REF: 7556BF

Date: 7/07/2025

Valid to: 7/07/2026

BUSHFIRE HAZARD ASSESSMENT

PROPOSED 3 LOT SUBDIVISION AND THREE NEW TWO STOREY DWELLINGS

13 EMANUEL DRIVE, FARLEY

LGA: Maitland

Lot 514 DP 1275320

Applicants: Ilhan Alijagic

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Version Control

Version Number	Name	Issue Detail	Date Modified	Status
1.0	EF & LJ	Draft Report	4/07/25	Complete
1.1	KH & LJ	Report	7/07/25	Complete

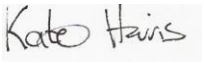
Bushfire Hazard Assessment

Property Address:	13 Emanuel Drive, Farley
Description of Proposal:	Proposed 3 Lot subdivision and three new two Storey dwellings
Plan Reference:	Obliq Design: Proposed 3 Lot Subdivision & Construction of three two storey dwellings at Lot 514 DP 1275320, 13 Emanuel Drive, Farley NSW, Project No. A-1, Date. 19/06/2025
Highest BAL Rating	BAL 29
Performance-Based Solution	Yes, Method 2 AS3959 used to calculate BALs from hazard to the north.
Bushfire Assessment Reference:	7556BF
Report Date:	7/07/2025

ASSESSOR & QUALIFICATIONS

Letara Judd

BPAD-L2-46804
GRAD CERT BUSH FIRE PROTECTION, (UWS)
BACHELOR OF ENVSC (HONS) (UOW)



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DISCLAIMER

The recommendations provided in the summary of this report are a result of the analysis of the proposal in relation to the requirements of Planning for Bushfire Protection 2019. Utmost care has been taken in the preparation of this report however there is no guarantee of human error. The intention of this report is to address the submission requirements for Development Applications on bushfire prone land. There is no implied assurance or guarantee the summary conditions will be accepted in the final consent and there is no way Harris Environmental Consulting is liable for any financial losses incurred should the recommendations in this report not be accepted in the final conditions of consent. This bushfire assessment provides a risk assessment of the bushfire hazard as outlined in the PBP 2019 and AS3959 2018. It does not provide protection against any damages or losses resulting from a bushfire event.

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FIGURES

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EXECUTIVE SUMMARY

This report provides a Bushfire Hazard Assessment for 13 Emanuel Drive, Farley. The owners propose a three lot Torrens title subdivision with three new two storey dwellings on each lot and an additional secondary dwelling on lot 1.

Where two dwellings are proposed on a single lot the development is considered to be an increase in residential density. Therefore, this proposal is considered increased density and must ensure an APZ based on a radiant heat threshold of 29kW/m² can be achieved, along with suitable provision for construction, access, water and landscaping.

Harris Environmental Consulting was commissioned to provide this bushfire assessment. The assessment confirms the subject lot is mapped Bushfire Prone.

This assessment includes a performance solution using *Method 2 AS3959* to calculate BALS for the vegetation to the north.

The bushfire prone land within 140 m of the proposed development is:

	Vegetation Formation	Effective Slope	Distance from façade to hazard
Lot 1 Primary Dwelling			
North	Forest	4° Downslope	26.7 m
Lot 1 Secondary Dwelling			
North	Forest	4° Downslope	54.8 m
Lot 2			
North	Forest	4° Downslope	26.4 m
Lot 3			
North	Forest	4° Downslope	25.9 m

The relevant technical bushfire protection provisions under the National Construction Code (NCC) for design and construction of building standards are:

- AS3959 - *2018 Construction for Buildings in Bushfire Prone Areas* or,
- *NASH Standard Steel Framed Construction in Bushfire Areas (2014) if* a steel frame is proposed.

The proposed dwellings can be constructed to:

- **BAL 29** (Section 7 and Section 3) for the proposed dwellings on lots 1, 2, and 3
- **BAL 12.5** (Section 5 and Section 3) for the proposed secondary dwelling on lot 1

An APZ is required to be established as part of the development and maintained for perpetuity throughout each subject lot.

The subject lot is located on Emanuel Drive. This is a two-wheel drive, all weather, through-road. Road surfaces and bridges are sufficient to carry fully loaded firefighting vehicles.

There are no specific access requirements in an urban area where an unobstructed path (no greater than 70m) is provided between the most distant external part of the proposed development and the nearest part of the public access road (where the road speed limit is not greater than 70kph) that supports the operational use of emergency firefighting vehicles.

Reticulated water is supplied to the subject lot. Hydrants are location on Roses Way within 70 m of the development.

Any bottled gas will be installed and maintained in accordance with AS1596 and the requirements of the relevant authority. If gas cylinders need to be kept close to the buildings, the release valves must be directed away from the building and away from any combustible material. Polymer sheathed flexible gas supply lines to gas meters adjacent to buildings are not to be used.

