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Bushfire Assessment, Greenvalleys Mountain Bike Park, Tongarra NSW

Greenvalleys Mountain Bike Park Pty Ltd

DOCUMENT TRACKING

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Abbreviations

Abbreviation	Description
AS 3959	Australian Standard AS 3959-2018 <i>Construction of buildings in bushfire prone areas</i>
APZ	Asset protection zone
BAL	Bushfire attack level
BEMEP	Bushfire Evacuation and Emergency Management Plan
BFPL	Bush fire prone land
BPM	Bushfire protection measures
DCP	Development control plan
FDI	Fire danger index
NCC	National Construction Code
NSP	Neighbourhood Safer Places
PBP	Planning for Bushfire Protection 2019 (Addendum, 1 May 2023)
RFS	NSW Rural Fire Service

1. Property and proposal

Table 1 identifies the subject property and outlines the objectives of the Planning Proposal:

Table 1: Subject site and development proposal summary

Street address:	2926 Illawarra Highway, Tongarra
Postcode:	2527
Lot/DP no:	Lot 1 DP 881927
Local Government Area:	Shellharbour City Council
Fire Danger Index (FDI)	100
Current land zoning:	RU1 – Primary Production, C3 – Environmental Management
Type of Proposal:	Planning Proposal seeking more permanent operation of an existing recreational facility

1.1 Description of Proposal

This Bushfire Assessment report has been prepared by Eco Logical Australia (ELA) Pty Ltd on behalf of Greenvalleys Mountain Bike Park Pty Ltd to support a Planning Proposal for the southern part of land at 2926 Illawarra Highway, Tongarra, Lot 1 DP 881927 (Greenvalleys Mountain Bike Park) (see Figure 1). The Greenvalleys Mountain Bike Park (GVMTBP) is located within the eastern part of the study area and extends south as far as Lakeview Road but not beyond. The proposal seeks to:

- Enable the mountain bike facility at the site to operate on a permanent basis. It is the Mountain Bike Park in its existing form that is proposed to operate on a permanent basis – NO new bike trails or other development works are proposed.
- Amend the *SP2 Infrastructure – Classified Road Zone* that applies to the part of the site that includes the Mountain Bike Park facility. Specifically, the intended outcome is to reduce the width of this zone with the affected land being rezoned as *RU1 Primary Production* – consistent with land to the south.

The part of the site located to the north of the Illawarra Highway does not form part of the Planning Proposal. As noted above, the Planning Proposal also seeks to reduce the width of the SP2 Infrastructure zone that affects the Mountain Bike Park. This involves also reducing the extent of the associated underlying Road Widening Order (RWO). The proposed rezoning is from SP2 to RU1 Primary Production, which is consistent with adjacent land to the south. Refer to Appendix B - Concept Plan, for further details around the width reduction of the SP2 Infrastructure zone.

No changes to existing land uses are proposed in relation to this land zoning adjustment. The purpose of the zoning change is to enable the Mountain Bike Park to achieve compliance with the requirement that there should be no permanent infrastructure located within the RWO (with the exception of overflow car parking). Given that there is no change to the existing land use, the width reduction of the SP2 Infrastructure zone has not been included in this bushfire assessment.

The ongoing use of the site as a mountain bike park and associated facilities is, and not limited to, the operation of mountain bike trails, sun shelter and picnic tables, shipping containers for storage, and marshalling / check-in shed and parking. It is understood that the park is open to members and the public, however all users must pre-register and 'book in' online. Operation of the facility includes:

- Use of existing ten (10) tracks and associated facilities at the site
- Operation for no more than 52 days a year with operating hours being 9 am to 4 pm on Saturdays and Sundays every second weekend, including:
 - 40 days would be standard operation – limited to 100 people per day (70 competitors and 30 spectators); and
 - 12 days (6 weekends) would be competition days limited to 400 people per day (200 competitors and 200 spectators).
- Operational hours are subject to weather conditions: the facility does not operate during wet weather.

1.2 Assessment Approach

As the subject site is identified as Bush Fire Prone Land (BFPL) (RFS 2023a), under Ministerial Direction 4.3 (Planning for Bushfire Protection) issued under Section 9.1 (2) of the *Environmental Planning and Assessment Act 1979 (EP&A Act)* the relevant planning authority must consult with the Commissioner of the NSW Rural Fire Service (RFS). Therefore, this assessment evaluates the proposal with regard to the requirements of Planning for Bush Fire Protection (PBP (Addendum, 1 May 2023)) for the purpose of accompanying the planning submission. As the proposal relates to an amendment of the Shellharbour Local Environment Plan (SLEP), Section 9.1 (2) of the *EP&A Act* triggers consideration of the bushfire strategic planning principles and 'inappropriate development' exclusions outlined in Chapter 4 of PBP. This study therefore assesses the proposal in the context of these aspects, with regard to the assessment considerations identified in Table 4.2.1 of PBP, summarised in Table 2.

Additionally, as the site is operational, land use activities and structures associated with the Mountain Bike Park need to meet the relevant requirements of PBP, where applicable. These requirements are outlined in Table 3.

Table 2: Summary of PBP assessment considerations for a Strategic Bushfire Study (RFS 2019)

Issue	Summary of Assessment Considerations
Bushfire landscape assessment	A bushfire landscape assessment considers the likelihood of a bushfire, its potential severity and intensity and the potential impact on life and property in the context of the broader surrounding landscape.
Land use assessment	The land use assessment will identify the most appropriate locations within the master plan area or site layout for the proposed uses.
Access and egress	A study of the existing and proposed road networks both within and external to the master plan area and site layout.
Emergency services	An assessment of the future impact of the new development on emergency services provision.
Infrastructure	An assessment of the issues associated with infrastructure provision.

Issue	Summary of Assessment Considerations
Adjoining land	The impact of new development on adjoining landowners and their ability to undertake bushfire management.

