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OUR REF: 5738-ENG
YOUR REF: OPW201801218 & OPW201801219
PN163842/03/DA4

29 August 2018

City Development
Gold Coast City Council
PO Box 5042
GOLD COAST MAIL CENTRE QLD 9729

Attention: Mr. Sanjib Bhomick

Dear Sanjib,

RE: RESPONSE TO INFORMATION REQUEST FOR OPW201801218 & OPW201801219
OPERATIONAL WORKS FOR VEGETATION CLEARING AND CHANGE TO GROUND LEVEL

Property: Lot 1 on RP6882, 60 Stapylton Jacobs Well Road & Lot 240 on W31320, 82 Christensen Road, Stapylton

We act on behalf of the Applicant, KS8 Pty Ltd, and provide the following response to Council's Information Request dated 22 June 2018. Given the nature of the response, the Applicant considers this to be a full response to the information request.

ENVIRONMENTAL ASSESSMENT

1. ***Amended Tree Works***

Vegetation on site is considered ecologically significance due to the presence of a high number of habitat and hollow bearing trees. AO1 and PO1 of the vegetation management code details that damage to assessable vegetation does not occur where the vegetation; Provides habitats for threatened flora or fauna; Provides erosion prevention and slope stabilisation. Condition 13 and 14 of the approved decision notice details requirement for a staged approach to clearing in accordance with the approved MCU or ROL layout. The applicant is requested to amend the proposed plans so as;

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A. Only the areas which have an approved Reconfiguration of Lot or Material Change of Use layout are proposed to be cleared.

B. Clearing must have a staged plan.

GDP Response:

The development has an existing Preliminary Approval and associated approved Landuse Classification and Staging Plan over the entire subject site with the proposed extent of vegetation clearing and earthworks being consistent with the site's existing designation as being committed to industrial development.

As per discussions with Council Officers at a meeting held 26 July 2018, the purpose of this application is to ensure the balance of the development is "shovel ready" for large scale industrial users currently being put forward to the market. As one of only a few remaining development sites of such a scale within the City of Gold Coast's bounds that are capable of accommodating these large facilities it is important that the development is able react and meet the often tight timeframes of these large-scale industrial users in order to secure the economic and employment benefits that they bring to the City of Gold Coast.

In line with the agreed outcomes of our meeting with Council Officers please refer to ***Attachment A*** for lot layout options demonstrating how the proposed earthworks for the balance of the subject site give the flexibility to cater for large scale industrial users or can be reverted to smaller individual industrial allotments. Both options are consistent with the Landuse Classification and Staging Plan (drawing number 5738 P 001 D) lodged with the Minor Change Application associated with the Preliminary Approval over the subject site.

It is noted that the submitted Vegetation Management Plan (VMP) prepared by Gassman Development Perspectives specifies a staged approach to clearing the balance of the development which is consistent with the outcomes required of the Fauna Management Plan (FMP) prepared by Ecosure submitted as part of the response to Council's Information Request. The clearing direction and progress will be in accordance with the advice received from the suitably qualified fauna ecologist supervising the on site works.

2. ***Amended Vegetation Management Plan***

Plan being Vegetation Management Plan, 60 Stapylton Jacobs Well Road, 82 Christensen Road, prepared by Gassman Development perspectives dated March 2018 is requested to be amended as follows:

A. Provide detail of the related Material Change of Use or Reconfiguration of Lot approval which details the area for works.
B. Provide a tree survey of the boundary of all works.
C. Survey the entire site and provide detail of all hollow bearing trees.
D. Provide detail that all vegetation will be retained within the covenant area.
E. Provide species management measures for koalas.
F. Detail that a fauna spotter catcher must be present for all works.
G. Remove all ambiguous terminology; should is to be replaced with must.
H. Include point no damage occurred to retained trees in performance indicators.

GDP Response:

An updated Vegetation Management Plan is contained within ***Attachment B***. The Vegetation Management Plan has been updated to reflect the required outcomes of Items 2B, C, F,G and H as listed above. Item E is considered to be more suitably addressed within the Fauna Management Plan associated with the clearing works. A copy of this document is contained within ***Attachment C*** of this response.

Item A has been addressed through the response provided above to Item 1 of the Information Request.

Item D has been addressed through the submitted amendment to the Preliminary Approval and associated Landuse Classification and Staging Plan whereas the term covenant area has been amended to landscaping buffer in line with the intent of the area as a buffer to Council's landfill facility immediately adjacent to the subject site. Please refer to ***Attachment D*** which contains a copy of the latest Landuse Classification and Staging Plan (drawing number 5738 P 001 D) along with an indicative landscaping buffer section for the 20.0m corridor.

3. ***Preparation of fauna management plan***

A fauna management plan that includes the following information is requested to be prepared by a suitably qualified and experienced professional:

a *Description of the approved development proposal and clearing works.*

b *Site description including plans and supporting text providing a description of vegetation communities and fauna habitat values to be cleared and retained.*

c *Fauna known to occur at the site (based on the outcomes of the Ecological Assessment and any additional site inspections) and a brief habitat description/identification of locations that the species are known to occur.*

d *Fauna likely to occur at the site (based on outcomes on the Ecological Assessment and database searches such as WildNet) and a brief habitat description/identification of locations that the species are likely to occur.*

e *Identification of significant fauna species known and likely to occur at the site.*

f *Identification of known and potential habitat trees (displaying values such as hollows, fissures, nests, drays, arboreal termitaria used as nests etc).*

g *Identification of general fauna habitat (including weed species that may offer fauna habitat, native vegetation, rivers, creeks, ground resources such as boulders and hollow logs).*

h *Details for demarking areas that are of high habitat value to be disturbed (e.g. habitat trees, disturbance in sensitive areas etc).*

i *Information on how the clearing will be undertaken including:*

i *Whether the clearing will be undertaken in stages;*

ii *Special considerations for clearing (e.g. juvenile vegetation first);*

iii *Time periods between clearing of staged areas (where applicable) or immature vegetation;*

iv *Direction of clearing;*

v *Staging of infrastructure (for example nest boxes, installation of fauna friendly crossings etc taking into consideration temporary movement corridors based on the impacts of construction works); and*

vi *Temporary methods required (e.g. barrier fencing to prevent fauna fleeing to roads).*

j *Information on how trees are to be inspected for denning or nesting animals including constraints for inspecting trees (to provide acceptable alternative methods).*

k *Considerations relating to time periods for when fauna is to be removed/flushed prior to clearing.*

l *Methods for moving denning or nesting animals and/or capture or flushing of ground dwelling animals.*

m *Summary of removal and relocation methods for each faunal group (including observed species and species likely to occur in the area to be disturbed). Faunal groups that have specialist habitats that differ from the general faunal group (for example ground dwelling birds) further descriptions are required.*

n *Details of special equipment required (such as chainsaws, cameras etc).*

o *Identification of general locations that wildlife will be relocated/translocated to if required (based on habitat requirements).*

p *Information on how the animal is to be protected once relocated.*

q *Methods to euthanise injured animals as well as contact details (including telephone number) and location of the closest vets (and others close by).*

r *Detailed methods for the translocation and protection of significant fauna species known and likely to occur at the site.*

s *Special considerations for nesting times.*

Note – there is an active Wedge Tail Eagle (Aquila audax) nest in the NE corner of 82 Christensen Road lot. Any future development proposal for this part of the site will need to address the protection and management of this iconic fauna species. The applicant is advised to contact Teharne Zarzecki on telephone 07 5582 8281 for enquiries regarding the part of this information request.

GDP Response:

A Fauna Management Plan prepared by Ecosure is contained within ***Attachment C***. In addition to addressing the list of required information noted in Item 3, this Fauna Management Plan contains specific recommendations for management of the clearing in relation to the Wedge Tailed Eagle nest.

OPERATIONAL WORKS

4. **Only holds a Preliminary Material Change of Use (MCU) development permit**

   The subject site only holds the preliminary MCU development permit. Preliminary development permit does not allow the applicant to undertake any works on site. Considering the scenario, the applicant is requested to submit a copy of the full MCU development permit attached with this land.

GDP Response:

Please refer to the response provided to Item 1 of the Information Request which addresses Council's query raised in Item 4.

5. **A Reconfiguration of Land application development permit**

   The applicant is requested to submit the development permit for the reconfiguring of the site that is currently assessed by Council.

GDP Response:

The Stage 1 Reconfiguration of Land application is currently in Decision Stage with Council and is anticipated to be approved concurrently if not before this application for vegetation clearing and bulk earthworks.

We feel that the above information satisfactorily responds and addresses all the matters raised as part of the Information Request and we look forward to a timely and favourable determination of the application.

If you require any further information or have any queries, please contact the undersigned.

Yours faithfully,
GASSMAN DEVELOPMENT PERSPECTIVES

……

MITCHELL GASSMAN
CIVIL PROJECT ENGINEER

Enclosed
As listed above

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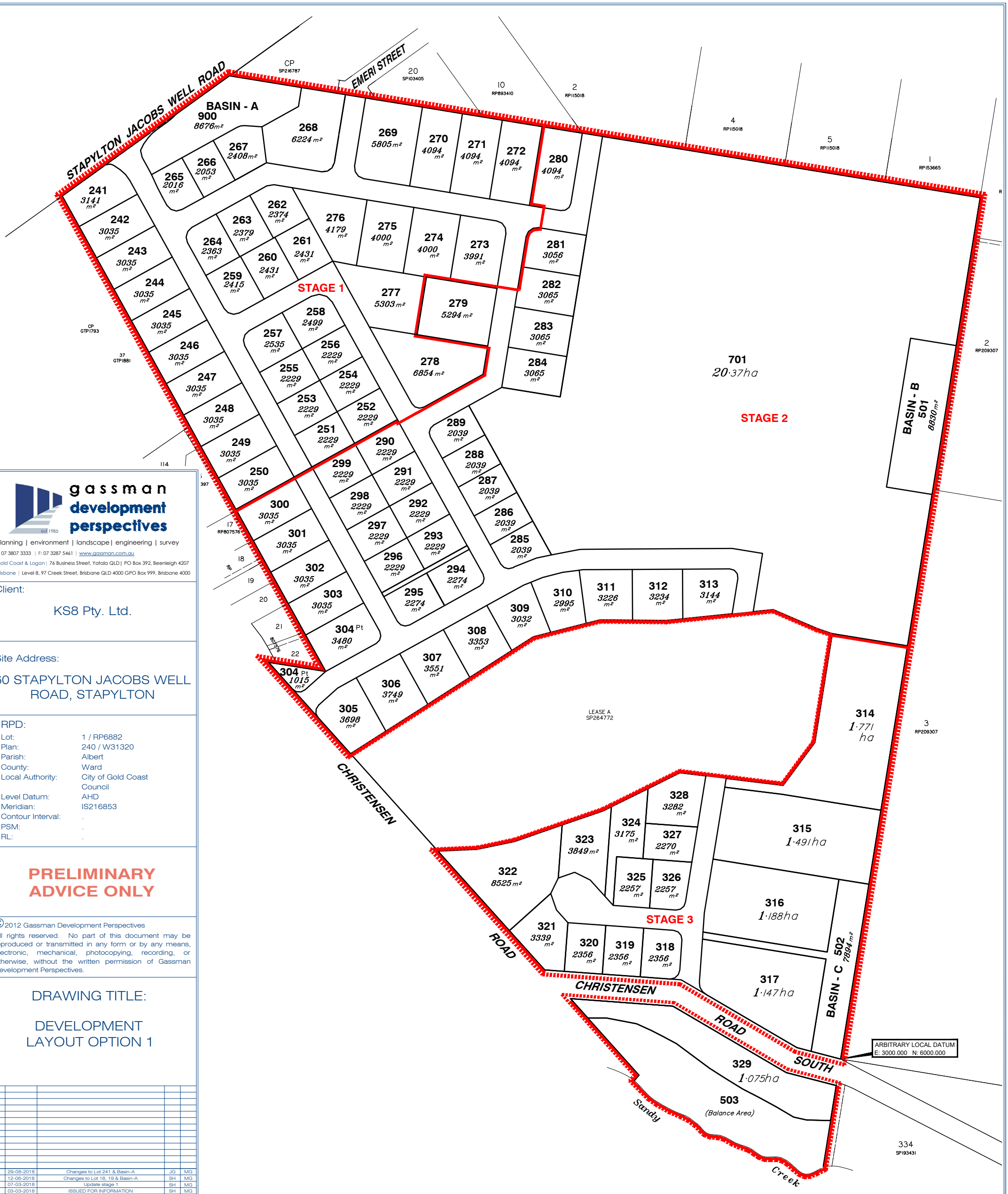
ATTACHMENT A – Alternate Lot Layout Options for Balance of Site



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Brisbane | Level 8, 97 Creek Street, Brisbane QLD 4000 GPO Box 999, Brisbane 4000

Client:

KS8 Pty. Ltd.

Site Address:

60 STAPYLTON JACOBS WELL ROAD, STAPYLTON

RPD:

Lot:	1 / RP6882
Plan:	240 / W31320
Parish:	Albert
County:	Ward
Local Authority:	City of Gold Coast Council
Level Datum:	AHD
Meridian:	IS216853
Contour Interval:	.
PSM:	.
RL:	.

PRELIMINARY ADVICE ONLY

DRAWING TITLE:

DEVELOPMENT LAYOUT OPTION 1

Issue	Date	Description	DRN	CHK
D	29-08-2018	Changes to Lot 241 & Basin-A	JG	MG
C	12-06-2018	Changes to Lot 18, 19 & Basin-A	SH	MG
B	07-03-2018	Update stage 1	SH	MG
A	03-03-2018	ISSUED FOR INFORMATION	SH	MG

SCALE IN METRES

0 40 80 120 160 200

1:2000 (FULL SIZE A1)
1:4000 (HALF SIZE A3)

Scale at A1:	1:2000
Designed:	IG
Drafted:	JG
Approved:	MG
RPEQ:	
Signed:	
Date:	29-08-18

Drawing No: 5738 ENG ROL 01

Rev. No: D

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Brisbane | Level 8, 97 Creek Street, Brisbane QLD 4000 GPO Box 999, Brisbane 4000

Client:

KS8 Pty. Ltd.

Site Address:

60 STAPYLTON JACOBS WELL ROAD, STAPYLTON

RPD:

Lot:	1 / RP6882
Plan:	240 / W31320
Parish:	Albert
County:	Ward
Local Authority:	City of Gold Coast Council
Level Datum:	AHD
Meridian:	IS216853
Contour Interval:	.
PSM:	.
RL:	.

PRELIMINARY ADVICE ONLY

DRAWING TITLE:

DEVELOPMENT LAYOUT OPTION 2

Issue	Date	Description	DRN	CHK
A	29-08-2018	ORIGINAL ISSUE	JG	MG

SCALE IN METRES

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1:2000 (FULL SIZE A1)
1:4000 (HALF SIZE A3)

Scale at A1:	1:2000
Designed:	IG
Drafted:	JG
Approved:	MG
RPEQ:	
Signed:	
Date:	29-08-18

Drawing No: 5738 ENG ROL 02

Rev. No: A

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ATTACHMENT B – Amended Vegetation Management Plan

VEGETATION MANAGEMENT PLAN v2

60 STAPYLTON JACOBS WELL ROAD, 82 CHRISTENSEN ROD

LOT 1 on RP6882, Lot 240 on W31320

Balance of Earthworks

PREPARED FOR: **KS8 Pty. Ltd.**

August 2018

gassman development perspectives

project coordination
urban + regional planning
landscape + urban design
environmental management
visualisation + spatial services
surveying services
advisory services

"IMPORTANT NOTE"

We have prepared this report for the sole purposes of KS8 Pty. Ltd. ("Client") for the specific purpose of a development permit for vegetation removal. This report is strictly limited to the Purpose and the facts and matters stated in it and does not apply directly or indirectly and will not be used for any other application, purpose, use or matter.

In preparing this report we have made certain assumptions. We have assumed that all information and documents provided to us by the Client or as a result of a specific request or enquiry were complete, accurate and up-to-date. Where we have obtained information from a government register or database, we have assumed that the information is accurate. Where an assumption has been made, we have not made any independent investigations with respect to the matters the subject of that assumption. We are not aware of any reason why any of the assumptions are incorrect.

This report is presented without the assumption of a duty of care to any other person ("Third Party") other than the Client. The report may not contain sufficient information for the purposes of a Third Party or for other uses. Without the prior written consent of Gassman Development Perspectives Pty Ltd:

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b) Gassman Development Perspectives Pty Ltd will not be liable to a Third Party for any loss, damage, liability or claim arising out of or incidental to a Third Party publishing, using or relying on the facts, content, opinions or subject matter contained in this report.