Electrical transmission lines, if above ground, will be managed under specifications issued by the respective energy provider.

1 PROPOSAL

The owners of 13 Emanuel Drive, Farley, on Lot 514 DP 1275320 propose a three lot Torrens title subdivision with three new two storey dwellings on each lot and a secondary dwelling on lot 1. The assessment confirms the subject lot is mapped as bushfire prone.

The subdivision includes:

- Proposed Lot 1: 451 m^2
- Proposed Lot 2: 424 m^2 and
- Proposed Lot 3: 391 m^2

This proposal is considered a subdivision and increased density and must ensure an APZ based on a radiant heat threshold of 29kW/m^2 can be achieved, along with suitable provision for construction, access, water, and landscaping.

Harris Environmental Consulting was commissioned to provide this bushfire assessment.

Figure 1 shows the subject lot location.

Figure 2 provides a broad scale aerial view of the subject site.

Figure 3 shows a close up of the subject lot.

Figure 4 shows the proposed site plans

Figure 1 Site Location

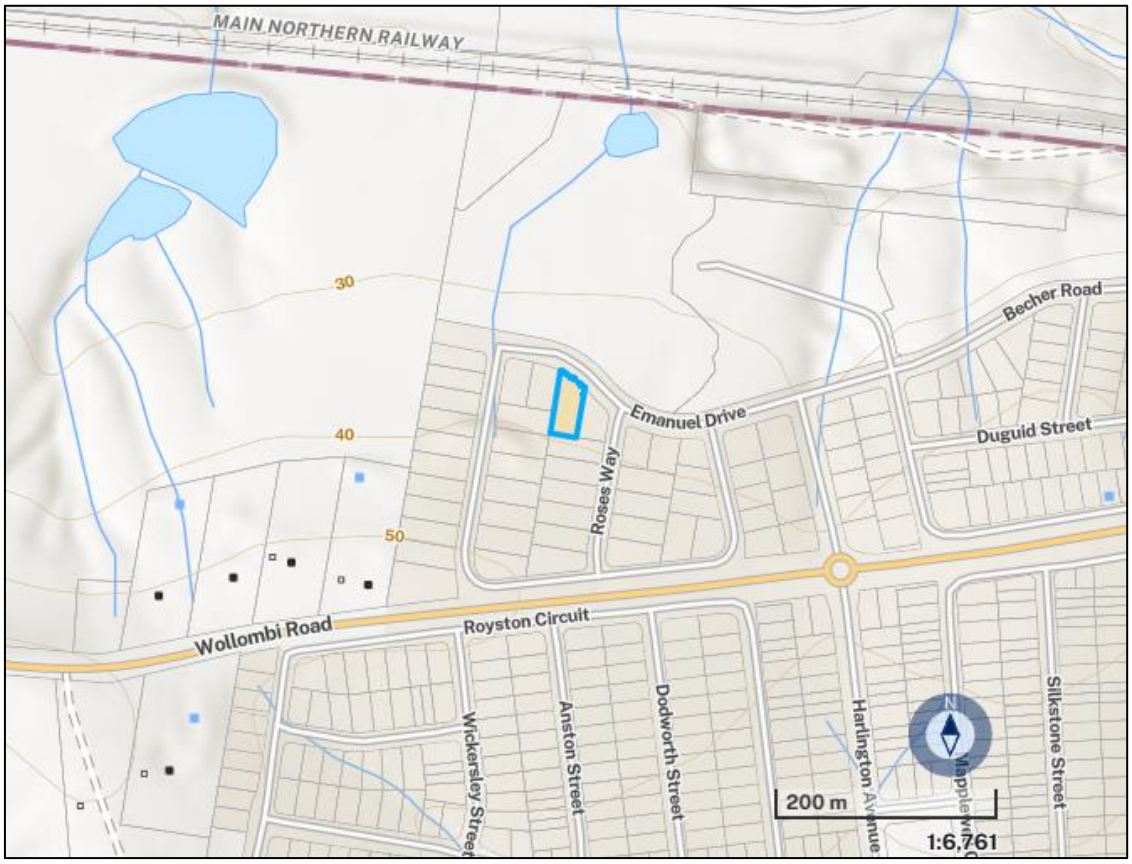


Figure 2 Broad scale aerial view of the subject site

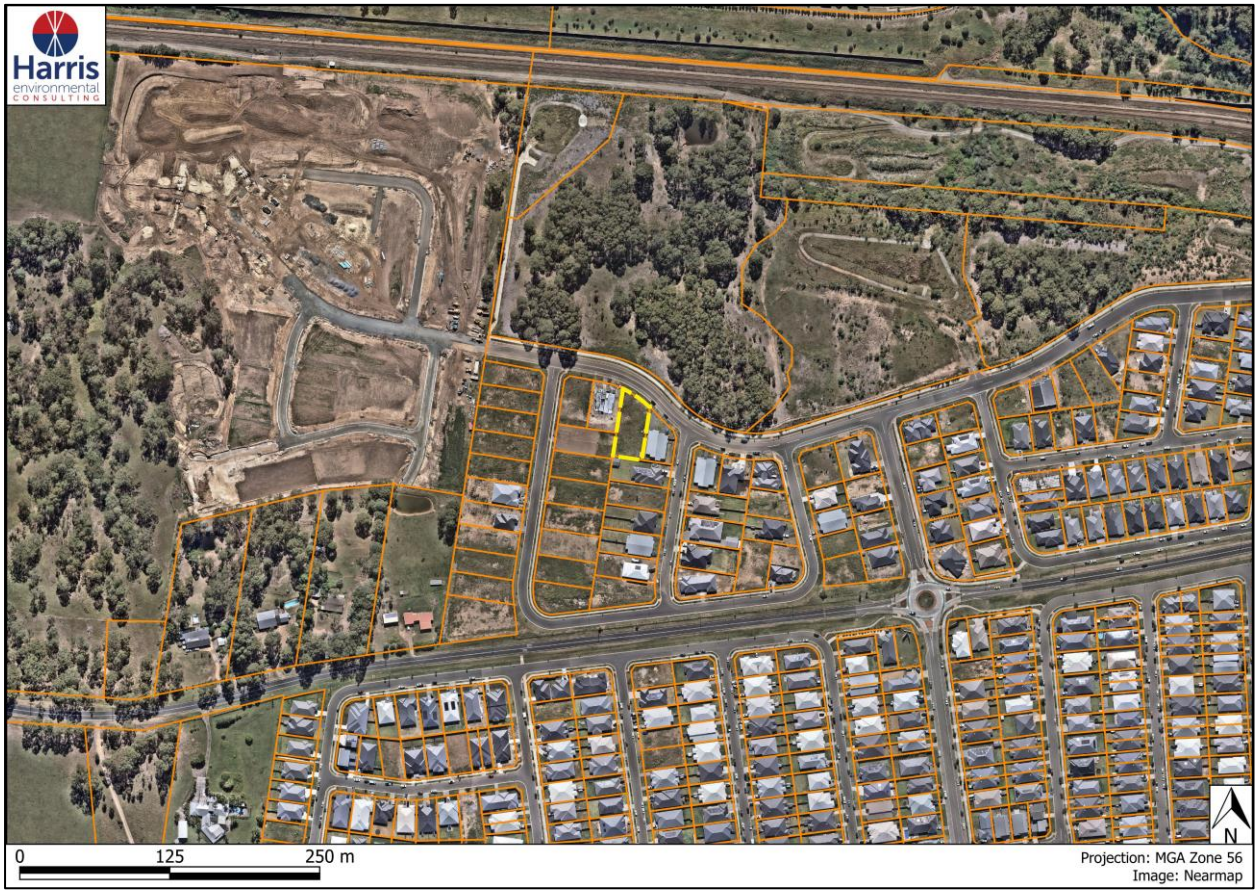
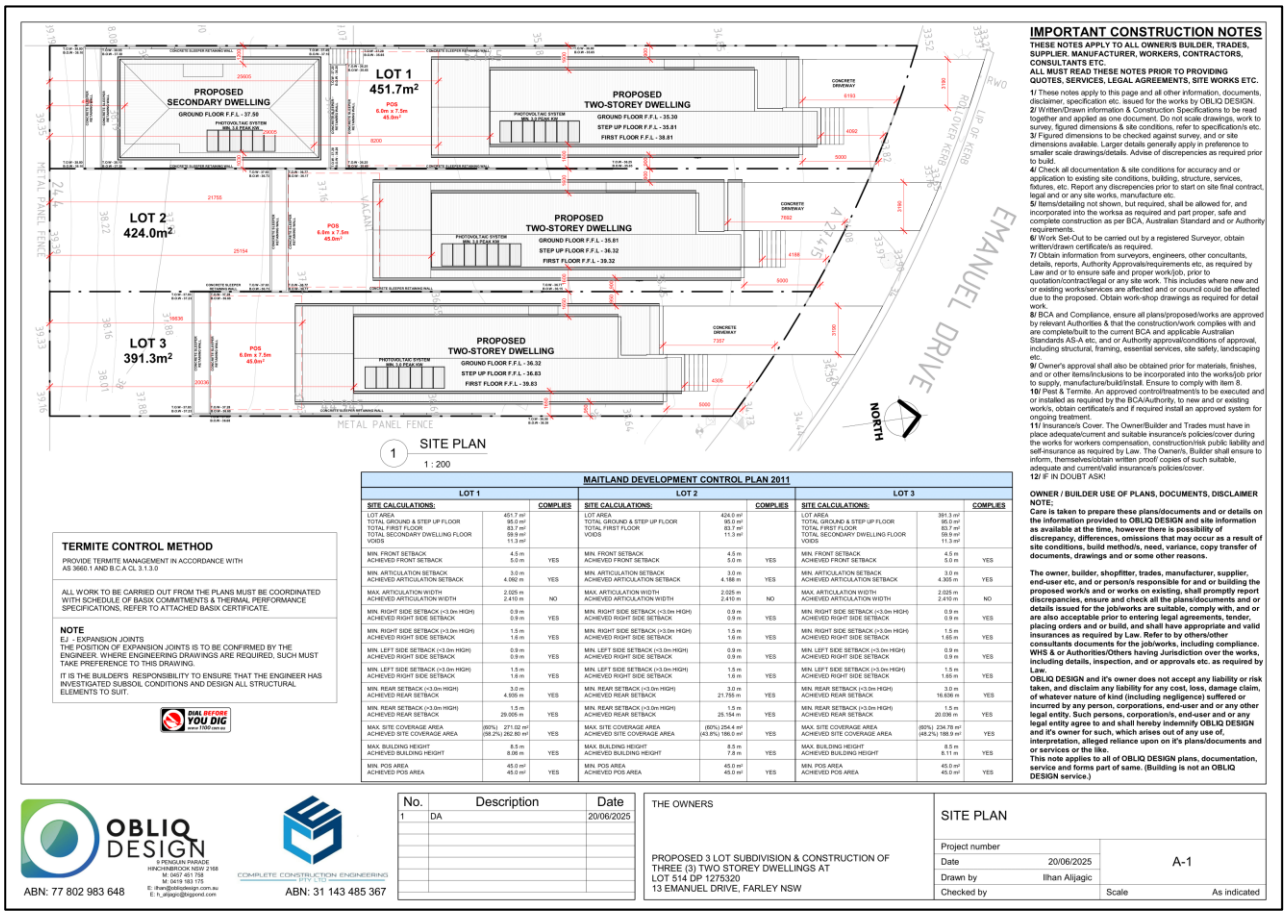


