



Development Consent No:
DA2022/1099

Approval Date:
20 March 2024

Officer Name:
Craig Wilkinson

peterson bushfire

expert consulting services

Bushfire Assessment

Residential subdivision

**23 Boomerang Drive,
Blueys Beach**

Addenbrooke Pty Ltd

12 October 2023

(Ref: 21140)

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FPA AUSTRALIA (NO.BPAD18882)
BPAD LEVEL 3 ACCREDITED PRACTITIONER

ABN 28 607 444 833

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1 Introduction

		
Development Consent No: DA2023/1069		
Street or property name:	23 Boomerang Drive	
Suburb, town or locality:	Blueys Beach	Postcode: 2428
Lot/DP no:	Lot 23 DP 537919	
Local Government Area: Mid-Coast Council		
Type of development:	Subdivision creating low density residential lots	

1.1 Background

Addenbrooke Pty Ltd commissioned Peterson Bushfire to prepare a Bushfire Assessment Report for a proposed residential subdivision located on bushfire prone land at Blueys Beach, NSW. This report presents the assessment and recommendations to ensure compliance with the relevant bushfire protection legislation and policy.

This bushfire assessment has been prepared by a consultant accredited by the Fire Protection Association of Australia's BPAD scheme (Accreditation No. BPD-L3-18882).

1.2 Location and description of the subject land

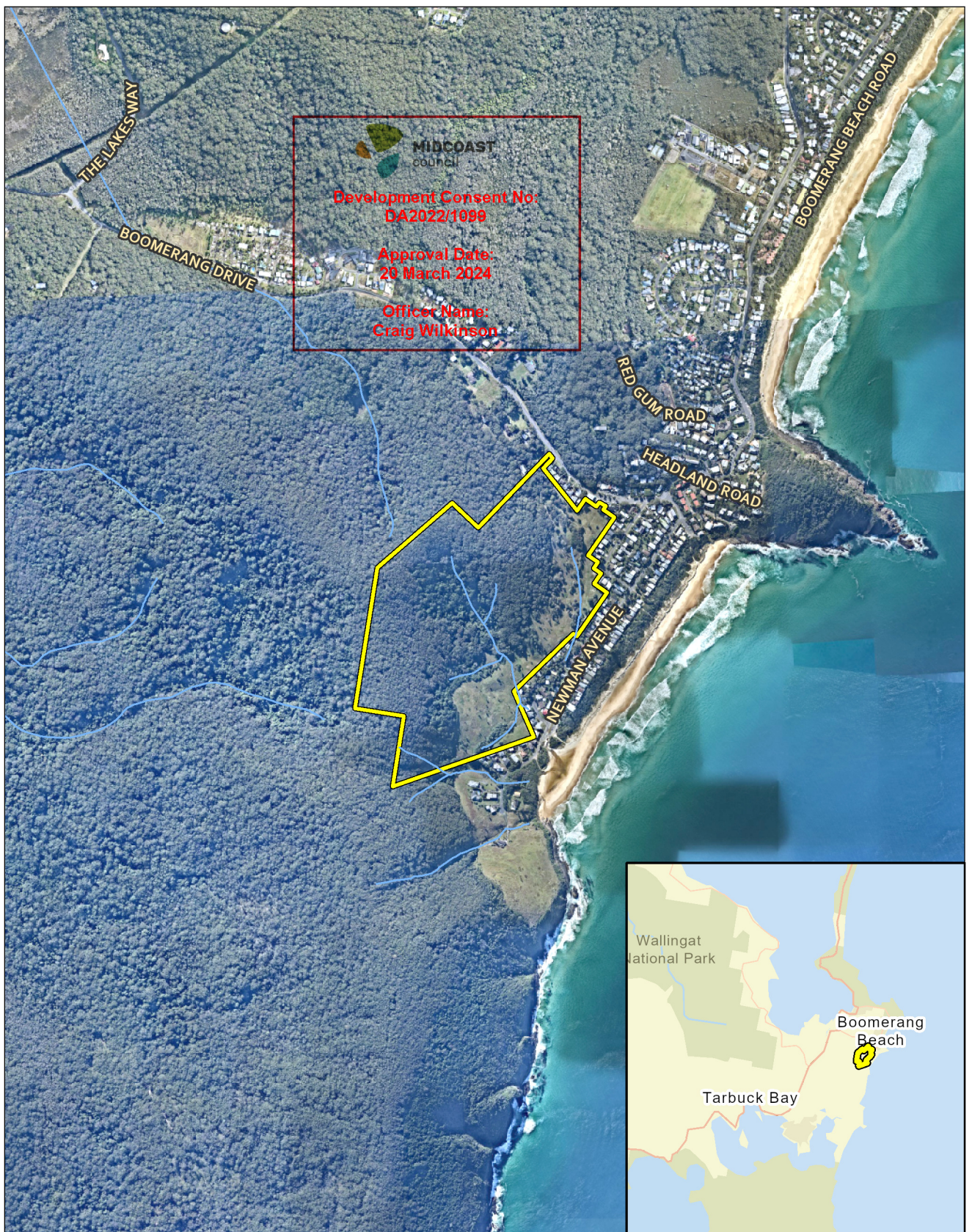
The subject land is a large lot approximately 35 hectares in area and is located to the rear of the existing residential area on Blueys Beach. The location of the subject land is shown on Figure 1.

