BUSHFIRE THREAT ASSESSMENT

FOR
A PROPOSED SUBDIVISION
AT
STAGE 2 THORNTON
(LOT 425 DP 1262858)

Prepared by:

Firebird ecoSultants Pty Ltd
ABN – 16 105 985 993

PO Box 354
Newcastle NSW 2300

Mob: 0414 465 990
Ph: 02 4910 3939
Fax: 02 4929 2727
Email: sarah@firebirdeco.com.au

Site Details:	Stage 2 Thornton (Lot 425 DP1262858)
Prepared by:	***Sarah Jones B.Env.Sc.,G.Dip.DBPA (Design in Bushfire Prone Areas)*** ***Firebird ecoSultants Pty Ltd*** **A**BN – 16 105 985 993 PO Box 354, Newcastle NSW 2300 M: 0414 465 990 Email: sarah@firebirdeco.com.au T: 02 4910 3939 Fax: 02 4929 2727
Prepared for:	Landlink Property Pty Ltd
Reference No.	Thornton - Landlink
Document Status & Date:	22nd April 2022

Disclaimer

Notwithstanding the precautions adopted within this report, it should always be remembered that bushfires burn under a wide range of conditions. An element of risk, no matter how small always remains, and although the standard is designed to improve the performance of such buildings, there can be no guarantee, because of the variable nature of bushfires, that any one building will withstand bushfire attack on every occasion.

Executive Summary

A Bushfire Threat Assessment Report (BTA) has been prepared by Firebird ecoSultants Pty Ltd at the request of Landlink Property Pty Ltd for a proposed subdivision at Stage 2 Thornton (Lot 425 DP1262858).

The report forms part of the supporting documentation for a Development Application (DA) to be submitted to Maitland City Council (MCC). The proposed development is classified as Integrated Development under the provisions of Planning for Bushfire Protection (PBP) (NSW Rural Fire Service (RFS), 2019), and is therefore required under the legislation to be referred to the commissioner of the RFS, for the issue of a Bushfire Safety Authority. The report demonstrates compliance with PBP (RFS, 2019) and AS3959-2018 Construction of Buildings in Bush Fire Prone Areas.

This assessment aims to consider and assess the bushfire hazard and associated potential threats relevant to the proposal. Recommendations are provided with regard to fuel management, access, provision of emergency services, building protection and construction standards, to facilitate an acceptable level of bushfire protection.

In summary, the following is recommended to enable the proposal to meet the relevant legislative requirements:

- APZs are required to be implemented for the proposed residential subdivision in accordance with Table 4-1 and Figure 4-1.
- Assessment in accordance with AS3959 and the PBP (section 5 of this report) has shown that future dwellings within the lots will be able to comply with the required BALs. In any case, future dwellings within the site will be assessed under Section 4.14 of EP&A Act for each individual dwelling upon application.
- Reticulated water is extended into the site. The development will be linked to the water pressure mains and the proposed internal fire hydrant spacing, sizing and pressures are to comply with AS 2419.1-2005 Fire Hydrant Installations – System design, installation and commissioning (2005).

Provided the recommendations stated within this report are implemented in full then Firebird ecoSultants Pty Ltd is of the opinion that the proposed development is able to meet the aims and objectives of PBP (RFS, 2019).

Yours faithfully

Firebird ecoSultants

Sarah Jones
B.Env.Sc., G.DIP.DBPA (Design for Bushfire Prone Areas)
BPAD-A Certified Practitioner (BPD-PA-26512)
Ecologist / Bushfire Planner

Terms & Abbreviations

Abbreviation	Meaning
APZ	Asset Protection Zone
AS2419 -2005	Australian Standard – Fire Hydrant Installations
AS3959-2018	Australian Standard – Construction of Buildings in Bush Fire Prone Areas
BAL	Bushfire Attack Level
BCA	Building Code of Australia
BPA	Bush Fire Prone Area (Also Bushfire Prone Land)
BPL Map	Bush Fire Prone Land Map
BPMs	Bush Fire Protection Measures
EPA Act	*NSW Environmental Planning and Assessment Act 1979*
FFDI	Forest Fire Danger Index
FMP	Fuel Management Plan
ha	hectare
IPA	Inner Protection Area
LGA	Local Government Area
MCC	Maitland City Council
OPA	Outer Protection Area
PBP	Planning for Bushfire Protection 2019
RF Act	Rural Fires Act 1997
RF Regulation	Rural Fires Regulation

CONTENTS

TABLES

FIGURES

1 INTRODUCTION

Firebird ecoSultants Pty Ltd has been engaged to undertake a Bushfire Threat Assessment (BTA) for a proposed subdivision at Stage 2 Thornton (Lot 425 DP1262858), hereafter referred to as the "site" (Figure 1-1).

The report forms part of the supporting documentation for a Development Application (DA) to be submitted to Maitland City Council (MCC). The proposed development is classified as Integrated Development under the provisions of Planning for Bushfire Protection (PBP) (NSW Rural Fire Service (RFS), 2019), and is therefore required under the legislation to be referred to the commissioner of the RFS for the issue of a Bushfire Safety Authority. The report demonstrates compliance with PBP 2019 (NSW RFS, 2019) and AS3959-2018 Construction of Buildings in Bush Fire Prone Areas (RFS, 2019).

This assessment aims to consider and assess the bushfire hazard and associated potential threats relevant to the proposal. Recommendations are provided with regard to fuel management, access, provision of emergency services, building protection and construction standards, to facilitate an acceptable level of bushfire protection.