Table 3: PBP Requirements for Existing Land Uses / Development

Land Use Activity /Development	Description	PBP Considerations
Recreation	Mountain bike riding with purpose-built structures for jumps and trails.	Compliance, if required, would be achieved by addressing the Aim and Objectives of PBP. For these activities and land use, it would primarily concern emergency and evacuation management. As such, a Bushfire Emergency Management and Evacuation Plan (BEMEP) for the site would be suitable to for the day to day operations.
Class 10a Structures	Storage containers, marshalling /check-in shed, picnic shelter	There are no bushfire requirements for Class 10a (non-habitable buildings), when not located within 6 m of a dwelling.

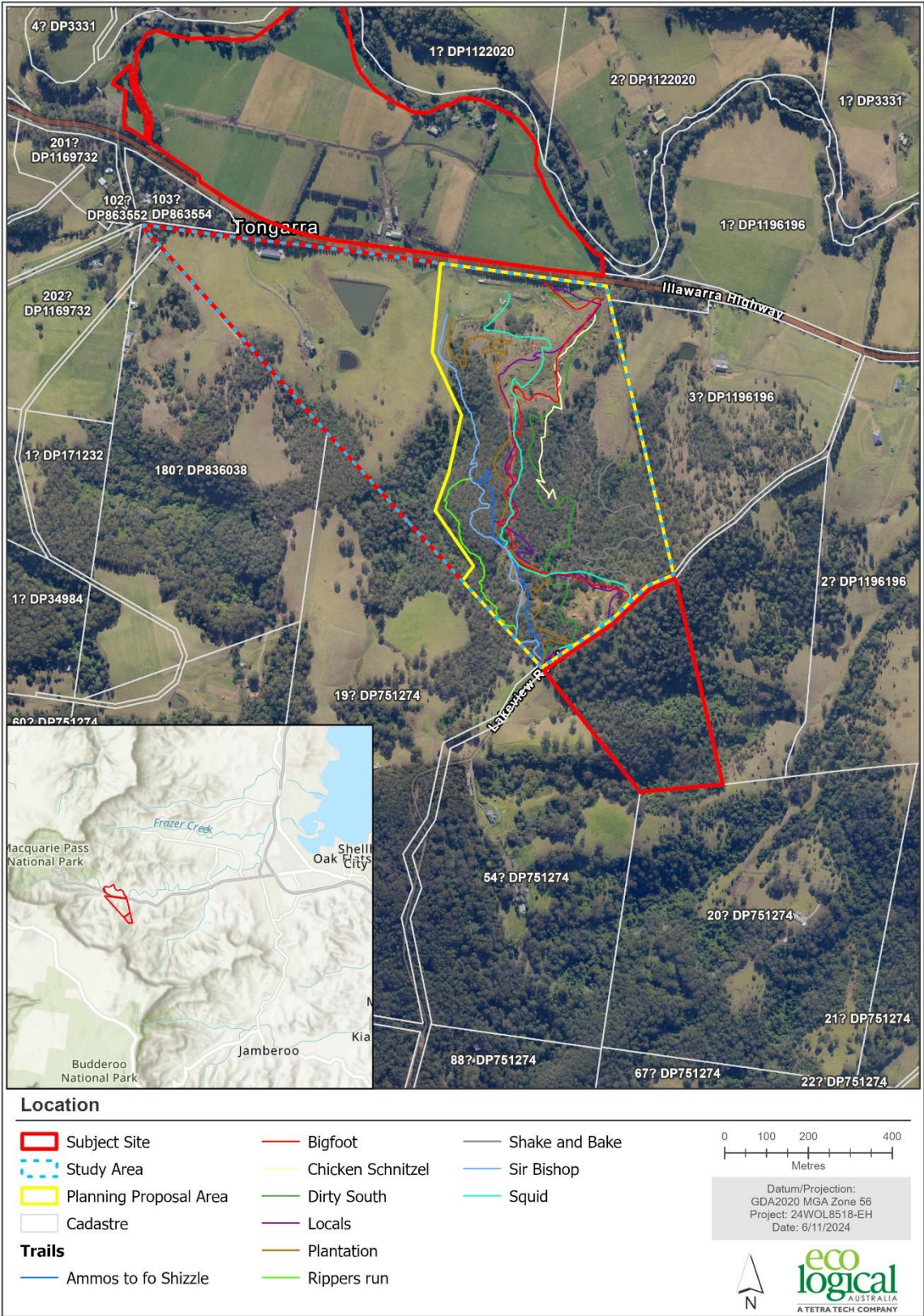


Figure 1: Location of Greenvalleys Mountain Bike Park

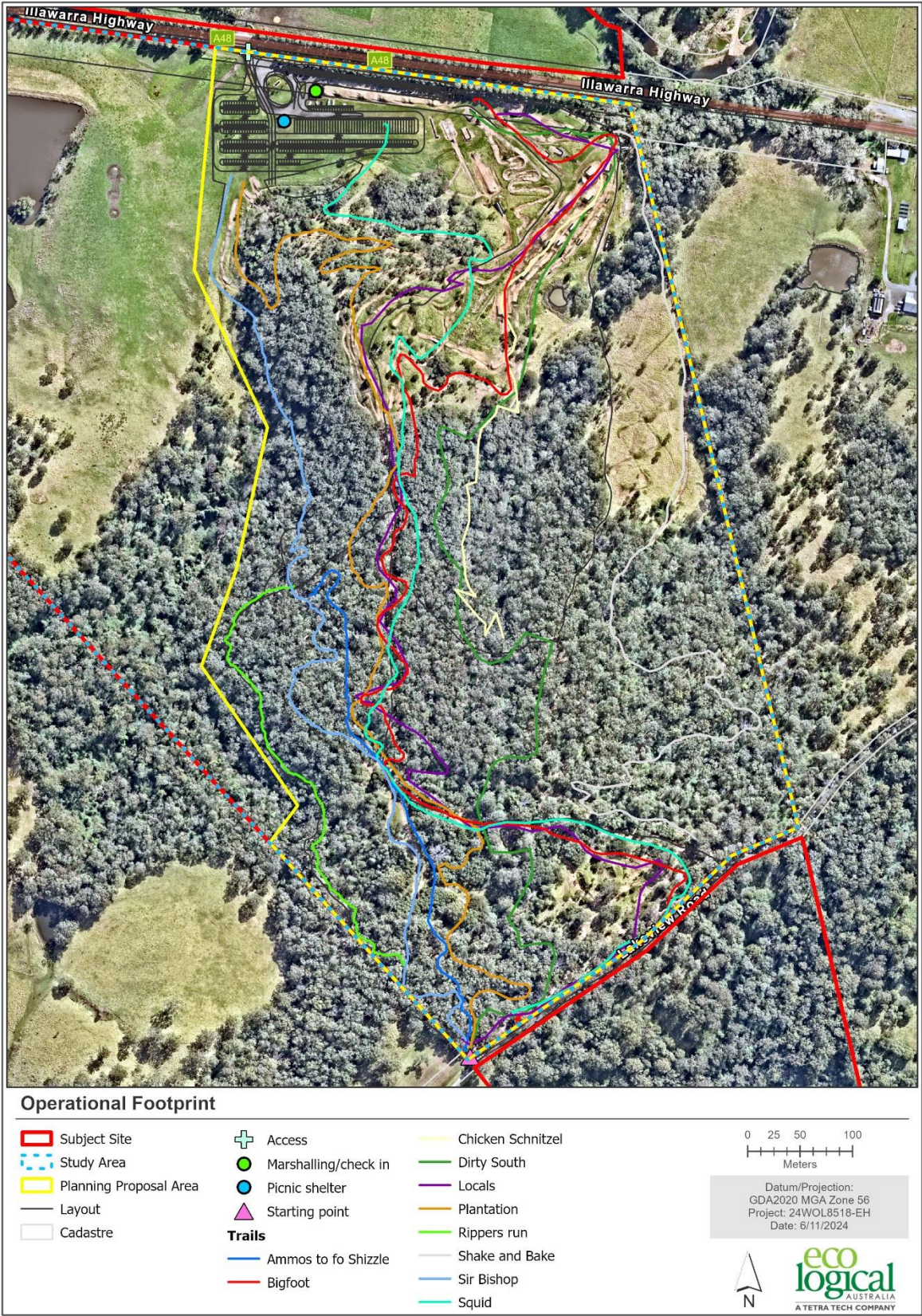


Figure 2: Mountain Bike Park operational area with key operational facilities

2. Strategic Assessment

The feasibility of the Planning Proposal to comply with the BPMs identified within PBP is a fundamental consideration of the study. While BPMs and their performance criteria are a benchmark for approval of a development, a strategic level study needs also to evaluate these measures within the landscape risk context. This study has therefore considered the following:

- The bushfire landscape risk context in consideration of the protection measures for future development and their potential adequacy;
- The type/s of development proposed, and their suitability given the bushfire risk context;
- The pattern and potential bushfire resilience of the bushland interface; and
- Potential cumulative risk associated with proposed development in the locality.

2.1 Strategic Evaluation

In considering the strategic requirements detailed in Chapter 4 of PBP, Table 4 below provides an evaluation of the planning proposal.

Given the location of the site, and moderated risk profile, an additional permitted use for outdoor recreation is not considered inconsistent with the strategic principles outlined in PBP. Given the capacity for bushfire protection measures, which are reviewed in more detail in section 3 and 4, existing development is not considered inappropriate, subject to compliance with the requirements of PBP as identified or recommended. This includes a bushfire emergency management and evacuation plan (BEMP) for the site, which can provide guidance for operation of the facility under days of higher fire danger, formalise evacuation procedures and provide guidance for operational capacity.

Table 4: Strategic Evaluation

Issue	Observation	Evaluation
Bushfire landscape assessment	<p>The subject land is situated within a broader hazard landscape, with woodland vegetation within the site, transitioning to forest to the south. Rainforest vegetation is also present within the surrounding area, along creeklines (Figure 3). Areas of wooded vegetation, generally present on sloped lands, are fragmented by rural grassland on flats, which is under various forms of management.</p> <p>While bushfires have occurred in the broader study area (Figure 5), including a fire pre-1980 that impacted the northern corner of the subject land, examination of fire frequency shows (Figure 6) that repeated fires have generally been limited to the escarpment and plateau. It is also noted that past fires have generally been contained within areas of wooded vegetation.