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Bush Fire Risk Assessment

Proposed Rural Subdivision
Kookaburra Lane Bowraville

Prepared for Ron and Dale Hawkins, and Edward Orrego

Project No. BA200324

BPAD Bushfire Planning & Design Accredited Practitioner Level 3

Report Title	Bush Fire Risk Assessment
Project	Proposed Rural Subdivision
Property	44 Kookaburra Lane Bowraville
Client	Ron and Dale Hawkins, and Edward Orrego
Report Number	BA200324
Draft/Final	Final – 6 May 2024

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Prepared by:	Steve Britt *Bachelor of Science (Botany)* *Graduate Dip. In Design for Bush fire Prone Areas* *Master of Wildlife Management. (Habitat)*
Signed:	
Date:	6 May 2024

Cover photo: View looking south across the subject site from the dwelling footprint on the west lot

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1. Executive Summary

This bush fire risk assessment relates to a proposed subdivision of land, identified as Lot 2 in DP 609465, 44 Kookaburra Lane Bowraville. The details relevant to the assessment are:

Real Property Description	Lot 2 DP 609465
Property Address	44 Kookaburra Lane Bowraville
Date of Assessment	3 April 2024
Fire Danger Index	80 (North Coast – Nambucca Valley Local Government Area)
Zoning	RU1 – Primary Production and RU2 – Rural Landscape
Local EPI	Nambucca Local Environmental Plan 2010
Proposed Development	Rural Subdivision
Existing Building	Yes (two existing dwelling and associated structures)
Assessment based on plans by	Ron Hawkins and Associates; Amos and McDonald Surveyors
Plan Date/Reference Number	22 June 2015
Any amendments to plan?	None indicated
What is the highest assessed BAL as per AS 3959-2009?	BAL-19
Can this development comply with the acceptable solution provisions of PBP?	Yes
Assessment by	Steve Britt Accredited BPAD Practitioner Accreditation No: BPAD9334

This is to certify that bush fire risks can be satisfactorily managed for the proposed development of the land, subject to recommendations 1-6.

2. Introduction

2.1 Background

FloraFauna Consulting has been engaged by Ron and Dale Hawkins, and Edward Orrego to prepare a bushfire risk assessment report in relation to a proposed subdivision of land at 44 Kookaburra Lane Bowraville. The subject site comprises land identified as Lot 2 DP 609465, which is currently zoned RU1 – Primary Production and RU2 – Rural landscape under the *Nambucca Local Environmental Plan 2010* (LEP). The proposed development involves a rural subdivision development within the subject site comprising two allotments. The proposed east allotment will have an area of 22.2 hectares and the proposed west allotment will have an area of 18.8 hectares, as detailed on the plan of subdivision prepared by Amos and McDonald, which is appended to this report as Appendix A. This report has been prepared to inform the potential bush fire risk and propose measures to mitigate the risk for the proposed development. The report will form part of the development application (DA) documentation for consideration by Nambucca Valley Council as the consent authority and supports an application for a Bush Fire Safety Authority (BFSA) from the NSW Rural Fire Service (RFS).

2.2 Legislative Context

Development on land that has been determined as bush fire prone must meet specific requirements under NSW legislation. The *Environmental Planning and Assessment Act 1979* (EP&A Act) establishes a system for requiring bush fire protection measures for development proposed on bush fire prone land at the DA stage. The subdivision of bush fire prone land is deemed to be integrated development under section 4.46 of the EP&A Act and requires development consent and authorisation under section 100B of the *Rural Fires Act 1997* (RF Act).

Section 100B of the RF Act prescribes that a person must obtain a Bush Fire Safety Authority (BFSA) before developing land for the purposes of a subdivision of bush fire prone land that could lawfully be used for residential or rural residential purposes, or development of bush fire prone land for a special fire purpose. A BFSA authorises such development to the extent that it complies with standards regarding setbacks, provision of water supply and other matters considered by the RFS Commissioner to be necessary to protect persons, property or the environment from danger that may arise from a bush fire. An application for a BFSA must consider the matters detailed under clause 45 of the *Rural Fires Regulation 2013* (RF Regulation).

2.3 The Locality

The subject site is situated at Bowraville in the Nambucca Valley on Mid North Coast Hinterland of NSW. The small town of Bowraville is the local population centre, however the larger towns of Nambucca Heads situated to the east and Macksville situated to the south are the principal service centres, including for agriculture, which is the main land use. The Nambucca River and its associated floodplain, on which much of the agricultural activities are focused is the most significant natural feature of the locality. The locality map at Figure 1 shows the relative position of the subject site within the landscape.