1.1 Site Particulars

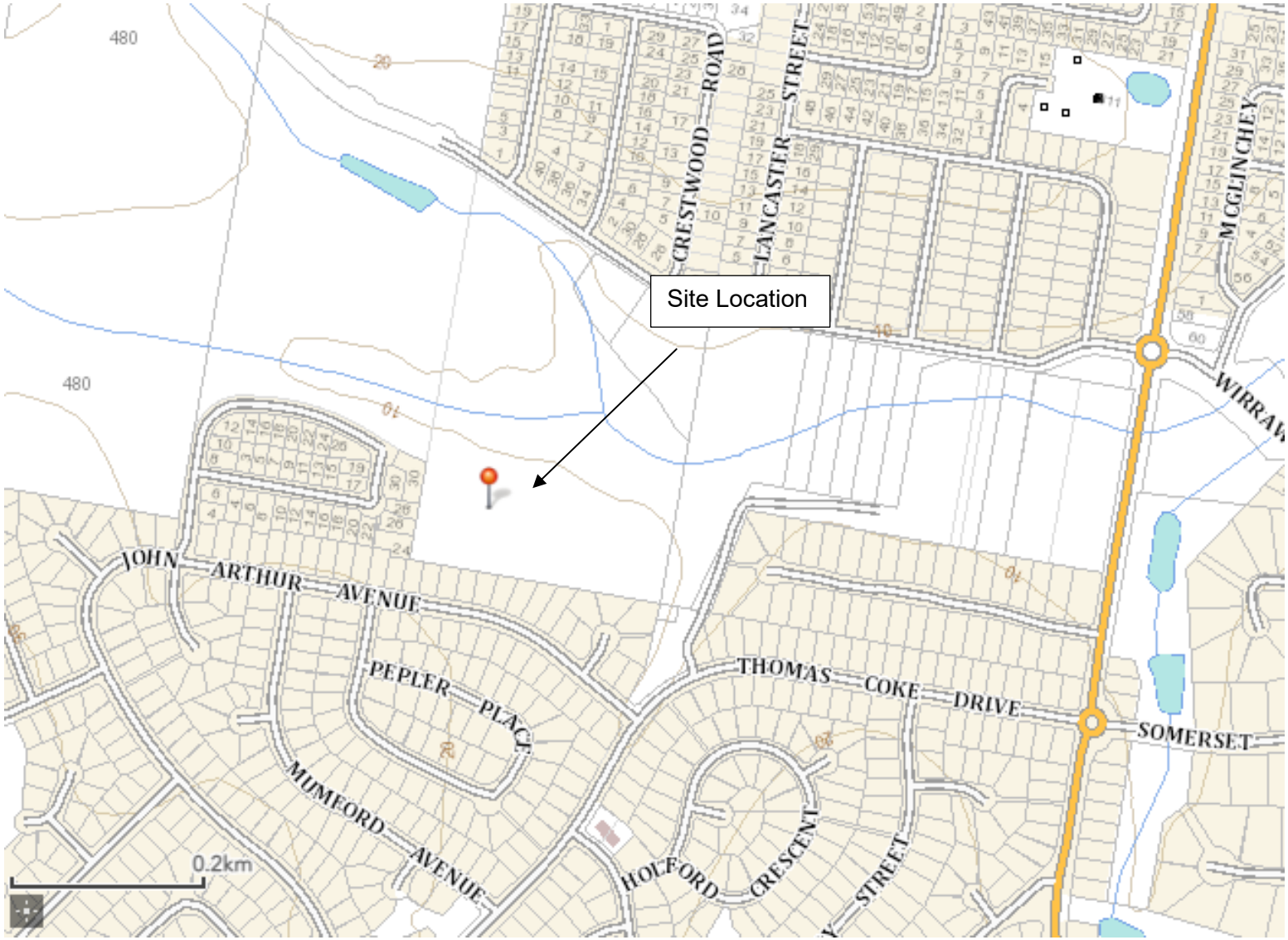
Locality:	Stage 2 Thornton (Brentwood Estate) (Lot 425 DP1262858)
LGA:	Maitland City Council (MCC)
Forest Danger Index:	100 FFDI
Boundaries:	The site is bounded by Raymond Terrace Road to the north with large rural lifestyle lots occurring further to the north and west and by residential development to the south and east.
Current Land Use:	The site consists of disturbed forest vegetation and cleared land.
Climate / Fire History:	The site lies within a geographical area with a Forest Fire Danger Index (FFDI) rating of 100. Extreme bushfire weather is therefore associated with long periods of drought, high temperatures, low humidity and gusty often north-westerly winds.

1.2 Objectives of Assessment

This report has been prepared to address the requirements of Clause 44 of the *Rural Fires Regulation*, for an application for a Bush Fire Safety Authority (BFSA). This BTA also addresses the six key Bush Fire Protection Measures (BFPMs) in a development assessment context, being:

- The provision of clear separation of buildings and bush fire hazards, in the form of fuel-reduced APZ (and their components being Inner Protection Areas (IPA's) and Outer Protection Areas (OPA's);
- Sitting and design of the proposal;
- Construction standards;
- Appropriate access standards for residents, fire-fighters, emergency workers and those involved in evacuation;
- Adequate water supply and pressure, and utility services; and
- Suitable landscaping, to limit fire spreading to a building.

Figure 1-1: Site Location



2 METHODOLOGY

2.1 Vegetation Assessment

The vegetation formations in and surrounding the subject land, to a distance of 140 m, was assessed in accordance with PBP (RFS, 2019). The vegetation assessment was carried out, as follows:

- Aerial Photograph Interpretation to map vegetation cover and extent.
- Confirmation of the vegetation assemblage typology present via a site inspection.

2.2 Slope Assessment

Slope assessment has been undertaken as follows:

- Aerial Photograph Interpretation in conjunction with analysis of electronic contour maps with a contour interval of 10m.

3 SITE ASSESSMENT

The following assessment has been undertaken in accordance with the requirements of PBP (RFS, 2019).

3.1 Vegetation Assessment

In accordance with PBP (RFS 2019), an assessment of the vegetation over a distance of 140m in all directions from the site was undertaken.

Vegetation that may be considered a bushfire hazard was identified in all directions from the site and are presented and depicted in Table 3-1.