Figure 3 Close up view of Subject Lot

Figure 4 Proposed Plans



IMPORTANT CONSTRUCTION NOTES

THESE NOTES APPLY TO ALL OWNER/S BUILDER, TRADES, SUPPLIER, MANUFACTURER, WORKERS, CONTRACTORS, CONSULTANTS ETC.
ALL MUST READ THESE NOTES PRIOR TO PROVIDING QUOTES, SERVICES, LEGAL AGREEMENTS, SITE WORKS ETC.

1/ These notes apply to this page and all other information, documents, disclaimer, specification etc. issued for the works by OBLIQ DESIGN.
2/ Written/Drawn information & Construction Specifications to be read together and applied as one document. Do not scale drawings, work to survey, figured dimensions & site conditions, refer to specification/s etc.
3/ Figured dimensions to be checked against survey, and or site dimensions available. Larger details generally apply in preference to smaller scale drawings/details. Advise of discrepencies as required prior to build.
4/ Check all documentation & site conditions for accuracy and or application to existing site conditions, building, structure, services, fixtures, etc. Report any discrepencies prior to start on site final contract, legal and or any site works, manufacture etc.
5/ Items/detailing not shown, but required, shall be allowed for, and incorporated into the worksa as required and part proper, safe and complete construction as per BCA, Australian Standard and or Authority requirements.
6/ Work Set-Out to be carried out by a registered Surveyor, obtain written/drawn certificate/s as required.
7/ Obtain information from surveyors, engineers, other consultants, details, reports, Authority Approvals/requirements etc, as required by Law and or to ensure safe and proper work/job, prior to quotation/contract/legal or any site work. This includes where new and or existing works/services are affected and or council could be affected due to the proposed. Obtain work-shop drawings as required for detail work.
8/ BCA and Compliance, ensure all plans/proposed/works are approved by relevant Authorities & that the construction/work complies with and are complete/built to the current BCA and applicable Australian Standards AS-A etc, and or Authority approval/conditions of approval, including structural, framing, essential services, site safety, landscaping etc.
9/ Owner's approval shall also be obtained prior for materials, finishes, and or other items/inclusions to be incorporated into the works/job prior to supply, manufacture/build/install. Ensure to comply with item 8.
10/ Pest & Termite. An approved control/treatment/s to be executed and or installed as required by the BCA/Authority, to new and or existing work/s, obtain certificate/s and if required install an approved system for ongoing treatment.
11/ Insurance/s Cover. The Owner/Builder and Trades must have in place adequate/current and suitable insurance/s policies/cover during the works for workers compensation, construction/risk public liability and self-insurance as required by Law. The Owner/s, Builder shall ensure to inform, themselves/obtain written proof/ copies of such suitable, adequate and current/valid insurance/s policies/cover.
12/ IF IN DOUBT ASK!