</p> <p>According to the Illawarra Bush Fire Risk Management Plan (IBFRMP 2017), fires generally travel in an easterly direction under the influence of westerly winds.</p>	<p>The mountain bike park is situated in a mixed landscape of wooded vegetation on sloped lands, fragmented by rural grasslands and managed land on the flats. As such, fire pathways external to the site are fragmented, resulting in the south to south-west being the most likely pathway for fire transfer to the subject land. However, fragmentation by rural grassland, and a downhill approach on site, means it is likely that the intensity of any potential fires approaching from this direction would be moderated. In addition, managed land on site provides considerable separation between the wooded vegetation and marshalling points.</p> <p>Based on the above, and with consideration to the type of land use, the bushfire landscape and residual risk is not considered inappropriate to the operation of the mountain bike park, subject to a bushfire emergency management and evacuation plan (BEMP) implemented for the site.</p>
Land use assessment	The proposal is for an additional permitted use as outdoor recreation, which would enable the mountain bike park to have permanent operation. It includes class 10 structures only, which are positioned well separated from the hazard (Figure 3).	The Planning Proposal proposal is not considered inappropriate, given the capacity for bushfire protection measures to be implemented.
Access and egress	The site can be accessed (Figure 7) from two directions along Illawarra Highway. Secondary access via Lakeview Road provides access to the top of the mountain bike tracks, which is used to ferry riders via the park's shuttle service.	Access to the site is via public roads and is considered appropriate for the land use, and given the primary evacuation route east is unlikely to be impacted by fire approaching from the south to south-west. Therefore, evacuation east to Albion Park is unlikely to be disrupted by fire, as it does not traverse contiguous wooded vegetation in this direction.
Emergency services	There are existing emergency services within close proximity to the site (Figure 8), including Albion Park RFS, located 7 km east of the Site, along the Illawarra Highway.	The purpose of the Planning Proposal is to facilitate permanency of an existing local mountain bike park. As such, it is not considered to provide an elevated pressure on emergency services. In addition, the implementation of a bush fire emergency

Issue	Observation	Evaluation
		management and evacuation plan could provide guidance in regard to park operations on days of elevated risk, therefore minimising any indirect pressures on emergency services.
Infrastructure	Electricity and Gas services are not proposed as part of the facility. Water supply for the purpose of fire fighting is via static water supply.	There is no concern for the provision of infrastructure. The site has a static water supply with a dam situated to west of the mountain bike operations.
Adjoining land	An additional permitted use as outdoor recreation enabling the operation of the site as a mountain bike park does not increase the hazard for adjoining land, nor does it rely on the implementation of bushfire protection measures on adjoining land.	The proposal will not increase the landscape bushfire risk and bushfire protection measures can be met on site. Therefore, this is not considered inconsistent with the strategic principles of PBP, and is unlikely to increase the hazard due to utilisation and management of grasslands.