Table 3-1: Vegetation Classification

Direction from Site	Vegetation Classification	Effective Slope
North	Forest vegetation	Downslope 0-5°
East	Managed Land – Residential Development	N/A
South	Managed Land – Residential Development	N/A
West	Managed Land – Residential Development	N/A

4 BUSHFIRE ATTACK ASSESSMENT

4.1 Bushfire Assessment

The site lies within Maitland Local Government Area and therefore is assessed under a FFDI rating of 100. In accordance with Table A1.12.2 within PBP (RFS, 2019), the appropriate width setbacks have been calculated based on the topography and the vegetation present in and around the site.

This assessment showed that the potential Bushfire hazard within 100m of the site occurs to the north within the drainage reserve.

Table 4-1: Bushfire Assessment

Direction from Development	Vegetation classified within 140m	Effective Slope (within 100m)	APZ to be provided
North	Forest Vegetation	Downslope 0 – 5 degrees	>40m
East	Residential Development	N/A	N/A
South	Residential Development	N/A	N/A
West	Managed land	N/A	N/A

Figure 4-1: APZ Map

Note:
Boundaries are not survey accurate.
Although all reasonable care has been taken to ensure the information shown on this map is up to date and accurate, no guarantee is given that the information portrayed is free from error or omission. Please verify the accuracy of all information prior to use.

FIGURE 4-1: ASSET PROTECTION ZONES

Ref No 2401 H

CLIENT	Client
SITE DETAILS	No.530 Raymond Terrace Road Thornton
DATE	31 March 2022

NORTH

0 25 50 75

SCALE 1500 @ A3

PIXELDRAFTING

Firebird ecoSultants Pty Ltd
ABN - 16 105 985 993
Level 1, 146 Hunter Street, Newcastle NSW 2300
P O Box 354 Newcastle NSW 2300

firebird

5 DWELLING DESIGN & CONSTRUCTION

In 2018,the Council of Standards approved the revised Australian Standard AS3959-2018 Construction of buildings in bushfire prone areas (AS3959-2018). This standard was published by Standards of Australia on 13 November 2018 and replaces the 2009 version of the document.

AS3959-2018 was formally adopted by the BCA as the national standard in March 2020. The BCA 2010 references AS3959 as the deemed-to-satisfy (DTS) solution for construction requirements in bush fire prone areas for NSW

Building design and the materials used for construction of future dwellings should be chosen based on the information contained within AS3959-2018, and accordingly the designer / architect should be made aware of this recommendation. It may be necessary to have dwelling plans checked by the architect involved to ensure that the proposed dwellings meet the relevant Bushfire Attack Level (BAL) as detailed in AS3959-2018.

The determinations of the appropriate BAL are based upon parameters such as weather modelling, fire-line intensity, flame length calculations, as well as vegetation and fuel load analysis. The determination of the construction level is derived by assessing the:

- Relevant FFDI = 100
- Flame temperature
- Slope
- Vegetation classification; and
- Building location

The following BAL, based on heat flux exposure thresholds, are used in the standard:

(a) **BAL – LOW** The risk is considered to be **VERY LOW**

There is insufficient risk to warrant any specific construction requirements but there are still some risks.

(b) **BAL – 12.5** The risk is considered to be **LOW**

There is a risk of ember attack.

The construction elements are expected to be exposed to a heat flux not greater than 12.5 k/m2.

(c) **BAL – 19** The risk is considered to be **MODERATE**

There is a risk of ember attack and burning debris ignited by wind borne embers and a likelihood of exposure to radiant heat.

The construction elements are expected to be exposed to a heat flux not greater than 19 kW/m2.

(d) **BAL-29** The risk is considered to be **HIGH**

There is an increased risk of ember attack and burning debris ignited by windborne embers and a likelihood of exposure to an increased level of radiant heat.

The construction elements are expected to be exposed to a heat flux no greater than 29 kW/m2.

(e) **BAL-40** The risk is considered to be **VERY HIGH**

There is much increased risk of ember attack and burning debris ignited by windborne embers, a likelihood of exposure to a high level of radiant heat and some likelihood of direct exposure to flames from the fire front.

The construction elements are expected to be exposed to a heat flux no greater than 40 kW/m^2.

(f) **BAL-FZ** The risk is considered to be **EXTREME**

There is an extremely high risk of ember attack and burning debris ignited by windborne embers, a likelihood of exposure to an extreme level of radiant heat and direct exposure to flames from the fire front.

The construction elements are expected to be exposed to a heat flux greater than 40 kW/m^2.

5.1 Determination of Bushfire Attack Levels

Using a FFDI of 100, the information relating to vegetation, slope and according to Table 2.4.2 of AS3959-2018 and PBP, Table 5-1 and Figure 5-1 illustrates the required BALs for future dwellings within the lots.

Table 5-1: Determination of BALs for Future Dwellings within the Site

Vegetation Type and Direction	Separation Distance	Bushfire Attack Level (BAL)	Construction Section
Forest over downslope 0 – 5 degrees	29-<40m	BAL-29	Sect 3 & 7 of AS3959 and Sect 7.5 of PBP.
	40-<54m	BAL-19	Sect 3 & 6 of AS3959 and Sect 7.5 of PBP.
	54-<100m	BAL-12.5	Sect 3 & 5 of AS3959 and Sect 7.5 of PBP.
	>100m	BAL-LOW	No Requirements