OWNER / BUILDER USE OF PLANS, DOCUMENTS, DISCLAIMER NOTE;
Care is taken to prepare these plans/documents and or details on the information provided to OBLIQ DESIGN and site information as available at the time, however there is possibility of discrepancy, differences, omissions that may occur as a result of site conditions, build method/s, need, variance, copy transfer of documents, drawings and or some other reasons.

The owner, builder, shopfitter, trades, manufacturer, supplier, end-user etc, and or person/s responsible for and or building the proposed work/s and or works on existing, shall promptly report discrepancies, ensure and check all the plans/documents and or details issued for the job/works are suitable, comply with, and or are also acceptable prior to entering legal agreements, tender, placing orders and or build, and shall have appropriate and valid insurances as required by Law. Refer to by others/other consultants documents for the job/works, including compliance. WHS & or Authorities/Others having Jurisdiction over the works, including details, inspection, and or approvals etc. as required by Law.
OBLIQ DESIGN and it's owner does not accept any liability or risk taken, and disclaim any liability for any cost, loss, damage claim, of whatever nature of kind (including negligence) suffered or incurred by any person, corporations, end-user and or any other legal entity. Such persons, corporation/s, end-user and or any legal entity agree to and shall hereby indemnify OBLIQ DESIGN and it's owner for such, which arises out of any use of, interpretation, alleged reliance upon on it's plans/documents and or services or the like.
This note applies to all of OBLIQ DESIGN plans, documentation, service and forms part of same. (Building is not an OBLIQ DESIGN service.)

MAITLAND DEVELOPMENT CONTROL PLAN 2011

	LOT 1		LOT 2		LOT 3	
SITE CALCULATIONS:		COMPLIES	SITE CALCULATIONS:	COMPLIES	SITE CALCULATIONS:	COMPLIES
LOT AREA	451.7 m²		LOT AREA	424.0 m²	LOT AREA	391.3 m²
TOTAL GROUND & STEP UP FLOOR	95.0 m²		TOTAL GROUND & STEP UP FLOOR	95.0 m²	TOTAL GROUND & STEP UP FLOOR	95.0 m²
TOTAL FIRST FLOOR	83.7 m²		TOTAL FIRST FLOOR	83.7 m²	TOTAL FIRST FLOOR	83.7 m²
TOTAL SECONDARY DWELLING FLOOR	59.9 m²		VOIDS	11.3 m²	TOTAL SECONDARY DWELLING FLOOR	59.9 m²
VOIDS	11.3 m²				VOIDS	11.3 m²
MIN. FRONT SETBACK	4.5 m		MIN. FRONT SETBACK	4.5 m	MIN. FRONT SETBACK	4.5 m
ACHIEVED FRONT SETBACK	5.0 m	YES	ACHIEVED FRONT SETBACK	5.0 m YES	ACHIEVED FRONT SETBACK	5.0 m YES