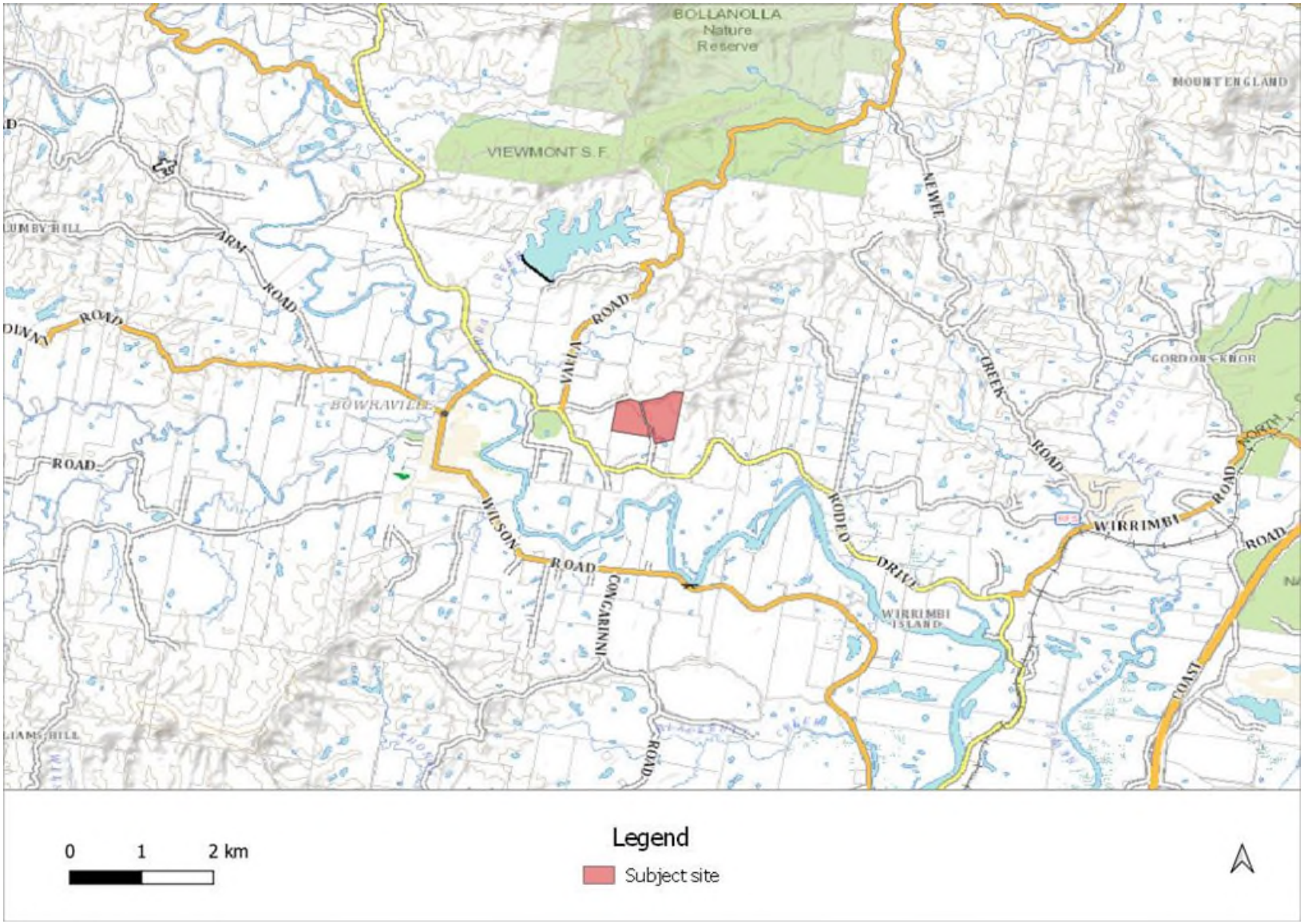

Figure 1: Locality map

2.4 Subject Site

The subject site is identified as Lot 2 in DP 609465, 44 Kookaburra Lane Bowraville. The site comprises land with an area of approximately 40.47 hectares, which is zoned RU1 – Primary Production and RU2 – Rural landscape under the *Nambucca Local Environmental Plan 2010*. The site is situated at Bowraville, approximately 2.5 kilometres to the east of the Bowraville CBD. To the north, the site adjoins Balance Tank Road, from which only a rudimentary access is available to the site. To the east, south and west the site adjoins large expanses of rural land, containing a mix of cleared land that is used mostly for cattle grazing and areas containing native forest. Access to the site is from Rodeo Drive to the south via Kookaburra Lane, which extends to the southern boundary. Aerial imagery showing the relative position of the subject site within the landscape is provided at Figure 2. The general conditions within the subject site in proximity to the two existing dwellings and adjacent land are shown in Figures 3-14.

2.5 Proposed Development

The proposal involves the subdivision of the existing allotment, which contains two separate dwellings with associated outbuildings and infrastructure into two allotments that will provide separate titles for the each of the existing dwellings. Currently, both dwellings and their associated structures are situated on the one land title (i.e. Lot 2 DP 609465).

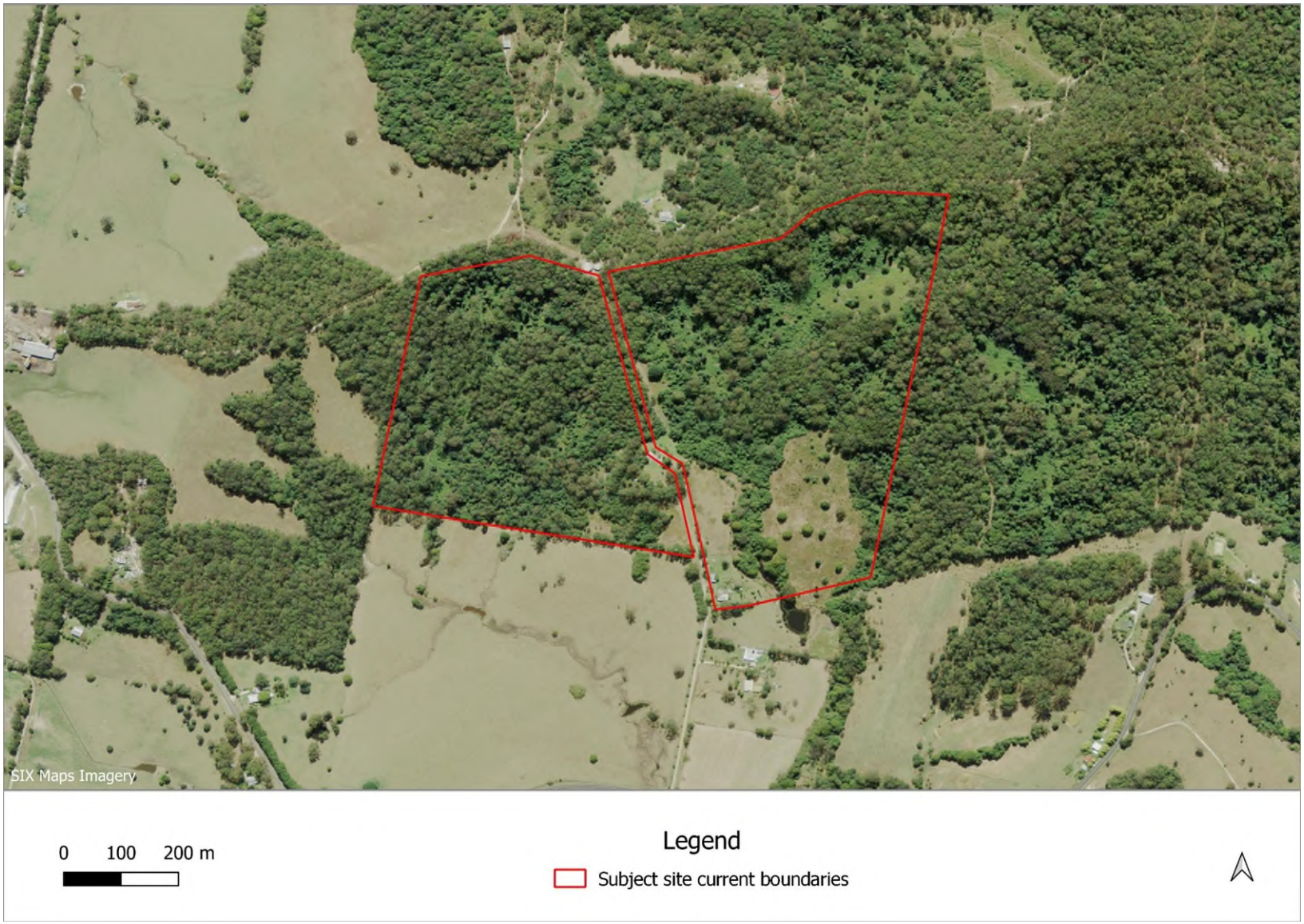

Figure 2: Aerial imagery of the subject site and surrounding landscape

Figure 3: Kookaburra Lane looking north from the corner of Rodeo Drive

Figure 4: Existing dwelling on the proposed East Lot

Figure 5: View looking north from the East Lot building envelope

Figure 6: View looking east from the East Lot building envelope

Figure 7: View looking south from the East Lot building envelope

Figure 8: View looking west from the East Lot building envelope

Figure 9: Existing dwelling on the proposed West Lot

Figure 10: View of the existing site access to the West Lot building envelope

Figure 11: View looking north from the West Lot building envelope

Figure 12: View looking east from the West Lot building envelope

Figure 13: View looking south from the West Lot building envelope

Figure 14: View looking west from the West Lot building envelope

3. Rural Fires Regulation Assessment

Clause 45 of the RF Regulation contains the matters that must be included in an application for a BFSA. The following assessment addresses the relevant points for consideration as listed in the Regulation.

Application for Bush Fire Authority

a) a description (including the address) of the property on which the development the subject of the application is proposed to be carried out,

The subject site is identified Lot 2 in DP 609465, 44 Kookaburra Lane Bowraville. The site comprises land with an area of approximately 40.47 hectares, which is zoned RU1 – Primary Production and RU2 – Rural Landscape under the LEP. The site is situated at Bowraville, approximately 2.5 kilometres to the east of the Bowraville CBD. To the north, the site adjoins Balance Tank Road, from which only a rudimentary, non-compliant access is available to the site. To the east, south and west the site adjoins large expanses of rural land, containing a mix of cleared land that is used mostly for cattle grazing and areas containing native forest. Access to the site is from Rodeo Drive to the south via Kookaburra Lane, which extends to the West Lot building envelope.