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GDP Document Control

Originating Office:	Yatala	Job Number:	5738
Physical Address:	76 Business Street	Job Name:	
	Yatala	Project Manager:	Brian Gassman
	QLD 4207	Document Title:	Vegetation
Postal Address:	PO Box 392	Management Plan	
	BEENLEIGH.Q. 4207	Author:	Kathryn Tibbles
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Fax:	+61 7 3287 5461	Client Contact:	
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Revision / Checking History

No.	Author	Reviewer
1. V1.0	Kathryn Tibbles	Brian Gassman
2. V2.0	Kathryn Tibbles	Brian Gassman

Approval for Issue

Version	Name	Position	Signature	Date
V2.0	Brian Gassman	Director		21/08/2018

Final Distribution

KS8 Pty. Ltd.	1 electronic copy
Gold Coast City Council	1 electronic copy

TABLE OF CONTENTS

1. Introduction

1.1. Background

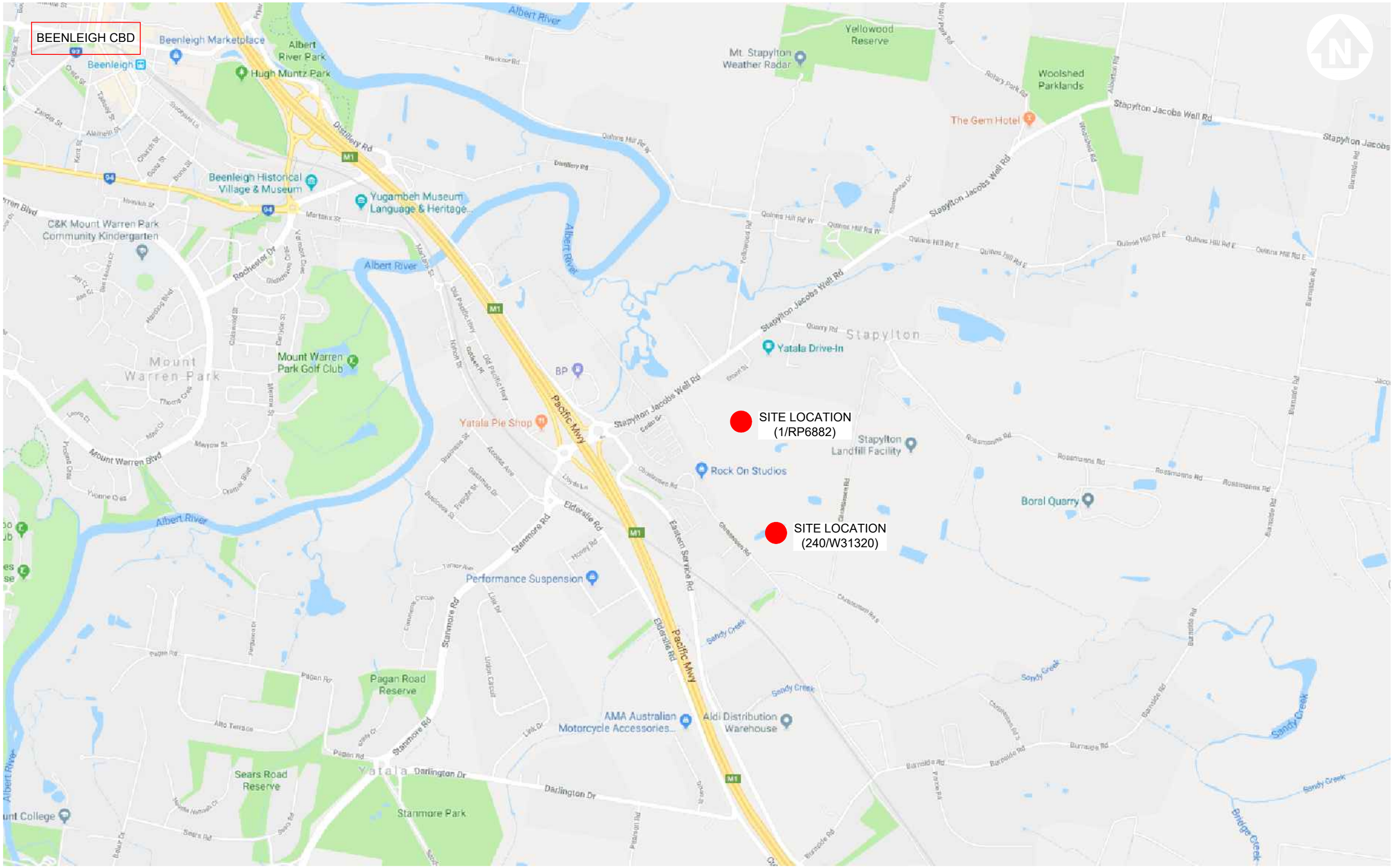
This Vegetation Management Plan (VMP) has been produced by Gassman Development Perspectives in support of proposed vegetation clearing works to facilitate a large scale industrial subdivision. It prescribes the methods in which vegetation will be removed from the subject site in support of the required earthworks to facilitate the proposed industrial development.

This VMP focuses on land occurring over Lot 1 on RP6882 and Lot 240 on W31320, Stapylton. The proposed vegetation clearing is required on Lots 1 on RP6882 and 240 on W31320 to facilitate the remaining balance of earthworks required for the proposed industrial subdivision. Stage 1 of the required vegetation clearing and earthworks has been addressed under a separate application and VMP (GCCC ref. ROL201800079)

The subject site is located approximately 400m to the east of the Pacific Motorway (Figure 1 and 2). The site is currently a mixture of improved pasture in the lower and flatter parts of the site, and low and tall open remnant forests in the north eastern and south eastern corners of the site.

Details of individual trees recorded on the subject site include the species, trunk diameter, height, canopy spread and fauna use.

Trees were recorded using survey equipment and methods. This information has been used for the best practice management strategies for managing clearing on the site. The records of these trees are included in Appendix 1 to this report.



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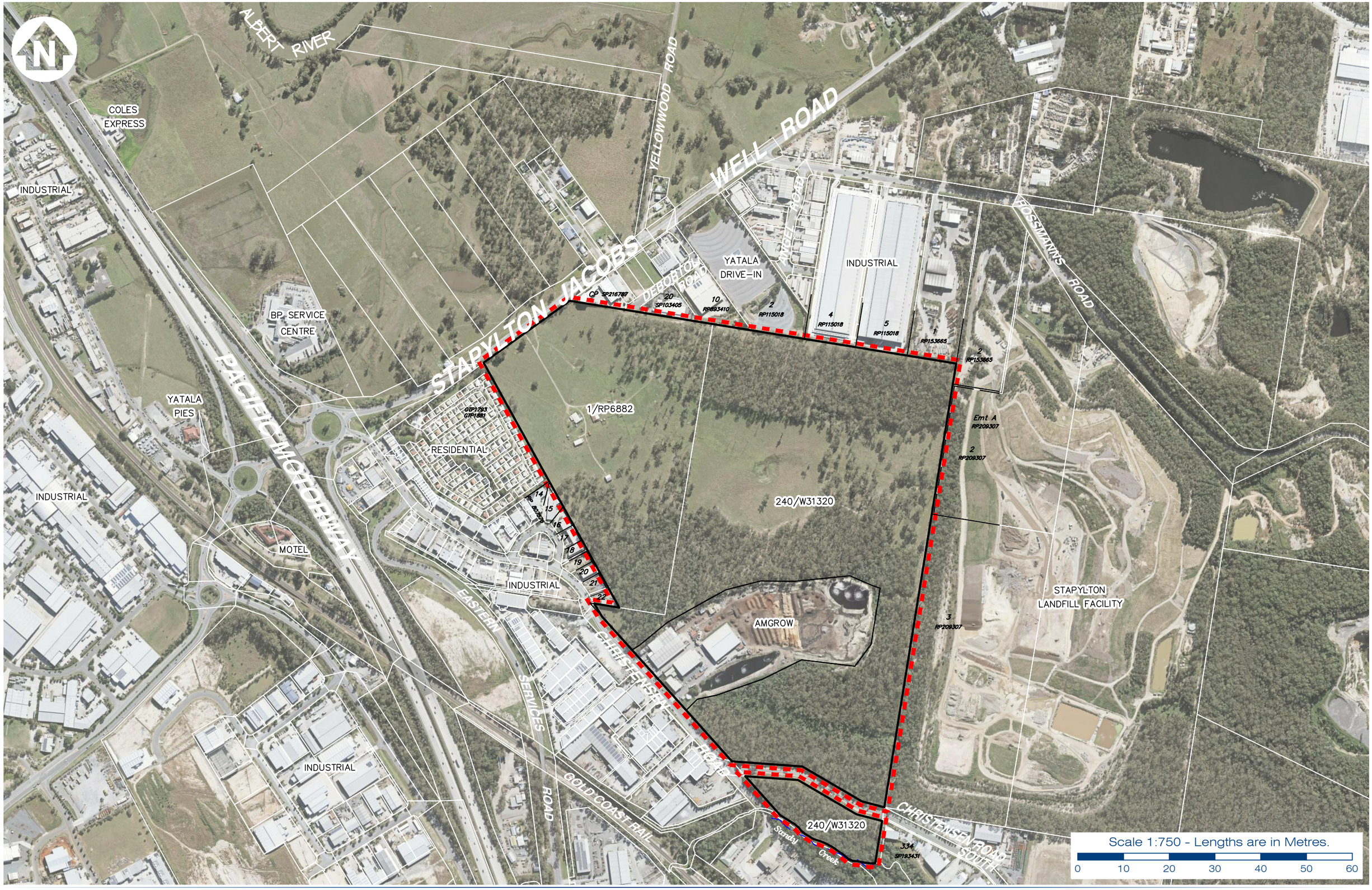
balance figure 1 - locality | stapylton-jacobs well road, stapylton
KS8 Pty. Ltd.

date: 09-04-18
scale: NTS
design: RM/KT
plan: 5738 E VMP B FIG 1



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balance figure 2 - aerial | stapylton-jacobs well road, stapylton
KS8 Pty. Ltd.

date: 09-04-18
scale: 1:750
design: RM/KT
plan: 5738 E VMP B FIG 2

2. Purpose

The principle intention of this VMP is to appropriately reflect the current tree species on the site, their location, management and treatment in relation to removal, retention, protection, relocation, propagation and enhancement.

Because of the size of the site, only the trees within the more open areas of the site were individually surveyed. The remaining vegetation subject to this VMP has been identified in vegetation groups. In the more open areas, trees over 40cm in diameter at 1.3 above the ground, or over 4m in height, were individually recorded.

A total of 187 trees were individually surveyed within this Balance of Earthworks Stage, and 12 additional vegetation groups identified. All of the trees, including those too small to be individually surveyed, and vegetation groups within this balance of earthworks stage on Lots 1 on RP6882 and 240 on W31320 will require removal as part of the proposed development. Of the individually surveyed trees, 82 trees were observed to contain habitat values, with all of these proposed for removal. Notes have been included in the Tree Survey Plan identifying habitat values associated with individually surveyed trees. There is also expected to be similar habitat values associated within the areas surveyed as vegetation groups. Consequently, a qualified fauna spotter/catcher will be engaged to be present during all clearing operations.

3. VMP Provisions

This VMP has been structured in a manner to incorporate the following provisions:

- The location and extents of the proposed construction areas in which the vegetation will be removed and areas that will be protected;
- Particulars of the vegetation occurring on site (Appendix 1);
- A statement of the reasons for the damage and associated factors;
- A vegetation management plan which details the procedures on the following;
    - Vegetation protection
    - Vegetation to be removed
    - Corrective action
    - Reuse of felled Vegetation
    - Stockpiles
    - Habitat Trees
    - Ecological role of the vegetation to be removed
    - Invasive weed species
    - Summary of performance indicators

4. VMP Objectives

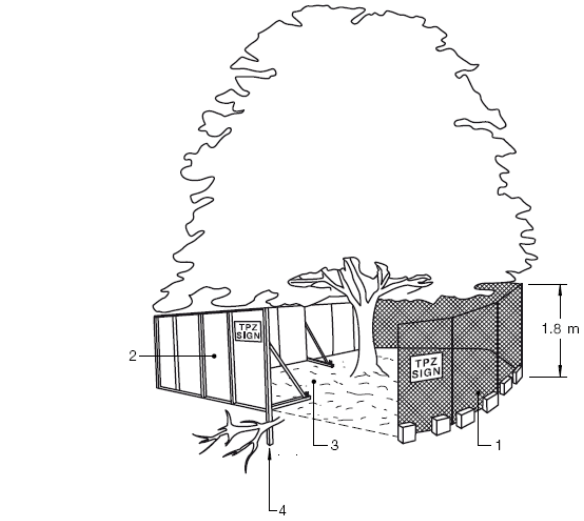
4.1. Vegetation Protection

As the required vegetation clearing is for a staged industrial subdivision, no vegetation within the extent of the balance earthworks as shown in Appendix 1 on Lots 1 on RP6882 and 240 on W31320 is proposed to be retained. However, a buffer of vegetation to Sandy Creek is proposed to be retained in the portion of Lot 240 on W31320 south of Christensen Rd.

The limit to the proposed clearing for the balance of earthworks stage is identified in the Tree Survey Plans provided in Appendix 1, and includes all necessary clearing, including drainage lines, sediment basins and access for construction plant.

As no vegetation is proposed to be retained within the balance of earthworks stage on Lots 1 on RP6882 and 240 on W31320, no individual tree protection measures are considered necessary within the balance of earthworks as indicated in Appendix 1.

However, the area of 240 on W31320 to the south of Christensen Road will require protection for the vegetation to be retained within the required buffer area to Sandy Creek. Because of the scale of the clearing, hard standing steel fence (Figure 3) as per Australian Standard AS 4970-2009 (Protection of Trees on Development Sites) is not a feasible option for protecting retained vegetation. Instead, orange mesh fencing between steel pickets and supported by a continuous wire will be utilised to clearly mark the extent of clearing associated with this balance of earthworks VMP.



LEGEND:
1 Chain wire mesh panels with shade cloth (if required) attached, held in place with concrete feet.
2 Alternative plywood or wooden paling fence panels. This fencing material also prevents building materials or soil entering the TPZ.
3 Mulch installation across surface of TPZ (at the discretion of the project arborist). No excavation, construction activity, grade changes, surface treatment or storage of materials of any kind is permitted within the TPZ.
4 Bracing is permissible within the TPZ. Installation of supports should avoid damaging roots.

Figure 3: Individual Tree Protection

The following measures will ensure vegetation outside of the balance of earthworks extent is retained in accordance with this VMP;

1) The limit of the balance of earthworks extent in the portion of Lot 240 W31320 south of Christensen Rd will be clearly demarcated with orange mesh fencing between steel pickets and supported by a continuous wire

2) All machine operators conducting the tree clearing process are to have a copy of the approved Tree Clearing Plan;

3) No site sheds, parking areas or buildings are located within the retained vegetation outside of the balance of earthworks clearing extent, or under its drip line;

4) The area surrounding the trees for removal is clear of any hazards and maintains adequate room to safely conduct the removal;

5) The vegetation removal process has focused on providing environmentally sensitive and sustainable practices including:

- Fauna removal if required;
- Direction of clearance and felling; and
- Reuse of felled material for on site use

6) The following activities are prohibited to occur within the vegetation protection zones or drip-lines of retained vegetation outside of the balance of earthworks extent:

- Machinery or vehicle parking;
- Disposal of liquids of any type;
- Repairs or refuelling;
- Earthworks;
- Temporary sheds; and
- Stockpiling (Refer to section 4.5).

4.2. Vegetation to be Removed

All vegetation within the identified balance of earthworks extent on Lots 1 on RP6882 and 240 on W31320 is proposed to be removed. The vegetation groups and individual habitat bearing trees are clearly indicated in the plan contained within Appendix 1.

Small trees, re-growth, understorey or groundcover species that also occur within the allocated clearance areas have not been individually identified, but are also proposed to be removed. Only individual trees in more open areas have been individually surveyed in Appendix 1, with the remaining vegetation proposed to be removed identified in vegetation groups.

4.2.1. Reasons for Vegetation Removal

The vegetation present on the subject site requires removal for several reasons relating to the proposed development including:

- To facilitate the approved Bulk Earthworks and ultimate construction of proposed industrial subdivision;
- Site access, roads and driveways;
- Necessary drainage and sediment basin infrastructure; and

- Safety for future industrial uses over the property.

