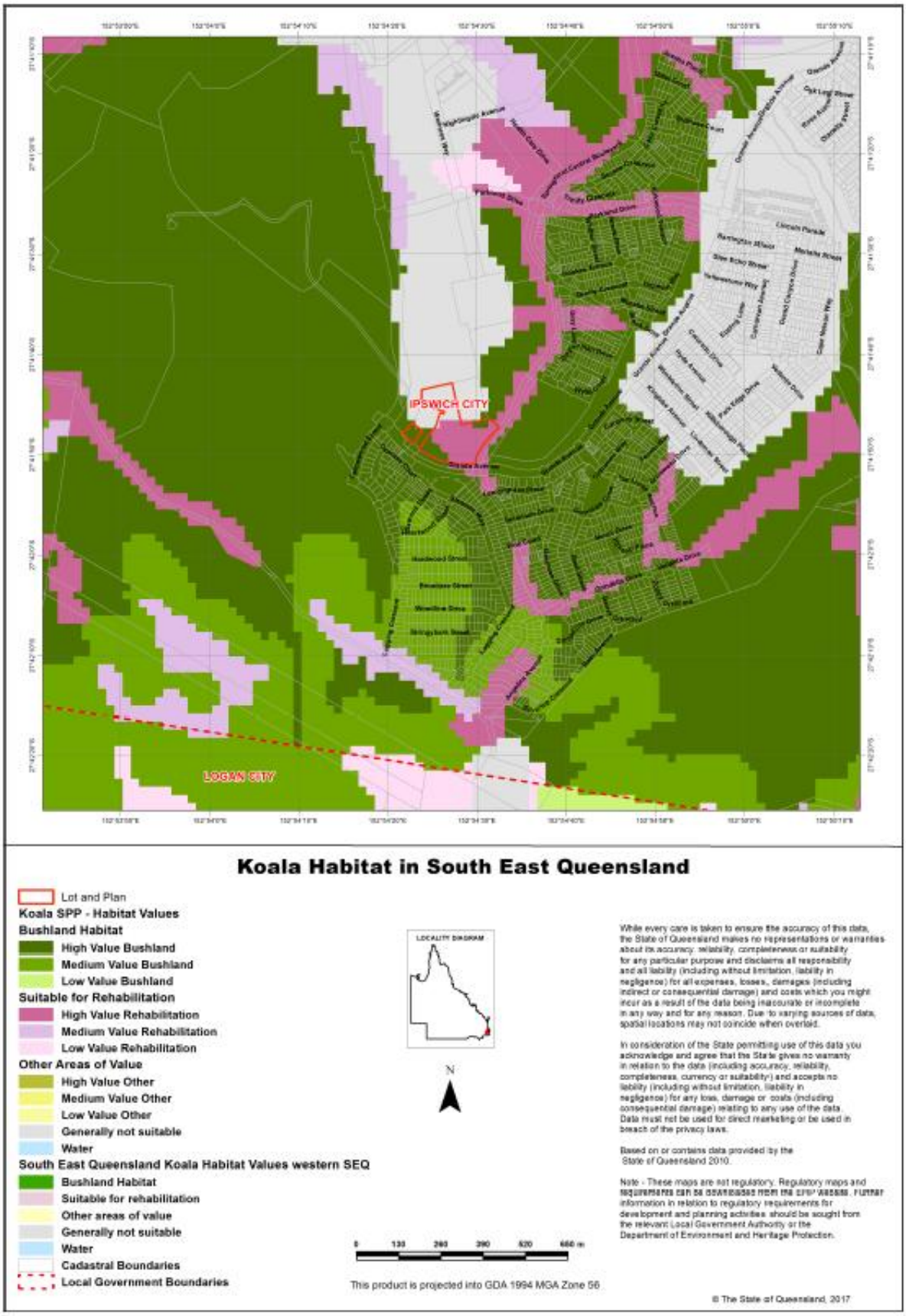
7. Appendix A: Koala Habitat Values



8. Appendix B: EPBC Act Protected Matters Report

Australian Government
Department of the Environment and Energy

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.

Information on the coverage of this report and qualifications on data supporting this report are contained in the caveat at the end of the report.

Information is available about Environment Assessments and the EPBC Act including significance guidelines, forms and application process details.

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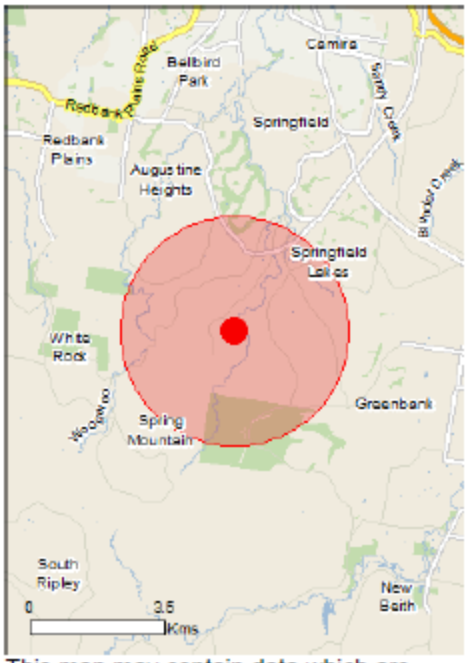

This map may contain data which are ©Commonwealth of Australia (Geoscience Australia), ©PSMA 2010

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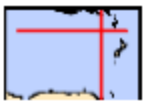

Summary

Matters of National Environmental 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:	None
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	2
Listed Threatened Species:	34
Listed Migratory Species:	16

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 http://www.environment.gov.au/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 Land:	None
Commonwealth Heritage Places:	None
Listed Marine Species:	23
Whales and Other Cetaceans:	None
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Commonwealth Reserves Marine:	None

Extra Information

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

State and Territory Reserves:	1
Regional Forest Agreements:	None
Invasive Species:	32
Nationally Important Wetlands:	None
Key Ecological Features (Marine)	None

Details

Matters of National Environmental Significance

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.

Name	Status	Type of Presence
Lowland Rainforest of Subtropical Australia	Critically Endangered	Community may occur within area
White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland	Critically Endangered	Community may occur within area

Listed Threatened Species [Resource Information]

Name	Status	Type of Presence
Birds		
Anthochaera phrygia Regent Honeyeater [82338]	Critically Endangered	Foraging, feeding or related behaviour may occur within area
Botaurus poiciloptilus Australasian Bittern [1001]	Endangered	Species or species habitat likely to occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
Dasyornis brachypterus Eastern Bristlebird [533]	Endangered	Species or species habitat likely to occur within area
Erythrotriorchis radiatus Red Goshawk [942]	Vulnerable	Species or species habitat likely to occur within area
Geophaps scripta scripta Squatter Pigeon (southern) [64440]	Vulnerable	Species or species habitat may occur within area
Grantiella picta Painted Honeyeater [470]	Vulnerable	Species or species habitat may occur within area
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat may occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area
Poephila cincta cincta Southern Black-throated Finch [64447]	Endangered	Species or species habitat may occur within area

Name	Status	Type of Presence
Rostratula australis Australian Painted Snipe [77037]	Endangered	Species or species habitat may occur within area
Turnix melanogaster Black-breasted Button-quail [923]	Vulnerable	Species or species habitat likely to occur within area
Insects		
Argynnis hyperbius inconstans Australian Fritillary [88056]	Critically Endangered	Species or species habitat may occur within area
Mammals		
Chalinolobus dwyeri Large-eared Pied Bat, Large Pied Bat [183]	Vulnerable	Species or species habitat likely to occur within area
Dasyurus hallucatus Northern Quoll, Digul [Gogo-Yimidir], Wijingadda [Dambimangari], Wiminji [Martu] [331]	Endangered	Species or species habitat may occur within area
Dasyurus maculatus maculatus (SE mainland population) Spot-tailed Quoll, Spotted-tail Quoll, Tiger Quoll (southeastern mainland population) [75184]	Endangered	Species or species habitat may occur within area
Petauroides volans Greater Glider [254]	Vulnerable	Species or species habitat likely to occur within area
Petrogale penicillata Brush-tailed Rock-wallaby [225]	Vulnerable	Species or species habitat likely to occur within area
Phascolarctos cinereus (combined populations of Qld, NSW and the ACT) Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory) [85104]	Vulnerable	Species or species habitat known to occur within area
Pteropus poliocephalus Grey-headed Flying-fox [186]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
Plants		
Boisiloa transversa Three-leaved Boisiloa, Yellow Satinheart [16091]	Vulnerable	Species or species habitat likely to occur within area
Cycas ophiolitica [55797]	Endangered	Species or species habitat likely to occur within area
Dichanthium setosum bluegrass [14159]	Vulnerable	Species or species habitat likely to occur within area
Macadamia integrifolia Macadamia Nut, Queensland Nut Tree, Smooth-shelled Macadamia, Bush Nut, Nut Oak [7326]	Vulnerable	Species or species habitat likely to occur within area
Macadamia tetraphylla Rough-shelled Bush Nut, Macadamia Nut, Rough-shelled Macadamia, Rough-leaved Queensland Nut [6581]	Vulnerable	Species or species habitat may occur within area
Notelaea lpsviciensis Cooneana Olive [81858]	Critically Endangered	Species or species habitat may occur within area
Notelaea lloydii Lloyd's Olive [15002]	Vulnerable	Species or species habitat likely to occur within area
Phalus australis Lesser Swamp-orchid [5872]	Endangered	Species or species

Name	Status	Type of Presence
		habitat may occur within area
Plectranthus habrophyllus [64589]	Endangered	Species or species habitat likely to occur within area
Samadera bidwillii Quassia [29708]	Vulnerable	Species or species habitat likely to occur within area
Thesium australe Austral Toadflax, Toadflax [15202]	Vulnerable	Species or species habitat likely to occur within area
Reptiles		
Delma torquata Adorned Delma, Collared Delma [1656]	Vulnerable	Species or species habitat may occur within area
Furina dunmalli Dunmall's Snake [59254]	Vulnerable	Species or species habitat may occur within area
Saiphos reticulatus Three-toed Snake-tooth Skink [86328]	Vulnerable	Species or species habitat may occur within area

Listed Migratory Species [Resource Information]

* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.

Name	Threatened	Type of Presence
Migratory Marine Birds		
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Migratory Terrestrial Species		
Cuculus optatus Oriental Cuckoo, Horsfield's Cuckoo [86651]		Species or species habitat may occur within area
Hirundapus caudacutus White-throated Needletail [682]		Species or species habitat known to occur within area
Monarcha melanopsis Black-faced Monarch [609]		Species or species habitat known to occur within area
Monarcha trivirgatus Spectacled Monarch [610]		Species or species habitat may occur within area
Motacilla flava Yellow Wagtail [644]		Species or species habitat may occur within area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat known to occur within area
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat known to occur within area
Migratory Wetlands Species		
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat may occur within area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species

Name	Threatened	Type of Presence
		habitat may occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat may occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area
Pandion haliaetus Osprey [952]		Species or species habitat may occur within area
Tringa nebularia Common Greenshank, Greenshank [832]		Species or species habitat likely to occur within area

Other Matters Protected by the EPBC Act

Listed Marine Species [Resource Information]

* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.