Two building envelopes incorporating the existing dwellings, their immediate associated outbuildings and infrastructure, and asset protection zone (APZ) are proposed. These building envelopes make use of pre-existing cleared and managed land around each dwelling. The relative positions of the building envelopes within the proposed allotments is indicated in Figure 15.

b) a classification of the vegetation on and surrounding the property (out to a distance of 140 metres from the boundaries of the property) in accordance with the system for classification of vegetation contained in Planning for Bush Fire Protection,

The aerial imagery and site the assessment indicates unmanaged vegetation occurs on the land within the subject site and on the adjacent land. Most of the land in proximity to the existing dwellings is managed and the adjacent land southward from the dwelling on the West Lot, including around the dwelling on the East Lot, comprises derived grassland. Except for a narrow vegetated gully, the grassland also extends across most of the southern part of the East Lot. This derived grassland also extends for a considerable distance further to the south on the adjoining land.

The State Vegetation Type Map (SVTM) was reviewed to inform the vegetation assessment. The SVTM is a regional-scale map of NSW Plant Community Types (PCTs). This map represents the current extent of each PCT, Vegetation Class and Vegetation Formation across all tenures in NSW. The map is updated periodically as part of the Integrated BioNet Vegetation Data program to improve quality and alignment to the NSW vegetation classification hierarchy. The current release is version C2.0.M2.0, which was released in December 2023. The SVTM provides state-wide vegetation coverage using the NSW vegetation classification hierarchy, including the revised eastern NSW PCT classification C1.1. This mapping data may be used as a guide to the occurrence and distribution of PCTs,

Vegetation Classes, and Vegetation Formations, before and after clearing. The vegetation mapping indicates six PCTs are predicted occurrences within the subject site, including:

- PCT 3019: Northern Hinterland Baloghia-Booyong Subtropical Rainforest
- PCT 3021: Northern Lowland Subtropical Rainforest
- PCT 3174: Northern Turpentine-Brush Box Wet Forest
- PCT 3252: Northern Hinterland Grey Gum-Mahogany Grassy Forest
- PCT 3574: Northern Lowland Sandstones Dry Open Forest
- PCT 4004: Northern *Melaleuca quinquenervia* Swamp Forest

In relation to the building envelope on the East Lot, PCT 3019 is indicated in the gully to the east, which is consistent with the findings of the site assessment. PCT 3174 is indicated as the main area of vegetation to the north-northeast, which is not consistent with the findings of the site assessment as all the vegetation within the gully (i.e. nearest the building envelope) is regenerating rainforest that is likely associated with PCT 3019, which is a confirmed occurrence further down the gully (east of the building envelope). The occurrence of PCT 4004 along part of the margin of the gully, and the southwest corner of the East Lot and southeast corner of the West Lot is erroneous as no species associated with it were present and the landscape position is unlikely to be suitable. The area at the gully margin mapped as PCT 4004 is derived grassland (i.e. cleared). The vegetation in the southwest corner of the East Lot mapped as PCT 4004 comprises ornamental plantings of various species not associated with PCT 4004. The vegetation mapped as PCT 4004 in the southeast corner of the West Lot comprises ornamental plantings and one remnant eucalypt at the road margin and the remainder at the northern end being associated with the adjacent plant community; PCT 3252.

In relation to the building envelope on the West Lot, PCT 3252 is indicated across the surrounding land, which is not consistent with the findings of the site assessment. Inconsistencies include the cleared/managed areas of the building envelope has been included PCT 3252 and the gully to the east being indicated as PCT 3174, which was determined as being regenerating rainforest that currently occurs as a viny thicket. This vegetation is likely associated with PCT 3019, which is a confirmed occurrence further down the gully within the East Lot. Figure 16 shows the extent of the mapped vegetation in proximity to the subject site.

Figure 15: Proposed subdivision layout showing the position of the existing building envelopes

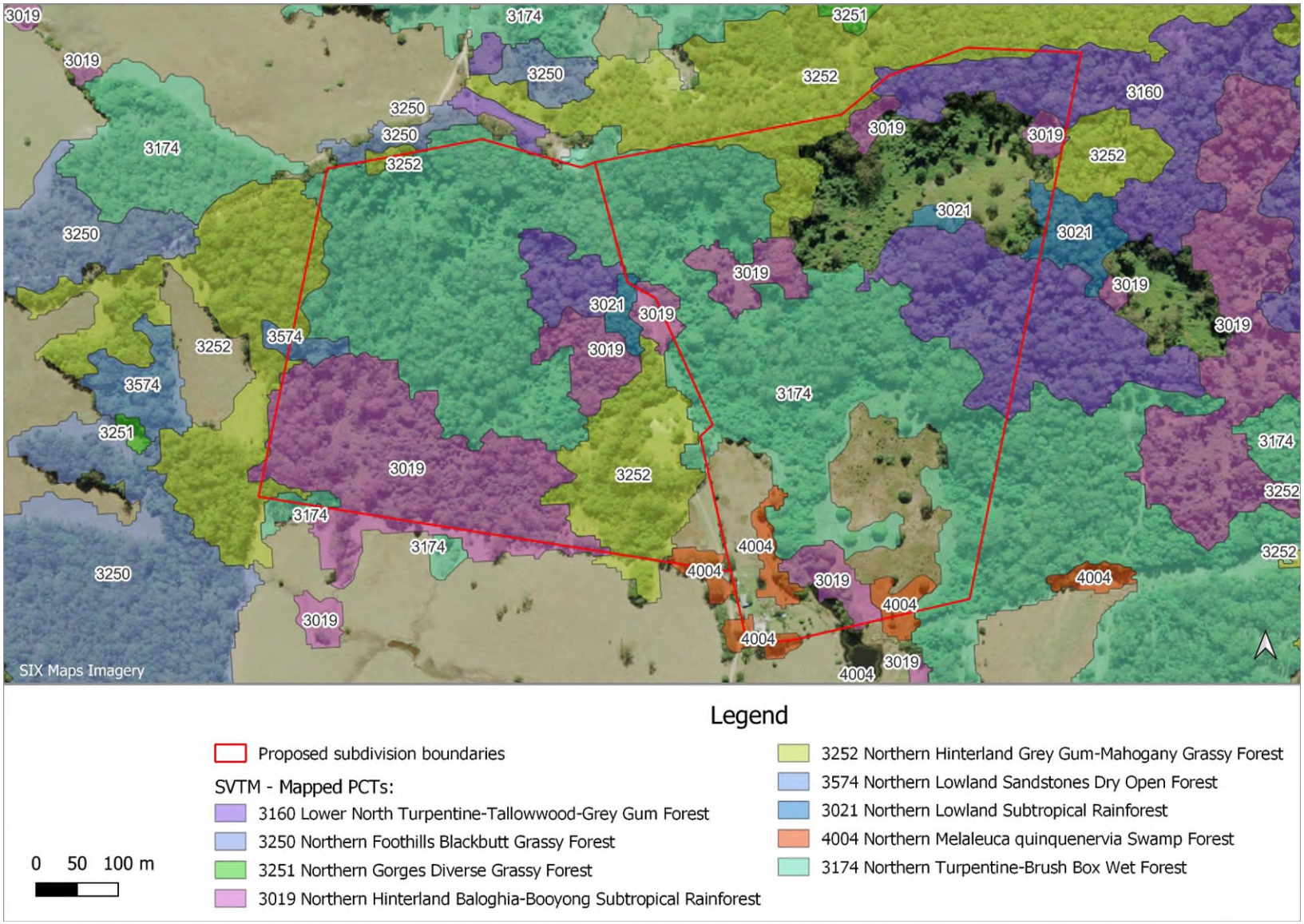

Figure 16: Extract of SVTM in proximity to the subject site

For the purposes of this bush fire assessment, the mapped plant communities and variations to this that were determined during the site assessment have been classified as per the methodology under Appendix 1 of PBP, including determination of the vegetation formation to a distance of 140 metres. Table 1 details the vegetation formation in each direction and separation distance from the existing dwelling or other associated structure where applicable (see notes) that is currently provided by a maintained APZ at each building envelope.