4.2.2. Tree Clearing Process

The manner by which the vegetation will be removed from the subject site is outlined in the following section:

1) A pre-start meeting with an environmental officer from Gold Coast City Council prior to commencement shall be scheduled.

2) Locate and fence the extent of clearing to ensure the trees outside the clearing extent of the balance of earthworks have been protected in accordance with the procedures outlined in Section 4.1 of this report, specifically to ensure the retention of the vegetation within the buffer area to Sandy Creek, south of Christensen Rd on Lot 240 on W31320.

3) Fell the allocated vegetation; where practical ensure that clearing occurs in the recommended clearance direction (Figure 4) or in accordance with Fauna Spotter Catcher directions, in order to direct fauna towards retained vegetation and away from adjacent roads.

5) Woodchip the felled vegetation on site.

6) Stockpile the wood-chipped vegetation in areas which are adequately set back from the retained vegetation.

7) Stump grind remains or remove from ground with excavator.

Map Projection: Universal Transverse Mercator
Horizontal Datum: Geocentric Datum of Australia (GDA)

Grid: Map Grid of Australia GDA94

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Figure 4 - Clearing Direction

KS8 Pty. Ltd.
Vegetation Management Plan

date: 28.03.2018
scale: 1:6500@A3
plan: Figure 4 - Tree Clearing Direction - Balance Stage

4.3. Corrective Actions

If vegetation not identified for removal is disturbed during the bulk earthworks process, then discussions with Council environmental officers will be required to identify any needs for additional rehabilitation to compensate the tree damage or removal.

If a retained tree shows signs of ill health, then the causes are to be identified and amelioration methods are to be discussed with council.

4.4. Reuse of Felled Vegetation

Any wood chipped vegetation will be reused on the site in any future landscape and site stabilisation where appropriate. If a surplus of mulch is produced, it may be transported off site for alternative uses elsewhere. To achieve satisfactory mulch, material pasteurisation is the minimum process required to achieve weed and pathogen free mulch from the chipping process.

4.5. Stockpiles

Stockpiles of felled vegetation will be managed with the following considerations:

- Stockpiles are not to be located within 30 meters from significant stands of vegetation.
- Stockpiles are not to be located in areas allocated for road constructions.
- Stockpiles are not to be located in areas with difficult access or on steep slopes.
- Stockpiles are not to exceed 1000mm in height.
- Stockpiles are to be covered with appropriate plastic and fixed securely.
- Stockpiles left for longer than 8 hours will be inspected by a spotter catcher prior to mulching

5. Fauna Inspection

Individual trees observed to contain fauna values, or trees that are large (>40cm DBH) and have potential fauna values are identified in Appendix 1. Additional fauna values will also be present throughout the vegetation groups identified in Appendix 1.

A fauna spotter catcher is required to be present prior to works commencing and inspect the site to ensure identification of any wildlife or habitat features (e.g. nest, tree hollows) prior to clearing. Clearing is not to commence until the fauna spotter has certified that the site has been fully inspected and any necessary fauna protection measures or relocation procedures implemented. A brief letter from the fauna spotter/catcher will be supplied directly to the council ecologist to demonstrate compliance with this condition.

A fauna Spotter Catcher will be on site for the removal of all vegetation. The spotter catcher will hold a current permit with the Department of Environment and Heritage Protection (EHP). Captured fauna will be relocated directly into vegetation outside of the clearing extent immediately adjacent to the clearance area in an appropriate manner. This information can be expanded upon more thoroughly in a Fauna Management Plan conditioned by council if considered necessary.

A pre-start meeting is to be arranged with a Gold Coast City Council Environmental Officer prior to the commencement of vegetation clearing. The ecologist will inspect the tree protection measures. The fauna spotter catcher and consulting ecologist shall be present during the pre-start meeting. The fauna spotter/catcher will submit a letter to Council following the clearing reporting on the details of any fauna rescued, relocated or otherwise.

6. Sediment Control

Sediment control onsite once the clearing process begins will include sediment fencing around the clearance area to reduce the risks of erosion and subsequent sediment entrainment resulting from rain events which may impact upon the adjacent retained vegetation. These measures will be installed once clearing and reshaping of the site begin until completion and the site is re-stabilised.

Sediment and erosion control measures will be put in place in accordance with the approved Sediment and Erosion Control Plan.

7. Summary of Performance Indicators

1. Tree removal was restricted to allocated and approved areas;
2. Trees that remain in protected areas are in a healthy condition;
3. The spotter catcher was present for all clearing activities;
4. Fauna was relocated to suitable recommended locations;
5. Clearing occurred in the recommended direction;
6. No damage to areas of retained vegetation occurred;
7. No increased erosion or sediment loss occurred from site as a result of the tree clearing; and
8. Felled vegetation has been wood-chipped and stockpiled.

8. Conclusion

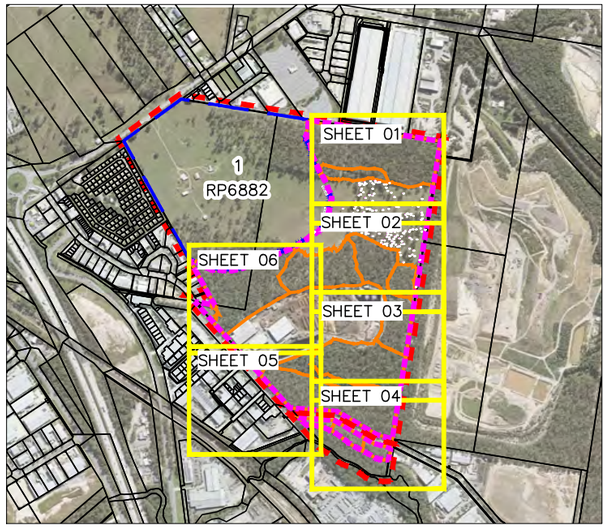
A total of 187 trees were individually surveyed on site, and 12 additional vegetation groups identified. Of the individually surveyed trees, 82 trees contained habitat values. Habitat values are expected to also be present within the surveyed vegetation groups. All of the trees and vegetation groups within the balance extent of earthworks extent on Lots 1 on RP6882 and 240 on W31320 are proposed to be removed.

Due to the structure of the vegetation to be removed and its current habitat values, a suitably qualified fauna spotter/catcher will need to be present during all clearing operations.

Specific methodologies have been prescribed which are to be adhered to at all times during the clearing process to ensure that best practice is achieved at all times, and the ecological impacts of the proposed works are minimised as far as practicable.

The above specifications and management plans have been included with the graphic plans to provide the necessary information for council officers to enable it to make a reasonable assessment of the proposed actions. This report has outlined procedures in relation to the vegetation management and clearing procedures to be undertaken as an operational works component for the facilitation of the reconfiguring a lot application currently over the subject site.

Appendix 1 – Tree Survey Plan



LEGEND

- SITE BOUNDARY
- STAGE 1 VMP (REFER TO DWG 5738 E VMP TSP S 00)
- EARTHWORKS EXTENT OF BALANCE
- TREE GROUP TO BE REMOVED
- 00 TREES TO BE REMOVED

NOTES:

1. All smaller trees not individually surveyed are also to be removed from within the tree group extents.
2. Vegetation Group 5 - Corymbia citriodora subsp. Variegata, Eucalyptus siderophloia, Eucalyptus tereticornis, Corymbia intermedia and Allocasuarina littoralis with multiple habitat trees and dense Lantana camara understory in places
3. Vegetation Group 6 - Melaleuca nodosa, Euclayptus crebra and Corymbia citriodora subsp. Variegata

Scale 1:1250 - Lengths are in Metres.

0 10 20 30 40 50 60 70 80 90 100

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Client:
KS8 Pty. Ltd.

Site Address:
Stapylton-Jacobs Well Road, Stapylton

RPD:	
Lot:	1 RP6882
Plan:	240 W31320
Parish:	
County:	
Local Authority:	Gold Coast City Council
Level Datum:	
Meridian:	
Contour Interval:	
PSM:	
RL:	

Associated Consultants:

N

Issue	Date	Description	DRN	CHK
-	09-04-18	ORIGINAL ISSUE	RGM	KT

Scale at A3: 1:1250

Date: 09-04-18

Design: .

Drawn: RGM

Checked: KT

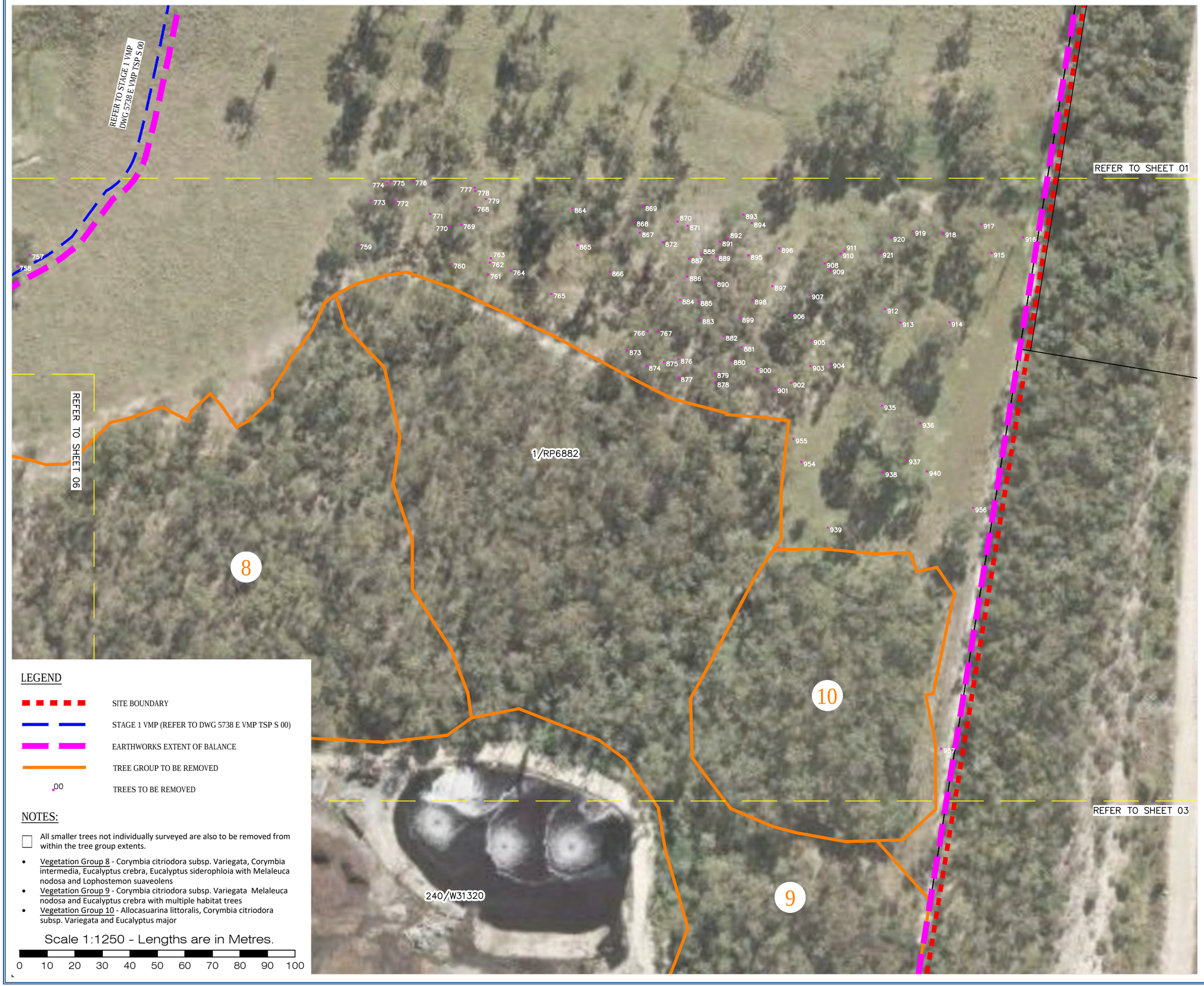
Drawing Title:

TREE SURVEY PLAN
BALANCE

SHEET 01 OF 06

Drawing No: 5738 E VMP TSP B 00

Rev. No:



LEGEND

- SITE BOUNDARY
- STAGE 1 VMP (REFER TO DWG 5738 E VMP TSP S 00)
- EARTHWORKS EXTENT OF BALANCE
- TREE GROUP TO BE REMOVED
- 00 TREES TO BE REMOVED

NOTES:

All smaller trees not individually surveyed are also to be removed from within the tree group extents.

- Vegetation Group 8 - Corymbia citriodora subsp. Variegata, Corymbia intermedia, Eucalyptus crebra, Eucalyptus siderophloia with Melaleuca nodosa and Lophostemon suaveolens
- Vegetation Group 9 - Corymbia citriodora subsp. Variegata Melaleuca nodosa and Eucalyptus crebra with multiple habitat trees
- Vegetation Group 10 - Allocasuarina littoralis, Corymbia citriodora subsp. Variegata and Eucalyptus major

Scale 1:1250 - Lengths are in Metres.

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Property Boundaries have not been defined by survey but compiled from SP280838 and are considered accurate for the purpose of this plan.

All dimensions and areas are approximate only and subject to survey.

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Date: 09-04-18

Design: .

Drawn: RGM

Checked: KT

Drawing Title:

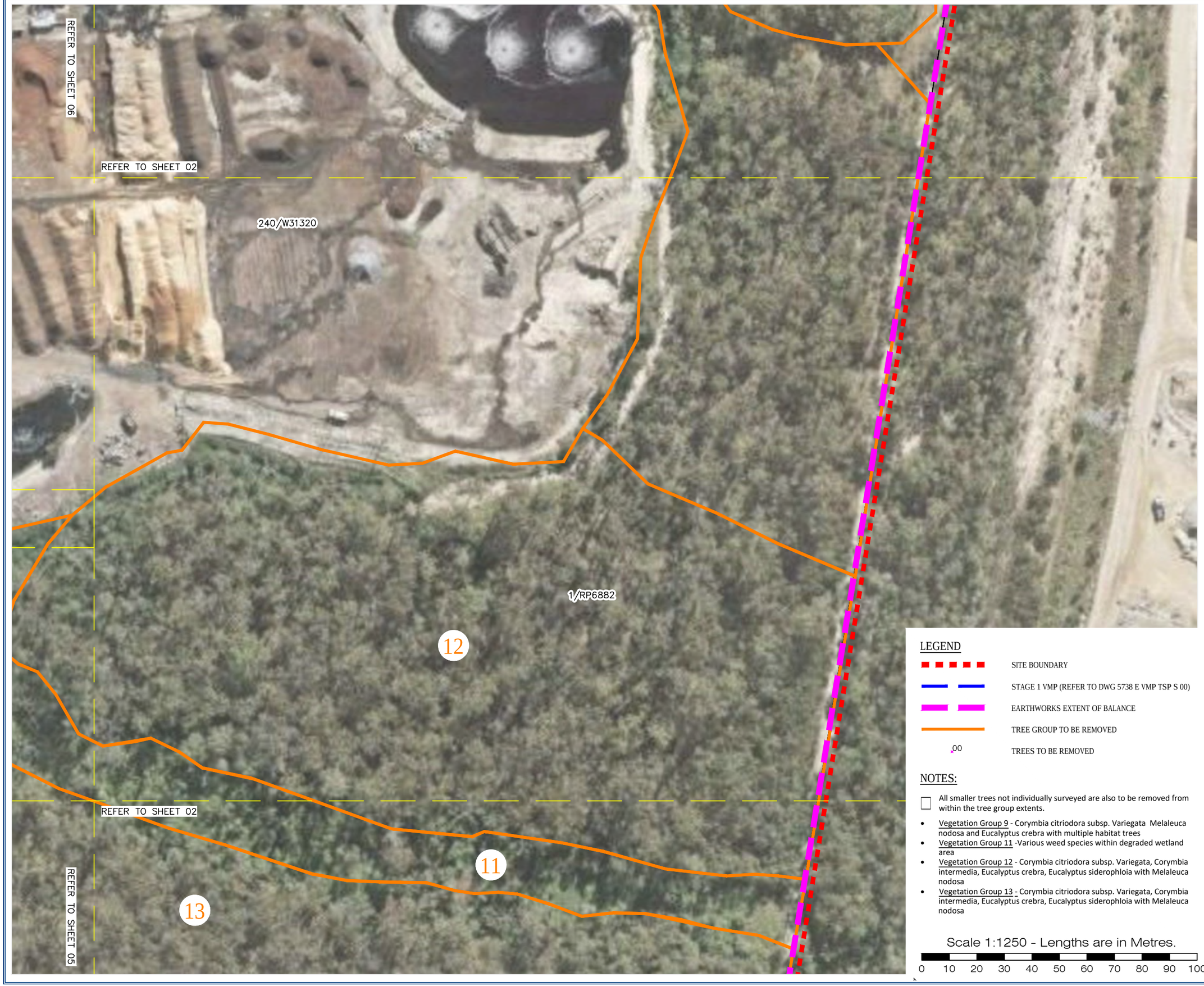
TREE SURVEY PLAN

BALANCE

SHEET 02 OF 06

Drawing No: 5738 E VMP TSP B 00

Rev. No:



LEGEND

- SITE BOUNDARY
- STAGE 1 VMP (REFER TO DWG 5738 E VMP TSP S 00)
- EARTHWORKS EXTENT OF BALANCE
- TREE GROUP TO BE REMOVED
- 00 TREES TO BE REMOVED

NOTES:

1. All smaller trees not individually surveyed are also to be removed from within the tree group extents.

- Vegetation Group 9 - Corymbia citriodora subsp. Variegata Melaleuca nodosa and Eucalyptus crebra with multiple habitat trees
- Vegetation Group 11 -Various weed species within degraded wetland area
- Vegetation Group 12 - Corymbia citriodora subsp. Variegata, Corymbia intermedia, Eucalyptus crebra, Eucalyptus siderophloia with Melaleuca nodosa
- Vegetation Group 13 - Corymbia citriodora subsp. Variegata, Corymbia intermedia, Eucalyptus crebra, Eucalyptus siderophloia with Melaleuca nodosa

Scale 1:1250 - Lengths are in Metres.