Name	Threatened	Type of Presence
Birds		
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat may occur within area
Anseranas semipalmata Magpie Goose [978]		Species or species habitat may occur within area
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Ardea alba Great Egret, White Egret [59541]		Species or species habitat likely to occur within area
Ardea ibis Cattle Egret [59542]		Species or species habitat may occur within area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat may occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area
Cuculus saturatus Oriental Cuckoo, Himalayan Cuckoo [710]		Species or species habitat may occur within

Name	Threatened	Type of Presence
		area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat may occur within area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat known to occur within area
Hirundapus caudacutus White-throated Needletail [682]		Species or species habitat known to occur within area
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat may occur within area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area
Monarcha melanopsis Black-faced Monarch [609]		Species or species habitat known to occur within area
Monarcha trivirgatus Spectacled Monarch [610]		Species or species habitat may occur within area
Motacilla flava Yellow Wagtail [644]		Species or species habitat may occur within area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat known to occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area
Pandion haliaetus Osprey [952]		Species or species habitat may occur within area
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat known to occur within area
Rostratula benghalensis (sensu lato) Painted Snipe [889]	Endangered*	Species or species habitat may occur within area
Tringa nebularia Common Greenshank, Greenshank [832]		Species or species habitat likely to occur within area

Extra Information

State and Territory Reserves [Resource Information]

Name	State
White Rock	QLD

Invasive Species [Resource Information]

Weeds reported here are the 20 species of national significance (WoNS), along with other introduced plants that are considered by the States and Territories to pose a particularly significant threat to biodiversity. The following feral animals are reported: Goat, Red Fox, Cat, Rabbit, Pig, Water Buffalo and Cane Toad. Maps from Landscape Health Project, National Land and Water Resouces Audit, 2001.

Name	Status	Type of Presence
Birds		
Acridotheres tristis Common Myna, Indian Myna [387]		Species or species habitat likely to occur within area
Anas platyrhynchos Mallard [974]		Species or species habitat likely to occur within area
Carduelis carduelis European Goldfinch [403]		Species or species habitat likely to occur within area
Columba livia Rock Pigeon, Rock Dove, Domestic Pigeon [803]		Species or species habitat likely to occur within area
Lonchura punctulata Nutmeg Mannikin [399]		Species or species habitat likely to occur within area
Passer domesticus House Sparrow [405]		Species or species habitat likely to occur within area
Streptopelia chinensis Spotted Turtle-Dove [780]		Species or species habitat likely to occur within area
Sturnus vulgaris Common Starling [389]		Species or species habitat likely to occur within area
Frogs		
Rhinella marina Cane Toad [83218]		Species or species habitat likely to occur within area
Mammals		
Bos taurus Domestic Cattle [16]		Species or species habitat likely to occur within area
Canis lupus familiaris Domestic Dog [82654]		Species or species habitat likely to occur within area
Equus caballus Horse [5]		Species or species habitat likely to occur within area
Felis catus Cat, House Cat, Domestic Cat [19]		Species or species habitat likely to occur within area
Lepus capensis Brown Hare [127]		Species or species

Name	Status	Type of Presence
		habitat likely to occur within area
Mus musculus House Mouse [120]		Species or species habitat likely to occur within area
Oryctolagus cuniculus Rabbit, European Rabbit [128]		Species or species habitat likely to occur within area
Rattus norvegicus Brown Rat, Norway Rat [83]		Species or species habitat likely to occur within area
Rattus rattus Black Rat, Ship Rat [84]		Species or species habitat likely to occur within area
Sus scrofa Pig [6]		Species or species habitat likely to occur within area
Vulpes vulpes Red Fox, Fox [18]		Species or species habitat likely to occur within area
Plants		
Cabomba caroliniana Cabomba, Fanwort, Carolina Watershield, Fish Grass, Washington Grass, Watershield, Carolina Fanwort, Common Cabomba [5171]		Species or species habitat likely to occur within area
Chrysanthemoides monilifera Bitou Bush, Boneseed [18983]		Species or species habitat may occur within area
Eichhornia crassipes Water Hyacinth, Water Orchid, Nile Lily [13466]		Species or species habitat likely to occur within area
Genista monspessulana Montpellier Broom, Cape Broom, Canary Broom, Common Broom, French Broom, Soft Broom [20126]		Species or species habitat likely to occur within area
Lantana camara Lantana, Common Lantana, Kamara Lantana, Large-leaf Lantana, Pink Flowered Lantana, Red Flowered Lantana, Red-Flowered Sage, White Sage, Wild Sage [10892]		Species or species habitat likely to occur within area
Parkinsonia aculeata Parkinsonia, Jerusalem Thorn, Jelly Bean Tree, Horse Bean [12301]		Species or species habitat likely to occur within area
Parthenium hysterophorus Parthenium Weed, Bitter Weed, Carrot Grass, False Ragweed [19566]		Species or species habitat likely to occur within area
Salix spp. except S.babylonica, S.x calodendron & S.x reichardtii Willows except Weeping Willow, Pussy Willow and Sterile Pussy Willow [68497]		Species or species habitat likely to occur within area
Salvinia molesta Salvinia, Giant Salvinia, Aquarium Watermoss, Kariba Weed [13665]		Species or species habitat likely to occur within area
Senecio madagascariensis Fireweed, Madagascar Ragwort, Madagascar Groundsel [2624]		Species or species habitat likely to occur within area
Solanum elaeagnifolium Silver Nightshade, Silver-leaved Nightshade, White Horse Nettle, Silver-leaf Nightshade, Tomato Weed, White Nightshade, Bull-nettle, Prairie-berry, Satansbos, Silver-leaf Bitter-apple,		Species or species habitat likely to occur within area

Name	Status	Type of Presence
Silverleaf-nettle, Trompillo [12323]		
Reptiles		
Hemidactylus frenatus		
Asian House Gecko [1708]		Species or species habitat likely to occur within area

Caveat

The information presented in this report has been provided by a range of data sources as acknowledged at the end of the report.

This report is designed to assist in identifying the locations of places which may be relevant in determining obligations under the Environment Protection and Biodiversity Conservation Act 1999. It holds mapped locations of World and National Heritage properties, Wetlands of International and National Importance, Commonwealth and State/Territory reserves, listed threatened, migratory and marine species and listed threatened ecological communities. Mapping of Commonwealth land is not complete at this stage. Maps have been collated from a range of sources at various resolutions.

Not all species listed under the EPBC Act have been mapped (see below) and therefore a report is a general guide only. Where available data supports mapping, the type of presence that can be determined from the data is indicated in general terms. People using this information in making a referral may need to consider the qualifications below and may need to seek and consider other information sources.

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.

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

Where very little information is available for 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 reliable distribution mapping methods are used to update these distributions as time permits.

Only selected species covered by the following provisions of the EPBC Act have been mapped:

- migratory and
- marine

The following species and ecological communities have not been mapped and do not appear in reports produced from this database:

- threatened species listed as extinct or considered as vagrants
- some species and ecological communities that have only recently been listed
- some terrestrial species that overfly the Commonwealth marine area
- migratory species that are very widespread, vagrant, or only occur in small numbers

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

- non-threatened seabirds which have only been mapped for recorded breeding sites
- seals which have only been mapped for breeding sites near the Australian continent

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

Coordinates

-27.6909 152.8664

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.

9. Appendix C: Wildlife Online Extract

Queensland Government

Wildlife Online Extract

Search Criteria: Species List for a Specified Point
Species: Animals
Type: Native
Status: All
Records: All
Date: Since 1980
Latitude: -27.6909
Longitude: 152.8964
Distance: 5
Email: ramona@qfc.com.au
Date submitted: Friday 15 Dec 2017 15:53:50
Date extracted: Friday 15 Dec 2017 16:00:02

The number of records retrieved = 312

Disclaimer

As the DSITIA is still in a process of collating and vetting data, it is possible the information given is not complete. The information provided should only be used for the project for which it was requested and it should be appropriately acknowledged as being derived from Wildlife Online when it is used.

The State of Queensland does not invite reliance upon, nor accept responsibility for this information. Persons should satisfy themselves through independent means as to the accuracy and completeness of this information.

No statements, representations or warranties are made about the accuracy or completeness of this information. The State of Queensland disclaims all responsibility for this information and all liability (including without limitation, liability in negligence) for all expenses, losses, damages and costs you may incur as a result of the information being inaccurate or incomplete in any way for any reason.

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	amphibians	Hylidae	*Litoria fallax*	eastern sedgefrog		C		19
animals	amphibians	Hylidae	*Litoria nasuta*	striped rocketfrog		C		6
animals	amphibians	Hylidae	*Cyclorana alboguttata*	greenstripe frog		C		1
animals	amphibians	Hylidae	*Litoria brevipalmata*	green thighed frog		C		1
animals	amphibians	Hylidae	*Litoria latopalmata*	broad palmed rocketfrog		C		9
animals	amphibians	Hylidae	*Litoria gracilenta*	graceful treefrog		C		13
animals	amphibians	Hylidae	*Litoria wilcoxii*	eastern stony creek frog		C		5
animals	amphibians	Hylidae	*Litoria caerulea*	common green treefrog		C		6
animals	amphibians	Hylidae	*Litoria rubella*	ruddy treefrog		C		8
animals	amphibians	Hylidae	*Litoria peronii*	emerald spotted treefrog		C		2
animals	amphibians	Hylidae	*Litoria dentata*	bleating treefrog		C		1
animals	amphibians	Limnodynastidae	*Adelotus brevis*	tusked frog		V		1
animals	amphibians	Limnodynastidae	*Limnodynastes peronii*	striped marshfrog		C		8
animals	amphibians	Limnodynastidae	*Platyplectrum ornatum*	ornate burrowing frog		C		23
animals	amphibians	Limnodynastidae	*Limnodynastes tasmaniensis*	spotted grassfrog		C		2
animals	amphibians	Limnodynastidae	*Limnodynastes terraereginae*	scarlet sided pobblebonk		C		7
animals	amphibians	Myobatrachidae	*Pseudophryne major*	great brown broodfrog		C		1
animals	amphibians	Myobatrachidae	*Pseudophryne raveni*	copper backed broodfrog		C		7
animals	amphibians	Myobatrachidae	*Crinia parinsignifera*	beeping froglet		C		4
animals	amphibians	Myobatrachidae	*Mixophyes fasciolatus*	great barred frog		C		9
animals	amphibians	Myobatrachidae	*Uperoleia rugosa*	chubby gungan		C		2
animals	amphibians	Myobatrachidae	*Pseudophryne coriacea*	red backed broodfrog		C		2
animals	birds	Acanthizidae	*Chthonicola sagittata*	speckled warbler		C		16
animals	birds	Acanthizidae	*Acanthiza chrysorrhoa*	yellow-rumped thornbill		C		1
animals	birds	Acanthizidae	*Sericornis frontalis*	white-browed scrubwren		C		33
animals	birds	Acanthizidae	*Smicrornis brevirostris*	weebill		C		42
animals	birds	Acanthizidae	*Acanthiza reguloides*	buff-rumped thornbill		C		24
animals	birds	Acanthizidae	*Gerygone mouki*	brown gerygone		C		1
animals	birds	Acanthizidae	*Acanthiza lineata*	striated thornbill		C		8
animals	birds	Acanthizidae	*Acanthiza pusilla*	brown thornbill		C		19
animals	birds	Acanthizidae	*Gerygone olivacea*	white-throated gerygone		C		45
animals	birds	Acanthizidae	*Acanthiza nana*	yellow thornbill		C		9
animals	birds	Accipitridae	*Hieraaetus morphnoides*	little eagle		C		2
animals	birds	Accipitridae	*Accipiter cirrocephalus*	collared sparrowhawk		C		2
animals	birds	Accipitridae	*Accipiter novaehollandiae*	grey goshawk		C		3
animals	birds	Accipitridae	*Haliastur sphenurus*	whistling kite		C		1
animals	birds	Accipitridae	*Aquila audax*	wedge-tailed eagle		C		28
animals	birds	Accipitridae	*Elanus axillaris*	black-shouldered kite		C		7
animals	birds	Accipitridae	*Accipiter fasciatus*	brown goshawk		C		13
animals	birds	Accipitridae	*Aviceda subcristata*	Pacific baza		C		36
animals	birds	Accipitridae	*Haliaeetus leucogaster*	white-bellied sea-eagle		C		1
animals	birds	Acrocephalidae	*Acrocephalus australis*	Australian reed-warbler		C		2
animals	birds	Aegothelidae	*Aegotheles cristatus*	Australian owlet-nightjar		C		11
animals	birds	Alcedinidae	*Ceyx pusillus*	little kingfisher		C		1
animals	birds	Alcedinidae	*Ceyx azureus*	azure kingfisher		C		7
animals	birds	Anatidae	*Anas gracilis*	grey teal		C		4