The western two-thirds of the subject land supports in-tact bushland in the form of forest and rainforest on the steep slopes that rise up and form the backdrop to Blueys Beach. The eastern third is regularly mown land and sits to the rear of existing residential properties along Newman Avenue and associated streets. The managed land is zoned C4 Environmental Living, R2 Low Density Residential and B1 Neighbourhood Centre.

1.3 Development proposal

The proposal consists of the subdivision of the land zoned R2 Low Density Residential and B1 Neighbourhood Centre to create lots, public roads and supporting uses such as open space and stormwater treatment assets. Figure 2 shows the proposed subdivision layout.

A portion of the subdivision will be community title and this will include the C4 zone for which a portion will be maintained as an Asset Protection Zone (APZ) for the direct benefit of the community title residential lots. Figure 3 shows the proposed community title plan.



Legend

-  Watercourse
-  Subject Land

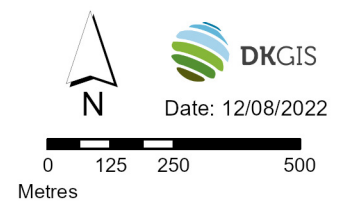
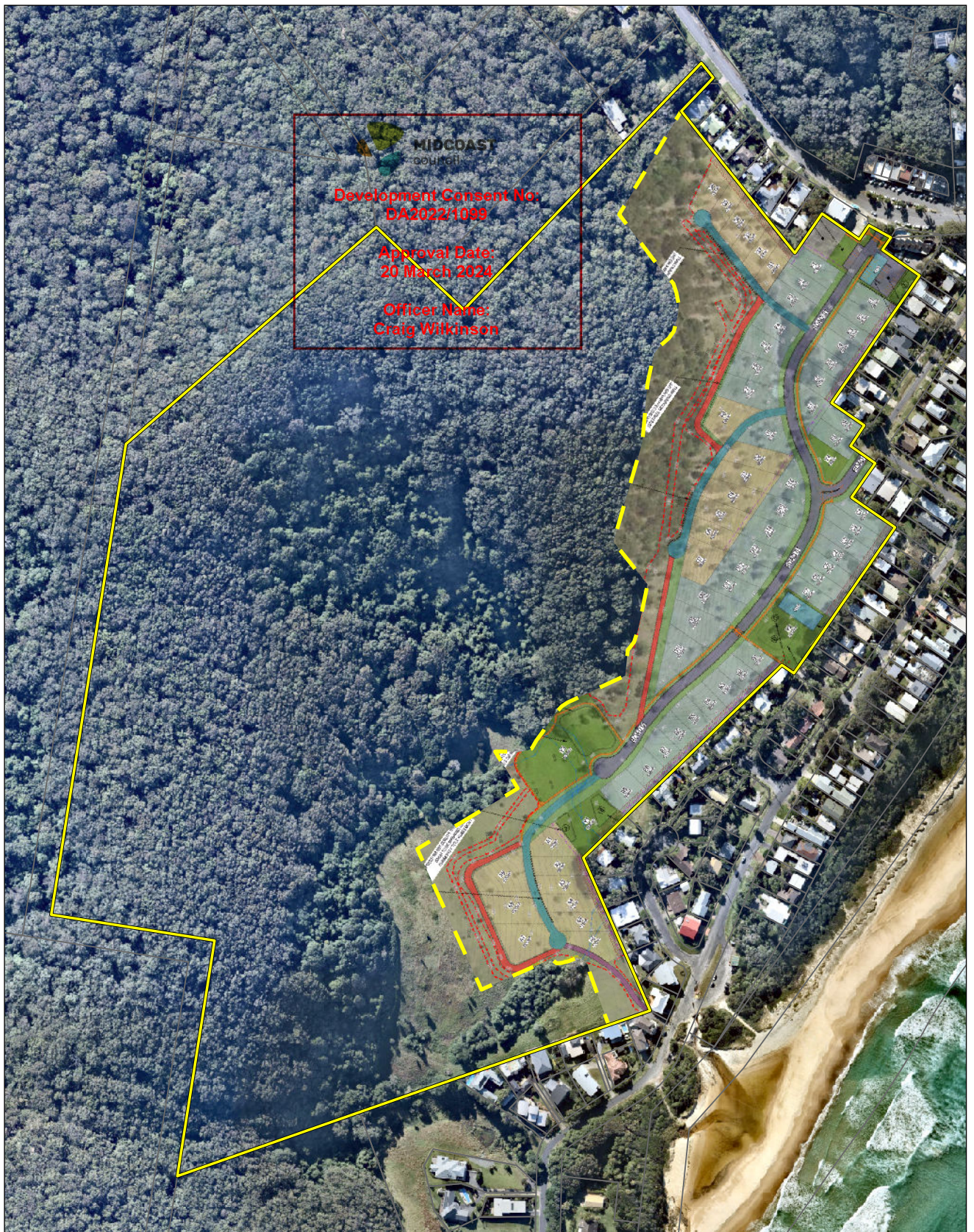