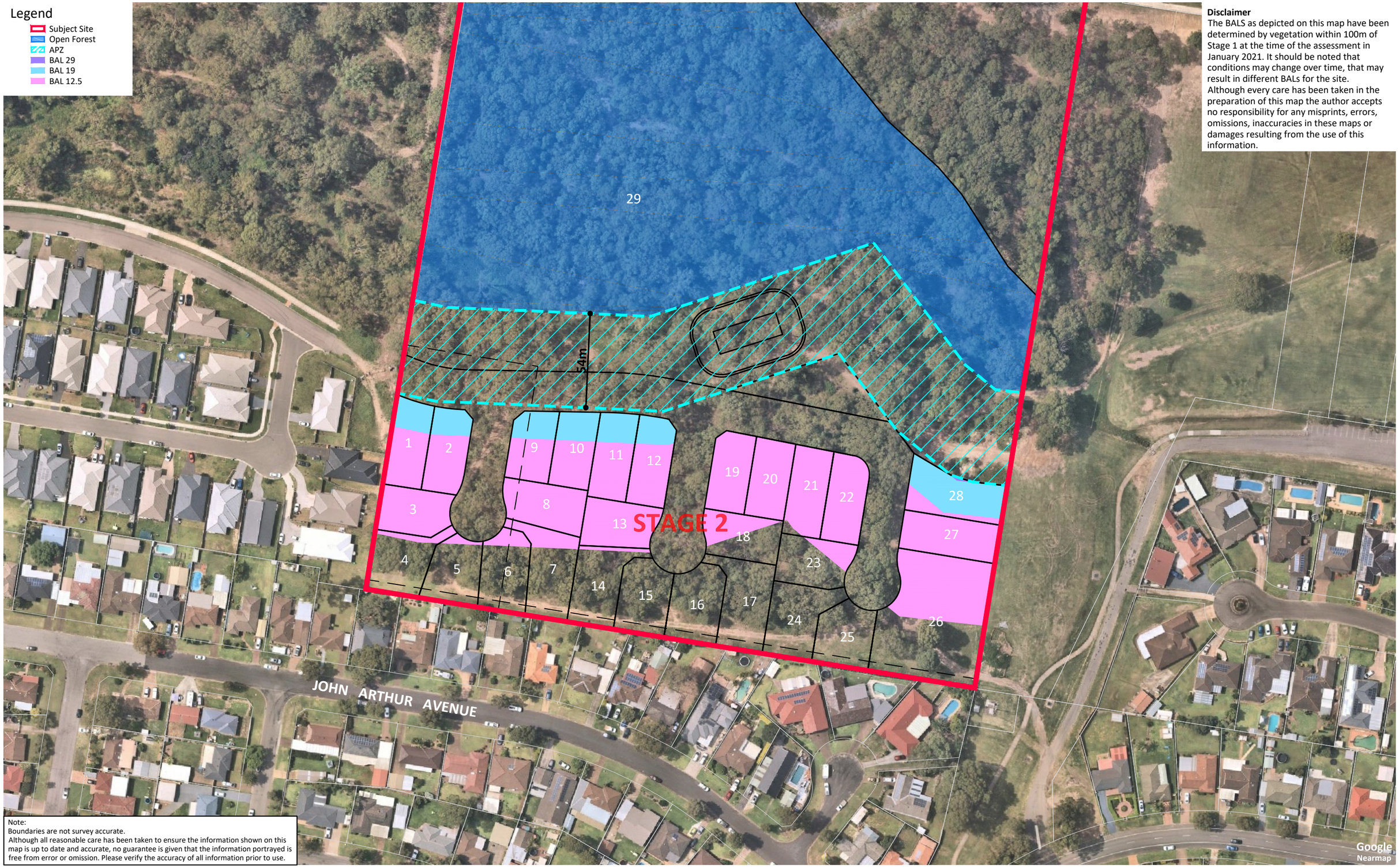
Given, the information in Table 5-1 above any future dwellings within the lots will be able to comply with AS3959-2018. These will be subject to further assessment under Section 4.14 of the EP&A Act depending on location of future dwellings and retained vegetation within the site.

Figure 5.1: BAL Map

Legend

- Subject Site
- Open Forest
- APZ
- BAL 29
- BAL 19
- BAL 12.5

Disclaimer
The BALS as depicted on this map have been determined by vegetation within 100m of Stage 1 at the time of the assessment in January 2021. It should be noted that conditions may change over time, that may result in different BALs for the site.
Although every care has been taken in the preparation of this map the author accepts no responsibility for any misprints, errors, omissions, inaccuracies in these maps or damages resulting from the use of this information.



Note:
Boundaries are not survey accurate.
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FIGURE 5-1: BUSHFIRE ATTACK LEVELS

Ref No 2401 F

CLIENT	Client
SITE DETAILS	No.530 Raymond Terrace Road Thornton
DATE	25 February 2021

NORTH

0 25 50 75

SCALE 1500 @ A3

PIXELDRAFTING

Firebird ecoSultants Pty Ltd
ABN - 16 105 985 993
Level 1, 146 Hunter Street, Newcastle NSW 2300
P O Box 354 Newcastle NSW 2300

firebird

6 COMPLIANCE

The following Table 6-1 outlines how the proposed subdivision complies with the provisions of PBP 2019.

Table 6-1: Compliance with the Provisions of PBP 2019

	Acceptable Solutions	Compliance with Acceptable	Performance Criteria	Compliance with Performance
Asset Protection Zones	〉 APZs are provided in accordance with Tables A1.12.2 and A1.12.3 based on the FFDI.	Complies	〉 potential building footprints must not be exposed to radiant heat levels exceeding 29 kW/m² on each proposed lot.	Complies – APPZs of > than 40m will be established and maintained
	〉 APZs are managed in accordance with the requirements of Appendix 4.	Will comply	〉 APZs are managed and maintained to prevent the spread of a fire towards the building.	Complies – APZs will occur within the site
	〉 APZs are wholly within the boundaries of the development site	See performance-based assessment	〉 the APZs is provided in perpetuity	The APZ to the north will be managed perpetuity via an easement
	〉 APZs are located on lands with a slope less than 18 degrees.	Complies	〉 APZ maintenance is practical, soil stability is not compromised and the potential for crown fires is minimised.	N/A
Landscaping	〉 landscaping is in accordance with Appendix 4; and fencing is constructed in accordance with section 7.6.	Will comply	〉 landscaping is designed and managed to minimise flame contact and radiant heat to buildings, and the potential for wind-driven embers to cause ignitions.	N/A