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	birds	Anatidae	*Cygnus atratus*	black swan		C		2
animals	birds	Anatidae	*Aythya australis*	hardhead		C		5
animals	birds	Anatidae	*Dendrocygna arcuata*	wandering whistling-duck		C		1
animals	birds	Anatidae	*Chenonetta jubata*	Australian wood duck		C		41
animals	birds	Anatidae	*Anas superciliosa*	Pacific black duck		C		52
animals	birds	Anhingidae	*Anhinga novaehollandiae*	Australasian darter		C		6
animals	birds	Anseranatidae	*Anseranas semipalmata*	magpie goose		C		3
animals	birds	Apodidae	*Apus pacificus*	fork-tailed swift		SL		1
animals	birds	Apodidae	*Hirundapus caudacutus*	white-throated needletail		SL		7
animals	birds	Ardeidae	*Egretta novaehollandiae*	white-faced heron		C		59
animals	birds	Ardeidae	*Nycticorax caledonicus*	nankeen night-heron		C		28
animals	birds	Ardeidae	*Ardea alba modesta*	eastern great egret		C		2
animals	birds	Ardeidae	*Ardea intermedia*	intermediate egret		C		4
animals	birds	Ardeidae	*Bubulcus ibis*	cattle egret		C		28
animals	birds	Ardeidae	*Ardea pacifica*	white-necked heron		C		6
animals	birds	Artamidae	*Cracticus tibicen*	Australian magpie		C		124
animals	birds	Artamidae	*Strepera graculina*	pied currawong		C		104
animals	birds	Artamidae	*Artamus cyanopterus*	dusky woodswallow		C		8
animals	birds	Artamidae	*Cracticus torquatus*	grey butcherbird		C		117
animals	birds	Artamidae	*Artamus leucorynchus*	white-breasted woodswallow		C		4
animals	birds	Artamidae	*Artamus superciliosus*	white-browed woodswallow		C		1
animals	birds	Artamidae	*Cracticus nigrogularis*	pied butcherbird		C		73
animals	birds	Artamidae	*Cracticus sp.*					4
animals	birds	Burhinidae	*Burhinus grallarius*	bush stone-curlew		C		1
animals	birds	Cacatuidae	*Calyptorhynchus lathami lathami*	glossy black-cockatoo (eastern)		V		2
animals	birds	Cacatuidae	*Cacatua galerita*	sulphur-crested cockatoo		C		69
animals	birds	Cacatuidae	*Calyptorhynchus banksii*	red-tailed black-cockatoo		C		5
animals	birds	Cacatuidae	*Eolophus roseicapilla*	galah		C		62
animals	birds	Cacatuidae	*Cacatua sanguinea*	little corella		C		2
animals	birds	Campephagidae	*Lalage leucomela*	varied triller		C		10
animals	birds	Campephagidae	*Coracina novaehollandiae*	black-faced cuckoo-shrike		C		99
animals	birds	Campephagidae	*Coracina tenuirostris*	cicadabird		C		27
animals	birds	Campephagidae	*Lalage tricolor*	white-winged triller		C		1
animals	birds	Campephagidae	*Coracina papuensis*	white-bellied cuckoo-shrike		C		8
animals	birds	Charadriidae	*Vanellus miles novaehollandiae*	masked lapwing (southern subspecies)		C		23
animals	birds	Charadriidae	*Vanellus miles*	masked lapwing		C		10
animals	birds	Charadriidae	*Elseyornis melanops*	black-fronted dotterel		C		2
animals	birds	Ciconiidae	*Ephippiorhynchus asiaticus*	black-necked stork		C		1
animals	birds	Cisticolidae	*Cisticola exilis*	golden-headed cisticola		C		17
animals	birds	Climacteridae	*Cormobates leucophaea metastasis*	white-throated treecreeper (southern)		C		44
animals	birds	Climacteridae	*Cormobates leucophaea*	white-throated treecreeper		C		8
animals	birds	Climacteridae	*Climacteris affinis*	white-browed treecreeper		C		1
animals	birds	Columbidae	*Lopholaimus antarcticus*	topknot pigeon		C		7
animals	birds	Columbidae	*Leucosarcia melanoleuca*	wonga pigeon		C		1
animals	birds	Columbidae	*Macropygia amboinensis*	brown cuckoo-dove		C		25
animals	birds	Columbidae	*Geopelia humeralis*	bar-shouldered dove		C		69

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	birds	Columbidae	*Chalcophaps indica*	emerald dove		C		5
animals	birds	Columbidae	*Phaps chalcoptera*	common bronzewing		C		20
animals	birds	Columbidae	*Ocyphaps lophotes*	crested pigeon		C		33
animals	birds	Columbidae	*Geopelia striata*	peaceful dove		C		36
animals	birds	Coraciidae	*Eurystomus orientalis*	dollarbird		C		56
animals	birds	Corvidae	*Corvus coronoides*	Australian raven		C		1
animals	birds	Corvidae	*Corvus orru*	Torresian crow		C		171
animals	birds	Cuculidae	*Eudynamys orientalis*	eastern koel		C		44
animals	birds	Cuculidae	*Chalcites minutillus barnardi*	little bronze-cuckoo		C		1
animals	birds	Cuculidae	*Scythrops novaehollandiae*	channel-billed cuckoo		C		33
animals	birds	Cuculidae	*Cacomantis flabelliformis*	fan-tailed cuckoo		C		30
animals	birds	Cuculidae	*Centropus phasianinus*	pheasant coucal		C		49
animals	birds	Cuculidae	*Cacomantis variolosus*	brush cuckoo		C		28
animals	birds	Cuculidae	*Chalcites lucidus*	shining bronze-cuckoo		C		11
animals	birds	Cuculidae	*Cuculus optatus*	oriental cuckoo		SL		5
animals	birds	Cuculidae	*Chalcites basalis*	Horsfield's bronze-cuckoo		C		8
animals	birds	Cuculidae	*Cacomantis pallidus*	pallid cuckoo		C		1
animals	birds	Dicruridae	*Dicrurus bracteatus bracteatus*	spangled drongo (eastern Australia)		C		1
animals	birds	Dicruridae	*Dicrurus bracteatus*	spangled drongo		C		84
animals	birds	Estrildidae	*Neochmia temporalis*	red-browed finch		C		50
animals	birds	Estrildidae	*Lonchura castaneothorax*	chestnut-breasted mannikin		C		7
animals	birds	Estrildidae	*Taeniopygia bichenovii*	double-barred finch		C		22
animals	birds	Eurostopodidae	*Eurostopodus mystacalis*	white-throated nightjar		C		13
animals	birds	Falconidae	*Falco hypoleucos*	grey falcon		V		1
animals	birds	Falconidae	*Falco peregrinus*	peregrine falcon		C		12
animals	birds	Falconidae	*Falco cenchroides*	nankeen kestrel		C		13
animals	birds	Falconidae	*Falco longipennis*	Australian hobby		C		2
animals	birds	Falconidae	*Falco berigora*	brown falcon		C		3
animals	birds	Halcyonidae	*Todiramphus macleayii*	forest kingfisher		C		55
animals	birds	Halcyonidae	*Todiramphus sanctus*	sacred kingfisher		C		27
animals	birds	Halcyonidae	*Dacelo novaeguineae*	laughing kookaburra		C		131
animals	birds	Hirundinidae	*Cheramoeca leucosterna*	white-backed swallow		C		7
animals	birds	Hirundinidae	*Petrochelidon ariel*	fairy martin		C		8
animals	birds	Hirundinidae	*Petrochelidon nigricans*	tree martin		C		11
animals	birds	Hirundinidae	*Hirundo neoxena*	welcome swallow		C		34
animals	birds	Jacanidae	*Irediparra gallinacea*	comb-crested jacana		C		6
animals	birds	Maluridae	*Malurus cyaneus*	superb fairy-wren		C		32
animals	birds	Maluridae	*Malurus lamberti*	variegated fairy-wren		C		59
animals	birds	Maluridae	*Malurus melanocephalus*	red-backed fairy-wren		C		62
animals	birds	Megaluridae	*Megalurus timoriensis*	tawny grassbird		C		7
animals	birds	Megapodiidae	*Alectura lathami*	Australian brush-turkey		C		9
animals	birds	Meliphagidae	*Melithreptus lunatus*	white-naped honeyeater		C		5
animals	birds	Meliphagidae	*Philemon corniculatus*	noisy friarbird		C		153
animals	birds	Meliphagidae	*Lichenostomus melanops*	yellow-tufted honeyeater		C		11
animals	birds	Meliphagidae	*Manorina melanocephala*	noisy miner		C		67
animals	birds	Meliphagidae	*Myzomela sanguinolenta*	scarlet honeyeater		C		108