Figure 1: Location of the Subject Land

Coordinate System: GDA 1994 MGA Zone 56

Imagery: © Nearmap



Legend

- Subject Land
- Cadastre
- Development Area



Date: 10/10/2023

0 50 100 200
Metres

Figure 2: The Proposal

Coordinate System: GDA 1994 MGA Zone 56

Imagery: © Nearmap

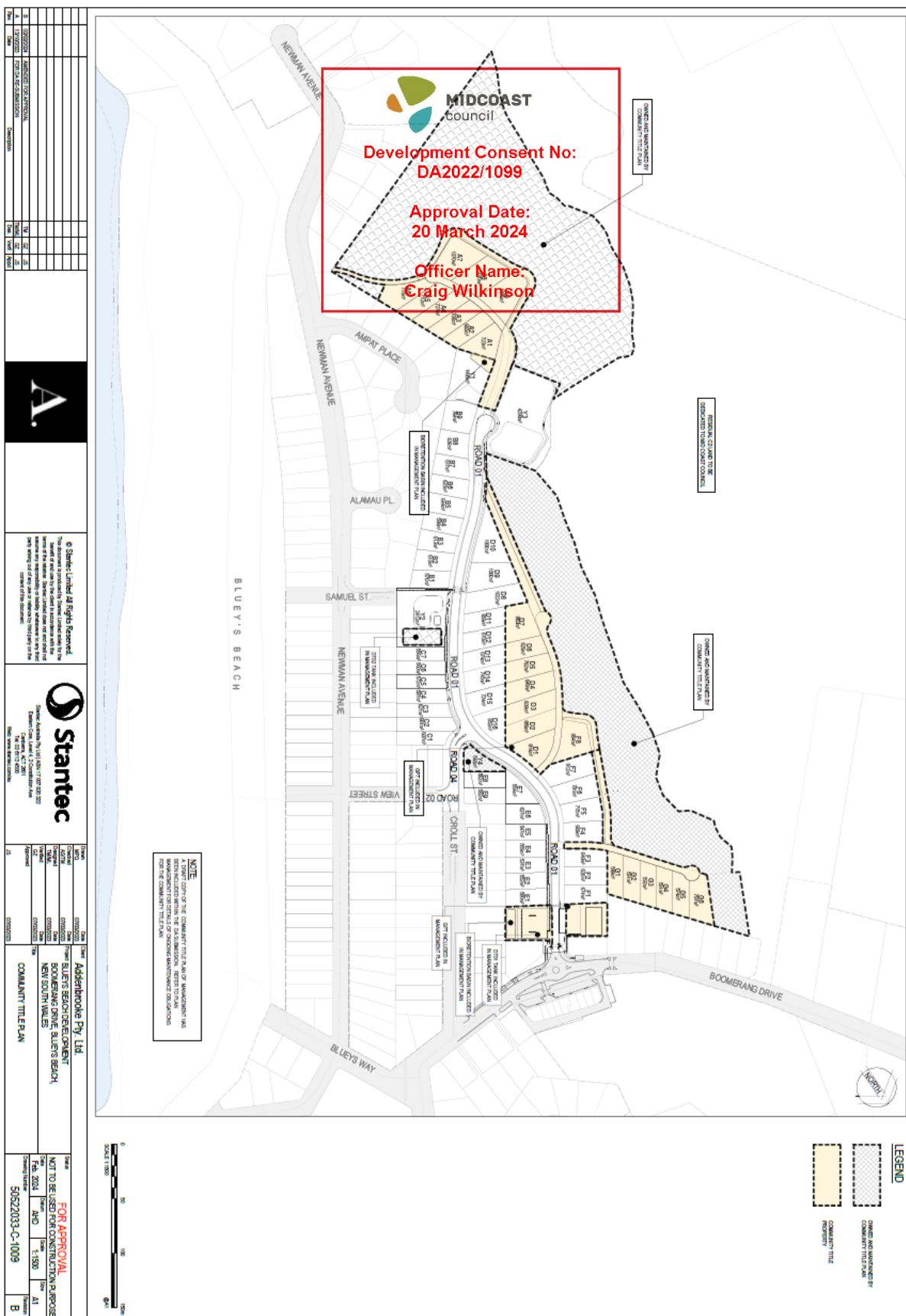


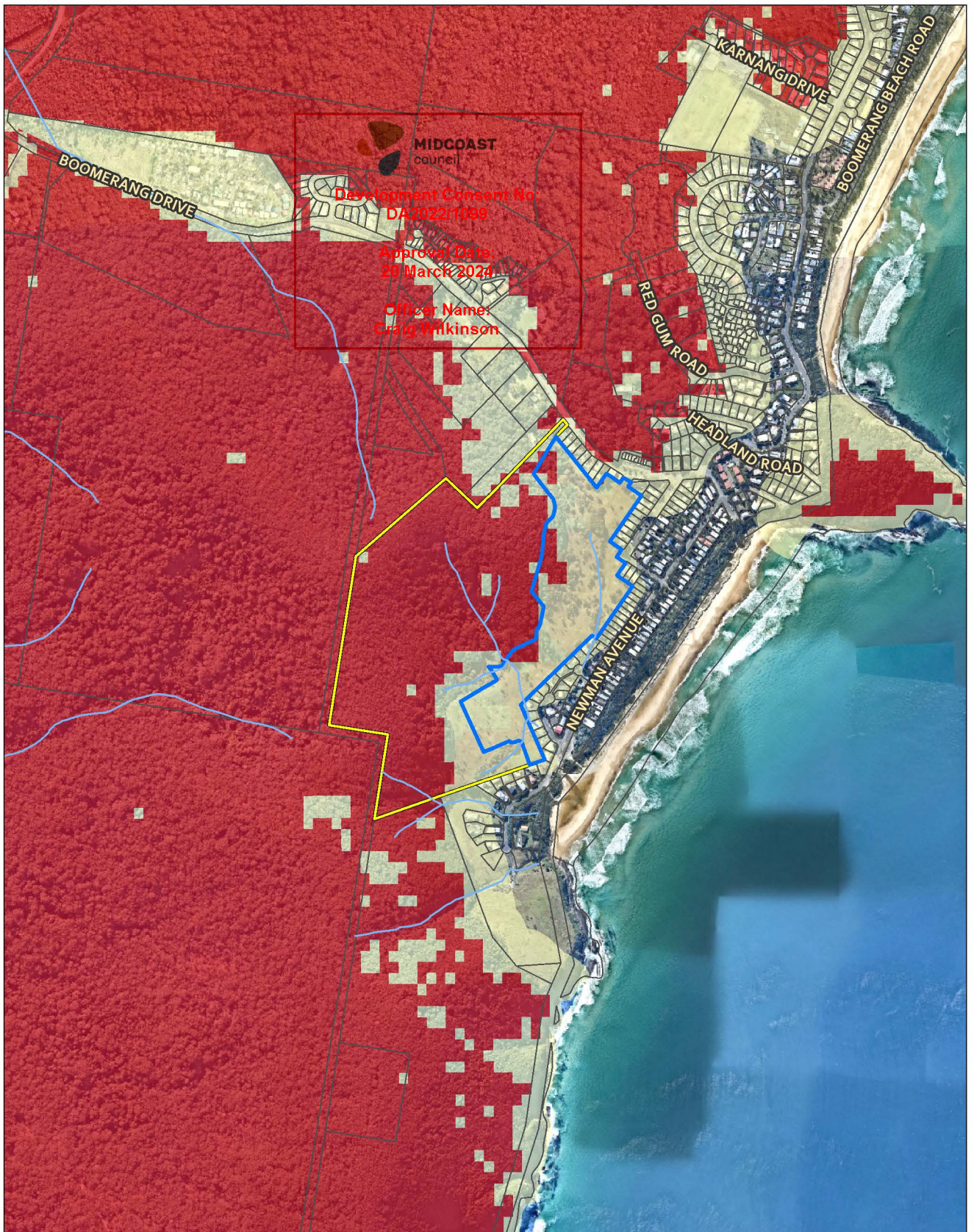
Figure 3: Proposed community title plan

1.4 Assessment requirements

The subject land is identified as 'bush fire prone land' as shown on Figure 4. Section 4.46 of the *Environmental Planning and Assessment Act 1979* requires a bushfire assessment of residential subdivision proposals on bush fire prone land following the process and methodology set out within Section 100B of the *Rural Fires Act 1997*, Clause 45 of the *Rural Fires Regulation 2022* and the NSW Rural Fire Service (RFS) document *Planning for Bush Fire Protection 2019* (referred to as 'PBP' throughout this report).

Chapter 5 of PBP outlines the planning requirements for residential development on bushfire prone land. The requirements are divided into a suite of bushfire protection measures such as Asset Protection Zones (APZ), Bushfire Attack Levels (BAL), access and road standards for emergency response and evacuation, water supply standards for fire-fighting, and vegetation management and landscaping standards.

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Legend

-  Watercourse
-  Development Area
-  Subject Land
-  Cadastre

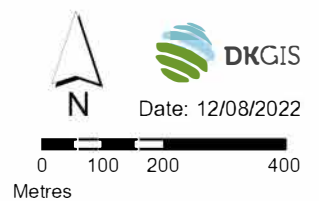


Figure 4: Bushfire Prone Land

Coordinate System: GDA 1994 MGA Zone 56

Imagery: © Nearmap

2 Bushfire hazard