3. Land Use Assessment

3.1 Hazard Assessment

The assessment methodology set out in Appendix 1 of PBP has been utilised in this assessment.

In accordance with PBP, the predominant vegetation formation has been assessed for a distance of at least 140 m for the key operational areas of the mountain bike park as shown in Figure 2. The predominant vegetation has been determined from State Vegetation Type Maps (DEECCW 2022).

In accordance with PBP, the slope that would most significantly influence fire behaviour was determined over a distance of 100 m for key operational areas of the mountain bike park as shown in Figure 2. The effective slope has been determined from 2 m contour data.

The bushfire prone vegetation affecting the key operational area of the site (i.e. the site access point, marshalling/check-in area and sun shelter), located to the south, is identified as Illawarra Lowland Red Gum Grassy Forest (Keith 2004), which is classified as *Grassy Woodlands* under PBP. Also present on the site and the adjoining properties is rural grassland under various forms of management. The wooded hazard is situated upslope from the marshalling point and general operational facilities, with the slope of the grassland hazard also determined to fall within the “Upslope/Flat” slope class.

Figure 3 provides an overview of the bushfire hazards influential to the key operational areas, along with site access and separation (defendable space) from the hazard.

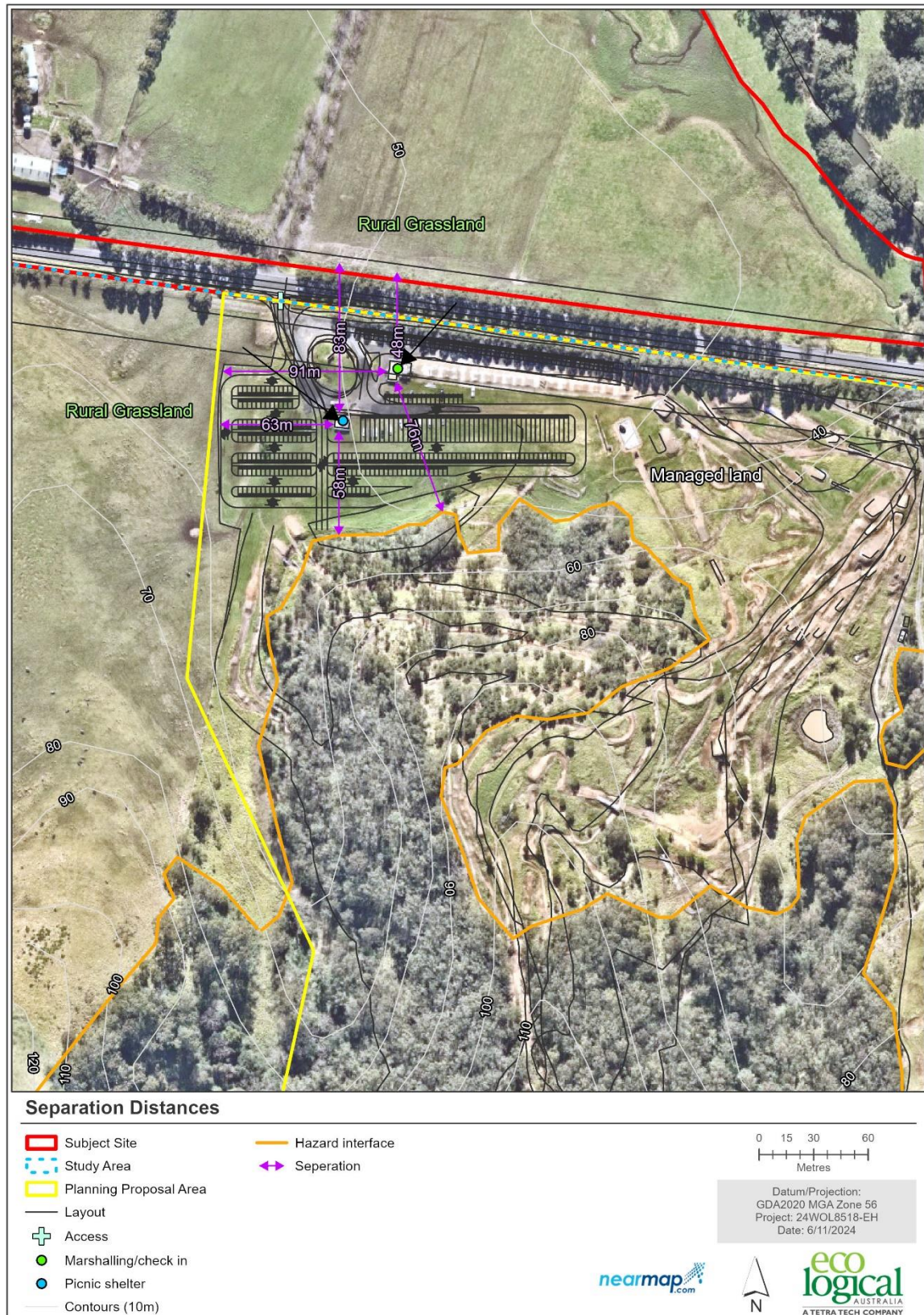


Figure 3: Hazard Separation

3.2 Specific Aim and Objectives of PBP

The proposed permanent operation of the mountain bike park in its existing form includes existing structures do not trigger any specific requirements of PBP. Therefore, the Planning Proposal was considered in relation to the aim of PBP, *to provide for the protection of human life and minimise impacts on property*. In doing so, the considerations outlined in Section 8.3.8 of PBP were deemed to be the closest benchmark for the existing land uses for which approval for ongoing use of the existing facility is sought. These considerations and applicability are to the Mountain Bike Park area only, and are evaluated in Table 5 below.