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	birds	Meliphagidae	*Philemon citreogularis*	little friarbird		C		30
animals	birds	Meliphagidae	*Anthochaera chrysoptera*	little wattlebird		C		7
animals	birds	Meliphagidae	*Myzomela erythrocephala*	red-headed honeyeater		C		1
animals	birds	Meliphagidae	*Melithreptus albogularis*	white-throated honeyeater		C		78
animals	birds	Meliphagidae	*Plectorhyncha lanceolata*	striped honeyeater		C		14
animals	birds	Meliphagidae	*Acanthorhynchus tenuirostris*	eastern spinebill		C		22
animals	birds	Meliphagidae	*Melithreptus gularis*	black-chinned honeyeater		C		6
animals	birds	Meliphagidae	*Lichmera indistincta*	brown honeyeater		C		48
animals	birds	Meliphagidae	*Entomyzon cyanotis*	blue-faced honeyeater		C		49
animals	birds	Meliphagidae	*Caligavis chrysops*	yellow-faced honeyeater		C		86
animals	birds	Meliphagidae	*Ptilotula fusca*	fuscous honeyeater		C		13
animals	birds	Meliphagidae	*Meliphaga lewinii*	Lewin's honeyeater		C		84
animals	birds	Meropidae	*Merops ornatus*	rainbow bee-eater		C		72
animals	birds	Monarchidae	*Grallina cyanoleuca*	magpie-lark		C		69
animals	birds	Monarchidae	*Monarcha melanopsis*	black-faced monarch		SL		17
animals	birds	Monarchidae	*Symposiachrus trivirgatus*	spectacled monarch		SL		7
animals	birds	Monarchidae	*Myiagra rubecula*	leaden flycatcher		C		40
animals	birds	Monarchidae	*Myiagra inquieta*	restless flycatcher		C		6
animals	birds	Monarchidae	*Myiagra cyanoleuca*	satin flycatcher		SL		2
animals	birds	Motacillidae	*Anthus novaeseelandiae*	Australasian pipit		C		2
animals	birds	Nectariniidae	*Dicaeum hirundinaceum*	mistletoebird		C		40
animals	birds	Neosittidae	*Daphoenositta chrysoptera*	varied sittella		C		33
animals	birds	Oriolidae	*Sphecotheres vieilloti*	Australasian figbird		C		23
animals	birds	Oriolidae	*Oriolus sagittatus*	olive-backed oriole		C		48
animals	birds	Pachycephalidae	*Colluricincla megarhyncha*	little shrike-thrush		C		10
animals	birds	Pachycephalidae	*Pachycephala rufiventris*	rufous whistler		C		78
animals	birds	Pachycephalidae	*Pachycephala sp.*					1
animals	birds	Pachycephalidae	*Falcunculus frontatus*	crested shrike-tit		C		1
animals	birds	Pachycephalidae	*Colluricincla harmonica*	grey shrike-thrush		C		94
animals	birds	Pachycephalidae	*Pachycephala pectoralis*	golden whistler		C		50
animals	birds	Pardalotidae	*Pardalotus striatus*	striated pardalote		C		95
animals	birds	Pardalotidae	*Pardalotus punctatus*	spotted pardalote		C		55
animals	birds	Petroicidae	*Petroica rosea*	rose robin		C		23
animals	birds	Petroicidae	*Eopsaltria australis*	eastern yellow robin		C		56
animals	birds	Petroicidae	*Tregellasia capito*	pale-yellow robin		C		1
animals	birds	Petroicidae	*Microeca fascinans*	jacky winter		C		21
animals	birds	Phalacrocoracidae	*Phalacrocorax sulcirostris*	little black cormorant		C		5
animals	birds	Phalacrocoracidae	*Microcarbo melanoleucos*	little pied cormorant		C		24
animals	birds	Phasianidae	*Coturnix ypsilophora*	brown quail		C		17
animals	birds	Podargidae	*Podargus strigoides*	tawny frogmouth		C		37
animals	birds	Podicipedidae	*Tachybaptus novaehollandiae*	Australasian grebe		C		12
animals	birds	Pomatostomidae	*Pomatostomus temporalis*	grey-crowned babbler		C		16
animals	birds	Psittacidae	*Trichoglossus chlorolepidotus*	scaly-breasted lorikeet		C		64
animals	birds	Psittacidae	*Platycercus adscitus*	pale-headed rosella		C		76
animals	birds	Psittacidae	*Alisterus scapularis*	Australian king-parrot		C		31
animals	birds	Psittacidae	*Parvipsitta pusilla*	little lorikeet		C		43

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	birds	Psittacidae	*Trichoglossus haematodus moluccanus*	rainbow lorikeet		C		103
animals	birds	Psittacidae	*Platycercus adscitus palliceps*	pale-headed rosella (southern form)		C		2
animals	birds	Psittacidae	*Platycercus eximius*	eastern rosella		C		13
animals	birds	Psophodidae	*Cinclosoma punctatum*	spotted quail-thrush		C		10
animals	birds	Psophodidae	*Psophodes olivaceus*	eastern whipbird		C		52
animals	birds	Rallidae	*Fulica atra*	Eurasian coot		C		8
animals	birds	Rallidae	*Porphyrio melanotus*	purple swamphen		C		7
animals	birds	Rallidae	*Gallinula tenebrosa*	dusky moorhen		C		14
animals	birds	Rhipiduridae	*Rhipidura albiscapa*	grey fantail		C		85
animals	birds	Rhipiduridae	*Rhipidura rufifrons*	rufous fantail		SL		33
animals	birds	Rhipiduridae	*Rhipidura leucophrys*	willie wagtail		C		51
animals	birds	Rhipiduridae	*Rhipidura leucophrys leucophrys*	willie wagtail (southern)		C		1
animals	birds	Strigidae	*Ninox strenua*	powerful owl		V		10
animals	birds	Strigidae	*Ninox boobook*	southern boobook		C		53
animals	birds	Threskiornithidae	*Platalea regia*	royal spoonbill		C		19
animals	birds	Threskiornithidae	*Threskiornis molucca*	Australian white ibis		C		17
animals	birds	Threskiornithidae	*Threskiornis spinicollis*	straw-necked ibis		C		26
animals	birds	Threskiornithidae	*Platalea flavipes*	yellow-billed spoonbill		C		13
animals	birds	Timaliidae	*Zosterops lateralis*	silvereye		C		70
animals	birds	Timaliidae	*Zosterops lateralis cornwalli*	silvereye (eastern)		C		1
animals	birds	Turnicidae	*Turnix varius*	painted button-quail		C		13
animals	birds	Tytonidae	*Tyto novaehollandiae novaehollandiae*	masked owl (southern subspecies)		C		1
animals	insects	Hesperiidae	*Neohesperilla xanthomera*	yellow grass-skipper				1
animals	insects	Lycaenidae	*Candalides cyprotus pallescens*	copper pencilled-blue				1
animals	insects	Lycaenidae	*Acrodipsas brisbanensis*	bronze ant-blue				2
animals	insects	Lycaenidae	*Ogyris oroetes oroetes*	silky azure				1
animals	insects	Lycaenidae	*Ogyris zosine zosine*	northern purple azure (southern subspecies)				1
animals	insects	Nymphalidae	*Charaxes sempronius sempronius*	tailed emperor				1
animals	insects	Nymphalidae	*Acraea andromacha andromacha*	glasswing				6
animals	insects	Nymphalidae	*Junonia villida villida*	meadow argus				1
animals	insects	Nymphalidae	*Tirumala hamata hamata*	blue tiger				1
animals	insects	Nymphalidae	*Melanitis leda bankia*	evening brown				2
animals	insects	Nymphalidae	*Vanessa kershawi*	Australian painted lady				2
animals	insects	Nymphalidae	*Danaus plexippus*	monarch				5
animals	insects	Nymphalidae	*Danaus petilia*	lesser wanderer				2
animals	insects	Nymphalidae	*Euploea corinna*	common crow				2
animals	insects	Papilionidae	*Graphium choredon*	blue triangle				2
animals	insects	Pieridae	*Eurema hecabe*	large grass-yellow				4
animals	insects	Pieridae	*Eurema smilax*	small grass-yellow				1
animals	insects	Pieridae	*Delias nigrina*	black jezebel				2
animals	insects	Pieridae	*Catopsilia pomona*	lemon migrant				1
animals	insects	Pieridae	*Belenois java teutonia*	caper white				1
animals	insects	Pieridae	*Eurema brigitta australis*	no-brand grass-yellow				1
animals	mammals	Acrobatidae	*Acrobates pygmaeus*	feathertail glider		C		1
animals	mammals	Canidae	*Canis lupus dingo*	dingo				6

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	mammals	Dasyuridae	*Planigale maculata*	common planigale		C		1
animals	mammals	Dasyuridae	*Sminthopsis murina*	common dunnart		C		2
animals	mammals	Dasyuridae	*Antechinus stuartii*	brown antechinus		C		1
animals	mammals	Dasyuridae	*Antechinus flavipes flavipes*	yellow-footed antechinus (south-east Queensland)		C		5
animals	mammals	Dasyuridae	*Dasyurus maculatus maculatus*	spotted-tailed quoll (southern subspecies)		V	E	1
animals	mammals	Emballonuridae	*Saccolaimus flaviventris*	yellow-bellied sheathtail bat		C		2
animals	mammals	Macropodidae	*Macropus robustus*	common wallaroo		C		1
animals	mammals	Macropodidae	*Wallabia bicolor*	swamp wallaby		C		11/1
animals	mammals	Macropodidae	*Macropus dorsalis*	black-striped wallaby		C		2
animals	mammals	Macropodidae	*Macropus parryi*	whiptail wallaby		C		52
animals	mammals	Macropodidae	*Macropus sp.*					1
animals	mammals	Macropodidae	*Petrogale penicillata*	brush-tailed rock-wallaby		V	V	1
animals	mammals	Macropodidae	*Macropus rufogriseus*	red-necked wallaby		C		20
animals	mammals	Macropodidae	*Macropus giganteus*	eastern grey kangaroo		C		19
animals	mammals	Miniopteridae	*Miniopterus schreibersii oceanensis*	eastern bent-wing bat		C		1
animals	mammals	Molossidae	*Mormopterus sp.*					1
animals	mammals	Molossidae	*Mormopterus lumsdenae*	northern free-tailed bat		C		1
animals	mammals	Molossidae	*Tadarida australis*	white-striped freetail bat		C		11
animals	mammals	Muridae	*Rattus fuscipes*	bush rat		C		2
animals	mammals	Muridae	*Rattus tunneyi*	pale field-rat		C		2
animals	mammals	Peramelidae	*Isoodon macrourus*	northern brown bandicoot		C		7
animals	mammals	Petauridae	*Petaurus australis australis*	yellow-bellied glider (southern subspecies)		C		1
animals	mammals	Petauridae	*Petaurus norfolcensis*	squirrel glider		C		22
animals	mammals	Petauridae	*Petaurus breviceps*	sugar glider		C		3
animals	mammals	Phalangeridae	*Trichosurus vulpecula*	common brushtail possum		C		73
animals	mammals	Phalangeridae	*Trichosurus caninus*	short-eared possum		C		1
animals	mammals	Phalangeridae	*Trichosurus sp.*					2
animals	mammals	Phascolarctidae	*Phascolarctos cinereus*	koala		V	V	78
animals	mammals	Pseudocheiridae	*Pseudocheirus peregrinus*	common ringtail possum		C		6
animals	mammals	Pseudocheiridae	*Petauroides volans volans*	southern greater glider		V	V	15
animals	mammals	Pteropodidae	*Pteropus poliocephalus*	grey-headed flying-fox		C	V	12
animals	mammals	Pteropodidae	*Pteropus scapulatus*	little red flying-fox		C		9
animals	mammals	Pteropodidae	*Pteropus sp.*					2
animals	mammals	Tachyglossidae	*Tachyglossus aculeatus*	short-beaked echidna		SL		3
animals	mammals	Vespertilionidae	*Nyctophilus gouldi*	Gould's long-eared bat		C		2
animals	mammals	Vespertilionidae	*Scotorepens sp.*					2
animals	mammals	Vespertilionidae	*Scotorepens orion*	south-eastern broad-nosed bat		C		3
animals	mammals	Vespertilionidae	*Scotorepens greyii*	little broad-nosed bat		C		1
animals	ray-finned fishes	Eleotridae	*Mogurnda adspersa*	southern purplespotted gudgeon				1
animals	reptiles	Agamidae	*Pogona barbata*	bearded dragon		C		15
animals	reptiles	Agamidae	*Diporiphora australis*	tommy roundhead		C		5
animals	reptiles	Agamidae	*Intellagama lesueurii*	eastern water dragon		C		54
animals	reptiles	Boidae	*Morelia spilota*	carpet python		C		12