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An assessment of the bushfire hazard is necessary to determine the application of bushfire protection measures such as Asset Protection Zone (APZ) location and dimension. The following sub-sections provide a detailed account of the vegetation communities (bushfire fuels) and the topography (effective slope) that combine to create the bushfire hazard that may affect bushfire behaviour at the site.

2.1 Predominant vegetation

The 'predominant vegetation' influencing fire behaviour approaching the site has been assessed in accordance with the methodology specified within PBP. The bushfire hazards are described below and mapped on Figure 5.

There are two vegetation communities that adjoin the subdivision as mapped on Figure 5. The hazard at the northern end of the subject land is Northern Hinterland Wet Sclerophyll Forest and the hazard at the southern end is Littoral Rainforest. These communities are classified as 'forest' and 'rainforest' respectively for the determination of APZ.

2.2 Effective slope

The 'effective slope' influencing fire behaviour has been assessed in accordance with the methodology specified within PBP. This is conducted by measuring the slope that would most influence fire behaviour where the vegetation occurs over a 100 metre transect measured outwards from the proposed lots. The slope was determined using 2 m contours. The slopes are indicated on Figure 5 and are listed in Table 2.

The effective slope for the northern end of the subdivision is in the PBP slope class of 'upslope/flat' and is characterised by the steep upslopes leading westwards. The slope class changes near the spur within the central portion of the hazard interface where exposure to steep downslopes occur in the slope class of 'downslope 10-15 degrees'. Steep upslopes are present within the narrow rainforest corridor at the southern end of the subject land.