MIN. ARTICULATION SETBACK	3.0 m		MIN. ARTICULATION SETBACK	3.0 m	MIN. ARTICULATION SETBACK	3.0 m
ACHIEVED ARTICULATION SETBACK	4.060 m	YES	ACHIEVED ARTICULATION SETBACK	4.166 m YES	ACHIEVED ARTICULATION SETBACK	4.305 m YES
MAX. ARTICULATION WIDTH	2.025 m		MAX. ARTICULATION WIDTH	2.025 m	MAX. ARTICULATION WIDTH	2.025 m
ACHIEVED ARTICULATION WIDTH	2.410 m	NO	ACHIEVED ARTICULATION WIDTH	2.410 m NO	ACHIEVED ARTICULATION WIDTH	2.410 m NO
MIN. RIGHT SIDE SETBACK (<3.0m HIGH)	0.9 m		MIN. RIGHT SIDE SETBACK (<3.0m HIGH)	0.9 m	MIN. RIGHT SIDE SETBACK (<3.0m HIGH)	0.9 m
ACHIEVED RIGHT SIDE SETBACK	0.9 m	YES	ACHIEVED RIGHT SIDE SETBACK	0.9 m YES	ACHIEVED RIGHT SIDE SETBACK	0.9 m YES
MIN. RIGHT SIDE SETBACK (>3.0m HIGH)	1.5 m		MIN. RIGHT SIDE SETBACK (>3.0m HIGH)	1.5 m	MIN. RIGHT SIDE SETBACK (>3.0m HIGH)	1.5 m
ACHIEVED RIGHT SIDE SETBACK	1.6 m	YES	ACHIEVED RIGHT SIDE SETBACK	1.6 m YES	ACHIEVED RIGHT SIDE SETBACK	1.65 m YES
MIN. LEFT SIDE SETBACK (<3.0m HIGH)	0.9 m		MIN. LEFT SIDE SETBACK (<3.0m HIGH)	0.9 m	MIN. LEFT SIDE SETBACK (<3.0m HIGH)	0.9 m
ACHIEVED RIGHT SIDE SETBACK	0.9 m	YES	ACHIEVED RIGHT SIDE SETBACK	0.9 m YES	ACHIEVED RIGHT SIDE SETBACK	0.9 m YES
MIN. LEFT SIDE SETBACK (>3.0m HIGH)	1.5 m		MIN. LEFT SIDE SETBACK (>3.0m HIGH)	1.5 m	MIN. LEFT SIDE SETBACK (>3.0m HIGH)	1.5 m
ACHIEVED RIGHT SIDE SETBACK	1.6 m	YES	ACHIEVED RIGHT SIDE SETBACK	1.6 m YES	ACHIEVED RIGHT SIDE SETBACK	1.65 m YES
MIN. REAR SETBACK (<3.0m HIGH)	3.0 m		MIN. REAR SETBACK (<3.0m HIGH)	3.0 m	MIN. REAR SETBACK (<3.0m HIGH)	3.0 m
ACHIEVED REAR SETBACK	4.655 m	YES	ACHIEVED REAR SETBACK	21.755 m YES	ACHIEVED REAR SETBACK	16.836 m YES
MIN. REAR SETBACK (>3.0m HIGH)	1.5 m		MIN. REAR SETBACK (>3.0m HIGH)	1.5 m	MIN. REAR SETBACK (>3.0m HIGH)	1.5 m
ACHIEVED REAR SETBACK	29.005 m	YES	ACHIEVED REAR SETBACK	25.154 m YES	ACHIEVED REAR SETBACK	20.036 m YES
MAX. SITE COVERAGE AREA	(60%) 271.02 m²		MAX. SITE COVERAGE AREA	(60%) 254.4 m²	MAX. SITE COVERAGE AREA	(60%) 234.78 m²
ACHIEVED SITE COVERAGE AREA	(58.2%) 262.80 m²	YES	ACHIEVED SITE COVERAGE AREA	(43.8%) 186.0 m² YES	ACHIEVED SITE COVERAGE AREA	(48.2%) 188.9 m² YES
MAX. BUILDING HEIGHT	8.5 m		MAX. BUILDING HEIGHT	8.5 m	MAX. BUILDING HEIGHT	8.5 m
ACHIEVED BUILDING HEIGHT	8.06 m	YES	ACHIEVED BUILDING HEIGHT	7.8 m YES	ACHIEVED BUILDING HEIGHT	8.11 m YES
MIN. POS AREA	45.0 m²		MIN. POS AREA	45.0 m²	MIN. POS AREA	45.0 m²
ACHIEVED POS AREA	46.0 m²	YES	ACHIEVED POS AREA	45.0 m YES	ACHIEVED POS AREA	46.0 m² YES