Table 1: Classified vegetation

Building Envelope	Direction	Classified Vegetation	Separation Distance (metres)
East Lot	North	Grassland	70
	Northeast	Rainforest	40
	East	Rainforest	60
	Southeast	Grassland	32
	South	Grassland	16
	Southwest	Grassland	35
	West	Grassland	29
	Northwest	Forest	76
West Lot	North	Forest	30
	Northeast	Rainforest	23
	East	Rainforest	41
	Southeast	Grassland	38
	South	Forest	45
	Southwest	Forest	50
	West	Forest	38
	Northwest	Forest	35

NOTE:

- To achieve the separation distances as indicated in Table 1 above for the existing dwelling on each of the proposed allotments, several ornamental plantings will need to be removed. These plantings are not associated with any of the adjacent native plant communities;
- The eastern distance for the East Lot is measured from the adjacent outbuilding to the edge of the creek bank where the managed APZ extends to;
- The southern and south-eastern distances for the East Lot are measured from the dwelling to the boundary;
- The western and south-western distances for the East Lot are measured from the dwelling to the western side boundary of the road reserve, which is managed;
- The northern distance for the West Lot can be increased significantly by the removal of a small number of exotic trees, including an individual of *Syagrus romanzoffiana* (Cocos Palm) and a number of individuals of *Cinnamomum camphora* (Camphor Laurel);
- The eastern distance for the West Lot is measured from adjacent carport structure to the current edge of the vegetation (regenerating rainforest); and
- The north-western, western and south-western distances for the West Lot can be increased significantly by the removal of a small number of ornamental of *Eucalyptus*

grandis (Flooded Gum), which are not associated with any of the adjacent native plant communities.

c) an assessment of the slope of the land on and surrounding the property (out to a distance of 100 metres from the boundaries of the property),

The effective slope was determined with respect to each of the existing building envelopes for a distance of 100 metres using a Suunto Tandem 360PC/360R clinometer and validated by Six Map topographic data produced by Spatial Services (NSW Government). The effective slope is summarised in the following table. Figure 17 shows the ten metre contours in proximity to the subject site.

Table 2: Summary of effective slopes applicable to the proposed building envelopes

Building Envelope	Direction	Measured Slope (degrees)	Slope Class (degrees)
	North	Upslope	Upslope/Flat
East Lot	Northeast	5 (cross-slope)	>0 to 5
	East	Upslope	Upslope/Flat
	Southeast	5 (cross-slope)	>0 to 5
	South	Flat	Upslope/Flat
	Southwest	5 (cross-slope)	>0 to 5
	West	7	>5 to 10
	Northwest	7	>5 to 10
West Lot	North	Upslope	Upslope/Flat
	Northeast	12	>10 to 15
	East	12	>10 to 15
	Southeast	7	>5 to 10
	South	5	>0 to 5
	Southwest	8	>5 to 10
	West	12	>10 to 15
	Northwest	5 (cross-slope)	>0 to 5

NOTE:

- Cross-slopes have been treated conservatively as 5 degree downslopes.

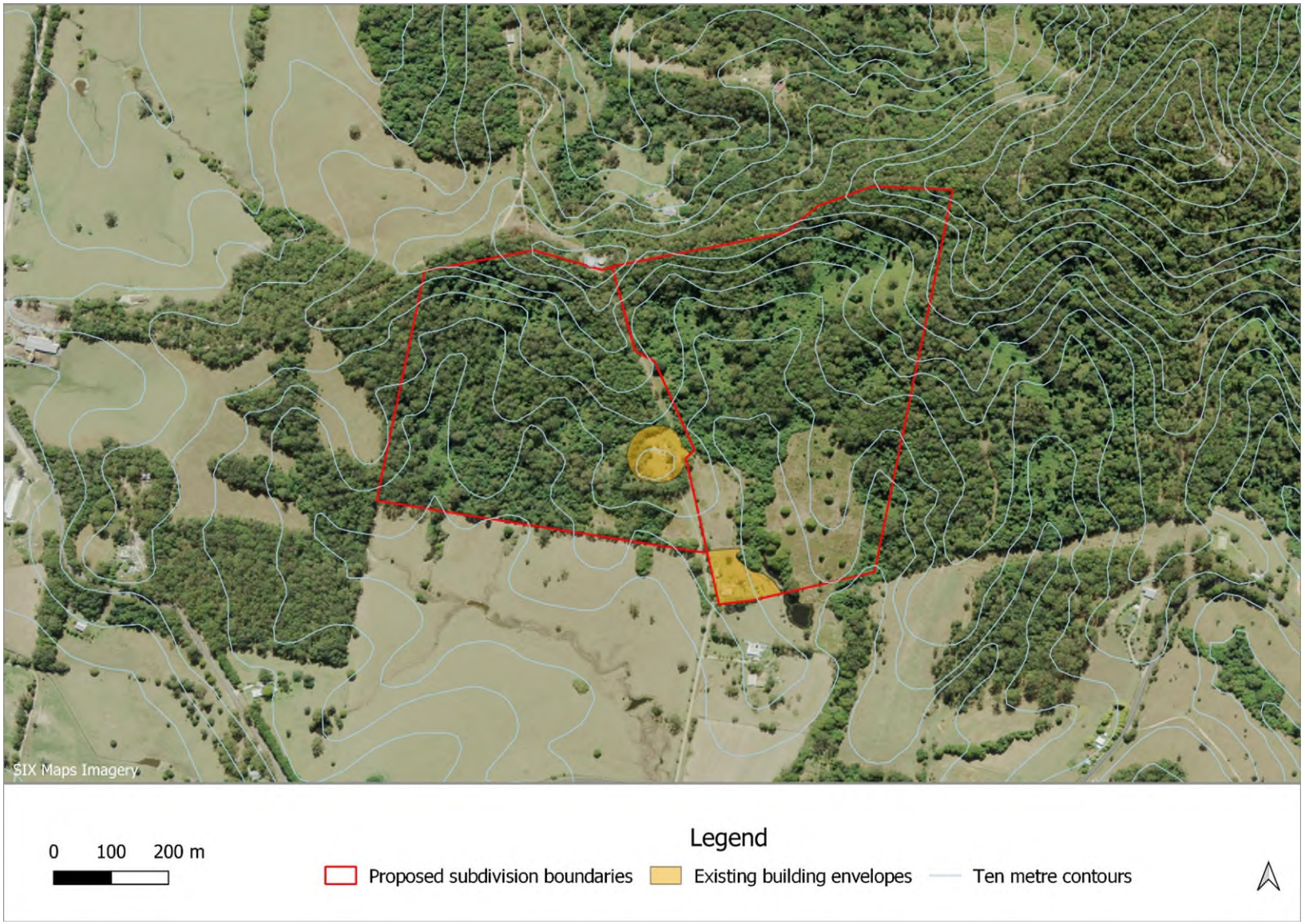

Figure 17: Ten metre contours within the subject site and adjacent land

d) identification of any significant environmental features on the property,

The Biodiversity Values Map (DCCEEW) was reviewed to inform the report if any areas of mapped high biodiversity value occur in proximity to the subject site, and in particular if any are likely to be impacted by the proposed building envelopes. The extract of the Biodiversity Values Map is provided in Figure 18. The mapping indicates that no areas of high biodiversity value occur within the subject site. The nearest mapped area of high biodiversity value occurs on land to the east of the site and is indicated as being identified rainforest. This area of identified rainforest is unlikely to be impacted by the proposed subdivision.

Figure 18: Extract of the Biodiversity Values Map showing the subject site and the relative position of areas of high biodiversity value (shown purple)

e) the details of any threatened species or threatened ecological community under the Biodiversity Conservation Act 2016 that is known to the applicant to exist on the property,

The Bionet Vegetation Classification indicates that four of the mapped plant communities occurring within the subject site, as indicated in Figure 4, are associated with a threatened ecological community (TEC).