Table 5: Land use evaluation against benchmark considerations adapted from Section 8.3.8 of PBP

Consideration	Evaluation
Holding of events outside of the gazetted bushfire danger period	<p>Standard operations (40 days per year, limited to 100 people) is considered suitable to proceed under the implementation of an operational Bushfire Emergency Management and Evacuation Plan (BEMEP). The BEMEP should provide guidelines for facility operations on days of elevated fire danger.</p> <p>For competition days (6 weekends per year) where capacity is limited to 400 persons per day, a separate BEMEP (or specific section) should provide guidelines for facility operations related to competition days during days of elevated fire danger.</p>
Strategic placement of accommodation to ensure maximum time to warn and evacuate	Not Applicable – no accommodation proposed or existing
Preparation of a Bushfire Emergency Management and Evacuation Plan (BEMEP)	It is recommended that a BEMEP for the site should be prepared to guide day to day operations. This should include establishment of operational guidelines for days of elevated fire danger, patron safety, evacuation routes etc. A separate BEMEP (or specific section) should be prepared, to provide mitigation measures and management actions directly around competition days, and the safety of up to 400 visitors. This should include strategies to restrict patron numbers during the bushfire season.
Access and egress routes for emergency services, and evacuating patrons	Suitable access and egress is available (Figure 7), with site access via Illawarra Highway, providing egress to Albion Park. Secondary access to the north of the site via Lakeview Drive. Existing rural fire services stationed at Albion Park (Figure 8).
A refuge building of suitable capacity	Due to proximity to Albion Park and suitable access, a refuge building is not deemed necessary.
An open air bushfire emergency assembly area	<p>Due to proximity to Albion Park and suitable access, an open air assembly area is not deemed necessary. However, access to the marshalling / check-in area (Figure 2) should be maintained as an access point for evacuating patrons and emergency services.</p> <p>If the scale of operations increase, then there is capacity for an open-air refuge (meeting the Neighbourhood Safer Places [NSP] requirements) within the broader property subject to hazard management. These aspects should be considered for both standard operations and competition days in the BEMEP.</p>
A suitable method of staging evacuation	Existing booking management system in place which is considered a suitable option to manage patron numbers during the fires season. Therefore, staging of evacuation is not deemed necessary for the

Consideration	Evaluation
	<p>current scale of standard operations and it is recommended that such aspects are incorporated in the BEMEP.</p> <p>For competition days the BEMEP should provide additional strategies and mechanisms to evacuate a larger number of patrons.</p>
Expected evacuation timeframes	<p>Due to the scale of the facility, under standard operations and proximity to Albion Park, it is not deemed necessary to specify timeframes for evacuation. More important is the familiarisation of patrons with evacuation options when they make a booking, and also during an on-site induction.</p> <p>For competition days where increased patronage is allowed, strategies such as staggering of race times, should be considered to moderate the number of guests on site at any one time.</p>
Postponement/closure on elevated fire danger rating days	It is recommended that guidance around closure on days of elevated fire danger are incorporated into the BEMEP.
Advance warning to patrons identifying that the event is located on BFPL and of any fire restrictions	<p>It is recommended that patrons are made aware of any bushfire restrictions and that the site is bushfire prone, on booking and also during an on site induction. Guidelines for this should be included in the BEMEP.</p> <p>To increase awareness of the site and bushfire related information, signage at strategic points (entry, marshalling, etc.) should be implemented.</p>
Ability to cease and override PA systems to announce emergency warnings / safety information	A suitable procedure should be implemented as part of the BEMEP.
A prescribed ratio of trained fire wardens to participants	A suitable procedure should be implemented as part of the BEMEP.
Suitable bushfire protection measures	Static water supply is available on site, and key operational areas (marshalling / check in point) are provided with adequate separation from the hazard (Figure 3).

4. Conclusion and Recommendations

4.1 Conclusion

The Planning Proposal is consistent with the strategic planning principles outlined in chapter 4 of PBP, and Ministerial Direction 4.3, subject to the recommendation outlined in Table 4 of this report.

It is understood that Council have agreed to omit the requirement of a Bushfire Emergency Management and Evacuation Plan (BEMEP) at this stage therefore, no other specific bushfire protection measures are required under PBP, for the operation of the facility and existing structures which are the subject of the Planning Proposal.

4.2 Recommendations

From this evaluation, the Planning Proposal is not considered inappropriate for the site regarding bushfire, subject to the implementation of the recommendations outlined in Table 5 of this report. Future BEMEP should detail operational guidelines consistent with the requirements current at the time in PBP and RFS guidelines.