TERMITE CONTROL METHOD

PROVIDE TERMITE MANAGEMENT IN ACCORDANCE WITH AS 3660.1 AND B.C.A CL 3.1.3.0

ALL WORK TO BE CARRIED OUT FROM THE PLANS MUST BE COORDINATED WITH SCHEDULE OF BASIX COMMITMENTS & THERMAL PERFORMANCE SPECIFICATIONS, REFER TO ATTACHED BASIX CERTIFICATE.

NOTE
EJ – EXPANSION JOINTS
THE POSITION OF EXPANSION JOINTS IS TO BE CONFIRMED BY THE ENGINEER. WHERE ENGINEERING DRAWINGS ARE REQUIRED, SUCH MUST TAKE PREFERENCE TO THIS DRAWING.

IT IS THE BUILDERS RESPONSIBILITY TO ENSURE THAT THE ENGINEER HAS INVESTIGATED SUBSOIL CONDITIONS AND DESIGN ALL STRUCTURAL ELEMENTS TO SUIT.

DIAL BEFORE YOU DIG

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COMPLETE CONSTRUCTION ENGINEERING PTY LTD
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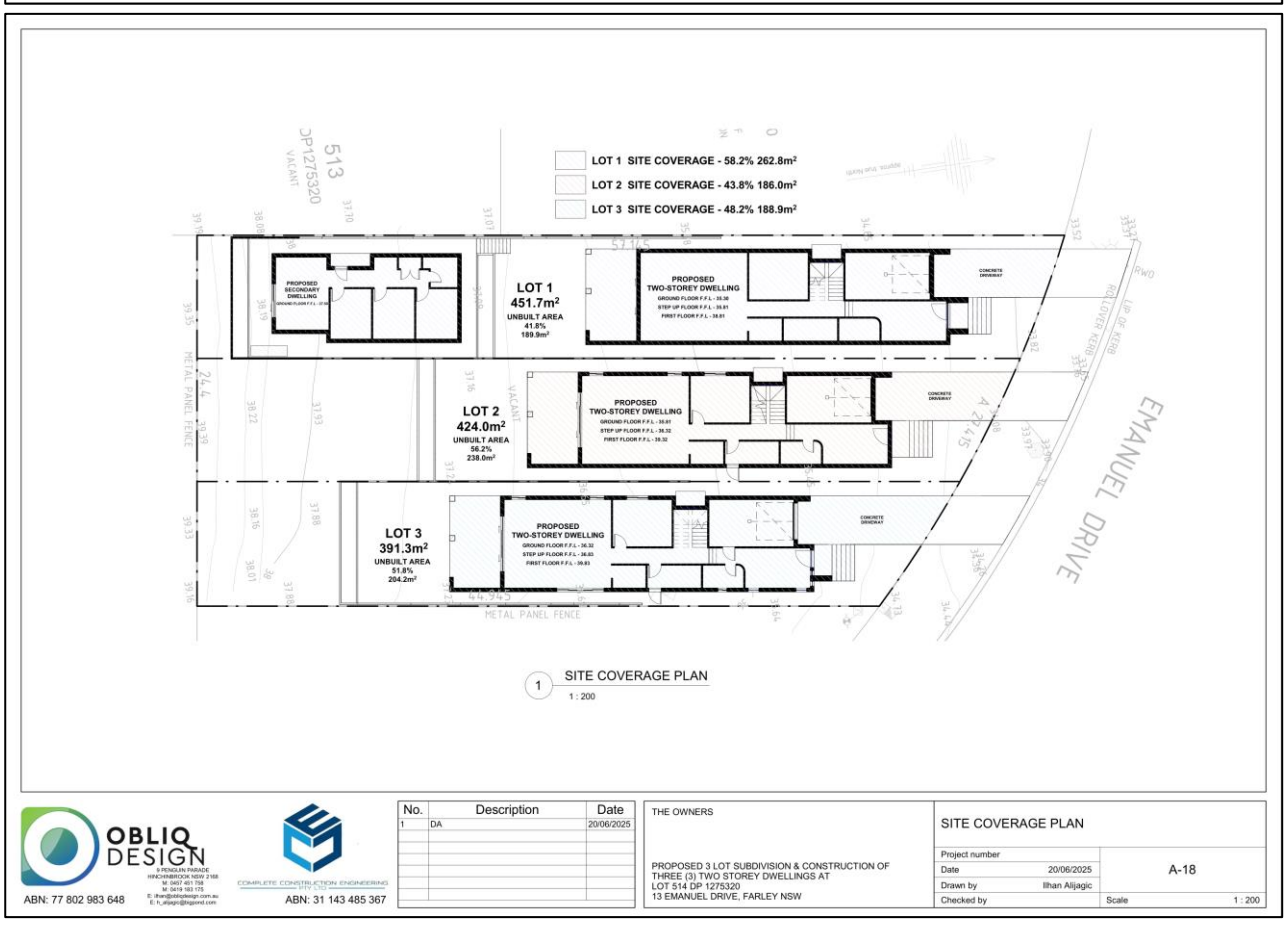
No.	Description	Date
1	DA	20/06/2025

THE OWNERS

PROPOSED 3 LOT SUBDIVISION & CONSTRUCTION OF THREE (3) TWO STOREY DWELLINGS AT
LOT 514 DP 1275320
13 EMANUEL DRIVE, FARLEY NSW

SITE PLAN

Project number		A-1
Date	20/06/2025	
Drawn by	Ilhan Aljagic	
Checked by		Scale As indicated



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No.	Description	Date
1	DA	20/06/2025

THE OWNERS

PROPOSED 3 LOT SUBDIVISION & CONSTRUCTION OF THREE (3) TWO STOREY DWELLINGS AT
LOT 514 DP 1275320
13 EMANUEL DRIVE, FARLEY NSW

SITE COVERAGE PLAN

Project number		A-18
Date	20/06/2025	
Drawn by	Ilhan Aljagic	
Checked by		Scale 1 : 200

1.1 Regulation

As this proposal involves a subdivision it requires Integrated DA approval. This involves obtaining a Bushfire Safety Authority (BFSA) from the NSW Rural Fire Services (RFS).

Integrated development applications under section 100B of the *Rural Fires Act* (RF Act) and section 4.46 of the *EP&A Act* require the following detailed information:

- Description of property.
- Classification of vegetation out to 140 m from the development.
- An assessment of the effective slope to a distance of 100 m.
- Identification of any significant environmental features.
- Details of threatened species, populations, endangered communities, and critical habitat known to the applicant.
- Details of Aboriginal heritage known to the applicant; and
- A bushfire assessment that demonstrates compliance with the relevant requirements of the *PBP (2019)* and AS 3959:2018.

These relevant specific objectives for subdivision in Chapter 5 of the *PBP (2019)* include:

- Minimise perimeters of the subdivision exposed to the bush fire hazard.
- Minimise bushland corridors that permit the passage of bush fire.
- Provide for the siting of future dwellings away from ridge tops and steep slopes.
- Ensure that separation distances (APZ) between a bush fire hazard and future dwellings enable conformity with deemed to satisfy requirements of the BCA.
- Ensure the ongoing maintenance of asset protection zones.
- Provide clear and ready access from all properties to the public road for residents and emergency services; and
- Ensure an adequate supply of water and other services to facilitate effective firefighting.