PCT 3019: Northern Hinterland Baloghia-Booyong Subtropical Rainforest is indicted as an occurrence in the gully adjacent to the East Lot building envelope and as a small patch north of the West Lot building envelope. The site assessment found that the entire gully between this northern patch and the area adjacent to the East Lot building envelope is in fact occupied by this plant community, which is in a regenerative state (i.e. regenerating after disturbance). PCT 3019 is associated with the following TECs:

Biodiversity Conservation Act 2016 (BC Act):

- *Lowland Rainforest in the NSW North Coast and Sydney Basin Bioregions* (endangered). Relates to the NSW Lowland Rainforest TEC as it is associated with one of the sub-alliances (Primary) listed in paragraph 4 of the NSW Scientific Committee's Final Determination. However it must still satisfy the elevation thresholds of less than 600 metres asl in the NSW North Coast bioregion or less than 350 metres asl in the Sydney Basin bioregion, depending on the distribution of the PCT. Candidate areas of the TEC may adjoin this PCT if they satisfy the requirements of one of the sub-alliances included in paragraph 5 of the Final Determination, subject to the same elevation thresholds by bioregion. Based on the landscape position of the site and the vegetation assessment, this TEC is considered to be applicable.

- *Lowland Rainforest on Floodplain in the New South Wales North Coast Bioregion* (endangered). Relates to the NSW Lowland Rainforest on Floodplain TEC but only applies where the PCT is situated within the NSW North Coast bioregion and on a floodplain as per paragraph 2 in the Final Determination. The site is not on a floodplain (as indicated on the NSW Coastal Quaternary Geology mapping), therefore this TEC is not applicable.

Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act):

- *Lowland Rainforest of Subtropical Australia* (critically endangered). Relates to the Commonwealth Lowland Rainforest of Subtropical Australia TEC as it is associated with one of the sub-alliances listed in Section 6 of the Conservation Advice Listing. A patch must occur at an elevation generally less than 300 metres asl on soils derived from basalt or alluvium or enriched rhyolitic soils or basaltically enriched metasediments and satisfy condition thresholds as per Section 5 of the Listing Advice. Based on the landscape position of the site and the vegetation assessment, this TEC is considered to be applicable.

PCT 3021: Northern Lowland Subtropical Rainforest is indicted as an occurrence in a small patch to the north of the West Lot building envelope. PCT 3021 is associated with the following TECs:

BC Act:

- *Lowland Rainforest in the NSW North Coast and Sydney Basin Bioregions* (endangered). Relates to the NSW Lowland Rainforest TEC as it is associated with one of the sub-alliances (Primary) listed in paragraph 4 of the NSW Scientific Committee's Final Determination. However it must still satisfy the elevation thresholds of less than 600 metres asl in the NSW North Coast bioregion or less than 350 metres asl in the Sydney Basin bioregion, depending on the distribution of the PCT. Candidate areas of the TEC may adjoin this PCT if they satisfy the requirements of one of the sub-alliances included in paragraph 5 of the Final Determination, subject to the same elevation thresholds by bioregion. Based on the landscape position of the site and the vegetation assessment, this TEC is considered to be applicable.

- *Lowland Rainforest on Floodplain in the New South Wales North Coast Bioregion* (endangered). Relates to the NSW Lowland Rainforest on Floodplain TEC but only applies where the PCT is situated within the NSW North Coast bioregion and on a floodplain as per paragraph 2 in the Final Determination. The site is not on a floodplain (as indicated on the NSW Coastal Quaternary Geology mapping), therefore this TEC is not applicable.

EPBC Act:

- *Lowland Rainforest of Subtropical Australia* (critically endangered). Relates to the Commonwealth Lowland Rainforest of Subtropical Australia TEC as it is associated with one of the sub-alliances listed in Section 6 of the Conservation Advice Listing. A patch must occur at an elevation generally less than 300 metres asl on soils derived from basalt or alluvium or enriched rhyolitic soils or basaltically enriched metasediments and satisfy condition thresholds as per Section 5 of the Listing Advice. Based on the landscape position of the site and the vegetation assessment, this TEC is considered to be applicable.

PCT 3574: Northern Lowland Sandstones Dry Open Forest is indicted as an occurrence in a small patch on the western boundary of the subject site. PCT 3574 is associated with the following TEC:

BC Act

- *Subtropical Coastal Floodplain Forest of the New South Wales North Coast Bioregion* (endangered). Relates to the NSW Subtropical Coastal Floodplain Forest TEC where it occurs on floodplain alluvium, as per paragraph 1 of the Final Determination. The site is not on a floodplain (as indicated on the NSW Coastal Quaternary Geology mapping), therefore this TEC is not applicable.

PCT 4004: Northern *Melaleuca quinquenervia* Swamp Forest is indicated as an occurrence on the land surrounding the East Lot building envelope. The site assessment found that this PCT is not present. PCT 4004 is associated with the following TECs:

BC Act

- *Swamp Sclerophyll Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions* (endangered). Relates to the NSW Swamp Sclerophyll Forest on Coastal Floodplains TEC. The site is not on a floodplain (as

indicated on the NSW Coastal Quaternary Geology mapping), therefore if PCT 4004 was present, the TEC would not be applicable.

EPBC Act

- *Coastal Swamp Sclerophyll Forest of New South Wales and South East Queensland* (endangered). Relates to the Commonwealth Coastal Swamp Sclerophyll Forest TEC where a patch meets key diagnostic characteristics of the Conservation Advice. Based on the landscape position of the site and the vegetation assessment, if PCT 4004 was present the TEC is unlikely to be applicable.

The Bionet Atlas database (DCCEEW) was accessed to inform the report of details pertaining to threatened species records occurring in proximity to the proposed development site. The Bionet Atlas indicated 214 records of 31 threatened species, which are detailed in the threatened species list appended to this report as Appendix B.

As no significant vegetation (i.e. plants associated with the native plant communities) is proposed to be removed and therefore no habitat will be destroyed or disturbed, it is unlikely that any threatened ecological community or threatened species will be impacted by the proposed subdivision.

f) the details and location of any Aboriginal object (within the meaning of the National Parks and Wildlife Act 1974) or Aboriginal place (within the meaning of that Act) that is known to the applicant to be situated on the property,

For the purposes of determining the details and location of any Aboriginal object or Aboriginal place that may be situated in proximity to the subject site, a search of the Aboriginal Heritage Information Management System (AHIMS) website was undertaken on 4 April 2024. The basic search indicated that no Aboriginal sites are recorded in or near the site and that no Aboriginal places have been declared in or near the site. The AHIMS Web Services search result form is appended to this report as Appendix C.

g) a bush fire assessment for the proposed development (including the methodology used in the assessment) that addresses the following matters—

(i) the extent to which the development is to provide for setbacks, including asset protection zones,

The subject site is located within the Nambucca Valley local government area (LGA). The relevant Forest Fire Danger Index (FFDI) applicable to the NSW Mid North Coast, including the Nambucca Valley LGA is FFDI 80.

The bush fire risk site assessment applicable to the designated building envelope within each of the proposed allotments is summarised in the following tables. The minimum APZ required as per Table A1.12.3 (FFDI 80, ≤ 29 kW/m²) of PBP is also provided.