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5. References

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Appendix A - Maps

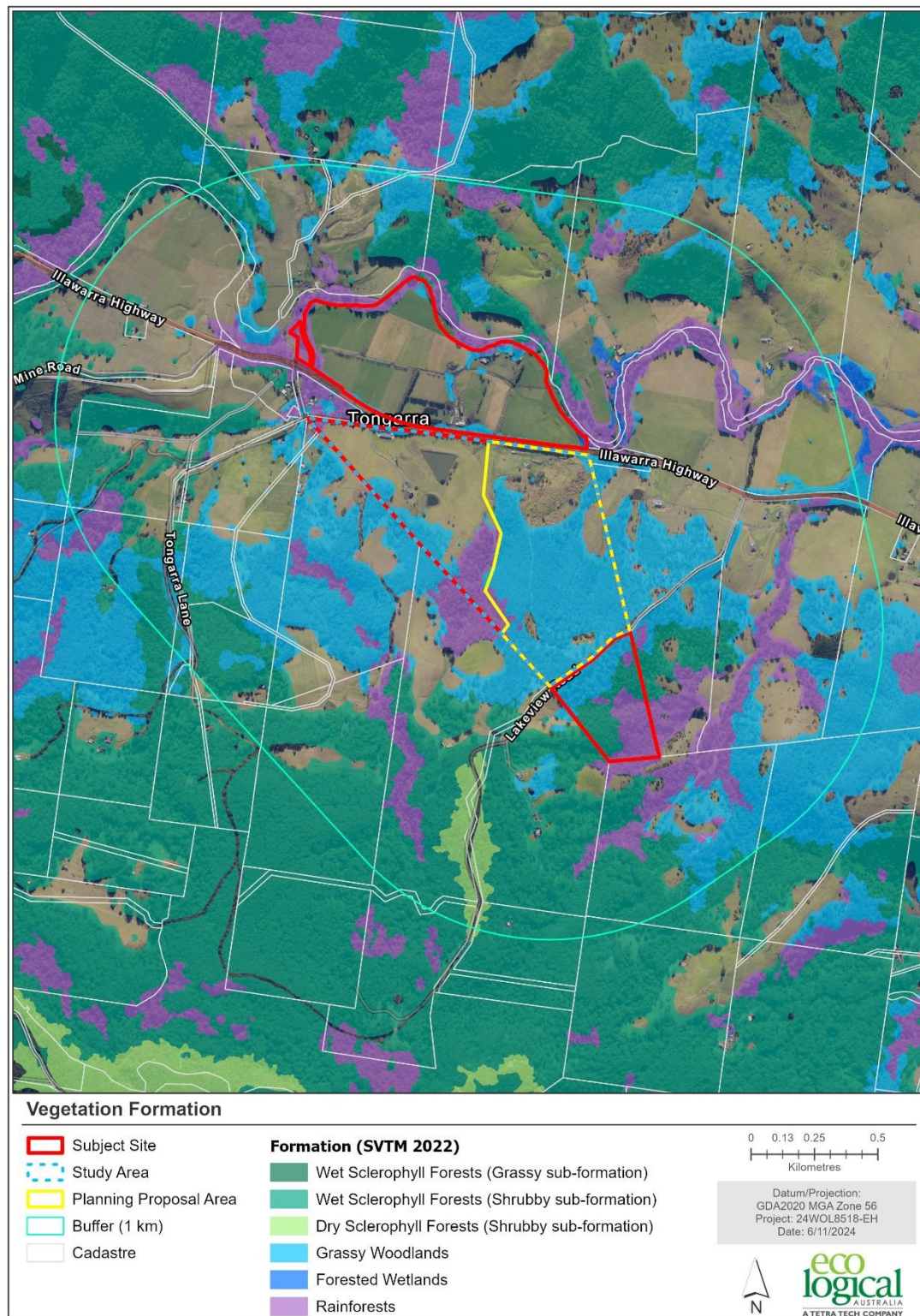


Figure 4: Vegetation Map (Source: DEECW 2022)

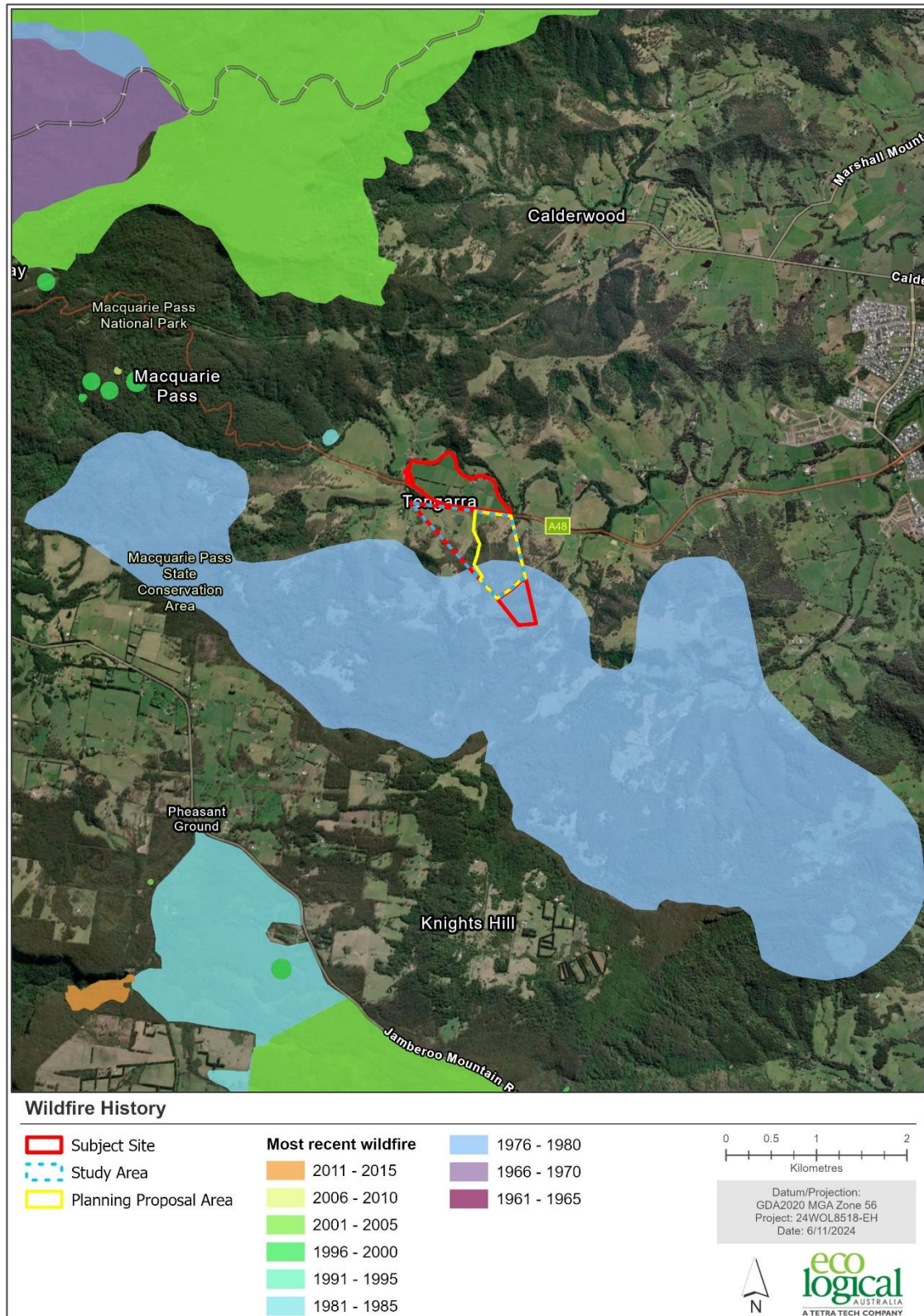


Figure 5: Bushfire History from 1965 onward (source, NPWS 2023)