Access (General Requirements)	〉 property access roads are two-wheel drive, all-weather roads; 〉 perimeter roads are provided for residential subdivisions of three or more allotments; 〉 subdivisions of three or more allotments have more than one access in and out of the development; 〉 traffic management devices are constructed to not prohibit access by emergency services vehicles; 〉 maximum grades for sealed roads do not exceed 15 degrees and an average grade of not more than 10 degrees or other gradient specified by road design standards, whichever is the lesser gradient; 〉 all roads are through roads; 〉 dead end roads are not recommended, but if unavoidable, are not more than 200 metres in length, incorporate a minimum 12 metres outer radius turning circle, and are clearly sign posted as a dead end; 〉 where kerb and guttering is provided on perimeter roads, roll top kerbing should be used to the hazard side of the road; 〉 where access/egress can only be achieved through forest, woodland and heath vegetation, secondary	Complies	〉 firefighting vehicles are provided with safe, all-weather access to structures.	Complies

	access shall be provided to an alternate point on the existing public road system; and 〉 one way only public access roads are no less than 3.5 metres wide and have designated parking bays with hydrants located outside of these areas to ensure accessibility to reticulated water for fire suppression.			
	〉 the capacity of perimeter and non-perimeter road surfaces and any bridges/causeways is sufficient to carry fully loaded firefighting vehicles (up to 23 tonnes); bridges/ 〉 causeways are to clearly indicate load rating.	Complies	〉 the capacity of access roads is adequate for firefighting vehicles.	Complies
	〉 hydrants are located outside of parking reserves and road carriageways to ensure accessibility to reticulated water for fire suppression; 〉 hydrants are provided in accordance with the relevant clauses of AS 2419.1:2005 - Fire hydrant installations System design, installation and commissioning; and 〉 there is suitable access for a Category 1 fire appliance to within 4m of the static water supply where no reticulated supply is available.	Will comply	〉 there is appropriate access to water supply.	Will comply

Perimeter Roads	〉 are two-way sealed roads; 〉 minimum 8m carriageway width kerb to kerb; 〉 parking is provided outside of the carriageway width; 〉 hydrants are located clear of parking areas; 〉 are through roads, and these are linked to the internal road system at an interval of no greater than 500m; 〉 curves of roads have a minimum inner radius of 6m; 〉 the maximum grade road is 15 degrees and average grade of not more than 10 degrees; 〉 the road crossfall does not exceed 3 degrees; and 〉 a minimum vertical clearance of 4m to any overhanging obstructions, including tree branches, is provided.	See performance-based assessment	〉 access roads are designed to allow safe access and egress for firefighting vehicles while residents are evacuating as well as providing a safe operational environment for emergency service personnel during firefighting and emergency management on the interface.	Complies with the exception of a through road that connects with Thomas Cook Drive however, an APZ of 40m will be installed between the proposed road and the vegetation to the north. Furthermore, the land to the east of the site is managed parkland (maintained by Council).

Non-Perimeter Roads	〉 minimum 5.5m carriageway width kerb to kerb; 〉 parking is provided outside of the carriageway width; 〉 hydrants are located clear of parking areas; 〉 roads are through roads, and these are linked to the internal road system at an interval of no greater than 500m; 〉 curves of roads have a minimum inner radius of 6m; 〉 the road crossfall does not exceed 3 degrees; and 〉 a minimum vertical clearance of 4m to any overhanging obstructions, including tree branches, is provided.	Complies	〉 access roads are designed to allow safe access and egress for firefighting vehicles while residents are evacuating.	A perimeter road occurs between the proposed development and the vegetation to the north.

Property Access	〉 There are no specific access requirements in an urban area where an unobstructed path (no greater than 70m) is provided between the most distant external part of the proposed dwelling and the nearest part of the public access road (where the road speed limit is not greater than 70kph) that supports the operational use of emergency firefighting vehicles. **In circumstances where this cannot occur, the following requirements apply:** 〉 minimum 4m carriageway width; 〉 in forest, woodland and heath situations, rural property access roads have passing bays every 200m that are 20m long by 2m wide, making a minimum trafficable width of 6m at the passing bay; 〉 a minimum vertical clearance of 4m to any overhanging obstructions, including tree branches; 〉 provide a suitable turning area in accordance with Appendix 3; 〉 curves have a minimum inner radius of 6m and are minimal in number to allow for rapid access and egress; 〉 the minimum distance between inner and outer curves is 6m; 〉 the crossfall is not more than 10 degrees;	N/A - There are no specific access requirements in an urban area where an unobstructed path (no greater than 70m) is provided between the most distant external part of the proposed dwelling and the nearest part of the public access road (where the road speed limit is not greater than 70kph) that supports the operational use of emergency firefighting vehicles.	〉 firefighting vehicles can access the dwelling and exit the property safely.	N/A

	〉 maximum grades for sealed roads do not exceed 15 degrees and not more than 10 degrees for unsealed roads; and 〉 a development comprising more than three dwellings has access by dedication of a road and not by right of way. **Note: Some short constrictions in the access may be accepted where they are not less than 3.5m wide, extend for no more than 30m and where the obstruction cannot be reasonably avoided or removed. The gradients applicable to public roads also apply to community style development property access roads in addition to the above.**			
	〉 reticulated water is to be provided to the development where available; 〉 a static water and hydrant supply is provided for non-reticulated developments or where reticulated water supply cannot be guaranteed; and 〉 static water supplies shall comply with Table 5.3d.	Complies	〉 adequate water supplies are provided for firefighting purposes.	Complies – the site will be connected to reticulated water.