0 10 20 30 40 50 60 70 80 90 100

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Contour Interval:	
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RL:	

Associated Consultants:

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Design:	.
Drawn:	RGM
Checked:	KT

Drawing Title:

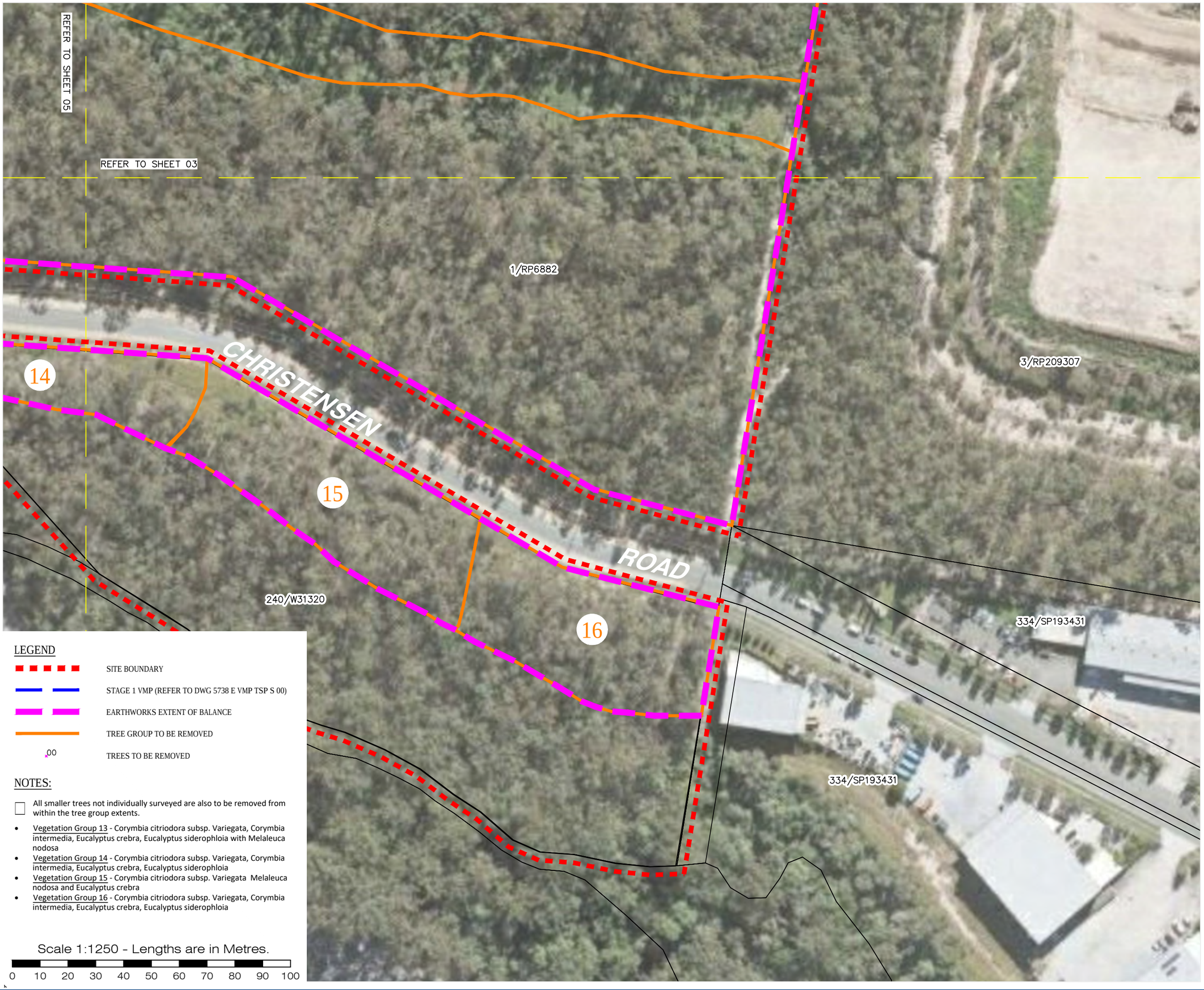
TREE SURVEY PLAN

BALANCE

SHEET 03 OF 06

Drawing No: 5738 E VMP TSP B 00

Rev. No:



LEGEND

- SITE BOUNDARY
- STAGE 1 VMP (REFER TO DWG 5738 E VMP TSP S 00)
- EARTHWORKS EXTENT OF BALANCE
- TREE GROUP TO BE REMOVED
- 00 TREES TO BE REMOVED

NOTES:

- All smaller trees not individually surveyed are also to be removed from within the tree group extents.
- Vegetation Group 13 - Corymbia citriodora subsp. Variegata, Corymbia intermedia, Eucalyptus crebra, Eucalyptus siderophloia with Melaleuca nodosa
- Vegetation Group 14 - Corymbia citriodora subsp. Variegata, Corymbia intermedia, Eucalyptus crebra, Eucalyptus siderophloia
- Vegetation Group 15 - Corymbia citriodora subsp. Variegata Melaleuca nodosa and Eucalyptus crebra
- Vegetation Group 16 - Corymbia citriodora subsp. Variegata, Corymbia intermedia, Eucalyptus crebra, Eucalyptus siderophloia

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TREE SURVEY PLAN

BALANCE

SHEET 04 OF 06

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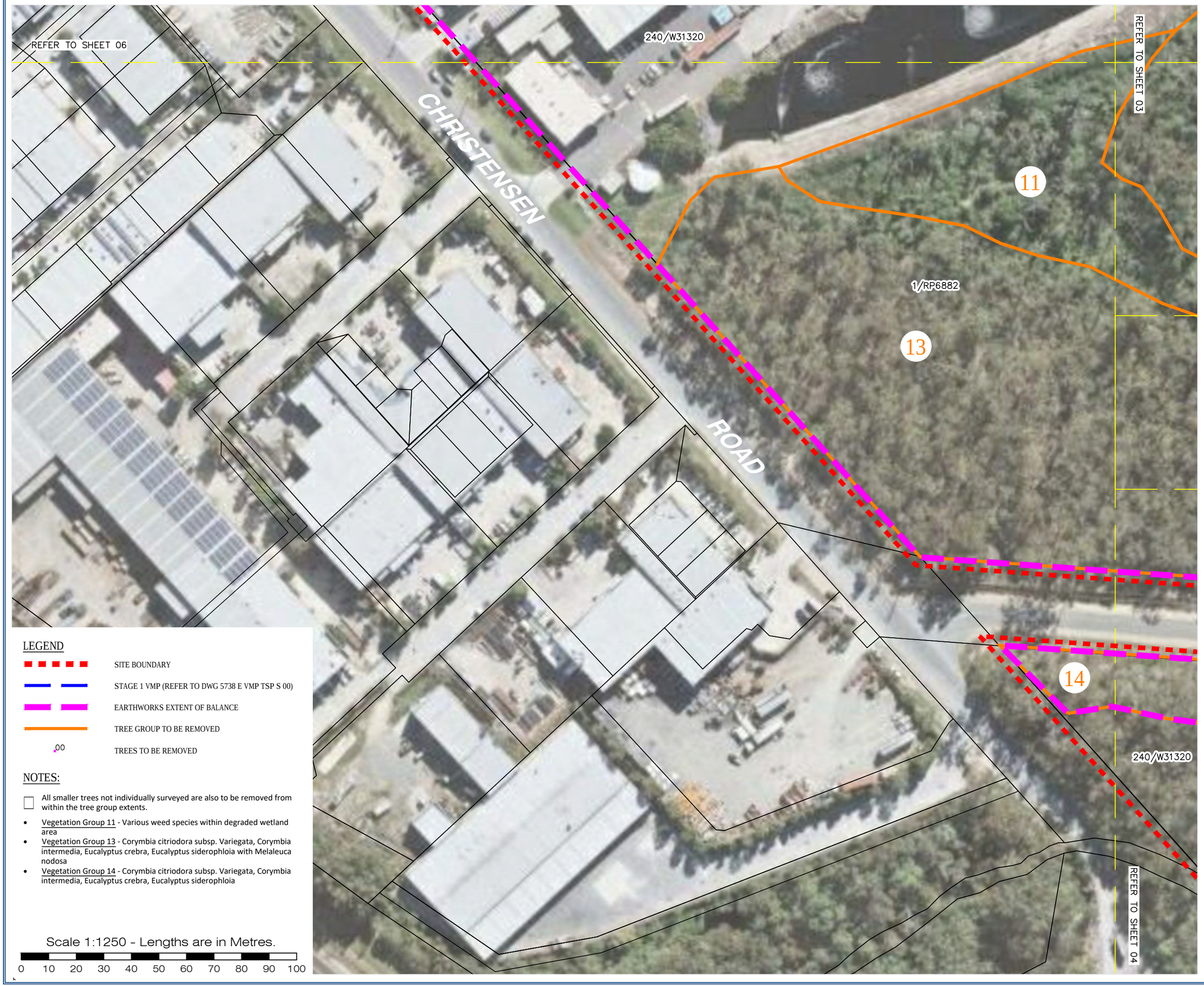

LEGEND

- SITE BOUNDARY
- STAGE 1 VMP (REFER TO DWG 5738 E VMP TSP S 00)
- EARTHWORKS EXTENT OF BALANCE
- TREE GROUP TO BE REMOVED
- 00 TREES TO BE REMOVED

NOTES:

☐ All smaller trees not individually surveyed are also to be removed from within the tree group extents.

- Vegetation Group 11 - Various weed species within degraded wetland area
- Vegetation Group 13 - Corymbia citriodora subsp. Variegata, Corymbia intermedia, Eucalyptus crebra, Eucalyptus siderophloia with Melaleuca nodosa
- Vegetation Group 14 - Corymbia citriodora subsp. Variegata, Corymbia intermedia, Eucalyptus crebra, Eucalyptus siderophloia

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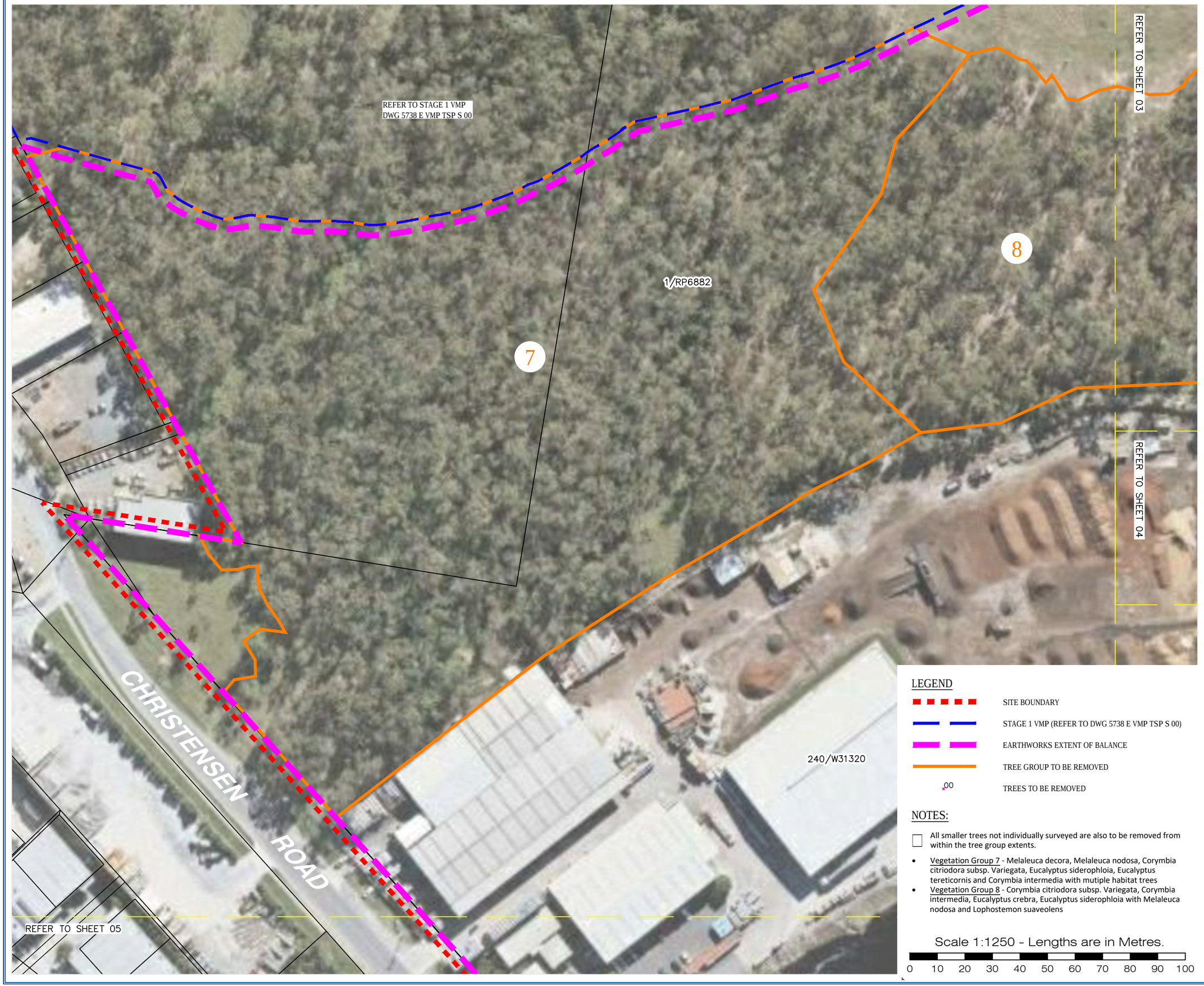
TREE SURVEY PLAN
BALANCE

SHEET 05 OF 06

Drawing No: 5738 E VMP TSP B 00

Rev. No:



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- SITE BOUNDARY
- STAGE 1 VMP (REFER TO DWG 5738 E VMP TSP S 00)
- EARTHWORKS EXTENT OF BALANCE
- TREE GROUP TO BE REMOVED
- 00 TREES TO BE REMOVED

NOTES:

- ☐ All smaller trees not individually surveyed are also to be removed from within the tree group extents.
- Vegetation Group 7 - Melaleuca decora, Melaleuca nodosa, Corymbia citriodora subsp. Variegata, Eucalyptus siderophloia, Eucalyptus tereticornis and Corymbia intermedia with mutiple habitat trees
- Vegetation Group 8 - Corymbia citriodora subsp. Variegata, Corymbia intermedia, Eucalyptus crebra, Eucalyptus siderophloia with Melaleuca nodosa and Lophostemon suaveolens

Scale 1:1250 - Lengths are in Metres.