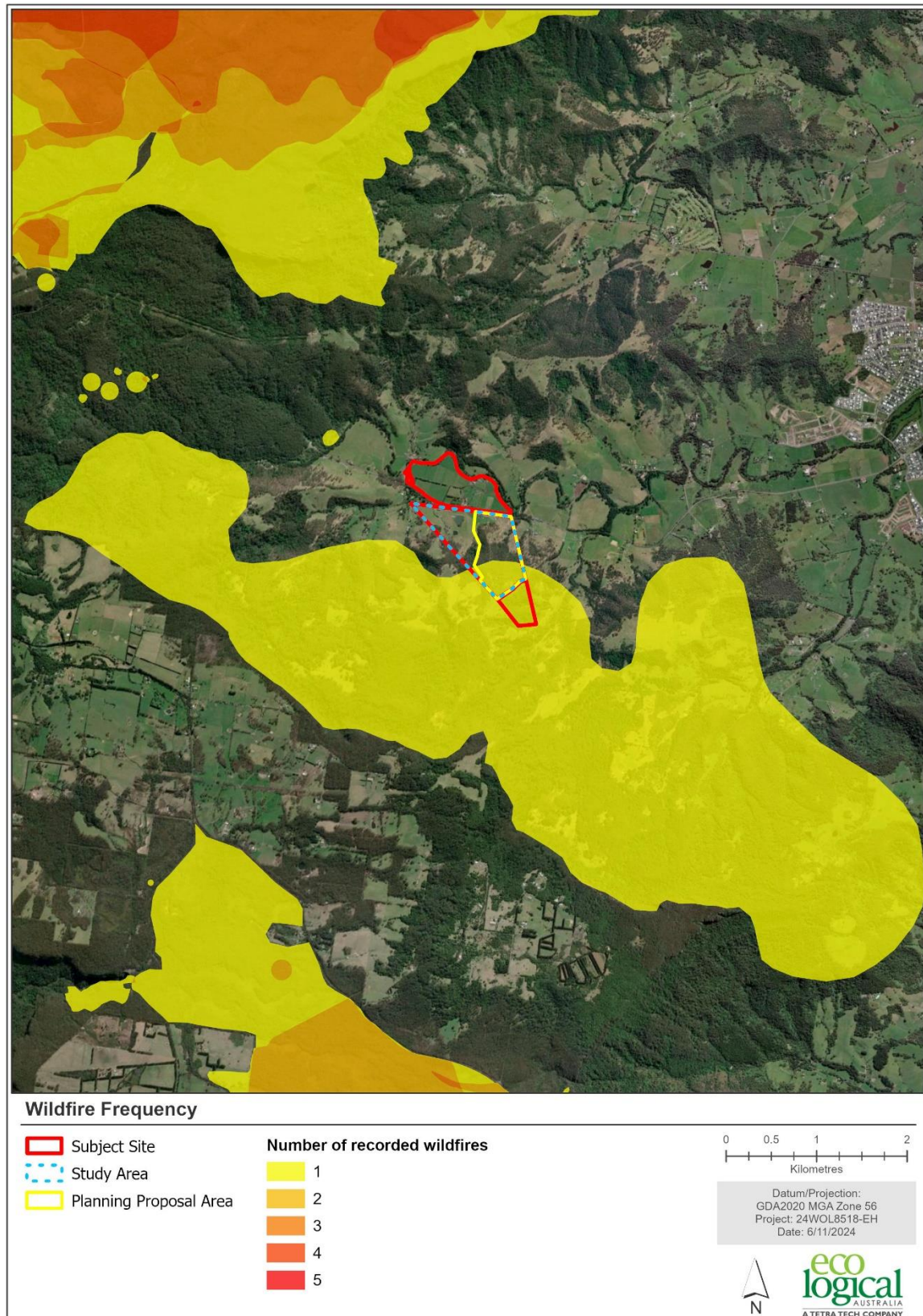


Figure 6: Bushfire Frequency (source, NPWS 2023)