Legend

- Contour - 10m
- Watercourse
- Development Area
- Subject Land
- Cadastre

Ecological Constraints

- 2506 Rhodamnia
- EXCLUSION ZONE 2506 Rhodamnia
- PCT 1525

Vegetation Formation

- Forest
- Rainforest



Date: 10/10/2023

0 25 50 100

Metres

Figure 5: Bushfire Hazard Analysis

Coordinate System: GDA 1994 MGA Zone 56

Imagery: © Nearmap

3 Bushfire protection measures

PBP requires the assessment of a suite of bushfire protection measures that in total provide an adequate level of protection for residential development. The measures required to be assessed are listed in Table 1 below and are discussed in detail in the remainder of this section.

Table 1: PBP bushfire protection measures

Measures	Considerations
Asset Protection Zones (APZ)	Location and dimension of APZ building setbacks from vegetation including prescriptions of vegetation management within the APZ.
Access	Assessment to include access and egress, perimeter access and design standards of public roads.
Water supply and other utilities	List requirements for reticulated water supply and hydrant provisions, and any static water supplies for fire-fighting.

3.1 Asset Protection Zones (APZ)

Using the vegetation and slope information presented in Section 2, Asset Protection Zones (APZ) suitable for residential development have been calculated in accordance with PBP Table A1.12.3 (FDI-80). The APZ determination is listed in Table 2 below and the resulting APZs are mapped on Figure 6.

The APZs listed are the minimum requirement where the hazard comes within close proximity of the proposed lots. A portion of the C4 zoned land south of Interface C will continue to be managed by slashing to provide the benefit of a wider APZ that will exceed the requirements.

The APZ will be managed under community title and split across Community Title Segment A1, and within Community Title Segments D and G where the APZ falls on the perimeter access roads and within the building setbacks within lots (refer to Figure 7).

Table 2: APZ determination

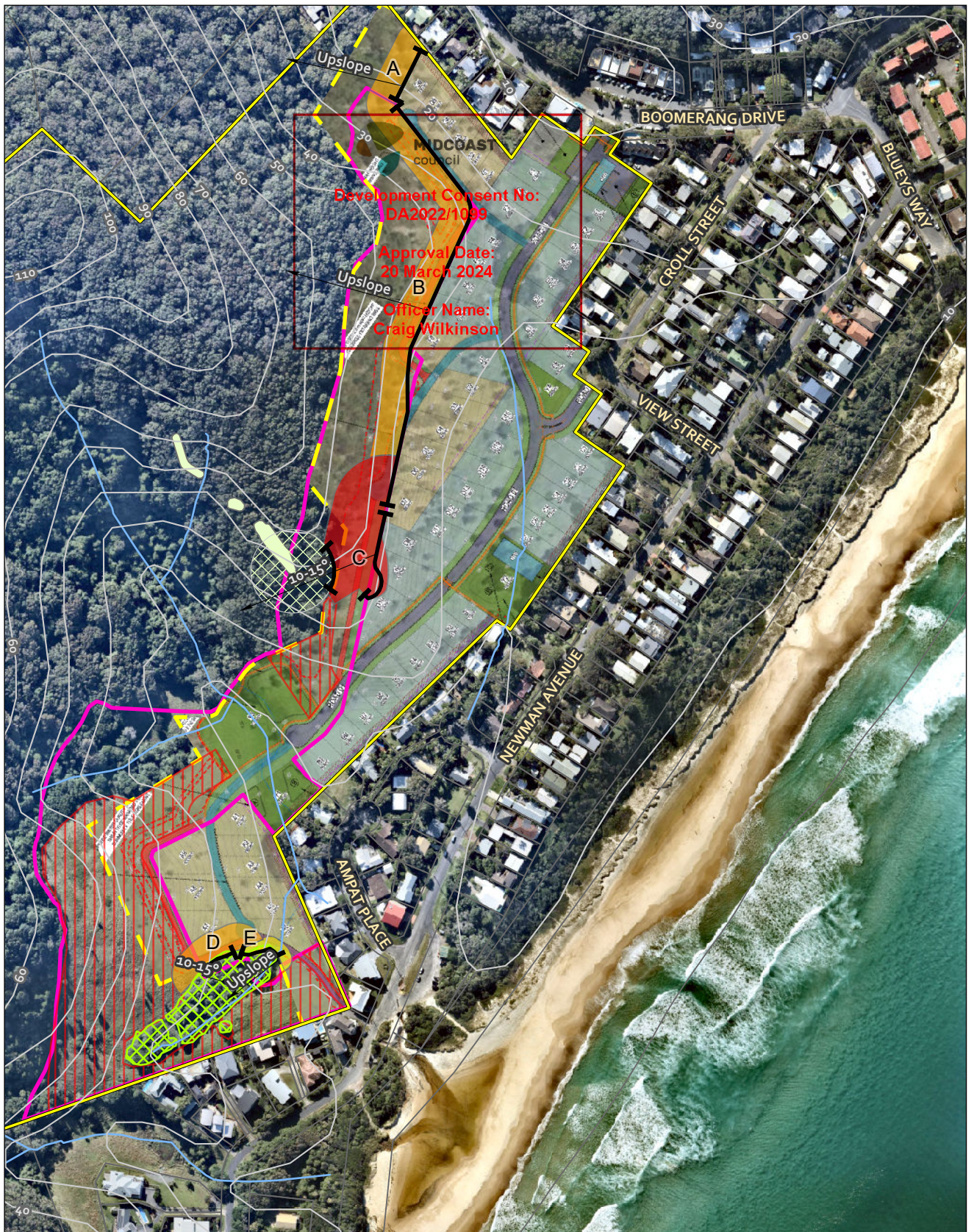
Interface ¹	Vegetation ²	Slope ³	APZ ⁴	Comment
A	Forest	Upslope/Flat	20 m	Forest in C2 zone
B	Forest	Upslope/Flat	20 m	Forest in C4 zone
C	Forest	Downslope 10-15°	39 m	Forest in C4 zone
D	Rainforest	Downslope 10-15°	20 m	Rainforest on steep slopes
E	Rainforest	Upslope/Flat	9 m	Rainforest

¹ Hazard interface as labelled on Figure 6.