0 10 20 30 40 50 60 70 80 90 100

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-	09-04-18	ORIGINAL ISSUE	RGM	KT

Scale at A3: 1:1250
Date: 09-04-18
Design: .
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Drawing Title:

TREE SURVEY PLAN
BALANCE

SHEET 06 OF 06

Drawing No: 5738 E VMP TSP B 00
Rev. No:

TREE No	SPECIES	TRUNK DIAMETER (m)	HEIGHT (m)	CANOPY (M)	NOTES
756.	Eucalyptus crebra	0.7	20	8	Hollows
759.	Corymbia citriodora subsp. Variegata	0.8	22	14	
760.	Corymbia citriodora subsp. Variegata	0.6	16	18	Hollows
761.	Corymbia citriodora subsp. Variegata	0.6	20	12	
762.	Corymbia citriodora subsp. Variegata	0.7	18	12	Hollows
763.	Corymbia citriodora subsp. Variegata	0.4	12	8	Hollows
764.	Corymbia citriodora subsp. Variegata	0.4	16	8	
765.	Eucalyptus siderophloia	0.7	16	16	Hollows, termite nest
766.	Corymbia citriodora subsp. Variegata	0.75	20	12	Hollows
767.	Corymbia citriodora subsp. Variegata	0.3	16	8	
768.	Corymbia citriodora subsp. Variegata	0.7	18	16	Hollows
769.	Eucalyptus siderophloia	0.4	20	10	Hollows, termite nest
770.	DEAD	0.4	6	DEAD	Hollows
771.	Eucalyptus siderophloia	0.6	22	10	Hollows
772.	Corymbia intermedia	0.5	10	10	Hollows, termite nest
773.	Corymbia citriodora subsp. Variegata	0.4	16	6	
774.	Eucalyptus siderophloia	0.6	24	12	Hollows
775.	Corymbia citriodora subsp. Variegata	0.4	18	12	
776.	Corymbia citriodora subsp. Variegata	0.6	22	12	
777.	Corymbia citriodora subsp. Variegata	0.5	20	18	

778.	Eucalyptus siderophloia	0.5	18	12	Hollows
779.	Corymbia citriodora subsp. Variegata	0.7	20	12	Hollows
780.	Eucalyptus crebra	0.4	14	DEAD	Hollows
781.	Corymbia intermedia	0.9	18	16	Hollows
782.	Corymbia intermedia	0.4	16	14	
783.	Corymbia intermedia	0.6	20	14	Hollows, termite nest
784.	Eucalyptus crebra	0.8	28	14	Hollows
785.	Eucalyptus siderophloia	0.7	24	14	Hollows
786.	Eucalyptus tereticornis	0.6	28	10	
787.	Eucalyptus tereticornis	0.6	26	12	
788.	Corymbia citriodora subsp. Variegata	0.6	22	14	
789.	Eucalyptus tereticornis	0.6	26	14	Hollows
790.	Eucalyptus tereticornis	0.4	14	10	Hollows
791.	DEAD	0.7	10	DEAD	
792.	Eucalyptus tereticornis	0.6	28	14	Hollows
793.	Eucalyptus tereticornis	0.8	28	12	Hollows
794.	Eucalyptus tereticornis	0.8	26	18	Hollows
795.	Eucalyptus tereticornis	0.5	22	10	Hollows
796.	Eucalyptus tereticornis	0.5	18	10	Hollows
797.	Corymbia intermedia	0.6	18	18	Hollows
798.	Corymbia intermedia	0.5	18	18	Hollows
799.	Eucalyptus tereticornis	0.5	18	12	Hollows
800.	Corymbia intermedia	0.4	16	12	Termite nest
801.	Eucalyptus siderophloia	0.5	18	8	Hollows
802.	Corymbia intermedia	0.5	18	14	Hollows
803.	Corymbia intermedia	0.3	16	10	
804.	Eucalyptus siderophloia	0.6	18	10	
805.	Eucalyptus siderophloia	0.6	18	8	
806.	DEAD	0.6	14	DEAD	Hollows
807.	Eucalyptus siderophloia	0.6	14	8	Termite nest, hollows
808.	Eucalyptus siderophloia	0.7	18	6	Hollows
809.	Corymbia intermedia	0.4	14	10	Hollows
810.	Eucalyptus tereticornis	0.4	20	8	

811.	Eucalyptus siderophloia	0.4	20	10	Termite nest
812.	Eucalyptus siderophloia	0.4	24	10	Hollows
813.	Eucalyptus tereticornis	0.4	18	10	
814.	Eucalyptus siderophloia	0.5	24	12	Hollows
815.	Corymbia intermedia	0.4	16	10	
816.	Eucalyptus microcorys	0.4	12	8	
817.	Eucalyptus siderophloia	0.8	24	12	Termite nest, hollows
818.	Corymbia intermedia	0.6	22	14	Hollows
819.	Corymbia intermedia	0.4	22	12	
820.	Corymbia citriodora subsp. Variegata	0.7	30	16	Hollows
821.	Eucalyptus siderophloia	0.5	24	14	
822.	Eucalyptus siderophloia	0.8	24	14	Hollows
823.	Corymbia citriodora subsp. Variegata	0.7	28	12	
824.	Eucalyptus microcorys	0.7	20	14	
825.	Eucalyptus fibrosa	0.5	22	12	
826.	Corymbia intermedia	0.2	10	8	
827.	Corymbia intermedia	0.4	18	10	
828.	Corymbia intermedia	0.3	10	8	
829.	Corymbia intermedia	0.4	22	10	
830.	Eucalyptus tereticornis	0.7	24	18	
831.	Eucalyptus siderophloia	0.4	24	14	
832.	DEAD	0.5	18	DEAD	Hollows
833.	DEAD	0.4	10	DEAD	
834.	DEAD	0.4	18	DEAD	Hollows
835.	DEAD	0.6	22	DEAD	Hollows
836.	Eucalyptus tereticornis	0.6	28	18	
837.	Eucalyptus tereticornis	0.5	26	18	
838.	Eucalyptus tereticornis	0.5	26	16	
839.	Eucalyptus siderophloia	0.5	26	12	Hollows
840.	DEAD	0.3	16	DEAD	
841.	Eucalyptus siderophloia	0.5	16	12	
842.	Eucalyptus siderophloia	0.35	10	DEAD	
843.	Eucalyptus tereticornis	0.7	18	14	

844.	Eucalyptus siderophloia	0.6	18	14	
845.	DEAD	0.4	18	12 - DEAD	Hollows
846.	Eucalyptus siderophloia	0.6	18	DEAD	Hollows
847.	Eucalyptus tereticornis	0.45	18	12	Hollows
848.	Eucalyptus tereticornis	0.6	18	14	Hollows
849.	Eucalyptus tereticornis	0.65	18	12	Hollows
850.	Eucalyptus tereticornis	0.6	18	10	Hollows
851.	Eucalyptus siderophloia	0.6	18	12	
852.	Eucalyptus tereticornis	0.6	18	14	
853.	Eucalyptus tereticornis	0.8	18	14	Hollows
854.	Eucalyptus tereticornis	0.8	18	14	Hollows
855.	Eucalyptus tereticornis	0.6	18	14	Hollows
856.	Corymbia citriodora subsp. Variegata	0.9	20	18	Hollows
857.	Eucalyptus siderophloia	0.75	18	DEAD	Hollows
858.	DEAD	0.35	14	DEAD	
859.	Corymbia citriodora subsp. Variegata	0.45	14	12	
860.	DEAD	0.5	14	DEAD	
861.	Eucalyptus siderophloia	0.7	20	12	
862.	Corymbia intermedia	0.5	16	16	
863.	Eucalyptus siderophloia	0.5	16	14	Hollows
864.	Corymbia citriodora subsp. Variegata	0.9	20	14	
865.	Corymbia citriodora subsp. Variegata	0.4	10	DEAD	
866.	Eucalyptus crebra	0.75	12	10	Hollows
867.	Corymbia citriodora subsp. Variegata	0.35	18	10	
868.	DEAD	0.4	10	sDEAD	Hollows
869.	Corymbia citriodora subsp. Variegata	0.55	20	10	Hollows
870.	Corymbia citriodora subsp. Variegata	0.4	20	16	

871.	Corymbia citriodora subsp. Variegata	0.3	20	8	
872.	Corymbia citriodora subsp. Variegata	0.4	20	8	
873.	Corymbia intermedia	0.6	10	14	Hollow, termite nest
874.	Corymbia intermedia	0.4	18	10	
875.	Corymbia citriodora subsp. Variegata	0.4	20	12	
876.	Corymbia citriodora subsp. Variegata	0.4	18	12	
877.	Corymbia citriodora subsp. Variegata	0.3	14	8	
878.	Corymbia citriodora subsp. Variegata	0.4	16	10	
879.	Corymbia citriodora subsp. Variegata	0.4	16	10	
880.	Corymbia citriodora subsp. Variegata	0.45	12	12	Hollows
881.	Corymbia citriodora subsp. Variegata	0.3	12	8	
882.	Corymbia citriodora subsp. Variegata	0.4	14	6	
883.	Corymbia citriodora subsp. Variegata	0.5	16	12	Hollows
884.	Corymbia citriodora subsp. Variegata	0.4	16	14	
885.	Corymbia citriodora subsp. Variegata	0.5	16	12	
886.	Corymbia citriodora subsp. Variegata	0.4	16	12	
887.	Corymbia citriodora subsp. Variegata	0.4	14	12	
888.	Corymbia citriodora subsp. Variegata	0.35	14	14	
889.	Corymbia citriodora subsp. Variegata	0.35	14	8	

890.	Corymbia citriodora subsp. Variegata	0.6	14	8	
891.	Corymbia citriodora subsp. Variegata	0.4	16	14	
892.	Corymbia intermedia	0.4	14	10	
893.	Corymbia citriodora subsp. Variegata	0.6	18	12	
894.	Corymbia citriodora subsp. Variegata	0.7	18	12	
895.	Corymbia citriodora subsp. Variegata	0.5	16	10	
896.	Corymbia citriodora subsp. Variegata	0.45	16	10	
897.	Corymbia citriodora subsp. Variegata	0.4	14	6	
898.	Corymbia citriodora subsp. Variegata	0.5	14	10	
899.	Corymbia citriodora subsp. Variegata	0.45	12	10	
900.	Corymbia citriodora subsp. Variegata	0.4	14	8	
901.	Corymbia citriodora subsp. Variegata	0.4	14	8	Hollows
902.	Corymbia citriodora subsp. Variegata	0.45	16	10	
903.	Corymbia citriodora subsp. Variegata	0.4	16	8	
904.	DEAD	0.4	10	DEAD	
905.	Corymbia citriodora subsp. Variegata	0.35	14	12	
906.	Corymbia intermedia	0.4	12	10	
907.	Corymbia citriodora subsp. Variegata	0.45	14	8	
908.	Corymbia citriodora subsp. Variegata	0.8	14	10	
909.	Eucalyptus tereticornis	0.05	12	6	Hollows

910.	Corymbia citriodora subsp. Variegata	0.65	14	16	
911.	Corymbia intermedia	0.5	14	12	
912.	Corymbia intermedia	0.55	12	12	
913.	Eucalyptus siderophloia	0.45	14	12	
914.	Eucalyptus tereticornis	1	16	16	Hollows
915.	Eucalyptus tereticornis	0.6	14	10	
916.	Eucalyptus siderophloia	0.7	14	4	Hollows
917.	Corymbia intermedia	0.8	12	14	
918.	Eucalyptus crebra	0.6	14	10	Hollows
919.	Corymbia citriodora subsp. Variegata	0.35	12	10	
920.	Corymbia intermedia	0.6	12	12	
921.	Eucalyptus siderophloia	0.6	14	8	Hollows
922.	Eucalyptus tereticornis	0.65	14	12	Hollows
923.	Eucalyptus siderophloia	0.55	14	10	Hollows
924.	Corymbia intermedia	0.6	14	16	Hollows
925.	Eucalyptus siderophloia	0.5	16	10	
926.	Eucalyptus siderophloia	0.6	16	10	Hollows
927.	Eucalyptus crebra	0.6	16	12	Hollows
928.	Eucalyptus siderophloia	0.5	12	8	
929.	Corymbia intermedia	0.8	14	20	Hollows
930.	Eucalyptus siderophloia	0.45	14	10	
931.	Eucalyptus tereticornis	0.8	16	14	Hollows
932.	Eucalyptus siderophloia	0.6	12	12	Termite nest, hollows
933.	Eucalyptus siderophloia	0.4	14	12	
934.	Eucalyptus tereticornis	0.6	16	10	Hollows
935.	Eucalyptus tereticornis	0.8	16	16	Hollows
936.	Eucalyptus crebra	0.8	16	10	Hollows
937.	Corymbia citriodora subsp. Variegata	0.5	12	16	
938.	Corymbia citriodora subsp. Variegata	0.6	14	10	
939.	Eucalyptus tereticornis	0.4	14	12	
940.	Corymbia intermedia	0.45	12	12	

954.	Corymbia citriodora subsp. Variegata	0.65	16	12	
955.	Eucalyptus siderophloia	0.5	12	12	
956.	Corymbia intermedia	0.6	18	12	
957.	Corymbia citriodora subsp. Variegata	0.4	14	14	

gassman development perspectives
est 1985
planning | environment | landscape | engineering | survey

ATTACHMENT C – Fauna Management Plan

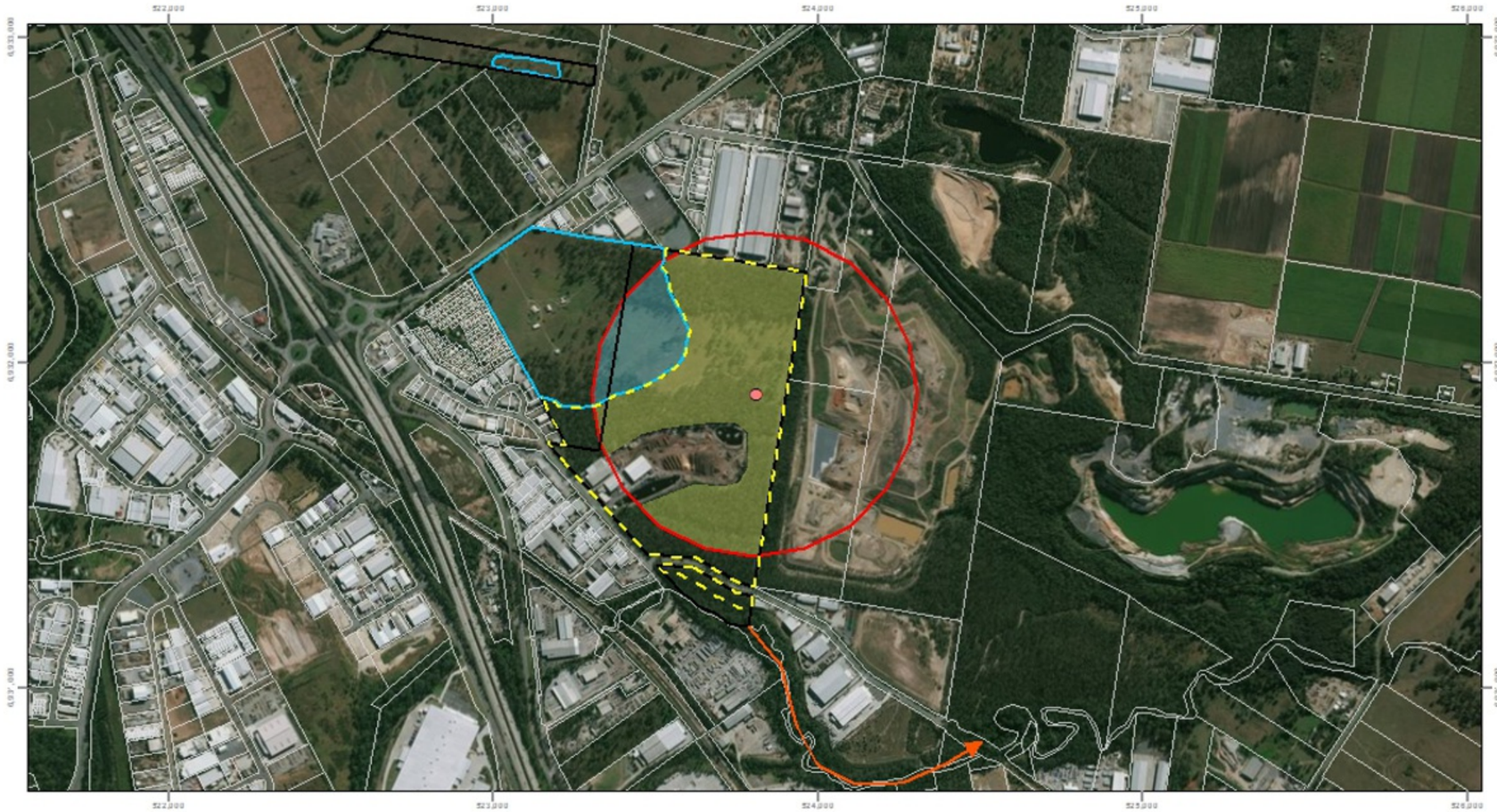

Figure 1: Study area

Gassman Development Perspectives

Stapylton Fauna Management Plan Stage 2

Stage 1 clearing boundary

Stage 2 clearing boundary

Wedge-tailed eagle nest

500 m buffer

Fauna movement

Stage 1 clearing within 500 m buffer

Stage 2 clearing within 500 m buffer

Site boundary

Property boundary

ecosure

Job number: PRXXXX
Revision: 0
Author:
Date: 13/08/2018

0 250 500 1,000
Metres

GDA 1994 MGA Zone 56
Projection: Transverse Mercator
Datum: GDA 1994
Units: Meter

working A4

Information provided in the FMP includes:

ecosure

Fauna Management Plan

Stage 2
60 Stapylton Jacobs Well Road
82 Christensen Road

Gassman Development Perspectives

August 2018

Revision No.	Job No.
0	PR3595
Revision Date	**Reviewed By**
15/08/18	Natalie Toon