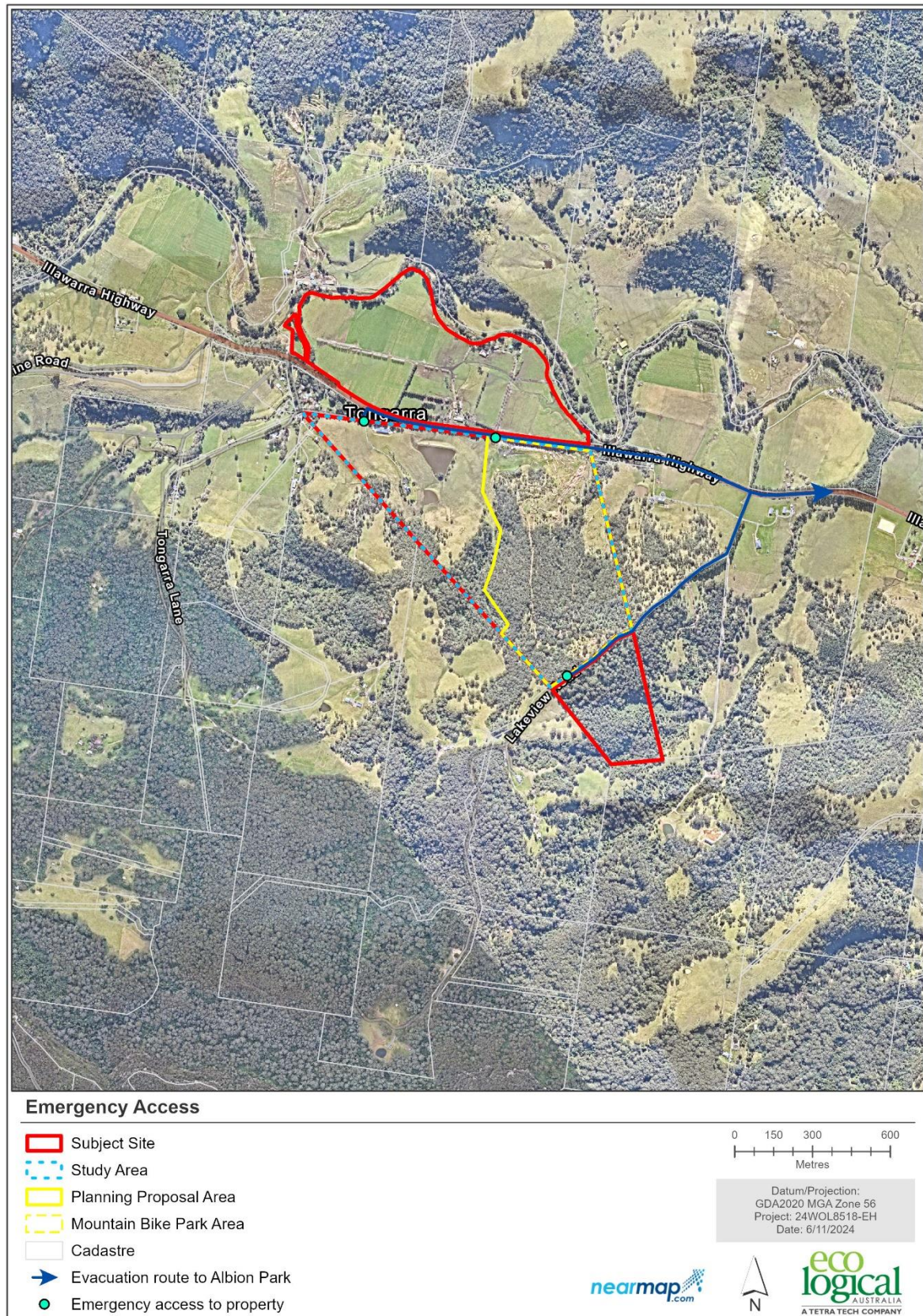


Figure 7: Emergency Access

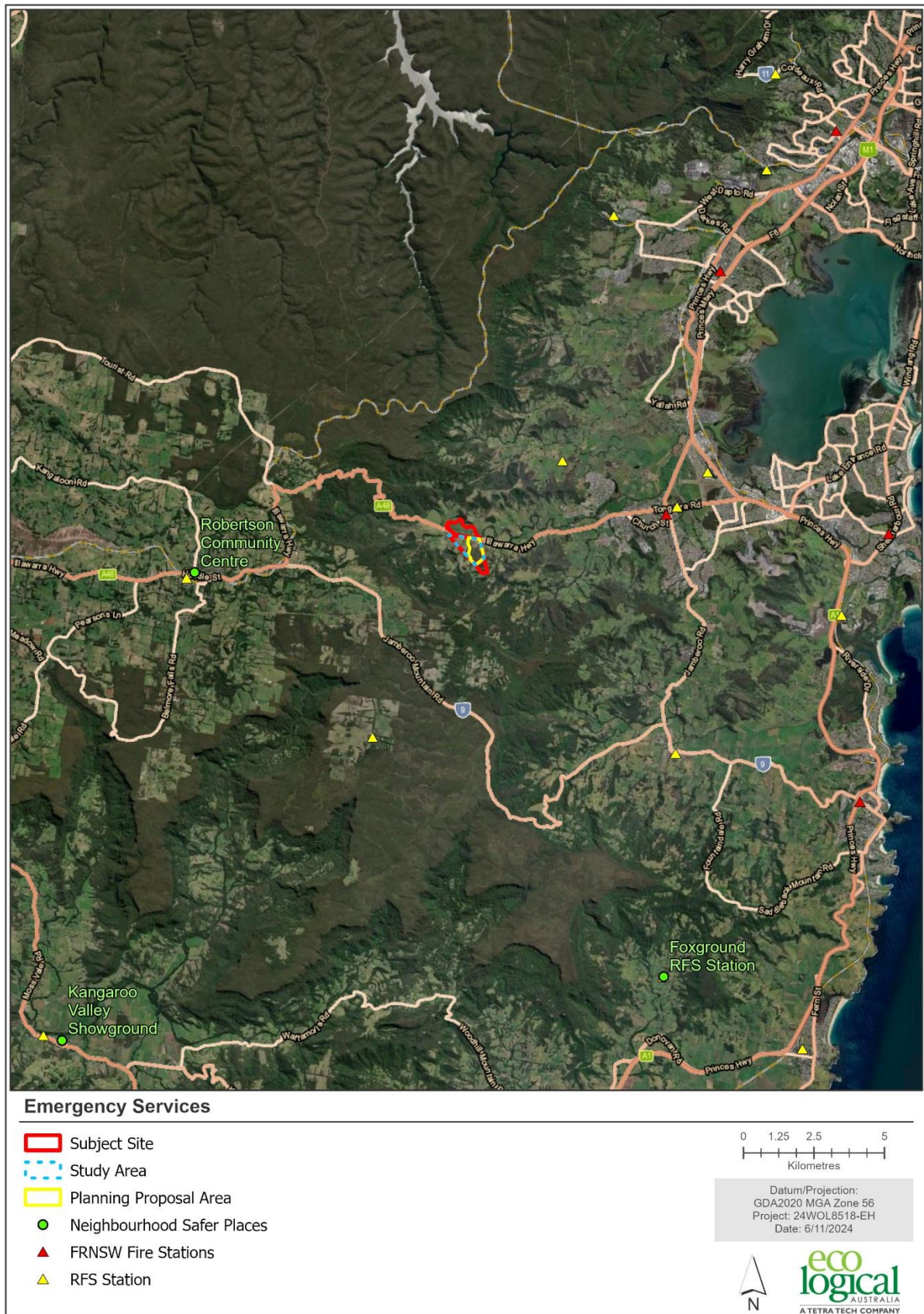


Figure 8: Emergency Services and NSP's in close proximity (FRNSW 2023 /RFS 2023b)

Appendix B – Concept Plan for Width Reduction of SP2 Infrastructure Zone