Table 3: Bush fire assessment summary and minimum APZ (FFDI 80, ≤ 29 kW/m²)

Building Envelope	Direction	Classified Vegetation	Slope Class (degrees)	Minimum APZ (metres)
East Lot	North	Grassland	Upslope/Flat	10
	Northeast	Rainforest	>0 to 5	12
	East	Rainforest	Upslope/Flat	9
	Southeast	Grassland	>0 to 5	11
	South	Grassland	Upslope/Flat	10
	Southwest	Grassland	>0 to 5	11
	West	Grassland	>5 to 10	12
	Northwest	Forest	>5 to 10	31
West Lot	North	Forest	Upslope/Flat	20
	Northeast	Rainforest	>10 to 15	20
	East	Rainforest	>10 to 15	20
	Southeast	Grassland	>5 to 10	12
	South	Forest	>0 to 5	25
	Southwest	Forest	>5 to 10	31
	West	Forest	>10 to 15	39
	Northwest	Forest	>0 to 5	25

Given the separation available due to pre-existing clearing, both building envelopes can readily meet the minimum APZ requirements without any land clearing. Furthermore, it is noted that it would be difficult to upgrade the existing dwellings located within the building envelopes to a BAL-29 standard, however the available managed land within the building

envelopes that is managed as an APZ could readily meet the criteria for a bush fire attack level of BAL-19 or BAL-12.5 without significant land clearing. Table 4 and Table 5 below show minimum APZ, as per Table A1.12.3 of PBP, required for BAL-19 and BAL-12.5 respectively.

Table 4: Bush fire assessment summary and minimum APZ (FFDI 80, ≤ 19 kW/m²)

Building Envelope	Direction	Classified Vegetation	Slope Class (degrees)	Minimum APZ (metres)
East Lot	North	Grassland	Upslope/Flat	14
	Northeast	Rainforest	>0 to 5	17
	East	Rainforest	Upslope/Flat	14
	Southeast	Grassland	>0 to 5	16
	South	Grassland	Upslope/Flat	14
	Southwest	Grassland	>0 to 5	16
	West	Grassland	>5 to 10	18
	Northwest	Forest	>5 to 10	35
West Lot	North	Forest	Upslope/Flat	29
	Northeast	Rainforest	>10 to 15	29
	East	Rainforest	>10 to 15	29
	Southeast	Grassland	>5 to 10	18
	South	Forest	>0 to 5	35
	Southwest	Forest	>5 to 10	43
	West	Forest	>10 to 15	52
	Northwest	Forest	>0 to 5	35

Table 5: Bush fire assessment summary and minimum APZ (FFDI 80, ≤ 12.5 kW/m²)

Building Envelope	Direction	Classified Vegetation	Slope Class (degrees)	Minimum APZ (metres)
East Lot	North	Grassland	Upslope/Flat	20
	Northeast	Rainforest	>0 to 5	25
	East	Rainforest	Upslope/Flat	20
	Southeast	Grassland	>0 to 5	23
	South	Grassland	Upslope/Flat	20
	Southwest	Grassland	>0 to 5	23
	West	Grassland	>5 to 10	26
	Northwest	Forest	>5 to 10	47
West Lot	North	Forest	Upslope/Flat	40
	Northeast	Rainforest	>10 to 15	40
	East	Rainforest	>10 to 15	40
	Southeast	Grassland	>5 to 10	26
	South	Forest	>0 to 5	47
	Southwest	Forest	>5 to 10	57
	West	Forest	>10 to 15	68
	Northwest	Forest	>0 to 5	47

(ii) the siting and adequacy of water supplies for firefighting,

Reticulated mains water supply is available to the subject site. The East Lot has a direct connection to a water main that crosses the site from the council water supply tanks situated adjacent to the northern boundary. The West Lot can be readily connected to this main as well. Additionally, an existing concrete water tank situated on the East Lot, adjacent to the West Lot building envelope, with water pumped from a dam adjacent to the East Lot building envelope provides a static water supply of 22,500 litres.

(iii) the capacity of public roads in the vicinity to handle increased volumes of traffic in the event of a bush fire emergency,

Public road access to the subject site is provided by the Kookaburra Lane, which connects to Rodeo Drive at its southern end. The road readily satisfies the acceptable solutions with respect to the capacity of roads to handle increased volumes of traffic in the event of a bush fire emergency as per Table 5.3b of PBP.

Kookaburra Lane does not satisfy the acceptable solutions of PBP with respect to firefighting vehicles being provided with safe, all-weather access to structures, as the length of the road between the building envelopes and the intersection of Rodeo Drive from which travel in both directions is available (either west to Bowraville or east to Macksville) is greater than 200 metres. The distance between the building envelope on the East Lot and the intersection with Rodeo Drive is approximately 345 metres, while the distance between the building envelope on the West Lot and the intersection with Rodeo Drive is approximately 595 metres. However, Kookaburra Lane is maintained to a high standard and is a straight run on a slight but steady slope, and adjoins lower risk, grassland vegetation for its entire length. In addition, the road services the occupants of just five dwellings, including the two situated within the subject site. Therefore, the intent of the performance criteria; *firefighting vehicles are provided with safe, all-weather access to structures*, is satisfied.

(iv) whether or not public roads in the vicinity that link with the fire trail network have two-way access,

No fire trail network is applicable to the proposed development within the subject site.

(v) the adequacy of arrangements for access to and egress from the development site for the purposes of an emergency response,

With the exception of the road length, arrangements for access and egress to the subject site can readily satisfy the acceptable solutions of PBP. Generally, the performance criteria for public road access with respect to an emergency response, which states that *"firefighting vehicles can access the dwelling and exit the property safely"* are satisfied.

(vi) the adequacy of bush fire maintenance plans and fire emergency procedures for the development site,

There is no bushfire maintenance plan currently in place for the subject site and, in the context of the development proposed, it is considered that a maintenance plan will not be necessary.

(vii) the construction standards to be used for building elements in the development,

Construction standards applicable to the building elements in the proposed development include Australian Standard; AS 3959 -2018*: Construction of buildings in bushfire-prone areas*, the NASH Standard; *Steel Framed Construction in Bush fire Areas 2014* (as the deemed-to-satisfy solution in the National Construction Code) and the applicable NSW variations.

(viii) the adequacy of sprinkler systems and other fire protection measures to be incorporated into the development,

It is not proposed to install a sprinkler system to any existing or future buildings on the subject site for the purposes of bushfire protection.

(ix) any registered fire trails on the property,

There are no registered fire trails on the subject property, and none are planned as part of the current proposal.

h) an assessment of the extent to which the proposed development conforms with or deviates from Planning for Bush Fire Protection.

The following tables assess the acceptable solutions for bush fire protection that are relevant to the proposed subdivision development against the applicable performance criteria of PBP.

APZs

The intent of APZ measures is to provide sufficient space and maintain reduced fuel loads to ensure radiant heat levels at the buildings are below critical limits and prevent direct flame contact.

Table 6: Assessment of APZs

Performance Criteria	Relevant Acceptable Solution	Meets Criteria?
Asset Protection Zones		
Potential building footprints must not be exposed to radiant heat levels exceeding 29 kW/m² on each proposed lot	• APZs are provided in accordance with Table A1.12.3 (FFDI 80)	Yes
APZs are managed and maintained to prevent the spread of a fire towards the building	• APZs are managed in accordance with the requirements of Appendix 4	Yes
The APZs are provided in perpetuity	• APZs are wholly within the boundaries of the development site	Yes
APZ maintenance is practical, soil stability is not compromised and the potential for crown fires is minimised	• APZs are located on lands with a slope less than 18 degrees	Yes
Landscaping		
Landscaping is designed and managed to minimise flame contact and radiant heat to buildings, and the potential for wind-driven embers to cause ignitions	• Landscaping is in accordance with Appendix 4; and • Fencing is constructed in accordance with section 7.6	Yes

Access

The intent of access measures is to provide safe operational access to structures and water supply for emergency services, while residents are seeking to evacuate from an area.