Fauna Management Plan

1.0 Introduction

This Fauna Management Plan (FMP) has been produced for Gassman Development Perspectives (Gassman) on behalf of KS8 Pty Ltd to support a largescale industrial subdivision at Lot 1 on RP6882 and Lot 240 on W31320, Stapylton (herein referred to as the subject site). The subdivision is located within City of Gold Coast City (CoGC) is 77.16 hectares and is proposed to be developed in two stages. Stage 1 (27.5 hectares), was previously addressed under a separate FMP provided to Gassman in May 2018 (Ecosure 2018). This FMP has been produced for the Stage 2 balance of earth works (49.7 hectares) and should be read in conjunction with the Vegetation Management Plan (VMP) 60 Stapylton Jacobs Well RD, Stapylton, Balance of Earthworks (Gassman 2018). The intention of this FMP is to provide a methodology to protect and mitigate potential harm to fauna from the proposed industrial development requirements within the subject site. The FMP has been developed to incorporate information identified from desktop and field assessment. This information includes an assessment of onsite habitat values, records of fauna presently using or likely to use the subject site, identifying potential impacts to fauna and developing strategies to mitigate fauna injury/impacts.

Abbreviations

DES - Department of Environment and Science
EPBC Act - Environment Protection and Biodiversity Conservation Act 1999
FMP - Fauna management plan
CoGC - City of Gold Coast
MSES - Matters of State Environmental significance
RE - Regional Ecosystem
SEQ - South East Queensland
VMP - Vegetation management plan

2.0 Background

2.1 The proposed industrial subdivision requires vegetation clearing on Lots 1 on RP6882 and 240 on W31320 to facilitate Stage 2 works. The majority of the subject site is currently a mixture of low and tall open remnant forests with small patches of improved pasture in the lower and flatter parts of the site. CoGC have issued an information request (PN163842/03/DA4, OPW201801219) requesting the preparation of a FMP, with particular reference to assess the presence of an active wedge-tailed eagle (Aquila audax) nest and provide management and mitigation measures for this species as part of the FMP.
2.2 After reviewing the ecological planning background of the subject site, the following information has been identified:
2.2.1 regional ecosystem (RE) mapping suggests the subject site supports areas of remnant vegetation which has been identified as RE 12.11.25 (of concern) and RE 12.11.5/12.11.24 (no concern). Stage 2 earthworks will encompass areas identified as RE 12.11.5/12.11.24 in the north and areas identified as RE 12.11.25 in the south of the subject site
2.2.2 Matters of State Environmental Significance (MSES) wildlife habitat (threatened and least concern wildlife) is mapped within the subject site
2.2.3 Koala habitat values mapping under the Planning Act 2016 designates the site as being 'Outside' a Koala Assessable Development Area, with habitat mapped on the site as 'High Value Bushland', 'Medium Value Rehabilitation' and 'Low Value Rehabilitation' habitat values
2.2.4 CoGC Matters of Local Environmental Significance (MLES) – wetlands and watercourses have been identified in Lot 240W31320
2.2.5 CoGC MLES – high, medium and general priority vegetation have been mapped across Lot 240W31320 and Lot 1RP6882
2.2.6 CoGC MLES – local significant species have been identified within Lot 240W31320.

3.0 Habitat Values

3.1 An ecological assessment was completed in 2011 followed by a vegetation survey in March 2018 by Gassman (Gassman 2011, 2018). These surveys identified 12 vegetation groups and 187 individually surveyed trees in the Stage 2 works area. Of the individually surveyed trees, 82 contained habitat values, such as hollows and/or arboreal termite nests.
3.2 Ecosure completed an additional onsite field inspection of the Stage 2 works area for the subject site on the 12 July 2018 to provide a review in relation to the habitat characteristics identified in the ecological assessment and VMP (Gassman 2011 and 2018). The field inspection was conducted across the entire Stage 2 works area. Through the field inspection, the following habitat features were observed:
3.2.1 hollow bearing trees with a single hollow
3.2.2 hollow bearing trees with multiple hollows
3.2.3 arboreal termite mounds (with a hollow entrance)
3.2.4 arboreal termite mounds (without a hollow entrance)
3.2.5 dead trees (stags) with hollows
3.2.6 hollow logs (lying on the ground)
3.2.7 scratches on trees
3.2.8 arboreal nests
3.2.9 scats.
3.3 The review of the ecological assessment and the site inspection established the following habitat types:
3.3.1 mature vegetation with intact crown cover providing habitat for fly through birds (Plate 1)
3.3.2 large older trees and standing stags providing sites for arboreal termite mounds, nesting hollows, crevices, and perching sites, for mammals bats and birds
3.3.3 stands of paper bark or tea tree (Melaleuca quinquenervia, Melaleuca decora and Melaleuca linariifolia) with very loose bark which is ideal habitat for micro bats (Plate 2)
3.3.4 stands of black she-oak (Allocasuarina littoralis) which provide a food source for the glossy black cockatoo (Calyptorhynchus lathami) (listed as Vulnerable under the Nature Conservation Act 1992) (Plate 3)
3.3.5 fallen timber, branches and leaf litter offering habitat for small ground-dwelling mammals, reptiles, and amphibians (Plate 4)
3.3.6 improved pasture/grassland, providing habitat for grassland birds, small ground-dwelling mammals and grazing macropods
3.3.7 aquatic and riparian habitat, including locally significant wetlands/watercourses within Lot 240W31320 providing habitat for fish and amphibians
3.3.8 large patches of lantana (lantana camara) providing habitat for small mammals and birds
3.3.9 anthropogenic structures providing habitat for small mammals and reptiles.
3.3.10 an active wedge-tailed eagle nest was observed centrally located within the Stage 2 works area (refer to section 6.0).

4.0 Fauna Register

4.1 Records of fauna sightings at the subject site from the initial ecological assessment (Gassman 2011) and opportunistic sightings during the site inspection for Stage 1 (2 May 2018) and Stage 2 (12 July 2018) are listed in Table 1. An ecological desktop assessment of the subject site was undertaken in 2011, and due to the lapse of time, additional desktop searches were completed in 2018 to provide an updated review. Searches for the subject site (5 km radius) were completed on both Queensland and Commonwealth databases. A Protected Matters Search (Environment Protection and Biodiversity Conservation Act 1999) was completed and revealed 23 threatened (endangered, vulnerable, near threatened) fauna species and 17 threatened migratory species. A Queensland Department of Environment and Science (DES) Wildnet search identified 31 species previously recorded within the locality of the subject site. The results of these searches and the fauna's likelihood of occurrence at the subject site are provided in Table 4. Only migratory species identified as likely or possibly occurring have been included in Table 4.

5.0 Wildlife Management

5.1 All native vertebrate fauna are protected under the Nature Conservation Act 1992 . Following the listed operational actions detailed within this FMP will assist with the compliance requirements under the Nature Conservation Act 1992 . The FMP compliments the appropriate provisions within the VMP for undertaking vegetation removal and ensuring fauna are neither directly or indirectly impacted during operational works. Onsite operational actions within the FMP have been assessed and developed from species identified through site assessment and expected fauna presence through desktop assessment.

6.0 Special Considerations

6.1 An active wedge-tailed eagle nest with two chicks was identified in a mature broad-leaved ironbark (Eucalyptus fibrosa) centrally located within the Stage 2 works area on 12 July 2018 (Figure 1, Plate 10 and Plate 11). The chicks were estimated to be approximately 3-4 weeks in age at this time, as downy chicks are reported to be able to raise their heads above the nest-rim at three weeks old (Debus et al. 2007). However, this is only an estimated age as the remaining feathers of the chick were not visible to more accurately determine the age.
6.2 The breeding season of the wedge-tailed eagle in south east Queensland and northern New South Wales is reported to vary between locations although has been noted between April and September, with an incubation period of approximately 45 days and a nestling period of approximately 90 days (Allott et al. 2006, Debus et al. 2007). Once chicks are fledged (where they have reached full development with fully grown adult plumage and are ready to fly), parental dependency may last up to five months (Allott et al. 2006, Debus et al. 2007).
6.3 During the nesting period and up to four weeks after fledging, large birds of prey are considered to be highly susceptible to disturbance within their ranging area, particularly within line of sight of their nests (U.S. Fish and Wildlife Service 1999). A buffer zone up to 1 km for up to four weeks has been recommended for similarly sized birds such as the white-bellied sea eagle (Haliaeetus leucogaster) in Australia (Debus et al . 2014) and the bald eagle Haliaeetus leucocephalus in the United States of America (U.S. Fish and Wildlife Service 1999) and is recommended in the Threatened Tasmanian Eagles Recovery Plan (Threatened Species Section 2006). As there is a break in the line of site from the nest towards the Stage 1 works area, it is recommended to maintain a minimum 500 m exclusion buffer zone around the nest until at minimum four weeks after the chicks fledge, to ensure the parents don't abandon the chicks due to disturbance. It is recommended not to attempt to relocate the wedge-tailed eagle chicks before they become independent.
6.4 It is recommended that a suitably qualified fauna ecologist monitor the progress of the chicks while in the nest and during the first four weeks of fledging. This will aid to ascertain a more precise time of fledging and to provide advice on the timing of clearing works to mitigate the impacts to the wedge-tailed eagles. Clearing should not commence in the Stage 2 works area until advised to do so by a suitably qualified fauna ecologist, based on the risk to the birds' welfare.
6.5 It is uncertain if the nest could be successfully relocated, with the parents continuing to reuse the nest for future breeding seasons. Previous studies have shown that even the removal of a focal perch near a nest tree, may render the site less desirable and lead to desertion (Cherriman et al. 2009).
6.6 A proposed timeline of mitigation measures for the wedge-tailed eagles is provided in Table 2.
6.7 Should the presence of endangered or vulnerable (priority) species be identified prior to or during vegetation activities this will require special consideration. The tree containing the priority species and any other trees having an overlapping canopy with the primary tree are to be clearly identifiable through flagging or marking. Clearing works and/or earthworks are to be temporarily suspended within a range of 30 m from the tree. Where allowable, a corridor of vegetation linking the primary tree with an area of suitable habitat is to remain to allow the priority species to naturally relocate. Until the priority species has moved out of the area to be cleared, the corridor linkage shall remain undisturbed. The priority species, the relevant trees and vegetation corridor are to be clearly marked and all onsite contractors alerted to minimise disturbance.
6.8 Clearing works shall be undertaken sequentially to allow fauna to naturally move off-site away from the clearing front. Clearing works shall begin from the north-west to encourage fauna to move in a south-east direction towards the vegetated corridor on the southern side of Christensen Road in the south-east corner of the subject site as described in the VMP (Gassman 2018). Small reptiles and birds will be able to move through the six-foot chain mesh fence along the eastern boundary of the subject site and the neighbouring Stapylton waste management facility to move along the south-eastern corridor north of Christensen Road. However, large mammals or reptiles (such as lace monitors) will need to be moved through the corridor south of Christensen Road. Any clearing works on the southern side of Christenson Road shall be left until the very final stages of clearing and begin from the north-west and move in a south-east direction. The FSC will be present during all clearing works to advise on the most appropriate clearing direction.
6.9 Traffic control and an additional FSC will be required to assist with safe fauna movement across Christensen Road. Adequate fauna fencing shall be placed along the subject site and industrial estate property boundaries to ensure fauna are directed safely across Christensen Road and through the creek corridor. A further suitability assessment of this movement corridor should be undertaken during the pre-clear assessment stage prior to any clearing works commencing.
6.10 If fauna are to be removed from the subject site, there is a hierarchy for relocation from first preference (ideal) to lowest preference (last resort), (see section 6.10.1 to 6.10.4):
6.10.1 relocation to suitable habitat adjacent/near subject site
6.10.2 placement within a rehabilitation program with the individual to be released in the future
6.10.3 individual to be placed into an educational, research or conservation facility
6.10.4 euthanasia (seriously injured fauna).
6.11 All vegetation is proposed to be removed from the Stage 2 works area and there will not be suitable habitat for fauna relocation remaining on the subject site. Inspection of current aerial photography shows similar habitat to the east of the waste management facility. This area must be assessed for suitability during the site pre-clear assessment stage prior to the commencement of any clearing works. If the site is deemed unsuitable, an alternative location to relocate fauna will be required to be sourced.
6.12 Euthanasia must only be completed by a FSC with the relevant permits and experience in appropriate techniques. Should an animal be observed that is clearly injured, the FSC will attempt to capture the animal, assess its injuries and determine whether the animal should be euthanised, released untreated or taken to a vet for treatment or wildlife carer.

7.0 Onsite Operational Actions

7.1 Within the timeframe between the fauna assessment and clearing works, it is likely that arboreal nests will be constructed within the site during bird breeding season and tree hollows and hollow arboreal termite mounds will be occupied by breeding fauna. Birds that may use arboreal termite mounds, tree hollows or build arboreal nests for breeding purposes will generally use them between August and February (Morcombe 2003). Therefore, it is recommended that clearing works are undertaken outside of this time. If this cannot be done and fauna are confirmed to be present prior to clearing works in arboreal nests, termite mounds or tree hollows, it is recommended that a FSC is used to safely capture and relocate fauna to suitable habitat or appropriate care.
7.2 Many arboreal termite mounds and tree hollows within the project area are inaccessible and will not be able to be visually inspected during the pre-clear site inspection without the use of an elevated work platform (EWP). However, the site is not conducive to an EWP, therefore, it is recommended to use either tree climbers or pole cameras to inspect the hollows or nests.
7.3 If fauna sheltering or breeding activity is confirmed within tree hollows, nests, arboreal termite mounds or dreys, an excavator with a vertical grab should be used to gently lower the trees to reduce risk of injury to fauna.

7.4 Pre-operational works

7.4.1 a pre-clear fauna survey of the entire clearing area and a pre-clear report must be completed by the suitably qualified FSC / Ecologist and issued to the Council of the City of Gold Coast prior to commencement of works
7.4.2 a pre-clear inspection shall occur within 48 hours prior to vegetation clearing. The inspection check must be conducted by a suitably qualified FSC / Ecologist
7.4.3 temporary fauna fencing shall be used where appropriate and as directed by the FSC to direct fauna towards the vegetated corridor and away from the roads
7.4.4 the FSC is to be provided with the GPS coordinates of the habitat features prior to clearing
7.4.5 trees to be felled must be checked for the presence of arboreal mammals, roost sites, dreys and nests.