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	reptiles	Chelidae	*Wollumbinia latisternum*	saw-shelled turtle		C		1
animals	reptiles	Chelidae	*Chelodina longicollis*	eastern snake-necked turtle		C		1
animals	reptiles	Colubridae	*Dendrelaphis punctulatus*	green tree snake		C		27
animals	reptiles	Colubridae	*Tropidonophis mairii*	freshwater snake		C		5
animals	reptiles	Colubridae	*Boiga irregularis*	brown tree snake		C		1
animals	reptiles	Diplodactylidae	*Diplodactylus vittatus*	wood gecko		C		2
animals	reptiles	Diplodactylidae	*Nebulifera robusta*	robust velvet gecko		C		1
animals	reptiles	Diplodactylidae	*Oedura tryoni*	southern spotted velvet gecko		C		5
animals	reptiles	Elapidae	*Cryptophis nigrescens*	eastern small-eyed snake		C		9
animals	reptiles	Elapidae	*Pseudechis guttatus*	spotted black snake		C		3
animals	reptiles	Elapidae	*Pseudechis porphyriacus*	red-bellied black snake		C		6
animals	reptiles	Elapidae	*Brachyurophis australis*	coral snake		C		3
animals	reptiles	Elapidae	*Pseudonaja textilis*	eastern brown snake		C		3
animals	reptiles	Elapidae	*Vermicella annulata*	bandy-bandy		C		1
animals	reptiles	Elapidae	*Demansia sp.*					1
animals	reptiles	Elapidae	*Furina diadema*	red-naped snake		C		1
animals	reptiles	Elapidae	*Cacophis harriettae*	white-crowned snake		C		1
animals	reptiles	Elapidae	*Demansia psammophis*	yellow-faced whipsnake		C		13
animals	reptiles	Gekkonidae	*Gehyra dubia*	dubious dtella		C		3
animals	reptiles	Pygopodidae	*Lialis burtonis*	Burton's legless lizard		C		7
animals	reptiles	Scincidae	*Lygisaurus foliorum*	tree-base litter-skink		C		7
animals	reptiles	Scincidae	*Ctenotus taeniolatus*	copper-tailed skink		C		2
animals	reptiles	Scincidae	*Lampropholis amicula*	friendly sunskink		C		1
animals	reptiles	Scincidae	*Anomalopus verreauxii*	three-clawed worm-skink		C		3
animals	reptiles	Scincidae	*Lampropholis delicata*	dark-flecked garden sunskink		C		14
animals	reptiles	Scincidae	*Morethia taeniopleura*	fire-tailed skink		C		1
animals	reptiles	Scincidae	*Calyptotis scutirostrum*	scute-snouted calyptotis		C		5
animals	reptiles	Scincidae	*Ophioscincus ophioscincus*	yolk-bellied snake-skink		C		1
animals	reptiles	Scincidae	*Carlia pectoralis sensu lato*			C		3
animals	reptiles	Scincidae	*Cryptoblepharus pulcher pulcher*	elegant snake-eyed skink		C		23
animals	reptiles	Scincidae	*Carlia munda*	shaded-litter rainbow-skink		C		1
animals	reptiles	Scincidae	*Ctenotus spaldingi*	straight-browed ctenotus		C		3
animals	reptiles	Scincidae	*Tiliqua scincoides*	eastern blue-tongued lizard		C		1
animals	reptiles	Scincidae	*Concinnia martini*	dark bar-sided skink		C		1
animals	reptiles	Scincidae	*Carlia schmeltzii*	robust rainbow-skink		C		3
animals	reptiles	Scincidae	*Carlia pectoralis*	open-litter rainbow skink		C		1
animals	reptiles	Scincidae	*Ctenotus arcanus*	arcane ctenotus		C		1
animals	reptiles	Scincidae	*Concinnia tenuis*	bar-sided skink		C		1
animals	reptiles	Scincidae	*Carlia vivax*	tussock rainbow-skink		C		17
animals	reptiles	Varanidae	*Varanus varius*	lace monitor		C		11

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 in the Wild (PE), Endangered (E), Vulnerable (V), Near Threatened (NT), Least Concern (C) or Not Protected ( ).

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

Records – The first number indicates the total number of records of the taxon for the record option selected (i.e. All, Confirmed or Specimens).
This number is output as 99999 if it equals or exceeds this value. The second number located after the / indicates the number of specimen records for the taxon.
This number is output as 999 if it equals or exceeds this value.

Attachment 9

Wildlife Habitat Impact Mitigation Plan – Queensland Fauna Consultants

QUEENSLAND FAUNA CONSULTANCY Pty Ltd

December 2017

Fauna Spotter Catcher Wildlife and Habitat Impact Mitigation Plan

Springfield Rise – Mountain Creek Sewer Alignment
Spring Mountain, Queensland

Report prepared for Shadforths Civil Contractors

Report prepared by

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Contents

1. Introduction

1.1 Project Background

Queensland Fauna Consultancy Pty Ltd has been engaged by Shadforths Civil Contractors to prepare a Fauna Spotter Catcher Wildlife and Habitat Impact Mitigation Plan for the Spring Mountain Sewer Alignment (Trunk Sewer), as part of Springfield Rise development, Spring Mountain, Queensland.

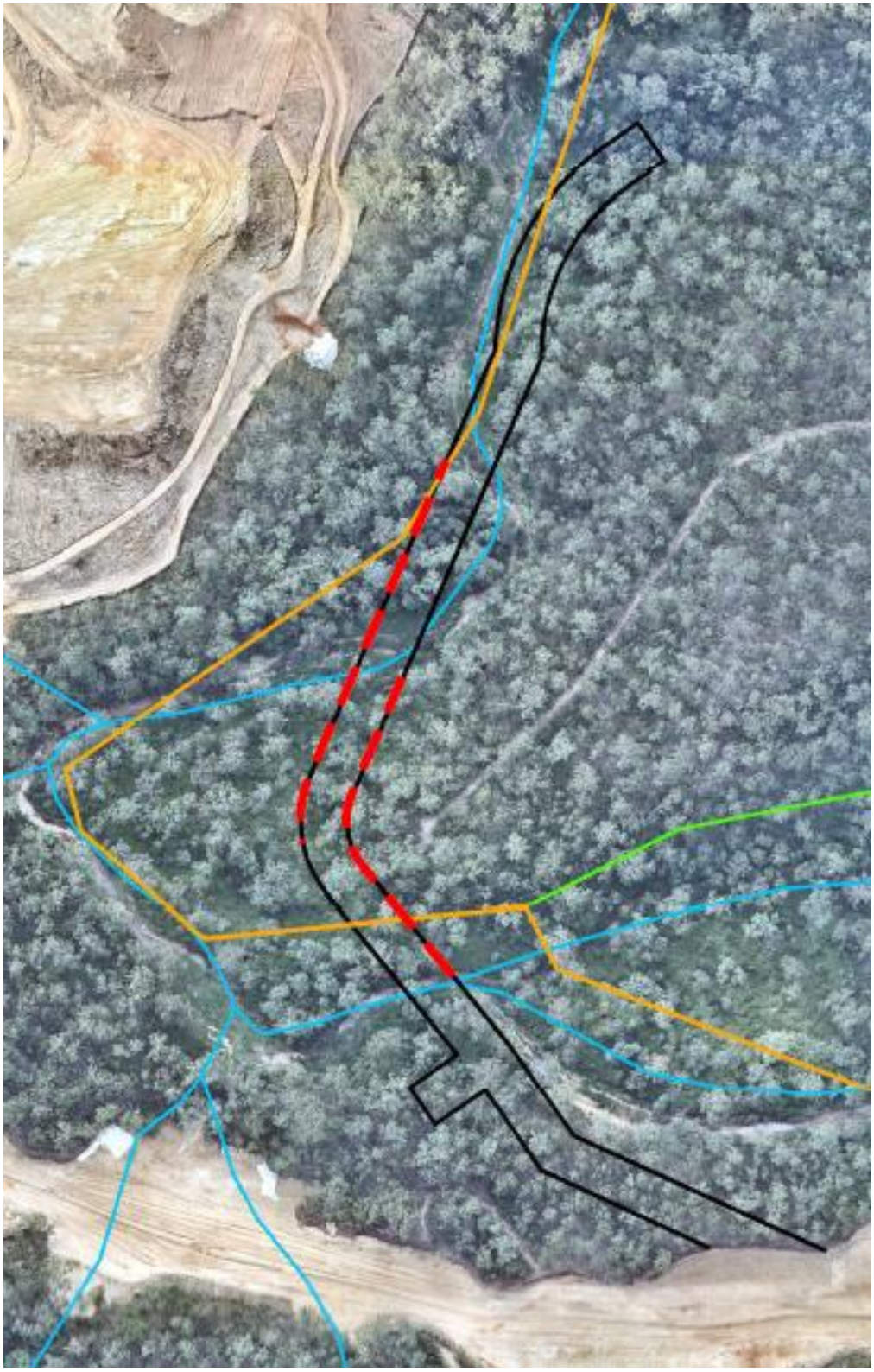
The objective of this report is to summarise the existing fauna values presented in the Fauna Spotter Catcher Pre-Clearance Survey and Wildlife Protection and Management Plan (WPMP) and assign mitigatory strategies applicable to probable species likely to be encountered during the clearing of identified 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 microhabitats 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.

1.2 Project Location and Site Description

The Mountain Creek Sewer Alignment is centrally located within the Springfield Rise precinct and is approximately 20 metres wide and 500 metre long. The project location is presented in Map 1.

Site formation consists of a woodland vegetative complex with an undulating topography and a drainage feature. Understorey vegetation is dominated by Lantana *Lantana camara,* with predominant trees species across several vegetation types including *Angophora leiocarpa, Angophora subvelutina, Eucalyptus tereticornis* and *Melaleuca viminalis.*



Map 1: Project area (Image supplied by Saunders Havill Group, 2017)

1.3 Current Permits and Authorities

All activities conducted during the site investigations were implemented under the provisions of a number of permits issued to Queensland Fauna Consultancy Pty Ltd by the Department of Environment and Heritage Protection (DEHP) formerly the Department of Environment and Resource Management 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	WIMP17840916	22nd December 2019
Rehabilitation Permit	WA0001454	10th September 2020
Scientific User Registration	Registration Number 589	27th February 2019
Animal Ethics	CA 2016/01/939	27th February 2019

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. Mitigation Strategies

2.1 Fauna Spotter

It is advised that all identified fauna habitats onsite be inspected by a licensed Fauna Spotter prior to vegetation clearing, and all vegetation removal activities be supervised during the clearing process.

2.2 Clearing Methodologies

In accordance to the *Nature Conservation (Koala) Conservation Plan 2006 and Management Program 2006-2016* the following sequential clearing conditions are required to be adhered to:

- Clearing of trees is carried out in a way that ensures koalas living in or near the area being cleared (the clearing site) have enough time to move out of the clearing site without human intervention, including, for a clearing site with an area of more than 6ha, by:
    - Carrying out the clearing in stages; and
    - Ensuring not more than the following is cleared in any one stage:
        - for a clearing site with an area of 6ha or less—50 percent of the site's area;
        - for a clearing site with an area of more than 6ha—3ha or 3 percent of the site's area, whichever is the greater; and
    - Ensuring that between each stage there is at least one period of 12 hours that starts at 6p.m. on a day and ends at 6a.m. on the following day, during which no trees are cleared on the site.

In addition to these measures it is recommended that clearing activities be undertaken in a directional manner specified by the fauna spotter/catcher. This is done to reduce the likelihood of negative interactions between fauna and potential hazards e.g. roads and traffic, prevent isolation of fauna through habitat fragmentation, and to ensure that natural dispersal of wildlife away from clearing activities is not impeded.Given the linear clearing area and undulating terrain it's likely clearing direction will vary however a map of the proposed general clearing direction can be found in Appendix A.

2.3 Fauna Fencing

Temporary fencing has been installed along Sinnathamby Boulevard, restricting the movement of large fauna species such as macropods and koalas onto roadways. As the Mountain Creek Sewer Alignment is situated centrally within the Springfield Rise precinct and away from busy roadways, fauna fencing around the immediate proposed clearing area is not required.