	〉 fire hydrant, spacing, design and sizing complies with the relevant clauses of Australian Standard AS 2419.1:2005; 〉 hydrants are not located within any road carriageway; and 〉 reticulated water supply to urban subdivisions uses a ring main system for areas with perimeter roads.	Will Comply	〉 water supplies are located at regular intervals; and 〉 the water supply is accessible and reliable for firefighting operations.	Will comply
	〉 fire hydrant flows and pressures comply with the relevant clauses of AS 2419.1:2005.	Will Comply	〉 flows and pressure are appropriate.	Will comply
	〉 all above-ground water service pipes are metal, including and up to any taps; and 〉 above-ground water storage tanks shall be of concrete or metal.	Will Comply	〉 the integrity of the water supply is maintained.	Will comply

Electricity Services	〉 where practicable, electrical transmission lines are underground; 〉 where overhead, electrical transmission 〉 lines are proposed as follows: lines are installed with short pole spacing of 30m, unless crossing gullies, gorges or riparian areas; and 〉 no part of a tree is closer to a power line than the distance set out in ISSC3 Guideline for Managing Vegetation Near Power Lines.	Will Comply	〉 location of electricity services limits the possibility of ignition of surrounding bush land or the fabric of buildings.	Will comply
Gas Services	〉 reticulated or bottled gas is installed and maintained in accordance with AS/NZS 1596:2014 - The storage and handling of LP Gas, the requirements of relevant authorities, and metal piping is used; 〉 all fixed gas cylinders are kept clear of all flammable materials to a distance of 10m and shielded on the hazard side; 〉 connections to and from gas cylinders are metal; 〉 polymer-sheathed flexible gas supply lines are not used; and 〉 above-ground gas service pipes are metal, including and up to any outlets.	Will Comply	〉 location and design of gas services will not lead to ignition of surrounding bushland or the fabric of buildings.	Will comply

7 CONCLUSION & RECOMMENDATIONS

If the recommendations contained within this report are duly considered and incorporated, it is considered that the fire hazard present is containable to a level necessary to provide an adequate level of protection to life and property on the site.

In summary, the following is recommended to enable the proposal to meet the relevant legislative requirements:

- APZs are required to be implemented for the proposed residential subdivision in accordance with Table 4-1 and Figure 4-1.
- Assessment in accordance with AS3959 and the PBP (section 5 of this report) has shown that future dwellings within the lots will be able to comply with the required BALs. In any case, future dwellings within the site will be assessed under Section 4.14 of EP&A Act for each individual dwelling upon application.
- Reticulated water is extended into the site.
- The development will be linked to the water pressure mains and the proposed internal fire hydrant spacing, sizing and pressures are to comply with AS 2419.1-2005 Fire Hydrant Installations – System design, installation and commissioning (2005).

Provided the recommendations stated above are implemented in full Firebird ecoSultants Pty Ltd is of the opinion that the proposed development is able to meet the aims and objectives of PBP (RFS, 2019).

Yours faithfully
Firebird ecoSultants

BPAD Bushfire Planning & Design Accredited Practitioner Level 3

Sarah Jones
B.Env.Sc., G.DIP.DBPA (Design for Bushfire Prone Areas)
BPAD-A Certified Practitioner (BPD-PA-26512)
Ecologist / Bushfire Planner

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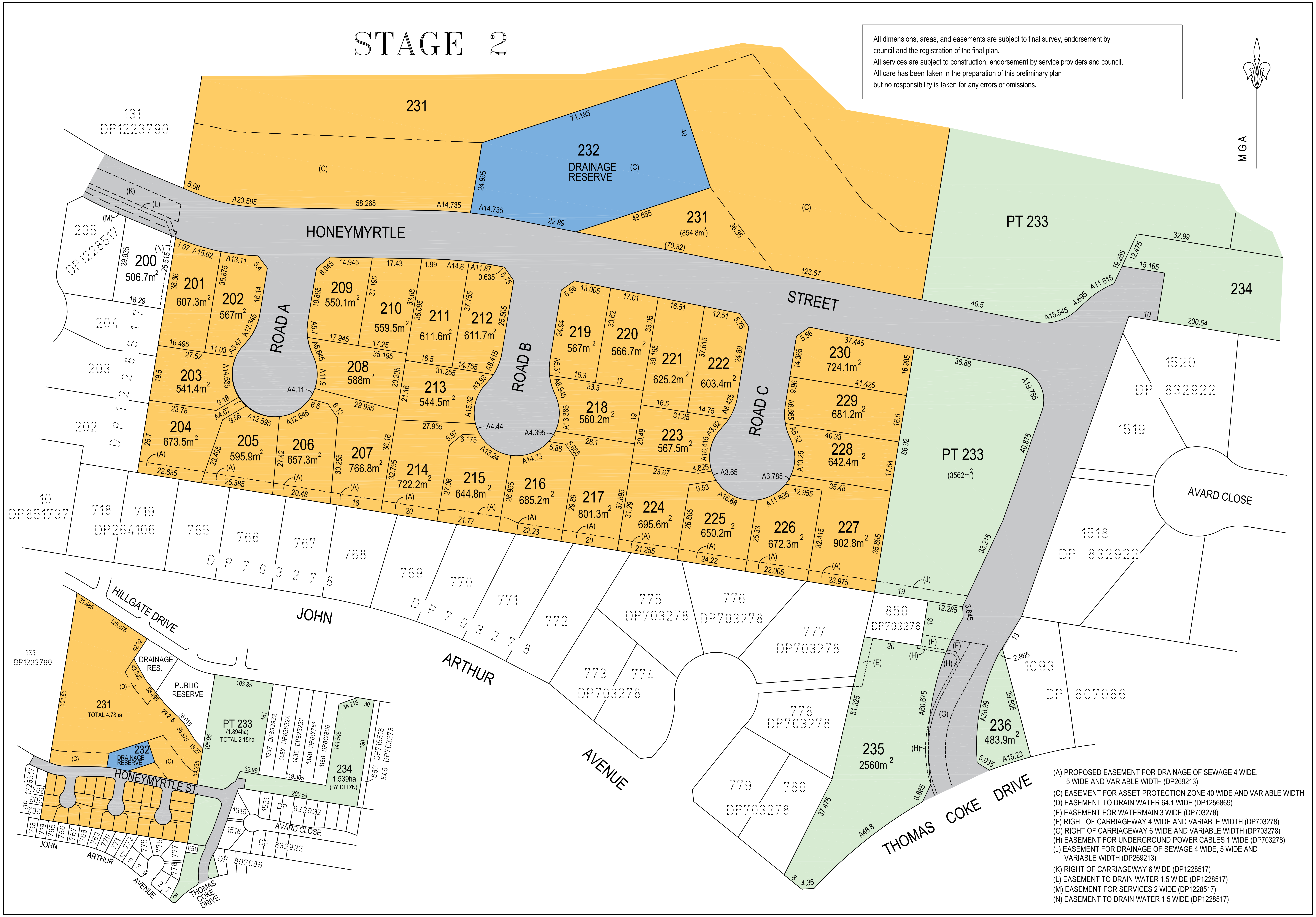
APPENDIX A PROPOSED PLANS