Table 7: Assessment of access (general requirements)

Performance Criteria	Relevant Acceptable Solution	Meets Criteria?
General Requirements		
Firefighting vehicles are provided with safe, all-weather access to structures	• Property access roads are two-wheel drive, all-weather roads; • 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; and • Where access/egress can only be achieved through forest, woodland and heath vegetation, secondary access shall be provided to an alternate point on the existing public road system.	Yes
The capacity of access roads is adequate for firefighting vehicles	• The capacity of perimeter and non-perimeter road surfaces and any bridges/causeways can be sufficient to carry fully loaded firefighting vehicles (up to 23 tonnes); bridges/ causeways are to clearly indicate load rating.	Yes
There is appropriate access to water supply	• There is suitable access for a Category 1 fire appliance to within 4m of the static water supply where no reticulated supply is available.	Yes
Perimeter Roads (relates to Oxley Highway)		
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	• Are two-way sealed roads; • Minimum 8m carriageway width kerb to kerb; • 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;	Yes

	• The road crossfall does not exceed 3 degrees; and • A minimum vertical clearance of 4m to any overhanging obstructions, including tree branches, is provided.	
Property Access		
Firefighting vehicles can access the dwelling and exit the property safely	• 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; • Maximum grades for sealed roads do not exceed 15 degrees and not more than 10 degrees for unsealed roads.	Yes

Services – Water, Electricity and Gas

The intent of measures is to provide adequate services of water for the protection of buildings during and after the passage of a bush fire, and to locate gas and electricity so as not to contribute to the risk of fire to a building.

Performance Criteria	Relevant Acceptable Solution	Meets Criteria?
Water Supplies		
Adequate water supplies is provided for firefighting purposes	• 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.	Yes
The integrity of the water supply is maintained	• 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.	Yes

Electricity Services		
location of electricity services limits the possibility of ignition of surrounding bush land or the fabric of buildings	• 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.	Yes
Property Access		
location and design of gas services will not lead to ignition of surrounding bushland or the fabric of buildings	• 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.	Yes

4. Conclusion and Recommendations

This report has been prepared to assess the bush fire risk in relation to the proposed subdivision of Lot 2 DP 609465, 44 Kookaburra Lane Bowraville into two allotments with the East Lot having an area of 22.2 hectares and the West Lot having an area of 18.8 hectares, each of which contains an existing dwelling, associated outbuildings and infrastructure.

The proposal enables the subdivision of the land with appropriate provision for bush fire protection of the existing residential buildings within designated building envelopes. The bushfire assessment demonstrates that bushfire protection with respect to the existing dwellings associated with the proposed subdivision of the land can generally satisfy the requirements of PBP when assessed in accordance with Section 45 of the RF Regulation for the purpose of applying for a Bushfire Safety Authority under Section 100B of the RF Act. Moreover, subject to the recommendations detailed below, there are no significant impediments to the proposed development of the land from a bushfire risk perspective.

The following recommendations are made in relation to bushfire protection measures for the proposed subdivision of the land identified as Lot 2 DP 609465, 44 Kookaburra Lane Bowraville:

1. APZs shall be provided to the residential buildings in accordance with the acceptable solutions of Table 5.3a of PBP;
2. APZ widths should be sufficient to satisfy the requirements for BAL-19 or BAL-12.5;
3. Access to the residential development within the subject site shall be maintained in compliance with the relevant acceptable solutions of Table 5.3b of PBP;
4. Water, electricity and gas supply to the existing residential development within the subject site shall be maintained in compliance with the relevant acceptable solutions of Table 5.3c of PBP;
5. Construction of any future residential building within the subject site shall comply with the construction standards of Australian Standard; AS 3959 -2018*: Construction of buildings in bushfire-prone areas* or the NASH Standard; *Steel Framed Construction in Bush fire Areas 2014* (as the deemed-to-satisfy solution in the National Construction Code) and as varied in NSW, for the applicable BAL; and
6. The existing dwellings situated on the proposed East and West Lot within the subject site shall be upgraded to provide ember protection as per the *Building Best Practice Guide* produced by the NSW Rural Fire Service.

5. Note and Disclaimer

1. This assessment relates to a proposed development on the subject land and only the plans referenced in this bush fire risk assessment report have been considered;
2. This bush fire assessment has been based on bush fire protection guidelines as outlined in the document entitled *Planning for Bush Fire Protection 2019* (PBP);
3. As noted by PBP and notwithstanding the precautions recommended, it should always be borne in mind that bush fires burn under a range of conditions and an element of risk always remains; and
4. This bush fire assessment does not imply or infer any approval for the removal of vegetation for asset protection or other purposes. It is the responsibility of the client/landowner to obtain any and all necessary approvals in this regard.

Steve Britt 6 May 2024
Graduate Diploma in Design for Bush fire Prone Areas
Accredited Practitioner BPAD9334, Bush fire Planning and Design, FPAA

6. References

Keith, D., 2004, *Ocean Shores to Desert Dunes: The Native Vegetation of New South Wales and the ACT*, Department of Environment and Conservation, Sydney

NSW Department of Planning, Industry and Environment, 2024, ePlanning Spatial Viewer, retrieved 4.04.2024 from; https://www.planningportal.nsw.gov.au/spatialviewer/#/find-a-property/address

NSW Rural Fire Service (2005), *Standards for Asset Protection Zones*, NSW Rural Fire Service, Sydney Olympic Park

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NSW Rural Fire Service, 2019, *Planning for Bush Fire Protection 2019*, NSW Rural Fire Service, Sydney Olympic Park

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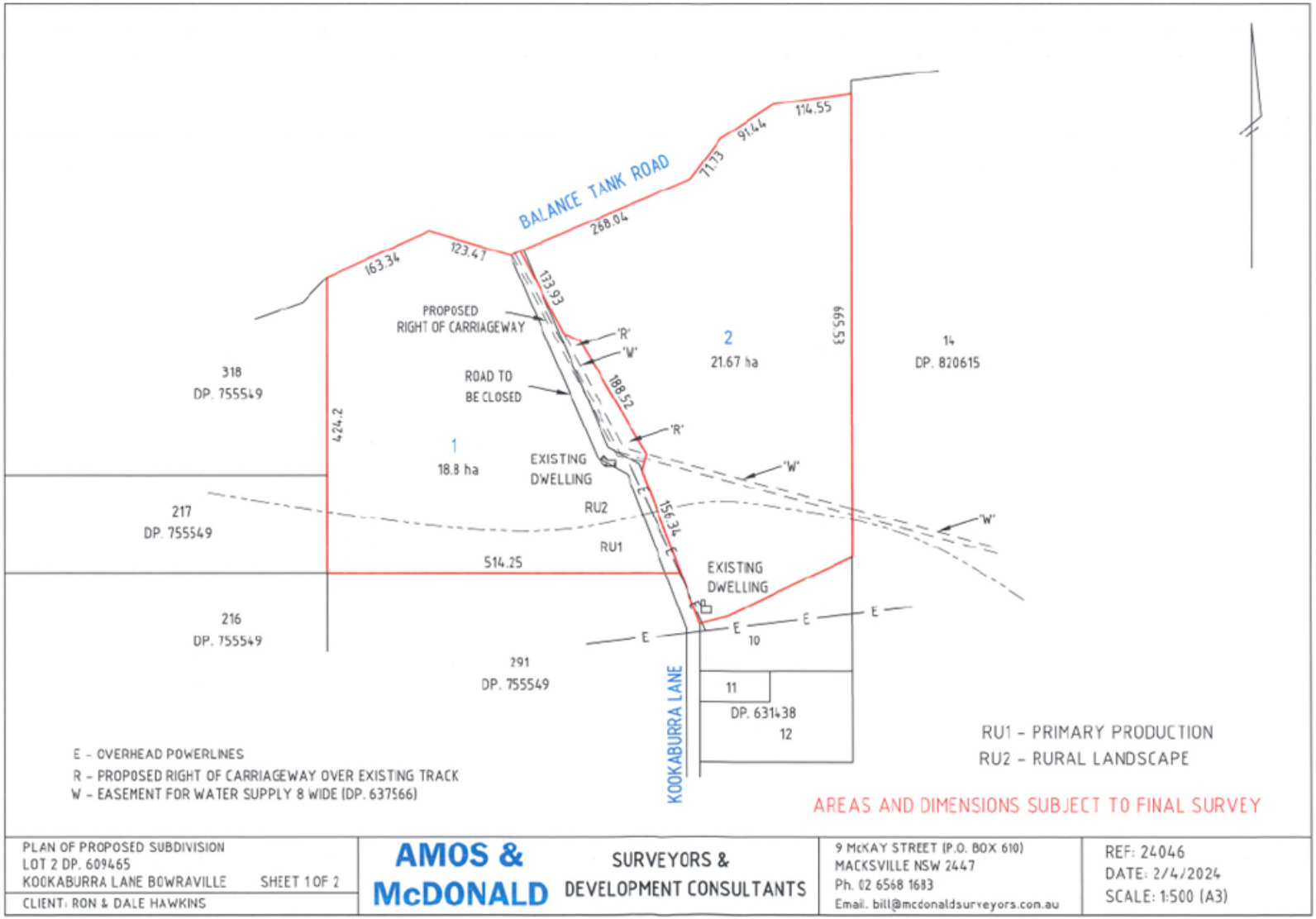
Standards Australia (2018), *AS3959-2018 Construction of buildings in bush fire-prone areas*, Standards Australia, Sydney