2.4 Felling Procedures

Trees identified as having potential fauna values (such as hollows, arboreal termitaria 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 microhabitats 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).

2.5 Macropods

Though no direct observations were made during the inspection, other signs including macropod tracks were located in areas adjacent to site.

Eastern Grey Kangaroos *Macropus giganteus* and Red-necked Wallaby have required intensive management on other sites within the Springfield area. The area of proposed clearing activities exhibits direct connectivity to other areas of notable habitat values along thenorth-eastern and southern boundaries. Therefore, all clearing should proceed as proposed to ensure a higher probability of successful natural progression off site. Any variation from this proposal must be discussed with the senior fauna spotter and a representative from Shadforths Civil Contractors.

If the macropods then do not disperse of their own accord in response to incremental habitat reductions, or the macropods welfare is deemed to be unduly jeopardized by clearance activities, alternative strategies are to be recommended by the fauna spotter and subsequently implemented.

2.6 Aquatic Fauna

It is not envisaged that aquatic dewatering activities will be required within the proposed clearing area.

2.7 General Terrestrial and Arboreal Fauna

Overall the site contains medium value refugial opportunities for arboreal and terrestrial fauna species. 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 DEHP approved Fauna Spotter prior to vegetation clearing and all vegetation removal activities be supervised during the clearing process. Terrestrial load reduction activities will be conducted ahead of the clearing front where possible. Fauna captured will be relocated to adjacent habitat consistent with the life history requirements of the species requiring translocation.

2.8 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 the WPMP, 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 as follows:

- Pre-clearing (preliminary) investigations to be conducted specifically for Koala detection by one experienced fauna spotter a minimum half hour prior to works each day. The investigation will embrace all designated clearing zones identified for that day inclusive of a 25-metre buffer around that zone;
- Once clearing commences a fauna spotter will accompany each machine providing continuous verification of habitat values and potential identification of undetected koalas ahead of operating plant. This will also account for potentially transient Koalas that may enter the site after preliminary investigations are complete.

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 2006 and Management Program 2006-2016* 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.

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

- Daily Inspection of trees assigned for removal be conducted to detect potential roosting Flying Foxes;
- Trees found to contain roosting Flying Foxes to be left standing and re assessed at the end of each days clearing. Being a transient species, the disturbance associated by the surrounding clearing is likely to see individuals fly off via its own volition come nightfall and not return the following morning, thus negating the need for direct disturbance.

Powerful Owl:
The site contains hollowing bearing trees with the potential to support nesting localities for the Powerful Owl. Diurnal roosting opportunities are afforded however these are considered only moderately favourable. Feeding resources would be available as highly targeted species such as glider and possum species are common throughout the region.
The following recommendations are made for management of potentially occurring Powerful Owl;

- Inspection daily of trees assigned for removal in areas of likely occurrence to detect potentially roosting birds;
- Identification of hollows exhibiting suitable dimensions for use as a nesting resource;
- Ground searches for casts and faecal accumulates indicative of the presence of Powerful Owl roosting and nesting sites;

- Implementation of a soft felling technique where trees are determined to have potential for occupancy.

Spotted-tail Quoll:

Although no dens or further evidence of Spotted-tail Quoll activity was detected during the survey, the species is known to occur in low densities in proximity to the site. Geomorphic structure and topography are considered favourable resulting in the following recommendations for further mitigation during the clearing activity:

- Inspection daily of identified geomorphic structure such as large boulders and rock accumulates, large hollow ground logs and log stock piles;
- Monitored dismantling of identified microhabitats by fauna spotters with machinery assistance.

Greater Glider:

The site contains hollow-bearing trees with the potential to support den localities for the Greater Glider. Suitable feeding resources are highly available given the availability of *Eucalyptus* leaves; on which the Greater Glider almost exclusively feeds on. The following recommendations are made for management of potentially occurring Greater Glider;

- Basal and drip zone searches for scats indicative of the presence of Greater Glider;
- Inspection daily of trees assigned for removal in areas of likely occurrence to detect Great Glider;
- Implementation of a soft felling technique where trees are determined to have potential for occupancy.

Tusked Frog:

Ephemeral aquatic habitats conducive to the presence of the Tusked Frog are noted at a number of localities throughout the site.

Subsequently, it is recommended that daily Inspection of ephemeral aquatic microhabitats be conducted to detect potentially occupant Tusked Frog.

Collared Delma:

The presence of rocky habitats combined with *Eucalyptus* dominated woodlands presents known favorable habitat for the Collared Delma. The following recommendations are made for mitigation during clearing activity:

- Inspection daily of identified geomorphic structures including rocky outcrops, surface rock, leaf litter and bark exfoliates;
- Monitored dismantling of identified microhabitats by fauna spotters with machinery assistance.

3. Wildlife Capture & Removal Plan

Relocation of native fauna is a strategy that may be required during the course of developmental works to up-hold the project's required nature conservation, animal welfare and human safety objectives.

In all circumstance where native fauna is required to be relocated it must be done so, or under the direct supervision of, a suitably licensed fauna spotter/catcher. A summary of the fauna capture, handling and relocations strategies to be implemented by the fauna spotter/catcher for fauna groups deemed likely, or possible, to occur on site are presented in *Table 2*.

Table 2: Fauna capture, handling and relocation strategy table

Animal Group	Capture and handling	Relocation
Lizards Geckoes Dragons Monitors	• Place one hand behind the head at the base of the quadrates and the other at the base of the tail behind the hind limbs; • Be cautious when handling smaller skinks and legless lizards as they may discard their tail; • Lizards and geckoes can be placed inside suitably sized calico bags • In the case of large monitor lizards keep the animal's ventral surface directly away from the body with the tail between the upper arm and torso. • Dragons and small monitors can be placed in suitably sized calico bags. Larger monitors to be placed in suitably sized crate	• Place the lizard head first into a suitable holding crate for later release. o Dragons & monitors– release up trees or into heavy vegetation; o Water dragons – in the vicinity of riparian areas; o Skinks, Geckoes, Legless lizards – around creek margins.
Snakes	• Due to their mobile nature, large snakes generally do not require to be handled or relocated, except for slow moving species (i.e. pythons) or smaller species; • Snakes should be identified and only moved if competent and safe to do so (see SOP006 Handling Venomous Snakes Procedure); • Do not attempt to catch a snake if you're not competent; • Injured snakes should be handled with suitable equipment.	• Release in suitable habitat e.g. along creek lines for python and tree snakes • If feasible take them well away from clearance site to a suitable release location • Release discreetly away from high density suburban areas
Small Mammals	• Place a gloved hand around the whole animal in the case of small mammals (melomys or rats), • Do not handle rodents by the tail as this will cause damage to the tail sheath • Place the animal in calico bag in a cool place for later relocation. • Minimise holding time to avoid animal gnawing through bags and escaping	• Release animal into areasuitable to its habitat requirements. Ensure plenty of cover is available.

Animal Group	Capture and handling	Relocation

Glider Family	• Place gloved hands around the animal at initial capture;
	• Place the glider(s) into a calico bag or suitable animal crate ensuring family groups are kept together for all inclusive release;
	• Place in a cool dry area during the day.
	• When using calico bags ensure the bag is hung and well ventilated
	• Where possible contain gliders within hollow by plugging openings with a towel or calico bag
		• Release glider into habitat with natural hollows and canopy cover;
		• When releasing a family group with more than one furred young (being carried on the back) either:
		  ○ Divide young between parents as a mother is unlikely to carry more than one young,
		  ○ Place young in elevated hollow with parents and allow them to move away in their own time.
		• Place animal in bag at the base of the selected tree, opening the bag wide and allowing the animal to leave the bag when it is ready.
		• Relocate hollow (with gliders inside) to suitable habitat and cover lightly with foliage so that the gliders can move away of their own accord and are protected from predators.

Amphibians	• Amphibians should be handled only when necessary and handling times should be kept to a minimum to help prevent:
	  ○ Removal of the protective mucous layer covering the skin of amphibians;
	  ○ To prevent handling stress induced by changes in their body temperature;
	  ○ Risk of spreading pathogens and parasites.
	• Amphibians from different sites need to be kept isolated from each other, and need to be kept in different containers or bags;
	• Any dead or sick amphibians need to be quarantined from other amphibians.
	
	Amphibians can be handled utilising one of the following methodologies:
	• **Bare handed** – ensure hands are sterilized before handling and free from lotions, sunscreen etc
	• **Gloves** – disposable gloves desirable or disinfect gloves between handling different animals;
	• **Plastic bags** – Single use lightweight plastic bags can be used to pick up and handle frogs; again, plastic bags should be disposed of before handling amphibians form a different site.
	• All staff should be knowledgeable and familiar with the ***Interim Hygiene Protocol for Handling Amphibians – Technical Manual (DEHP)***
		• Always ensure that amphibians are kept moist until release. This can include storing in a designated container with moist soil or toweling or in a wet calico bag;
		• Release into suitable adjacent vegetation that is typical of the species requirements;
		• Suitable release locations include riparian vegetation, low-lying wetlands, alongside creek lines, hollow logs, dams and ponds;
		• Amphibians from different sites need to released in separate locations;
		• Disinfection procedures in relation to amphibians need to be followed.

Animal Group	Capture and handling	Relocation
Macropods	• Capture and restraint of macropods carries a high risk of injury and fatal hyperthermia/myopathy syndrome, and must not be performed by inexperienced personnel, or without appropriate equipment and sedation. • Capture and restraint of healthy macropods (other than pouch young) must be performed using sedation or anaesthesia due to the high risk of developmental myopathy, and other capture and restraint-associated conditions. Sedative and anaesthetic drugs may only be used under direct supervision of a registered veterinarian, or by appropriately licensed persons (Hanger &Nottidge, 2009).	• Release animal into suitable to its habitat requirements. Ensure plenty of cover is available. • Macropods are to be released within the range of normal movement from their place of origin. E.g. a Kangaroo can be released within 100 km of its origin, based on its capacity to travel long distances. • Monitor animals to ensure adequate recovery if sedated.
Microbats	• Only vaccinated persons are to handle bats • If possible plug the hollow opening with a bag or towel and ask the operator to cut the hollow from the tree; • Always wear gloves when handling bats. • If not contained within a hollow, place bats inside a calico bag and hang upright in a cool place	• Relocate hollow (with bats inside) to suitable habitat and cover lightly with foliage so that the bats can move away of their own accord and are protected from predators. • Bats not contained within a hollow should be released as late as possible at the end of the day.

Possums	• Use thick elbow length gloves when handling possums;
	• Try to grip the animal behind the head near the shoulder blades and around the tail so that you have control of the animal;
	• Keep fingers away from the mouth of the animal;
	• Keep the animal's body facing away at all times;
	• Transfer into a thick calico bag and then into a kitty crate. Place in a safe and shady place until you can relocate the animal.
		• Release the possum into habitat with adequate hollows and cover;
		• Place animal in bag at the base of a select tree, opening the bag and allow the animal to leave the bag when it is ready;
		• When releasing a Ringtail Possum mother with more than one furred young (being carried on her back) it is unlikely that she will carry both young if highly stressed;
		  ○ Choose a smaller shrubby tree with vines or heavy foliage (so the adult can construct a drey easily)
		  ○ Watch the adult ascend the tree, it is possible she will only carry one young and so any additional young may be pushed from her back
		  ○ It may be necessary to take one or more of the young to a wildlife carer
		  ○ If possible place mother and young in a suspended hollow, cover lightly with foliage and allow the animals to move on their own accord. This way the mother can ferry young one at a time to a more suitable location.