² Predominant vegetation classification over 140 m from proposed lots.

³ Effective slope assessed over 100 m from proposed lots where the bushfire hazard occurs.

⁴ APZ required by Table A1.12.3 of Planning for Bush Fire Protection 2019.



Legend

- Contour - 10m
- Watercourse
- Development Area
- Subject Land
- Cadastral
- C2 / C4 Zone Boundary

Asset Protection Zone (APZ)

- Asset Protection Zone - 9m
- Asset Protection Zone - 20m
- Asset Protection Zone - 39m

C4 APZ

Ecological Constraints

- 2506 Rhodamnia
- EXCLUSION ZONE 2506 Rhodamnia
- PCT 1525



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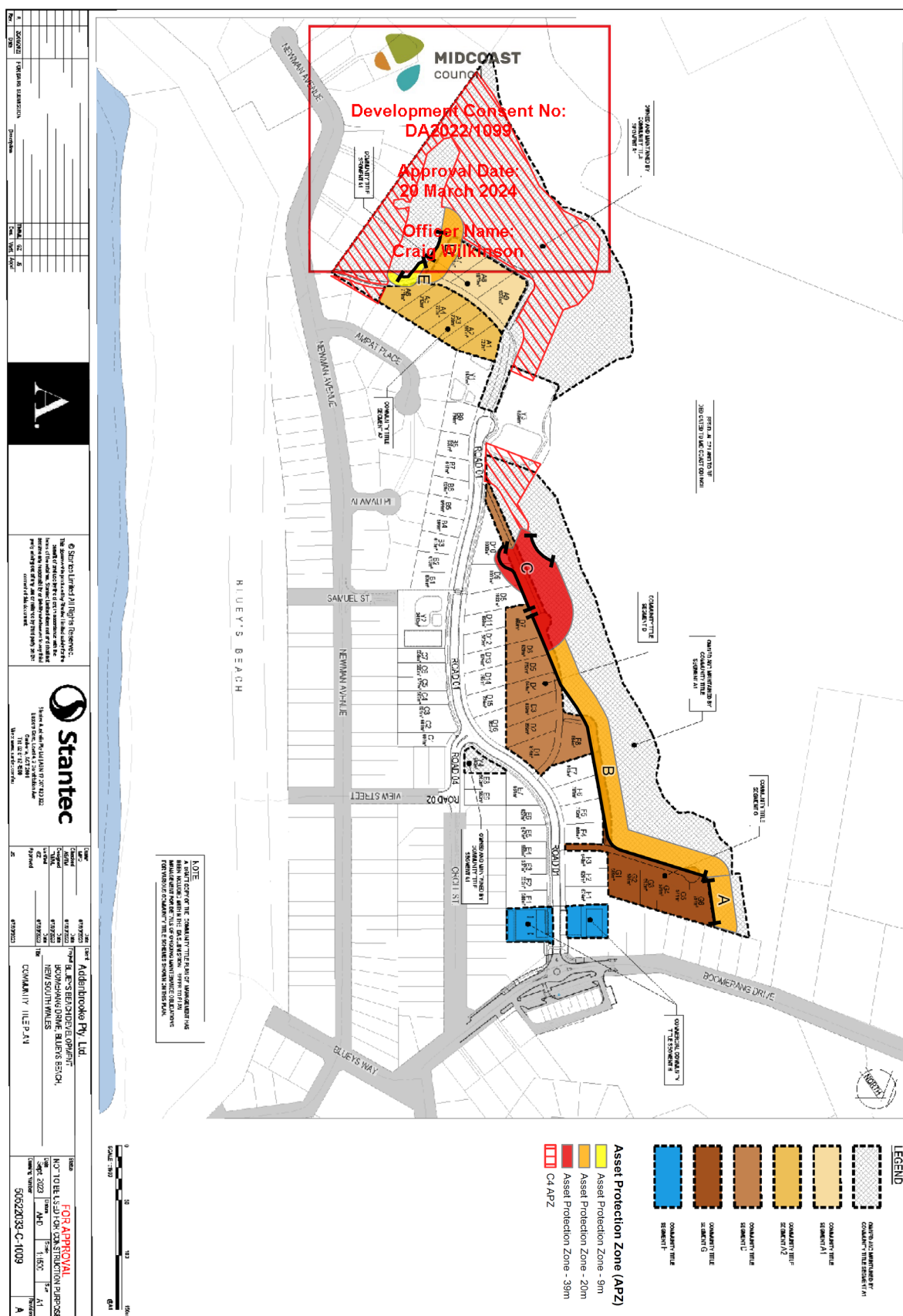
0 25 50 100

Metres

Figure 6: Asset Protection Zone (APZ)