STAGE 2
All dimensions, areas, and easements are subject to final survey, endorsement by council and the registration of the final plan.
All services are subject to construction, endorsement by service providers and council.
All care has been taken in the preparation of this preliminary plan but no responsibility is taken for any errors or omissions.
MGA
231
232
DRAINAGE RESERVE
231 (854.8m2)
PT 233
234
HONEYMYRTLE
STREET
ROAD A
ROAD B
ROAD C
200 506.7m2
201 607.3m2
202 567m2
203 541.4m2
204 673.5m2
205 595.9m2
206 657.3m2
207 766.8m2
208 588m2
209 550.1m2
210 559.5m2
211 611.6m2
212 611.7m2
213 544.5m2
214 722.2m2
215 644.8m2
216 685.2m2
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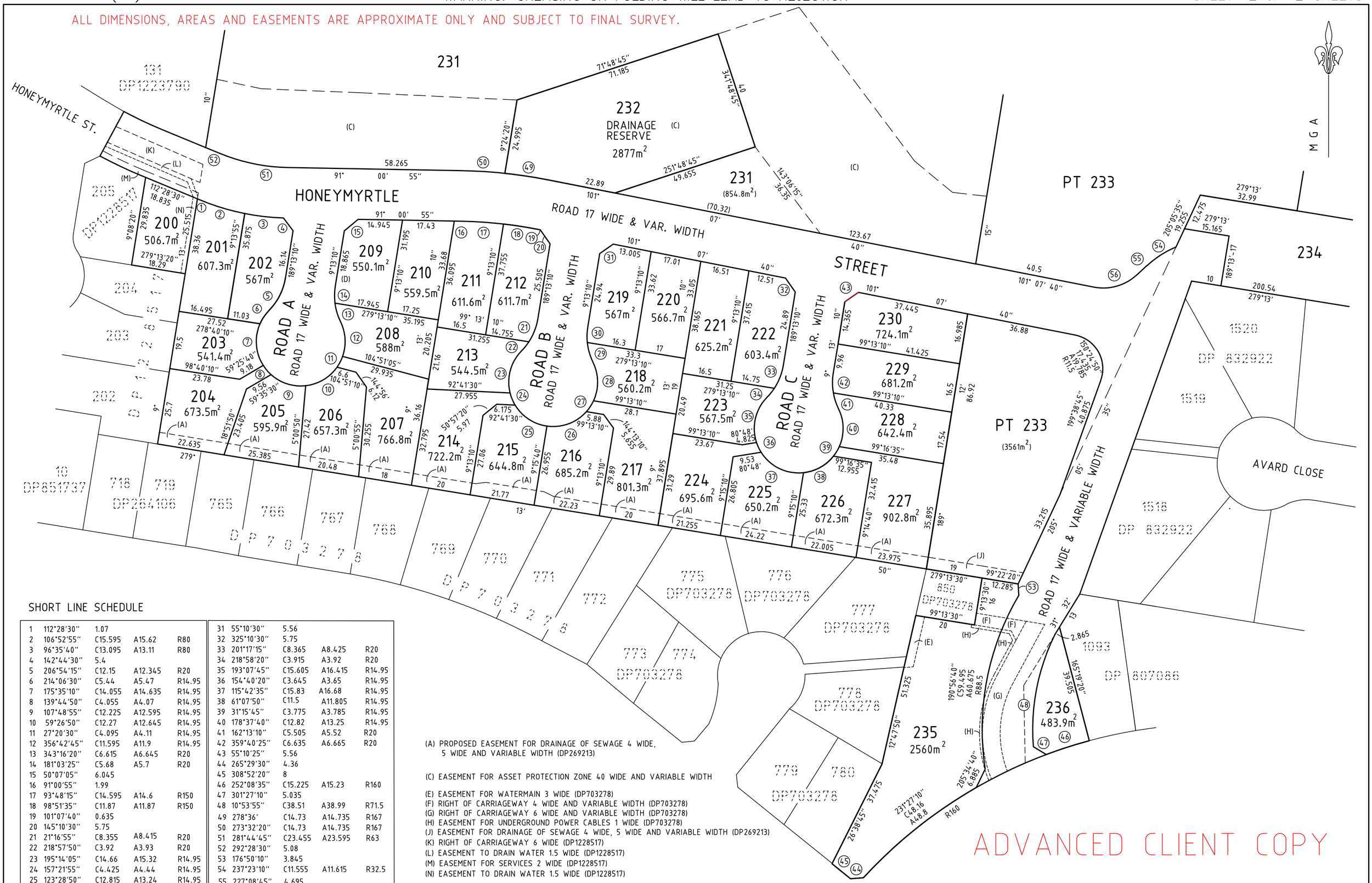
219 567m2
220 566.7m2
221 625.2m2
222 603.4m2
223 567.5m2
224 695.6m2
225 650.2m2
226 672.3m2
227 902.8m2
228 642.4m2
229 681.2m2
230 724.1m2
PT 233 (3562m2)
235 2560m2
236 483.9m2
AVARD CLOSE
JOHN ARTHUR AVENUE
THOMAS COKE DRIVE
HILLGATE DRIVE
131 DP1223790
205 DP1228517
10 DP851737
718 719 DP264106
DP703278
1520 DP 832922
1519
1518 DP 832922
1093 DP 807086
850 DP703278
(A) PROPOSED EASEMENT FOR DRAINAGE OF SEWAGE 4 WIDE, 5 WIDE AND VARIABLE WIDTH (DP269213)
(C) EASEMENT FOR ASSET PROTECTION ZONE 40 WIDE AND VARIABLE WIDTH
(D) EASEMENT TO DRAIN WATER 64.1 WIDE (DP1256869)
(E) EASEMENT FOR WATERMAIN 3 WIDE (DP703278)
(F) RIGHT OF CARRIAGEWAY 4 WIDE AND VARIABLE WIDTH (DP703278)
(G) RIGHT OF CARRIAGEWAY 6 WIDE AND VARIABLE WIDTH (DP703278)
(H) EASEMENT FOR UNDERGROUND POWER CABLES 1 WIDE (DP703278)
(J) EASEMENT FOR DRAINAGE OF SEWAGE 4 WIDE, 5 WIDE AND VARIABLE WIDTH (DP269213)
(K) RIGHT OF CARRIAGEWAY 6 WIDE (DP1228517)
(L) EASEMENT TO DRAIN WATER 1.5 WIDE (DP1228517)
(M) EASEMENT FOR SERVICES 2 WIDE (DP1228517)
(N) EASEMENT TO DRAIN WATER 1.5 WIDE (DP1228517)
231 TOTAL 4.78ha
DRAINAGE RES.
PUBLIC RESERVE
PT 233 (1.894ha) TOTAL 2.15ha
234 1.539ha (BY DED'N)
HONEYMYRTLE ST.