Animal Group	Capture and handling	Relocation
Birds	• Use gloves when handling larger birds • Use a towel to cover the bird and simultaneously restrain the bird and transfer into calico bag • With larger parrots and raptors, restrain head and legs and transfer into a kitty crate • Wrap chicks loosely in a towel and transfer to kitty crate, keep in a warm location.	• Relocate adult birds in suitable habitat • Chicks should be referred to wildlife carer
Koalas	Movement of Koalas is heavily legislated in South East Queensland. Koalas are not to be captured or relocated without the prior consent of Department Environment and Natural Resource Management (DERM). Koalas should be left to move away of their own volition and trees are not to be felled while a Koala remains in occupancy. See SOP003 Koala Management Procedure for further information.	

4. Wildlife Contingency Plan

In the event sick, injured or orphaned protected animals are encountered during the course of the project they shall be administered to in accordance with the *Code of Practice Care of Sick, Injured or Orphaned Protected Animals in Queensland* under the *Nature Conservation Act 1992*.

The stages in which injuries or illness are described under the code are as follows:

Critical: Injuries or illnesses that are life-threatening; for example, an animal that has been struck by a car and has serious head injuries.

Serious: Injuries or illnesses that might reasonably be expected to cause moderate pain (but are not immediately life-threatening), and the animal is not showing obvious signs of distress or pain, or significantly reduced mental activity; for example, an animal with a closed fracture but no other apparent injuries and that is alert and responsive.

Mild: The injuries or illness of an animal appear to cause little discomfort, pain or function loss and are not life-threatening (even without immediate vet treatment); for example, superficial cuts, superficial bruising or orphaned animals suffering from mild dehydration.

4.1 Basic Wildlife Care

If wildlife requiring care are encountered by the fauna spotter/catcher they will be attended to in the manner set out by the guidelines provided in *Table 4*. Supplementary advice will be sought from a wildlife carer and/or veterinarian where required.QFC have previously utilisedexperienced local carer groups and vets. These are listed in Table 3.

Table 3: List of Local Vets & Wildlife Carer Groups

Vets			
Name	**Location**	**Contact Number**	**Comments**
RSPCA Wildlife Hospital	139 Wacol Station Road, Wacol	07 3426 9999	24 Hours/7days
Carers			
Name	**Location**	**Contact Number**	**Comments**
RSPCA Wildlife Hospital	139 Wacol Station Road, Wacol	07 3426 9999	24 Hours/7days
Ipswich Koala Protection Society	Ipswich	Ruth: 07 5464 6274 / 0419 760 127 Helen: 07 3282 5035 / 0417 604 761	Specialize in koalas however rescue all wildlife

Table 4:Basic Wildlife Care

Birds	Reptiles & Amphibians	Mammals
Egg Viable eggs must be kept warm until transferred to a suitable wildlife carer. It is necessary that the orientation of the eggs be maintained as fixed embryos may be lost. Keep wrapped in a pouch and on a heat source (where available). An ideal temperature is between 25-27° (DEHP 2013); where possible attempt to identify the species so the carer can be informed as the management of eggs can vary in accordance with species and stage of development.	**Egg** Viable eggs must be kept warm and stable until transferred to a wildlife carer. It is necessary that the orientation of the eggs be maintained as fixed embryos may be lost. Keep wrapped in pouch or towel and place into an animal crate in a safe location.	**Neonate** Unfurred animals need to be kept warm until transferred to a carer. Place into a pouch and onto a heat pad. Ideal temperature is between 31-34°. 25-27° is appropriate in most other cases (DEHP 2013). Regularly check the animal to ensure it is not overheating by observing for obvious signs of distress (i.e. panting, very warm to the touch, red blotched skin). Adjust the temperature where required. Seek further advice from the carer if you are unsure.
Chick Make sure the animal is correctly identified as different species often have very different requirements. Place chicks into a pouch/towel onto a heat source maintained around 31-34° (only if they have not fledged) and keep in an animal crate until transferred to a carer.	**Juvenile** Place animals in a suitable lined crate and keep covered in a dark quiet place. Refer to the wildlife contact list in your QFC Folder for a carer who specialises in reptiles.	**Juvenile** Place into a lined crate and keep covered in a dark and quiet location.
Adult Keep adult birds in a lined animal crate or cage and covered in a quiet area.	**Adult** Place animals in a suitable lined crate and keep covered in a dark quiet place. Refer to the wildlife contact list in your QFC Folder for a carer who specialises in reptiles.	**Adult** Place into a lined crate and keep covered in a dark and quiet location.
Feeding Providing food and water is generally not required during short periods (2-3 hrs) though this should be reconsidered if animals need to held longer. Consult the vet and/or carer for further advice on how to proceed.	**Feeding** Newly hatched reptiles may require feeding if kept overnight. Consult with QFC for further advice. Snakes and turtles will not require feeding but water should be made available.	**Feeding** Providing food and water is generally not required during short periods (2-3 hrs) though this should be reconsidered if animals need to be held longer. Consult the carer for further advice on how to proceed.

4.2 First Aid

Animals suffering from serious injuries or illness encountered on the project should be passed on to veterinary care as soon as possible. In the interim a licensed fauna spotter/catcher can provide first aid for the animal and organise suitable transportation.

If a seriously sick or injured animal is encountered the fauna spotter/catcher should:

1. Keep the animal calm by placing into an animal crate and keeping it covered in a dark and quiet location. Isolate any nearby threats such as domestic animals or predators.
2. Quickly and thoroughly inspect the animal for trauma. If the injuries are not serious enough to require euthanasia administer the basic first aid as a minimum (but only if capable to do so)

Representative first aid that may be administered by a fauna spotter/catcher is provided in *Table 5*.

Table 5: **Wildlife First Aid**

Ailment	First Aid
Bleeding	Using material that is clean and sanitary, apply direct pressure to the affected area. Bandages can be used to hold material in place until vet treatment can be sought. Veterinarian treatment should be sought for further assistance as soon as possible.
Broken limbs	House the animal in a suitably sized animal crate with towels under the animal for comfort. Keep the crate covered and in a quiet location. Proceed to a veterinarian for further assistance as soon as possible.
Injured tails	House the animal in a suitably sized animal crate with towels under the animal for comfort. Keep the crate covered and in a quiet location. Proceed to a veterinarian for further assistance as soon as possible.
Concussions	House the animal in a suitably sized animal crate with towels under the animal for comfort. Keep the crate covered and in a quiet location. Proceed to a veterinarian for further assistance as soon as possible.

4.3 Euthanasia

Section 12 of the code details how to determine when euthanasia is required and how to euthanise animals ethically. The following standards as listed under the code are to be followed when assessing whether euthanasia is required:

- The euthanasia of wildlife where required is to be provided for by all wildlife rehabilitators;
- Euthanasia without exception is to be carried out when:

    - Significant pain or suffering is to be alleviated where it is not able to be managed by a vet;
    - Further treatment is **not**practical, or recovery is **not** expected in a way in which the animal can be successfully rehabilitated back to the wild;
    - Resources are not available to provide appropriate care or an acceptable quality of life throughout the likely rehabilitation period.

- Animals that are suffering and have a poor prognosis for survival must be euthanised rather than left to die from the injury or illness. Failure to undertake appropriate action is a breach of the Animal *Care and Protection Act 2001*.
- Unless permission has been granted by the Department of Environment and Heritage Protection for the animal to enter the Queensland Species Management Plan (QSMP) or otherwise advised by the DEHP Wildlife Management Director, animals must be euthanised when:

    - An orphaned animal is not viable or likely to be rehabilitated;
    - No suitable release locations are available;
    - The ability for an animal to reproduce is lost due to an injury, disease or surgical procedure;
    - The ability to move freely or normally (i.e. run, climb, crawl, hop, fly or swim) is permanently impaired. Examples are: a missing or impaired limb, wing, foot or tail that would significantly impair the animal's ability to survive in the wild;
    - The ability to sense environment (i.e. see, smell, fell, taste or hear) is permanently impaired. For example: missing or injured organ such as an eye, ear or nose that would significantly impair the animal's ability to survive in the wild;
    - The ability to catch, find or handle food is permanently impaired;
    - Its advanced age renders it unlikely to survive in the wild.

5. Wildlife Storage & Housing Plan

For wildlife requiring storage, temporary housing and transportation to release sites and/or to a wildlife carer or veterinarian, guidelines set out in the Code of Practice and QFC's Animal Ethics Permit will be followed.

Dependent on the species of animal and condition of the animal, temporary storage and housing of animals will be as follows:

Calico bags: Calico bags will be used to temporarily house fauna such as snakes, lizards and small mammals (including microbats), Bags will range in size from 200mm x 200mm to 600mm x 1800mm. Bag selection will vary according to the size of animals to be placed in them. In the case of snakes, a "hoop bag" may be used to facilitate capture. The hoop is approximately 500mm in diameter attached to a handle. The bag is placed around the hoop ensuring a greater area in which to pass the snake through into the bag.

Plastic holding tubs/containers/animal crate: Plastic holding tubs/containers/crates will be used to temporarily house fauna such as snakes, lizards, frogs, small mammals and birds (Plastic holding tubs/containers/crates will range in size from 150mm x 150mm x 120mm to 500mmx 400mm x

400mm. Plastic holding tubs/containers/crates selection will vary according to the size and number of animals to be placed in them.

In addition to this, material is used to line the tub/crate to ensure the animals won't lose its footing. This may include folded towels on the bottom of the crate or a fitted pad. These items are washed between each use to reduce the spread of disease/parasites.

Section 9 of the Code relates to how transportation of wildlife should be undertaken. The following will be adhered to when transporting wildlife to the vet and/or carer:

- Additional pain or distress of the animal is to be avoided;
- Wildlife should only be transported when necessary;
- Transport containers must be appropriate for the species (size, strength and behaviour of species being moved;
- Transport containers must be designed and maintained in a way as to:
    - Prevent injury;
    - Prevent escape;
    - Prevent rolling/tipping during transit;
    - Prevent damage to plumage (feathers);
    - Be hygienic;
    - Minimise stress and
    - Be suitably ventilated.

- Non-compatible species must not be transported in a manner which allows for visual or physical contact;
- Containers must be secured to prevent movement and provide protection from direct sunlight, wind and rain;

Venomous, dangerous or potentially disease transmitting animals must be clearly marked with warning labels (i.e. Caution –'venomous snake' or 'live bat') and be locked and secured.

6. Wildlife Release & Disposal Plan

Future development area and parkland areas border the Mountain Creek Sewer Alignment to north-east and south with previously cleared and residential areas to the north-west and south-east.White Rock Conservation Park lies to the south of the precinct and presents a highly favorable translocation site for fauna encountered during clearing activities. With the exception of highly mobile species such as birds and macropods where natural relocation may occur, it will be necessary for the fauna spotter/catcher to translocate the majority of fauna found into suitable habitat within these areas.

The selection of the release area aids in minimising the fauna load within the proposed parkland areas and isolating animals within the fragmented habitat of the development area to the north-east. A map of the intended release site can be viewed in Appendix B.

Regarding all fauna capture and disposal activities conducted on the project the following records will be made:

- **a.** species;
- **b.** identification name or number;
- **c.** sex (M, F, or unknown);
- **d.** approximate age or age class (neonate, juvenile, sub-adult, adult);
- **e.** time and date of capture;
- **f.** method of capture;
- **g.** exact point of capture (GPS point);
- **h.** state of health;
- **i.** incidents associated with capture likely to affect the animal;
- **j.** veterinary intervention or treatments;
- **k.** time held in captivity;
- **l.** disposal (euthanasia, re-release, translocation etc);
- **m.** date and time of disposal;
- **n.** details of disposal (if released, exact point of release GPS);
- **o.** for released animals: distance in metres from point of capture to point of release.