7.5 Operational works

7.5.1 all vegetation clearing and tree felling must be conducted under the guidance of a suitably qualified FSC / Ecologist
7.5.2 an FSC is to be present for each piece of clearing equipment (i.e. excavator or bulldozer), unless they are working near and the FSC is able to safely and effectively service more than one machine
7.5.3 communication (UHF radio) between the FSC and the clearing machine operator is to be maintained at all times
7.5.4 the FSC is to search ahead of clearing works for the presence of fauna in trees
7.5.5 the FSC is to search ahead of clearing works for the presence of fauna beneath logs, bark, hollow logs or shrubs
7.5.6 the FSC is to search ahead of clearing works for any fauna that may be present in burrows
7.5.7 where practical, hollow bearing trees should be left in situ as long as possible (minimum 24 hours preferably) while smaller trees around them are cleared to encourage fauna to relocate on their own
7.5.8 if fauna breeding activity is confirmed within tree hollows, nests or arboreal termite mounds and fauna cannot be safely removed by any method, the tree should be left in-situ until the fauna has vacated
7.5.9 trees with hollows, arboreal termite mounds or nests where no obvious breeding activity is observed should be laid over as gently as possible (soft felled), in a direction that is likely to reduce damage to the habitat feature and minimise deceleration injuries and/or death to animals
7.5.10 in the event of an animal being located and cannot be immediately captured and relocated, an area of 5 m radius will be established around the tree / location, felling / and construction activities must cease in that area until the animal has relocated
7.5.11 fauna are to be relocated to a similar habitat type within the Stapylton area. Should an animal require relocating, this must be undertaken by the suitably qualified FSC / Ecologist
7.5.12 an FSC should be present during sheering or mulching of cleared vegetation if left longer than 24 hours
7.5.13 where possible, logs and hollow limbs should be placed in adjacent or nearby vegetation, so they can be used for habitat
7.5.14 clearing contractors are in the best position to observe fauna on the clearing front. If fauna are seen, clearing contractors should cease work and seek assistance from the FSC
7.5.15 vet and wildlife carer details (Table 3) are to be kept on the construction site.

7.6 Treatment / removal of injured fauna

7.6.1 if fauna are injured and requires transportation to appropriate care, clearing work shall cease until the FSC advises clearing work can continue
7.6.2 any native fauna orphaned or injured by the development process shall be reported to Queensland Parks and Wildlife Service 1300 130 372 and / or RSPCA on 1300 852 188 / 07 5575 6146.

8.0 Responsibilities

8.1 The implementation of the FMP requirements across the subject site is the responsibility of the site supervisor.
8.2 A suitably qualified Ecologist is a person with formal qualifications and/or experience in fauna identification and wildlife ecology and environmental management. A person is considered to be suitably qualified and experienced if they meet one or more of the following criteria:
8.1.1 an ecological consultant with experience in conducting fauna surveys.
8.1.2 a person who possesses a degree in natural science or similar with experience in conducting fauna surveys.
8.2 A suitably qualified fauna spotter catcher is a person qualified to take and keep protected wildlife under a current rehabilitation permit extended to authorise the take, keep or use of an animal whose habitat is about to be destroyed by human activity in accordance with the Nature Conservation (Administration) Regulation 2006.
8.3 Appropriate permits to undertake fauna management are to be retained and followed by the suitably qualified FSC / Ecologist.
8.4 All project contractors are to examine and understand this FMP. The FMP advises all individuals of their responsibilities toward the ethical management of fauna within the subject site.
8.5 All project contractors shall comply with all reasonable directions from the FSC and suitably qualified ecologist in fulfilling the measures in this FMP.

ecosure

Fauna Management Plan
Stage 2
60 Stapylton Jacobs Well Road
82 Christensen Road

Gassman Development Perspectives

August 2018

Revision No. 0
Revision Date 15/08/18
Job No. PR3595
Reviewed By Natalie Toon

Table 1: Fauna observations on the site

Scientific name	Common name	Survey 2011	Survey 2018 (Stage 1)	Survey 2018 (Stage 2)
Acanthorhynchus tenuirostris	eastern spinebill			X
Acridotheres tristis	common Indian myna	X		
Alectura lathami	Australian brush-turkey	X		
Apis mellifera	European bee (hive)		X	
Aquila audax	wedge-tailed eagle		X	X
Ardea intermedia	intermediate egret	X		X
Ardea pacifica	white-necked heron			X
Bubulcus ibis	cattle egret		X	X
Chenonetta jubata	Australian wood duck	X		X
Colluricincla harmonica	grey shrikethrush			X
Cormobates leucophaea	white-throated treecreeper			X
Corvus orru	Torresian crow		X	X
Cracticus nigrogularis	pied butcher bird	X	X	X
Cryptoblepharus virgatus	wall skink	X		
Dacelo novaeguineae	laughing kookaburra	X	X	X
Dicrurus bracteatus	spangled drongo			X
Egretta garzetta	little egret		X	X
Egretta novaehollandiae	white-faced heron			X
Geopelia humeralis	bar-shouldered dove			X
Gerygone olivacea	white-throated gerygone			X
Grallina cyanoleuca	magpie-lark		X	X
Hirundo neoxena	welcome swallow		X	
Lampropholis guichenoti	common garden skink	X	X	X
Lichenostomus chrysops	yellow-faced honeyeater			X
unidentified species	python	X		

Table 1 (continued): Fauna observations on the site

Scientific name	Common name	Survey 2011	Survey 2018 (Stage 1)	Survey 2018 (Stage 2)
Lichmera indistincta	brown honeyeater			X
Macropus giganteus	eastern grey kangaroo	X	X	X
Malurus lamberti	variegated fairywren			X
Malurus melanocephalus	red-backed fairywren			X
Manorina melanocephala	noisy miner	X	X	X
Meliphaga lewinii	Lewin's honeyeater			X
Merops ornatus	rainbow bee-eater			X
Milvus migrans	black kite		X	X
Myzomela sanguinolenta	scarlet honeyeater			X
Ocyphaps lophotes	crested pigeon		X	
Pardalotus striatus	striated pardalote			X
Philemon corniculatus	noisy friarbird			X
Physignathus lesueurii lesueurii	water dragon	X		
Platycercus adscitus	pale-headed rosella	X	X	
Rhipidura albiscapa	grey fantail			X
Rhipidura leucophrys	willy wagtail	X		X
Sphecotheres vieilloti	Australasian figbird		X	X
Stizoptera bichenovii	double-barred finch			X
Strepera graculina	pied currawong	X		X
Trichoglossus chlorolepidotus	scaly-breasted lorikeet		X	
Trichoglossus moluccanus	rainbow lorikeet		X	X
unsure of species	native bee hive		X	X
Vanellus miles	masked lapwing	X	X	
Wallabia bicolor	swamp wallaby	X		X

Table 2: Proposed timeline for wedge-tailed eagle mitigation measures

Estimated timeline	Estimated dates	Notes	Proposed exclusion buffer zone and monitoring
Eggs laid	1 - 8 May 2018	Usually between April - September	
Eggs hatched	14 – 21 June 2018	45 days after eggs laid	
Chicks recorded	12 July 2018	Estimated age at 3-4 weeks (21-28 days old)	Maintain 500 m buffer around nest location. Weekly monitoring until fledging
Chicks fledge	12 - 19 September 2018	Estimated fledge date at 90 days old	Maintain 500 m buffer around nest location. Weekly monitoring until four weeks post-fledging.
Four weeks post-fledging	23 - 30 October 2018	4 weeks critical disturbance period completed. Fledging age should be determined prior to any clearing works being undertaken	No disturbance within 500 m of nest within Stage 2 area. Disturbance within the area of Stage 1 that occurs within the 500m buffer can begin on the advice of the qualified fauna ecologist. Monitoring required after this time only if clearing works are progressing and wedge tailed eagles (mother and fledglings) are still actively using the site.
Parental dependency	Feburary 2019	5 months following fledging	Commencement of the balance of site clearing (Stage 2) may be able to begin at this time or earlier, based on the juvenile wedge tailed eagle's ability to move to other areas surrounding the site and less dependency on parents after this time period. Clearing direction and progress will be in accordance with advice from the suitably qualified fauna ecologist. Final removal of the tree containing the wedge tailed eagle nest will be authorised by the suitably qualified fauna ecologist. Monitoring required until this time, only if clearing works are progressing and wedge tailed eagles (mother and fledglings) are still actively using the site.

Table 3: Wildlife emergency details

Institution	Details
Beenleigh Veterinary Hospital	2A George St, Beenleigh, QLD, 4207. Ph: (07) 3287 2599
Wildcare Australia	Ph: 07 5527 2444
Windaroo Veterinary Surgery	1 Janine Dr, Bahrs Scrub QLD 4207. Ph: (07) 3807 3699

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Fauna Management Plan

Stage 2
60 Stapylton Jacobs Well Road
82 Christensen Road

Gassman Development Perspectives

August 2018

Revision No. 0
Job No. PR3595
Revision Date 15/08/18
Reviewed By Natalie Toon

Plate 1: Mature vegetation

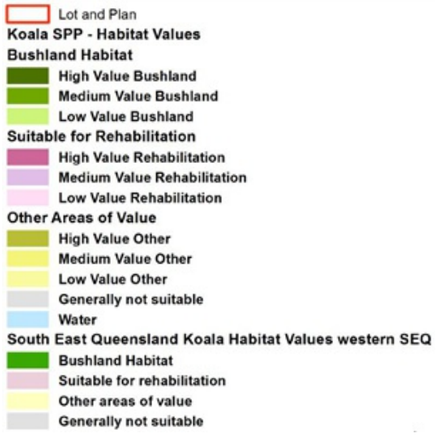
Plate 2: Paperbarks providing microbat habitat

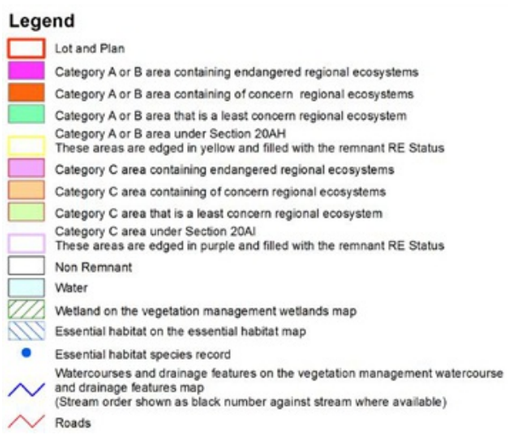
Plate 3: Black she-oak - food source for glossy black cockatoo

Plate 4: Habitat for small ground-dwelling mammals, reptiles and amphibians

Plate 5: Ironbark with wedge-tailed eagle chicks

Plate 6: One of the two wedge-tailed eagle chicks





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Fauna Management Plan

Stage 2
60 Stapylton Jacobs Well Road
82 Christensen Road

Gassman Development Perspectives

August 2018

Revision No.	Job No.
0	PR3595
Revision Date	Reviewed By
15/08/18	Natalie Toon

Table 4: Likelihood of conservation siginificant species occurence - Fauna

Scientific name	Common name	EPBC Act Status	NC Act Status	Habitat Description/ Regional ecosystems present	Likelihood of Occurence
Anthochaera phrygia	regent honeyeater	CE	E	Box-ironbark eucalypt woodland and dry sclerophyll forest associations in areas of low to moderate relief.	Unlikely Suitable habitat absent
Argynnis hyperbius inconstans	Australian fritillary	CE	E	The Australian fritillary usually occurs around river estuaries or open, swampy coastal regions. The species only occurs in areas where its larval food plant, the arrowhead violet (Viola betonicifolia) is found. Arrowhead violet usually grows in damp locations in more open areas.	Unlikely Host plant not recorded onsite or with 5km of site
Botaurus poiciloptilus	Australasian bittern	E	LC	Terrestrial wetlands with tall, dense vegetation and occasionally estuarine habitats. Favours permanent shallow waters, edges of pools and waterways	Unlikely No suitable wetland habitat. Tall dense vegetation absent around waterbodies
Calidris canutus	red knot	E	E	Red knot mainly inhabit intertidal mudflats, sandflats and sandy beaches of sheltered coasts, in estuaries, bays, inlets, lagoons and harbours. This species usually forages in soft substrate near the edge of water on intertidal mudflats or sandflats exposed by low tide. They like to roost in open areas far away from potential cover for predators, but close to feeding grounds. Breeding does not occur in Australia.	Unlikely No suitable wetland habitat, intertidal areas absent
Chalinolobus dwyeri	large-eared pied bat	V	V	Dry forests and woodlands, moist eucalypt forests, caves and mines	Unlikely Suitable habitat absent
Cyclopsitta diophthalma coxeni	Coxen's fig-parrot	E	E	Coxen's fig-parrot occurs in rainforest habitats including subtropical rainforest, dry rainforest, littoral and developing littoral rainforest, and vine forest.	Unlikely Suitable habitat absent
Dasyornis brachypterus	eastern bristlebird	E	E	This species inhabits a broad range of vegetation communities with a preference for dense understorey vegetation.	Unlikely Suitable habitat absent
Dasyurus maculatus maculatus	spot tailed quoll	E	V	This species prefers mature wet forest habitat, ideally unlogged forest or forest that has been less disturbed by timber harvesting.	Unlikely No suitable habitat onsite, high level of disturbance onsite
Delma torquata	collared delma	V	V	Open eucalypt forest with a sparse understorey of shrubs and tussock grasses, on rocky hillsides with flattish rocks or on deep-cracking soils	Unlikely Deep cracking soils not present
Erythrotriorchis radiatus	red goshawk	V	E	Tropical grassy woodlands mostly in undulating stony lands	Unlikely Suitable habitat absent
Falco hypoleucos	grey falcon	n/a	V	Inhabits woodland, shrubland and grassland in the arid and semi-arid zones, especially wooded watercourses	Unlikely Suitable habitat absent
Geophaps scripta scripta	squatter pigeon	V	V	Open grassy woodlands on sandy soils with gravelly ridges	Unlikely Suitable habitat absent, gravelly ridges not present
Lathamus discolor	swift parrot	CE	E	Dry sclerophyll eucalypt forests and woodlands. Occasionally wet sclerophyll forests. Feeds mostly on nectar, mainly from eucalypts, but also eats psyllid insects and lerps, seeds and fruit	Possible Seasonal occurrence. Suitable habitat present
Numenius madagascariensis	eastern curlew, far eastern curlew	CE	E	This migratory shorebird has a patchy distribution along the coastline of all states. Typically recorded in bays, estuaries, inlets, coastal lagoons, and harbours, with sandflats or intertidal mudflats.	Unlikely No suitable wetland habitat
Ornithorhynchus anatinus	platypus	n/a	SLC	Platypus are dependent on rivers, streams and bodies of freshwater. They favour coarser bottom substrates, particularly cobbles and gravel. When not foraging, the platypus retreat to its burrow in the bank of the river, creek or a pond.	Unlikely Suitable habitat absent, permanent waterbodies unsuitable for this species
Petauroides volans	greater glider	V	V	Tall eucalypt forests and woodlands. Silent, solitary and nocturnal. Eats gum leaves. Dependent on large tracts of undisturbed, tall forest with suitably large nesting hollows; each animal requires approximately 1.5 ha.	Unlikely large tracts of undisturbed, tall forest absent
Phascolarctos cinereus	koala	V	V	A range of temperate, sub-tropical and tropical forest, woodland and semi-arid communities dominated by Eucalyptus species – food and shelter trees	Possible Suitable habitat occurs for this species, RE mapping identifies suitable vegetation communities
Phyllodes imperialis smithersi	pink underwing moth	E	n/a	This species is found in undisturbed subtropical rainforest on rich volcanic soils and fertile alluvium, commonly below the altitude of 600 m. A vine, Carronia multisepalea, provides the food and habitat the moth requires in order to breed.	Unlikely Host plant not recorded onsite or with 5km of site
Plegadis falcinellus	glossy ibis	n/a	SLC	The glossy ibis requires shallow water and mudflats, so is found in well-vegetated wetlands, floodplains and mangroves	Unlikely No suitable wetland habitat
Potorous tridactylus tridactylus	long-nosed Potoroo	V	V	This species inhabits coastal heath and dry and wet sclerophyll forests. An important habitat requirement is relatively thick ground cover and it seems to be more densely populated in areas where the soil is light and sandy.	Unlikely Suitable habitat absent
Pseudomys novaehollandiae	New Holland mouse	V	V	Known to inhabit open heathlands, woodlands and forests with a heathland understorey and vegetated sand dunes.	Unlikely Suitable habitat absent
Pteropus poliocephalus	grey-headed flying-fox	V	LC	A large Australian Bat occurring within two hundred kilometres of the eastern coast of Australia. This species inhabits subtropical and temperate rainforests as well as tall sclerophyll forests and woodlands, heaths and swamps. The roosts for this species are generally located within a 20km range of a food source and most often found in gullies, close to a water source and in vegetation with a dense canopy.	Possible Food resources may occur within this site
Rostratula australis	Australian painted snipe	E	V	Shallow inland wetlands, brackish or freshwater that are permanently or temporarily inundated	Unlikely Suitable wetland habitat absent
Saiphos reticulatus	three-toed snake-tooth skink	V	LC	This species is often found in forest litter, under rotting logs and soils with high component of decomposing vegetation. Found in a variety of forest types ranging from rainforest through to tall open eucalypt forest.	Unlikely Suitable habitat absent from site
Tachyglossus aculeatus	short-beaked echidna	n/a	SLC	Found in various open woodland communities including rainforest, savannah, semi-arid and arid areas. Also found in agricultural areas.	Possible Suitable habitat exists for this species to occur. Records of occurrences within 10 km of site. Not recorded on site.
Turnix melanogaster	black-breasted button quail	V	V	Occur in forested areas where deep leaf litter layer exists in a wide variety of forest types. Fallen logs and a dense, heterogeneously distributed shrub layers are also considered to be important habitat characteristics for shelter and breeding.	Unlikely No suitable habitat onsite, dense leaf litter layer absent
Xeromys myoides	water mouse, false water rat	V	V	Water mouse habitat includes mangrove communities and adjacent sedgelands, grasslands and freshwater wetlands.	Unlikely No suitable wetland habitat