Coordinate System: GDA 1994 MGA Zone 56

Imagery: © Nearmap



3.2 Vegetation and landscaping management

The APZs as mapped on Figures 6 and 7 as well as proposed lots, roads, parks, and stormwater treatment assets are to be managed satisfy the performance requirement of an Inner Protection Area (IPA) as described by Section A4.1.1. of PBP, as repeated below:

- Trees
 - Tree canopy cover should be less than 15% at maturity
 - Trees at maturity should not touch or overhang the building
 - Lower limbs should be removed up to a height of 2 m above the ground
 - Tree canopies should be separated by 2 to 5 m
 - Preference should be given to smooth barked and evergreen trees.
- Shrubs
 - Create large discontinuities or gaps in the vegetation to slow down or break the progress of fire towards buildings should be provided
 - Shrubs should not be located under trees
 - Shrubs should not form more than 10% ground cover
 - Clumps of shrubs should be separated from exposed windows and doors by a distance of at least twice the height of the vegetation
- Grass
 - Grass should be kept mown (as a guide grass should be kept no more than 100 mm in height)
 - Leaves and vegetation debris should be removed.

3.4 Access

3.4.1 Alternate access and egress for evacuation

PBP requires an access design that enables safe evacuation whilst facilitating adequate emergency and operational response. All bushfire prone areas should have an alternate access or egress option depending on the bushfire risk, the density of the development, and the chances of the road being cut by fire for a prolonged period.

The subdivision has a logical public road layout that will provide three access/egress points to the existing adjoining road network being Boomerang Drive and Croll Street to the north, and View Street to the east.

A fourth access point is an emergency accessway from the southern end of the road within Community Title Segment A1 to near the southern end of Newman Avenue. The accessway will

be a 4 m wide sealed road and will provide alternate access to the southern end of the subdivision via an existing access easement over No. 87 Newman Avenue. The accessway addresses the issue of providing a secondary access point for lots located beyond 200 m from the nearest intersection.

3.4.2 Perimeter access

Perimeter access to the APZs will be provided by a mixture of perimeter accessways and roads. There are three sections of interface where a perimeter accessway is proposed in lieu of a public road.

Following preliminary feedback from the council and the community, a major redesign of the development was completed to address concerns relating to compromised visual amenity resulting from earthworks and the extensive use of retaining walls across the site. Council identified that retaining walls within the perimeter road reserve were not permissible and would not be supported by council. Without the use of retaining walls along the western interface, a perimeter road could not be designed to comply with council's road design standards. As such, and at the request of the council, the interface has been redesigned to be protected using a combination of sealed perimeter accessways and community title accessways.

The perimeter accessways are shown in red, will be located within the middle of the APZ and will consist of a 4 m wide sealed pavement. In each case the length of interface (five lots, three lots and three lots) could also be reached by 70 m of hose from fire appliances standing on the road at each end of the accessway.

The perimeter accessway roads provide a level of bushfire protection equal to or better than a public road in the following ways:

1. The strategy of having an accessway as opposed to a public road effectively provides a dual road system for the lots involved. The lots front and have direct access to the public road situated away from the bushfire threat which can be used for evacuation and protection to fire-fighters, whilst the perimeter accessway is retained solely for fire-fighter use for property protection and fire management generally.
2. All three sections are relatively short and the number of lots directly interfacing with the accessway are five, three and three.
3. All three sections are short enough that they could be protected by fire tankers parked on the street and running hoses along the accessways.
4. The accessways are within APZs providing a wide maintained environment to operate in.
5. The accessways will be sealed to prevent maintenance issues synonymous with unsealed trails.

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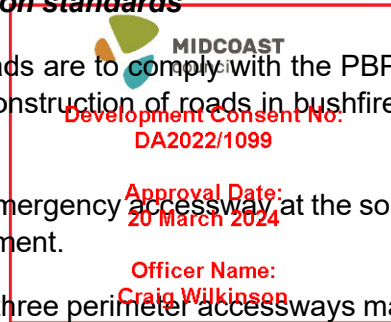
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3.4.3 Design and construction standards

The proposed subdivision roads are to comply with the PBP Acceptable Solutions (Table 5.3b of PBP) for the design and construction of roads in bushfire prone areas as listed below, with the following exceptions:

1. Point 6 whereby the emergency accessway at the southern end of Road 04 will fulfill the 'through road' requirement.
2. Point 14 whereby the three perimeter accessways may be 4 m wide as they will be used by fire authorities only.



PBP Acceptable Solutions for roads:

1. *Property access roads are two-wheel drive, all weather roads.*
2. *Perimeter roads are provided for residential subdivisions of three or more allotments.*
3. *Subdivisions of three or more allotments have more than one access in an out of the development.*
4. *Traffic management devices are constructed to not prohibit access by emergency service vehicles.*
5. *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.*
6. *All roads are through roads. Dead end roads are not recommended, but if unavoidable, dead ends 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.*
7. *Where kerb and guttering is provided on perimeter roads, roll top kerbing should be used to the hazard side of the road.*
8. *Where access/egress can only be achieved through forest, woodland or heath vegetation, secondary access shall be provided to an alternate point on the existing public road system.*
9. *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.*
10. *The capacity of perimeter and non-perimeter road surfaces and any bridges and causeways is sufficient to carry fully loaded firefighting vehicles (up to 23 tonnes); Bridges/causeways are to clearly indicate load rating.*
11. *Hydrants are located outside of parking reserves and road carriageways to ensure accessibility to reticulated water for fire suppression.*

12. Hydrants are provided in accordance with 'AS 2419.1:2005 – Fire hydrant installations: System design, installation and commissioning'

13. There is suitable access for a Category 1 fire appliance to within 4 m of the static water supply where no reticulated supply is available.