ALL DIMENSIONS, AREAS AND EASEMENTS ARE APPROXIMATE ONLY AND SUBJECT TO FINAL SURVEY.



SHORT LINE SCHEDULE

1	112°28'30"	1.07		
2	106°52'55"	C15.595	A15.62	R80
3	96°35'40"	C13.095	A13.11	R80
4	142°44'30"	5.4		
5	206°54'15"	C12.15	A12.345	R20
6	214°06'30"	C5.44	A5.47	R14.95
7	175°35'10"	C14.055	A14.635	R14.95
8	139°44'50"	C4.055	A4.07	R14.95
9	107°48'55"	C12.225	A12.595	R14.95
10	59°26'50"	C12.27	A12.645	R14.95
11	27°20'30"	C4.095	A4.11	R14.95
12	356°42'45"	C11.595	A11.9	R14.95
13	343°16'20"	C6.615	A6.645	R20
14	181°03'25"	C5.68	A5.7	R20
15	50°07'05"	6.045		
16	91°00'55"	1.99		
17	93°48'15"	C14.595	A14.6	R150
18	98°51'35"	C11.87	A11.87	R150
19	101°07'40"	0.635		
20	145°10'30"	5.75		
21	21°16'55"	C8.355	A8.415	R20
22	218°57'50"	C3.92	A3.93	R20
23	195°14'05"	C14.66	A15.32	R14.95
24	157°21'55"	C4.425	A4.44	R14.95
25	123°28'50"	C12.815	A13.24	R14.95
26	69°52'40"	C14.145	A14.73	R14.95
27	33°13'40"	C4.38	A4.395	R14.95
28	359°09'15"	C12.945	A13.385	R14.95
29	344°04'05"	C6.91	A6.945	R20
30	181°37'10"	C5.295	A5.31	R20
31	55°10'30"	5.56		
32	325°10'30"	5.75		
33	201°17'15"	C8.365	A8.425	R20
34	218°58'20"	C3.915	A3.92	R20
35	193°07'45"	C15.605	A16.415	R14.95
36	154°40'20"	C3.645	A3.65	R14.95
37	115°42'35"	C15.83	A16.68	R14.95
38	61°07'50"	C11.5	A11.805	R14.95
39	31°15'45"	C3.775	A3.785	R14.95
40	178°37'40"	C12.82	A13.25	R14.95
41	162°13'10"	C5.505	A5.52	R20
42	359°40'25"	C6.635	A6.665	R20
43	55°10'25"	5.56		
44	265°29'30"	4.36		
45	308°52'20"	8		
46	252°08'35"	C15.225	A15.23	R160
47	301°27'10"	5.035		
48	10°53'55"	C38.51	A38.99	R71.5
49	278°36'	C14.73	A14.735	R167
50	273°32'20"	C14.73	A14.735	R167
51	281°44'45"	C23.455	A23.595	R63
52	292°28'30"	5.08		
53	176°50'10"	3.845		
54	237°23'10"	C11.555	A11.615	R32.5
55	227°08'45"	4.695		
56	254°08'10"	C14.975	A15.545	R16.5

(A) PROPOSED EASEMENT FOR DRAINAGE OF SEWAGE 4 WIDE, 5 WIDE AND VARIABLE WIDTH (DP269213)

(C) EASEMENT FOR ASSET PROTECTION ZONE 40 WIDE AND VARIABLE WIDTH

(E) EASEMENT FOR WATERMAIN 3 WIDE (DP703278)
(F) RIGHT OF CARRIAGEWAY 4 WIDE AND VARIABLE WIDTH (DP703278)
(G) RIGHT OF CARRIAGEWAY 6 WIDE AND VARIABLE WIDTH (DP703278)
(H) EASEMENT FOR UNDERGROUND POWER CABLES 1 WIDE (DP703278)
(J) EASEMENT FOR DRAINAGE OF SEWAGE 4 WIDE, 5 WIDE AND VARIABLE WIDTH (DP269213)
(K) RIGHT OF CARRIAGEWAY 6 WIDE (DP1228517)
(L) EASEMENT TO DRAIN WATER 1.5 WIDE (DP1228517)
(M) EASEMENT FOR SERVICES 2 WIDE (DP1228517)
(N) EASEMENT TO DRAIN WATER 1.5 WIDE (DP1228517)

SURVEYOR Name: REBECCA LYN JONES Date: Reference: AB1041_ST2_DP	PLAN OF SUBDIVISION OF LOT 425 IN DP1262858, LOT 848 IN DP703278, LOT 1094 IN DP807086, LOT 8884 IN DP786883, LOT 1538 IN DP832922 AND LOT 206 IN DP1228517	LGA: MAITLAND Locality: THORNTON Reduction Ratio: 1:800 Lengths are in metres	REGISTERED	