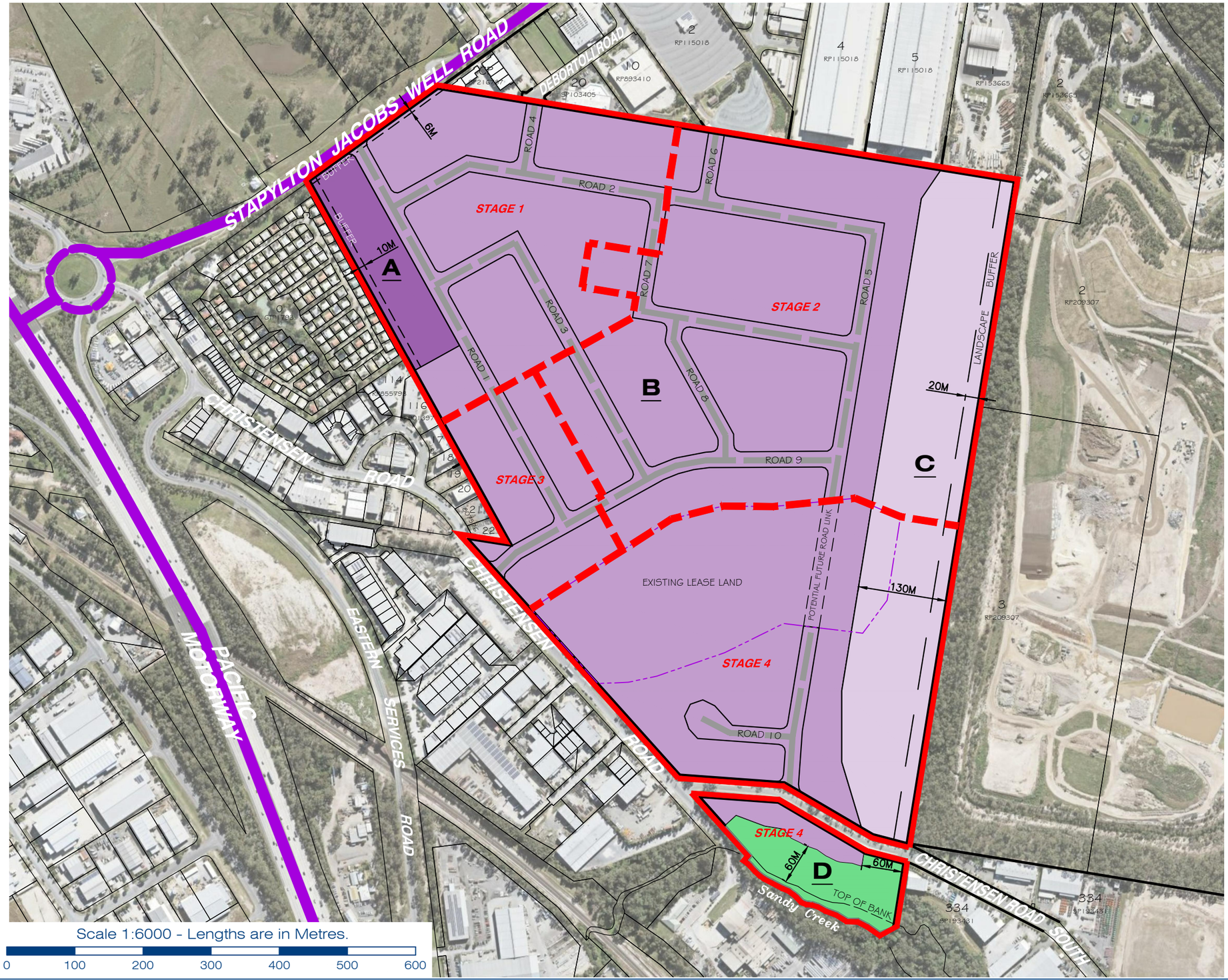
Table 4 (continued): Likelihood of conservation siginificant species occurence - Fauna

Scientific name	Common name	EPBC Act St..	NC Act S..	Habitat Description/ Regional ecosystems present	Likelihood of occurence
Actitis hypoleucos	common sandpiper	Mi	SLC	Around coastal wetlands and some inland wetlands on the muddy margins or rocky shores. Also inhabits estuaries, deltas of streams, lakes, pools, billabongs, reservoirs, dams and claypans.	Unlikely Waterbodies onsite not suitable habitat for this species
Apus pacificus	fork-tailed swift	Mi	SLC	Low to very high airspace over varied habitat, rainforest to semi-desert	Likely Present in a wide range of habitats and may overfly the site
Ardea alba	great egret, white egret	Mi	LC	Reported in a wide range of wetland habitats including include swamps and marshes; margins of rivers and lakes; damp or flooded grasslands, pastures or agricultural lands; and reservoirs. Usually frequents shallow waters.	Possible Vegetation within the site may provide suitable habitat for this species
Ardea ibis	cattle egret	Mi	LC	Occurs in tropical and temperate grasslands, wooded lands and terrestrial wetlands. Observed in moist, low-lying poorly drained pastures with an abundance of high grass; it avoids low grass pastures. It is commonly associated with the habitats of farm animals.	Confirmed Recorded onsite. Unlikely to be impacted by stage 2 works
Calidris acuminata	sharp-tailed sandpiper	Mi	SLC	Edges of shallow fresh or brackish wetlands, with inundated or emergent sedges, grass, saltmarsh or other low vegetation, but leave when they dry	Unlikely No suitable wetland habitat. Dense vegetation absent around waterbodies
Calidris ferruginea	curlew sandpiper	Mi	SLC	Intertidal mudflats in sheltered coastal areas, such as estuaries, bays, inlets and lagoons, non-tidal swamps, lakes and lagoons, ponds in saltworks, sewage farms, ephemeral and permanent lakes, dams, waterholes and bore drains.	Unlikely No suitable wetland habitat, intertidal areas absent
Cuculus optatus	oriental cuckoo	Mi	SLC	Forest and woodland	Possible Present in a wide range of habitats
Gallinago hardwickii	Latham's snipe	Mi	SLC	Open, freshwater wetlands with low, dense vegetation e.g. swamps, flooded grasslands or heathlands, around bogs and other water bodies	Unlikely Suitable habitat absent
Gelochelidon nilotica	gull-billed tern	Mi	SLC	This species is a nomadic inland species showing preference for coastal lagoons or saltmarshes. Commonly found in freshwater swamps, estuarine mudflats, beaches, floodwaters and grasslands.	Unlikely Suitable habitat absent
Hirundapus caudacutus	white-throated needletail	Mi	SLC	Breed outside Australia. Low to very high, open airspace over almost any habitat, including oceans, forests and deserts. At times gather over ranges, headlands, often in humid, unsettled weather preceding thunderstorms.	Likely Likely to overfly the site.
Monarcha melanopsis	black faced monarch	Mi	SLC	Predominately found in rainforest ecosystems. They can also occur in gullies (in montane areas) or coastal foothills, brigalow, coastal scrub and southern mahogany and sometimes in mangrove areas. They are occasionally found in suburban parks and gardens.	Unlikely Suitable habitat absent
Monarcha trivirgatus	spectacled monarch	Mi	SLC	Prefers thick understorey in rainforests, wet gullies and waterside vegetation, including mangroves	Unlikely Suitable habitat absent
Myiagra cyanoleuca	satin flycatcher	Mi	SLC	Forests and woodlands, mangroves, coastal heath scrubs but avoids rainforests.	Possible Suitable habitat exists for this species to occur. Records of occurrences within 5km of site
Pandion haliaetus	eastern osprey	Mi	SLC	Occur in littoral and coastal habitats and terrestrial wetlands and occasionally travel inland along major rivers. Require extensive areas of open fresh, brackish or saline waters.	Unlikely Suitable habitat absent
Pluvialis fulva	Pacific golden plover	Mi	SLC	This species usually inhabits coastal habitats mostly on beaches, mudflats and sandflats or in sheltered areas including harbours, estuaries and lagoons.	Unlikely Suitable habitat absent
Rhipidura rufifrons	rufous fantail	Mi	SLC	Wet sclerophyll forests, often in gullies dominated by eucalypts such as Tallow-wood Eucalyptus microcorys, Blackbutt E. pilularis or Red Mahogany E. resinifera; usually with a dense shrubby understorey often including ferns	Unlikely Suitable habitat absent
Symposiachrus trivirgatus	spectacled monarch	Mi	SLC	This species prefers thick understorey in rainforests, wet gullies and waterside vegetation, as well as mangroves.	Unlikely Suitable habitat absent from site
Tringa glareola	wood sandpiper	Mi	SLC	This species prefers well-vegetated, shallow, freshwater wetlands. Areas which they inhabit often taller fringing vegetation including trees, sedges and often with fallen timber. A migratory species which breeds offshore.	Unlikely No suitable wetland habitat
Tringa nebularia	common greenshank	Mi	SLC	Found in a wide variety of inland wetlands and sheltered coastal habitats of varying salinity. Forages and roosts at wetland edges.	Unlikely No suitable wetland habitat
Tringa stagnatilis	marsh sandpiper	Mi	SLC	Found in permanent or ephemeral wetlands of varying salinity.	Unlikely No suitable wetland habitat

EPBC Act Status: CE – critically endangered, E – endangered, V – vulnerable, Mi – migratory NC Act Status: E – endangered, V – vulnerable, NT – near threatened, SLC – special least concern, LC – least concern

Likelihood of occurrence
Confirmed – the species or signs of their presence was observed during the field survey
Likely – the site contains habitat that is suitable for the species and there are records of the species within 10 km of the site
Possible – the site contains habitat that is suitable for the species, however there are no records of the species within 10 km of the site; or the site contains marginal / low quality habitat for the species and there are records of the species within 10 km of the site Unlikely – the site does not contain habitat for the species and no records of the species within 10 km of the site

ATTACHMENT D – Landuse Classification and Staging Plan and Typical Landscaping Cross Section



Scale 1:6000 - Lengths are in Metres.

0 100 200 300 400 500 600

N

LEGEND

Site Area: 73.114 Ha

- Limit of Application
- Major State controlled Roads
- Possible future industrial collector road
- Existing lease land extent

	A	LOW IMPACT AND SERVICE INDUSTRY	2.41Ha
	B	GENERAL IMPACT BUSINESS & INDUSTRY	56.4311Ha
	C	LIMITED GENERAL IMPACT BUSINESS& INDUSTRY	12.193Ha
	D	OPEN SPACE / RESERVE	1.31Ha

STAGE	AREA
STAGE 1	16.20Ha
STAGE 2	29.76Ha
STAGE 3	4.811Ha
STAGE 4	22.343Ha

NOTE:

1. The landscaped buffer areas shall be established and maintained for the life of the development. No building works are to occur within the landscape buffer areas unless otherwise approved by the Chief Executive Officer;

2. Roadworks and land dedication associated with Road 1, Christensen Road, Eastern Service Road and Christensen Road South will be subject to the detailed design for Stage 3 & 4 of the development;

3. Lot access on the southern side of Christensen Road South is subject to further evaluation and approval following the detailed design of roadworks in Stage 3 & 4 of the development;

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T: 3807 3333 | F: 3287 5461 | www.gassman.com.au
Gold Coast & Logan | 76 Business Street, Yatala QLD | PO Box 392, Beenleigh 4207

Scale at A3: 1:6000
Date: 23-08-18
Design: .
Drawn: RM
Checked: BC

Issue	Date	Description	DRN	CHK
D	23/08/2018	AMEND ZONE A & ADD ROAD NUMBERING	RM	BC
C	30/05/2018	MINOR UPDATES	RM	BC
B	11/05/2018	POSSIBLE FUTURE COLLECTOR ROADS	RM	BC
A	08/02/2018	ORIGINAL ISSUE	RM/SH	BC

Project: Stapylton-Jacobs Well Road, Stapylton

Client: KS8 Pty Ltd

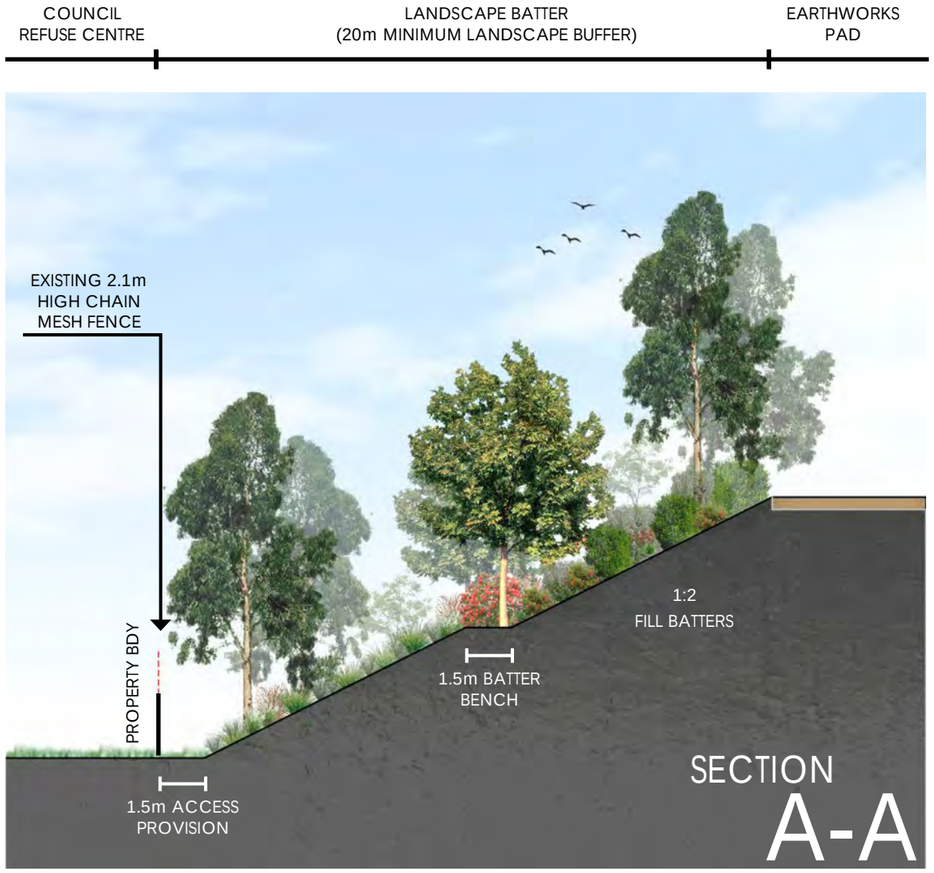
Drawing Title: Landuse Classification and Staging Plan

Drawing No: 5738 P 001

Revision No: D

Indicative Reserve Batter Section

KEY PLAN:



INDICATIVE 20m MINIMUM LANDSCAPE BUFFER

gassman development perspectives
planning
environment
landscape
engineering
survey
Gold Coast and Logan Office
Access Business Park
76 Business Street Yatala Q. 4207
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f: (07) 32875461
e: mail@gassman.com.au

M38 INDUSTRIAL PARK
KS8 Pty Ltd

INDICATIVE RESERVE BATTER SECTION

0 2.5 5 7.5 10M
SCALE 1:200 @ A3

DATE: 07.08.18
PROJECT NO: 5738
REV: A
DWN: RGM

Indicative Reserve Basin Section

KEY PLAN:

INDICATIVE BIO-RETENTION BASIN AND BATTER TREATMENT