14. Perimeter roads are:

- a. two-way sealed roads;
- b. minimum 8 m carriageway width kerb to kerb;
- c. parking is provided outside of the carriageway width;
- d. hydrants are located clear of parking areas;
- e. there are through roads, and these are linked to the internal road system at an interval of no greater than 500 m;
- f. curves of roads have a minimum inner radius of 6 m;
- g. the maximum road grade is 15° and average grade of not more than 10°;
- h. the road crossfall does not exceed 3°;
- i. a minimum vertical clearance of 4 m to any overhanging obstruction, including tree branches, is provided.

15. Non-perimeter roads are:

- a. minimum 5.5 m carriageway width kerb to kerb;
- b. parking is provided outside of the carriageway width;
- c. hydrants are located clear of parking areas;
- d. there are through roads, and these are linked to the internal road system at an interval of no greater than 500 m;
- e. curves of roads have a minimum inner radius of 6 m;
- f. the road crossfall does not exceed 3°;
- g. a minimum vertical clearance of 4 m to any overhanging obstruction, including tree branches, is provided.



The emergency accessway and the three perimeter accessways are to be designed and constructed to comply with the relevant Acceptable Solutions for the standard of 'property access' (Table 5.3b of PBP). These requirements are listed below.

1. Roads are two-wheel drive, all-weather roads
2. Minimum 4 m carriageway
3. A minimum vertical clearance of 4m to any overhanging obstructions
4. Curves have a minimum inner radius of 6m and are minimal in number to allow for rapid access and egress
5. The minimum distance between inner and outer curves is 6m
6. The crossfall is not more than 10°
7. Maximum grades for sealed roads do not exceed 15° and not more than 10° for unsealed roads

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4m to any
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3.5 Water supply and utilities

3.5.1 Water supply

The roads will require fire hydrants to be installed to comply with *AS 2419.1 – 2021 Fire Hydrant Installations - System Design, Installation and Commissioning* (AS 2419) so that all building envelopes are within 70 m of a hydrant by lay of the hose (or 90 m with a tanker parked in-line maximum 20 m from the hydrant).

3.5.2 Electrical supply

Electricity will be provided underground and therefore complies with PBP.

3.5.3 Gas supply

Any gas services are to be installed and maintained in accordance with *AS/NZS 1596-2014 The storage and handling of LP gas*.

4 Conclusion and recommendations

4.1 Summary

The proposal consists of a residential subdivision of land identified as bushfire prone located within Blueys Beach, NSW. The bushfire hazard consists of forest and rainforest situated primarily on upslopes west of the proposed lots.

Planning for Bush Fire Protection 2019 requires APZs ranging from 9 m to 39 m between the identified bushfire hazards and building envelopes within proposed lots. The proposed subdivision layout will provide the required APZs through perimeter roads and management of the adjoining C4 zoned land via community title.

An alternate solution is proposed regarding the provision of perimeter access in three sections of hazard interface. Lots will front a public road and will have a perimeter accessway to the rear within the APZ designated for use by fire-authorities.

4.2 Conclusion

This report presents an assessment of residential subdivision at 23 Boomerang Drive, Blueys Beach. The assessment demonstrates that the proposal, together with the recommendations (see below), complies with s100B *Rural Fires Act 1997*, Clause 45 of the *Rural Fires Regulation 2022* and *Planning for Bush Fire Protection 2019*.

4.3 Recommendations

The recommendations made within this assessment are repeated below:

1. APZs labelled A, B, C, D, E and C4 APZ are to be provided to the subdivision as identified on Figure 6.
2. The APZs are to be managed and maintained by the relevant Community Title Plan Segment as shown on Figure 7.
3. All identified APZs, proposed lots, roads, accessways, parks and stormwater treatment assets are to be maintained to satisfy the performance requirement of an Inner Protection Area as listed within Section A4.1.1 of *Planning for Bush Fire Protection 2019*.
4. The design and construction of subdivision roads is to comply with the Acceptable Solutions as listed within Table 5.3b of *Planning for Bush Fire Protection 2019* as amended at Section 3.4.3 of this report.
5. The design and construction of the emergency accessway and three perimeter accessways are to comply with the relevant Acceptable Solutions for the standard of 'property access' as listed within Table 5.3b of *Planning for Bush Fire Protection 2019* as amended at Section 3.4.3 of this report.

6. The subdivision roads will require fire hydrants to be installed to comply with AS 2419.1 – 2005 Fire Hydrant Installations - System Design, Installation and Commissioning (AS 2419).

7. Any gas services are to be installed and maintained in accordance with AS/NZS 1596-2014 The storage and handling of LP gas.

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David Peterson



References



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NSW Rural Fire Service (RFS). 2019. *Planning for Bush Fire Protection: A Guide for Councils, Planners, Fire Authorities and Developers*. State of New South Wales through the NSW Rural Fire Service.

Standards Australia. 2014. *The storage and handling of LP Gas*, AS/NZS 1596-2014, Standards Australia International Ltd, Sydney.

Standards Australia. 2021. *Fire hydrant installations - System design, installation and commissioning*, AS2419.1, Standards Australia International Ltd, Sydney.



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