7. Appendix A: Subdivision Plan



8. Appendix B: Bionet Atlas Threatened Species Search Results

Kingdom	Class	Family	Species Code	Scientific Name	Common Name	NSW status	Comm. status	Records
Animalia	Amphibia	Myobatrachidae	3075	^*Mixophyes iteratus*	Giant Barred Frog	E1,P,2	V	2
Animalia	Aves	Columbidae	0025	*Ptilinopus magnificus*	Wompoo Fruit-Dove	V,P		1
Animalia	Aves	Columbidae	0021	*Ptilinopus regina*	Rose-crowned Fruit-Dove	V,P		1
Animalia	Aves	Ciconiidae	0183	*Ephippiorhynchus asiaticus*	Black-necked Stork	E1,P		5
Animalia	Aves	Accipitridae	0218	*Circus assimilis*	Spotted Harrier	V,P		1
Animalia	Aves	Accipitridae	0226	*Haliaeetus leucogaster*	White-bellied Sea-Eagle	V,P		1
Animalia	Aves	Accipitridae	0225	*Hieraaetus morphnoides*	Little Eagle	V,P		3
Animalia	Aves	Accipitridae	0230	^^*Lophoictinia isura*	Square-tailed Kite	V,P,3		2
Animalia	Aves	Accipitridae	8739	^^*Pandion cristatus*	Eastern Osprey	V,P,3		2
Animalia	Aves	Haematopodidae	0130	*Haematopus longirostris*	Pied Oystercatcher	E1,P		1
Animalia	Aves	Cacatuidae	8862	^*Calyptorhynchus lathami lathami*	South-eastern Glossy Black-Cockatoo	V,P,2	V	1
Animalia	Aves	Strigidae	0246	^^*Ninox connivens*	Barking Owl	V,P,3		1
Animalia	Aves	Strigidae	0248	^^*Ninox strenua*	Powerful Owl	V,P,3		3
Animalia	Aves	Tytonidae	0250	^^*Tyto novaehollandiae*	Masked Owl	V,P,3		1
Animalia	Aves	Tytonidae	9924	^^*Tyto tenebricosa*	Sooty Owl	V,P,3		5
Animalia	Aves	Climacteridae	8127	*Climacteris picumnus victoriae*	Brown Treecreeper (eastern subspecies)	V,P	V	1
Animalia	Mammalia	Dasyuridae	1008	*Dasyurus maculatus*	Spotted-tailed Quoll	V,P	E	1
Animalia	Mammalia	Dasyuridae	1017	*Phascogale tapoatafa*	Brush-tailed Phascogale	V,P		2
Animalia	Mammalia	Phascolarctidae	1162	*Phascolarctos cinereus*	Koala	E1,P	E	18
Animalia	Mammalia	Pteropodidae	1280	*Pteropus poliocephalus*	Grey-headed Flying-fox	V,P	V	42
Animalia	Mammalia	Molossidae	1329	*Micronomus norfolkensis*	Eastern Coastal Free-tailed Bat	V,P		2
Animalia	Mammalia	Vespertilionidae	1357	*Myotis macropus*	Southern Myotis	V,P		22
Animalia	Mammalia	Vespertilionidae	1336	*Nyctophilus bifax*	Eastern Long-eared Bat	V,P		2
Animalia	Mammalia	Vespertilionidae	1369	*Phoniscus papuensis*	Golden-tipped Bat	V,P		1
Animalia	Mammalia	Miniopteridae	1346	*Miniopterus australis*	Little Bent-winged Bat	V,P		4

Animalia	Mammalia	Miniopteridae	3330	*Miniopterus orianae oceanensis*	Large Bent-winged Bat	V,P		4
Plantae	Flora	Apocynaceae	1233	*Marsdenia longiloba*	Slender Marsdenia	E1	V	9
Plantae	Flora	Apocynaceae	9505	*Parsonsia dorrigoensis*	Milky Silkpod	V	E	53
Plantae	Flora	Myrtaceae	4283	*Rhodamnia rubescens*	Scrub Turpentine	E4A	CE	13
Plantae	Flora	Myrtaceae	4284	*Rhodomyrtus psidioides*	Native Guava	E4A	CE	2
Plantae	Flora	Sapotaceae	11957	*Niemeyera whitei*	Rusty Plum, Plum Boxwood	V		8

NOTE: Species records indicated with ^ or ^^ are sensitive species considered to be at serious risk or medium to high risk and have had their coordinates denatured in order to generalise the locality.

9. Appendix C: AHIMS basic Search Result

AHIMS Web Services (AWS)
Search Result

Your Ref/PO Number : BA200324
Client Service ID : 879247

Steve Britt
41 Norman Street
Laurieton New South Wales 2443
Attention: Steve Britt
Email: steve@florafauna.com.au

Date: 04 April 2024

Dear Sir or Madam:

AHIMS Web Service search for the following area at Lat, Long From : -30.649, 152.872 - Lat, Long To : -30.6398, 152.8875, conducted by Steve Britt on 04 April 2024.

The context area of your search is shown in the map below. Please note that the map does not accurately display the exact boundaries of the search as defined in the paragraph above. The map is to be used for general reference purposes only.

A search of Heritage NSW AHIMS Web Services (Aboriginal Heritage Information Management System) has shown that:

0	Aboriginal sites are recorded in or near the above location.
0	Aboriginal places have been declared in or near the above location. *

If your search shows Aboriginal sites or places what should you do?

- You must do an extensive search if AHIMS has shown that there are Aboriginal sites or places recorded in the search area.
- If you are checking AHIMS as a part of your due diligence, refer to the next steps of the Due Diligence Code of practice.
- You can get further information about Aboriginal places by looking at the gazettal notice that declared it. Aboriginal places gazetted after 2001 are available on the NSW Government Gazette (https://www.legislation.nsw.gov.au/gazette) website. Gazettal notices published prior to 2001 can be obtained from Heritage NSW upon request

Important information about your AHIMS search

- The information derived from the AHIMS search is only to be used for the purpose for which it was requested. It is not be made available to the public.
- AHIMS records information about Aboriginal sites that have been provided to Heritage NSW and Aboriginal places that have been declared by the Minister;
- Information recorded on AHIMS may vary in its accuracy and may not be up to date. Location details are recorded as grid references and it is important to note that there may be errors or omissions in these recordings,
- Some parts of New South Wales have not been investigated in detail and there may be fewer records of Aboriginal sites in those areas. These areas may contain Aboriginal sites which are not recorded on AHIMS.
- Aboriginal objects are protected under the National Parks and Wildlife Act 1974 even if they are not recorded as a site on AHIMS.
- This search can form part of your due diligence and remains valid for 12 months.

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