7. Post Works Impact Minimisation

As the project area will be cleared of all vegetation, post works impact monitoring and/or impact minimisation is deemed not necessary. It is unlikely the vast majority of wildlife will return to the area as all habitat and foraging resources will be removed and habitat connectivity is also not present.

In the event that fauna is found on site post-works, it is recommended personnel contact QFC and a licensed and experienced wildlife consultant can be dispatched to remove and relocate the animal should it be necessary. QFC wildlife consultants are available 24/7 for fauna related call-outs in relation to this project.

It is recommended that if any fauna, such as Kangaroos and Wallabies, are noted in the wider area and appear distressed post-works that QFC be contacted to further assess the situation.

8. Assessment, Conclusion and Fauna Management Recommendations

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

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

9. References

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References for nomenclature

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Strahan, R. (Ed) (1995) *The Mammals of Australia*. Sydney: New Holland Publishers.

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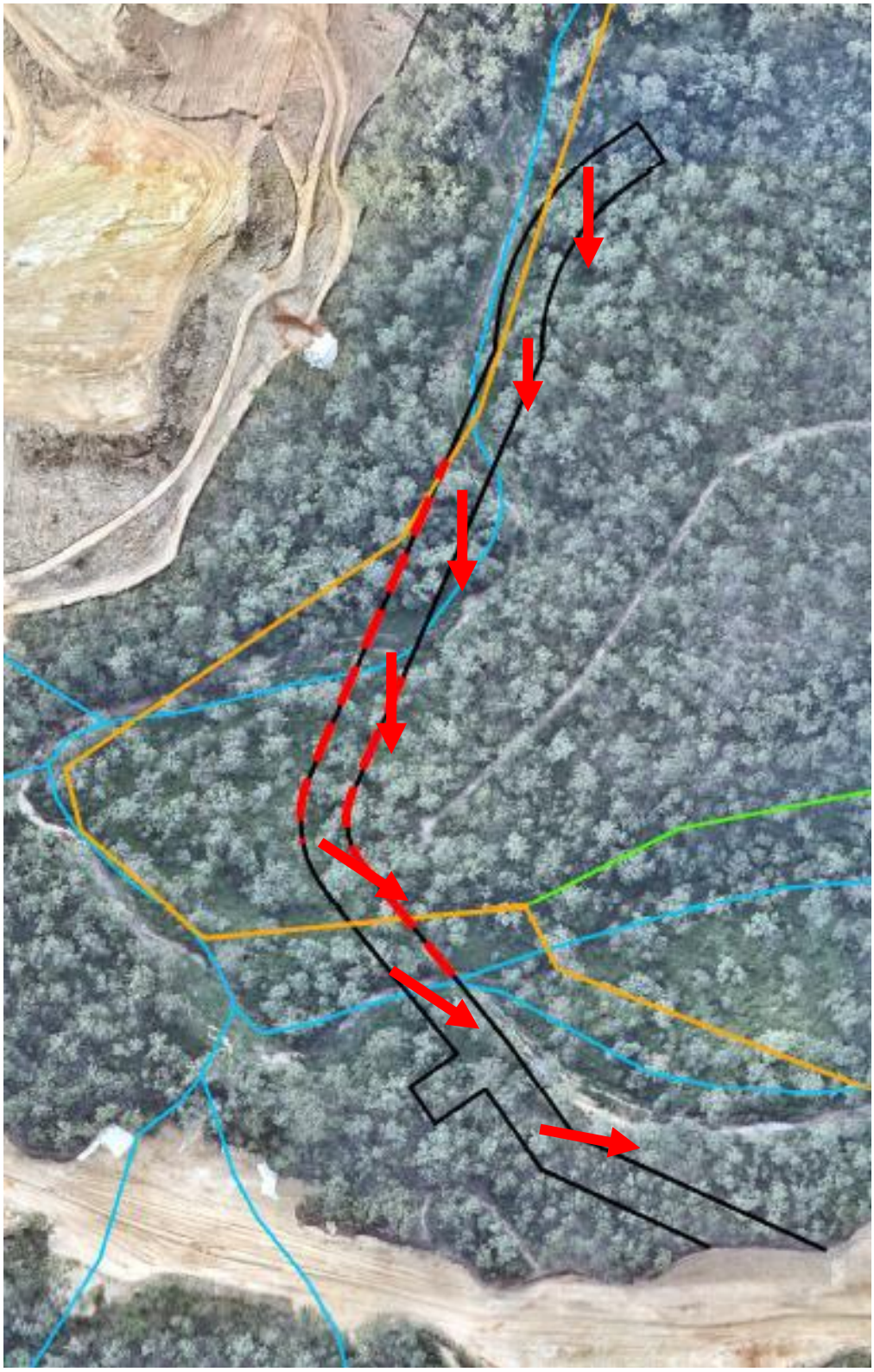
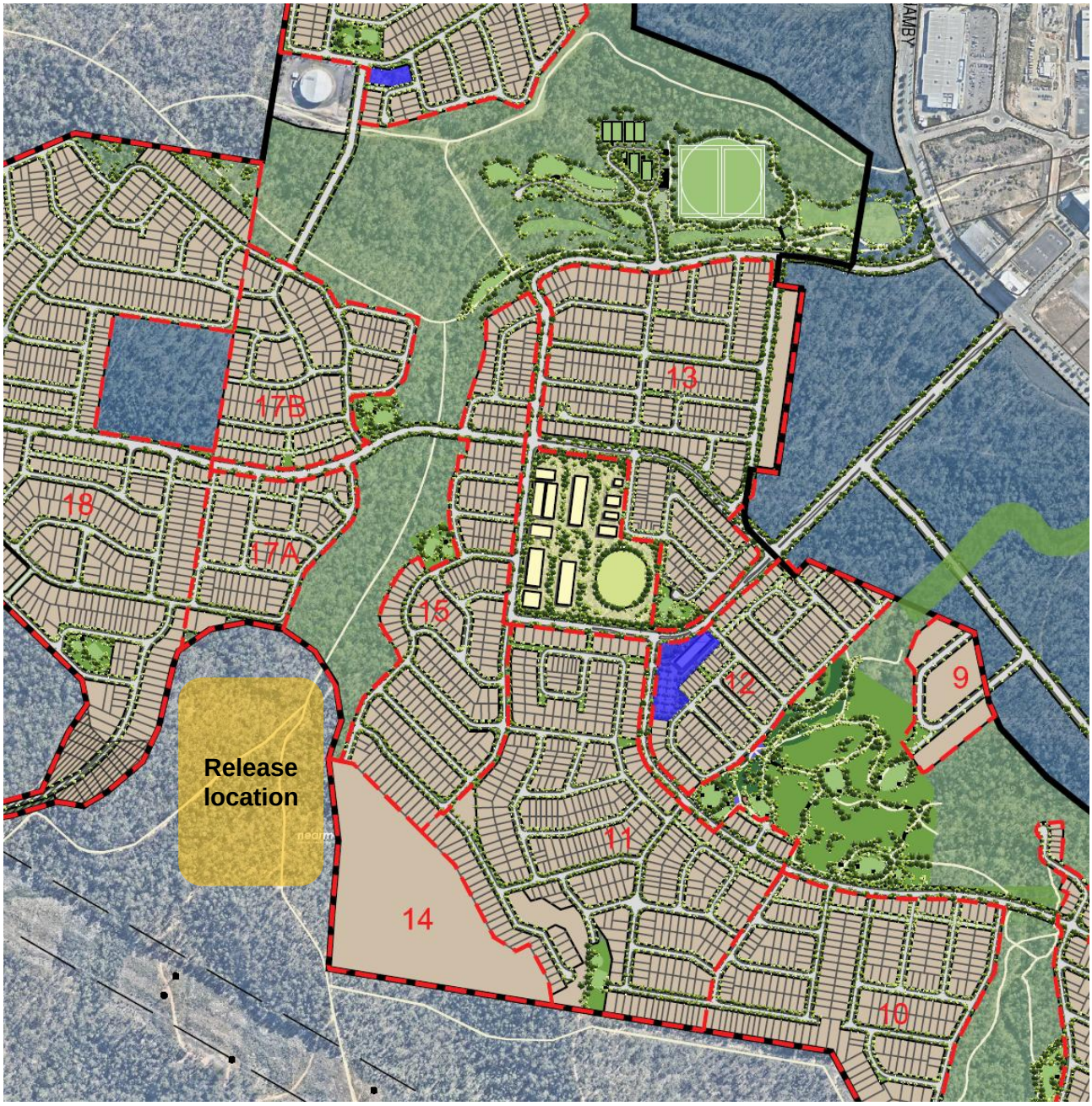
10. Appendix A: Intended Direction of Clearing



11. Appendix B: Intended Release Site for Wildlife



Attachment 10

Environmental Awareness Acknowledgement - Shadforths

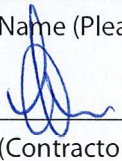
ENVIRONMENTAL AWARENESS

CONTRACTOR ACKNOWLEDGEMENT

I SAM SCHROTER, the Contractor (or the Contractor Representative), appointed by Lendlease Communities, acknowledge receipt and acceptance of the Lendlease Communities rules and policies in the **Springfield Rise Site Based Management Plan**. By signing below, I acknowledge that there are mechanisms in place to ensure all material provided within this SBMP will be read and understood by all site contractors and sub-contractors prior to commencing works on site.

SHADFORTHS CIVIL CONTRACTORS.

Company Name (Please print)



Signature (Contractor / Contractor Representative)

SAM SCHROTER

Name (Please print)

PROJECT MANAGER.

Title / Position

18. 12. 2017

Date

Attachment 11

Pre-Start arrangements with QUU

From: Daniel O'Malley <Daniel.OMalley@arcadis.com>
Sent: Thursday, 14 December 2017 11:45 AM
To: development.audit@urbanutilities.com.au
Cc: AA008228; Tony Hooper; Christo Louw; Sam Schroter; Keira Grundy
Subject: Pre Start Meeting Request - 17-PNT-25376 - Mountain Creek Trunk Sewer (Springfield Lakes)

Hi Giselle

We would like to book in QUU for a Pre Start meeting for the construction of the Mountain Creek Trunk Sewer Main installation for next week Monday 18/12 at 11am.

Date of Audit: 18/12/2017 – I understand I have not provided the minimum 3 business notice. If this time is not available any time Mon – Wed next week is fine.
Time for Audit: 11am
Description of works: Pre Start Meeting for Mountain Creek Trunk Sewer
Valid Approved Network Access Permit (if applicable): TBC
Site Contact Name: Tony Hooper (Shadforth Civil Contractors Pty Ltd)
Site Contact Number: 0448 008 837
Stage No (if applicable): N/A
Estate Name (if applicable): Springfield Rise, Springfield Lakes
Application Reference Number (Development Services Web Portal): 17-PNT-25376

Is there any particular PPE the Assurance Officer will need onsite: Standard PPE requirements – hard hat, high vis vest, steel cap boots, long sleeved shirt.
Address to meet at – Shadforths Civil Site Compound, located at the End of Grande Avenue, Springfield Lakes
Are there any induction requirements: Both Tom Hare and Craig Wolf has previously been inducted, so no additional induction requirements

Regards

Dan O'Malley | Civil Engineer | BE(Civil) MIEA | daniel.omalley@arcadis.com
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