2 PLANNING LAYERS

The following planning layers are described in Table 1 and shown in the Figures below:

Table 1 Planning Layers

MAP	FIGURE	DESCRIPTION
Bushfire Prone Land Map	5	The subject site is mapped as "Vegetation Buffer".
LEP Zone Map	6	The subject lot is zoned as "R1 – General Residential".
Vegetation Mapping	7	The vegetation of the surrounding area has been mapped as "Coastal Floodplain Wetlands", "Hunter-Macleay Dry Sclerophyll Forests", "Coastal Valley Grassy Woodlands" and "Coastal Freshwater Lagoons" (DPIE, 2022)
Biodiversity Values Map	8	As of 20/06/2025, there is NO land identified within the subject lot as having high biodiversity value under the Biodiversity Offsets Scheme under the Biodiversity Conservation Act 2016.

Figure 5 Bushfire Prone Map

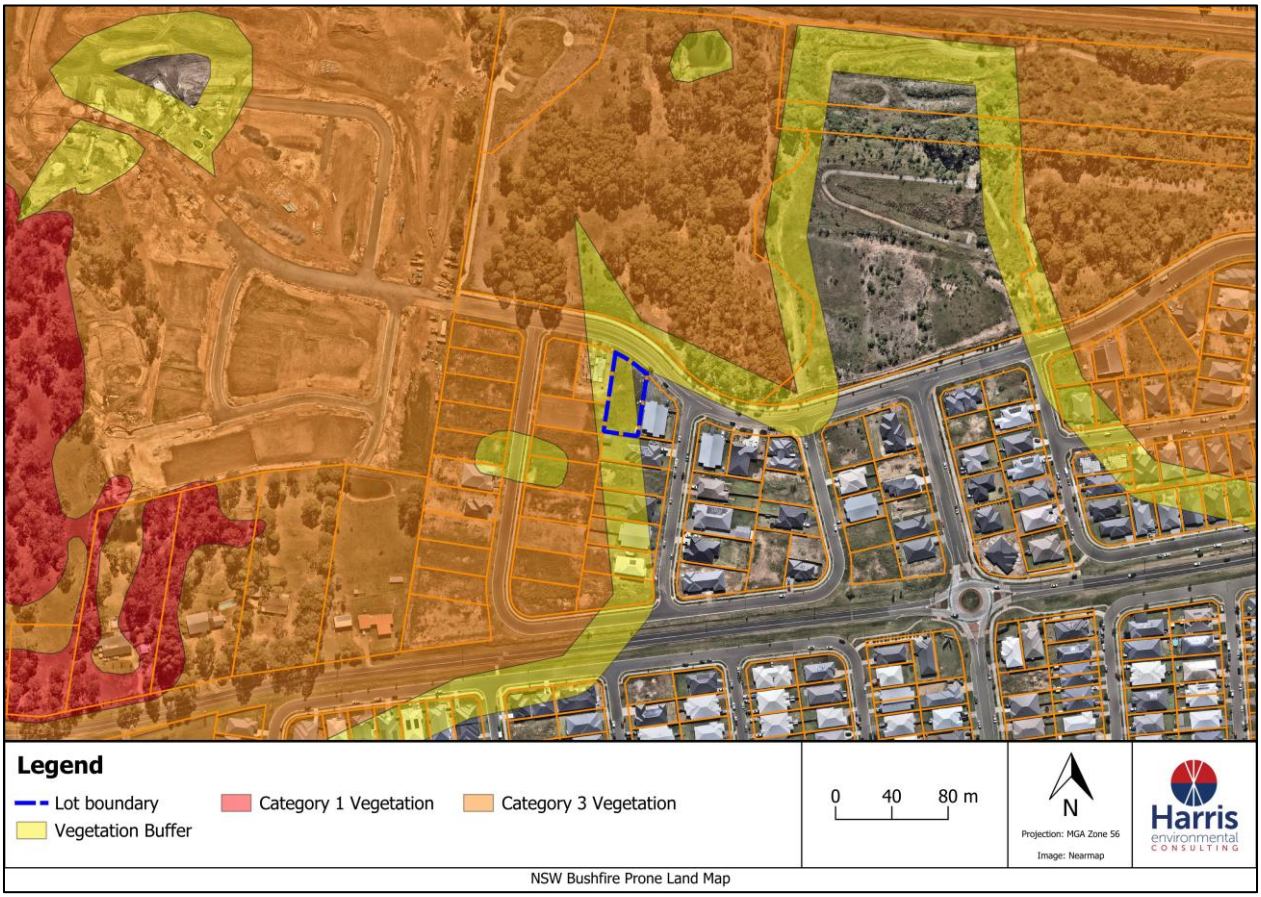


Figure 6 LEP Zone Map

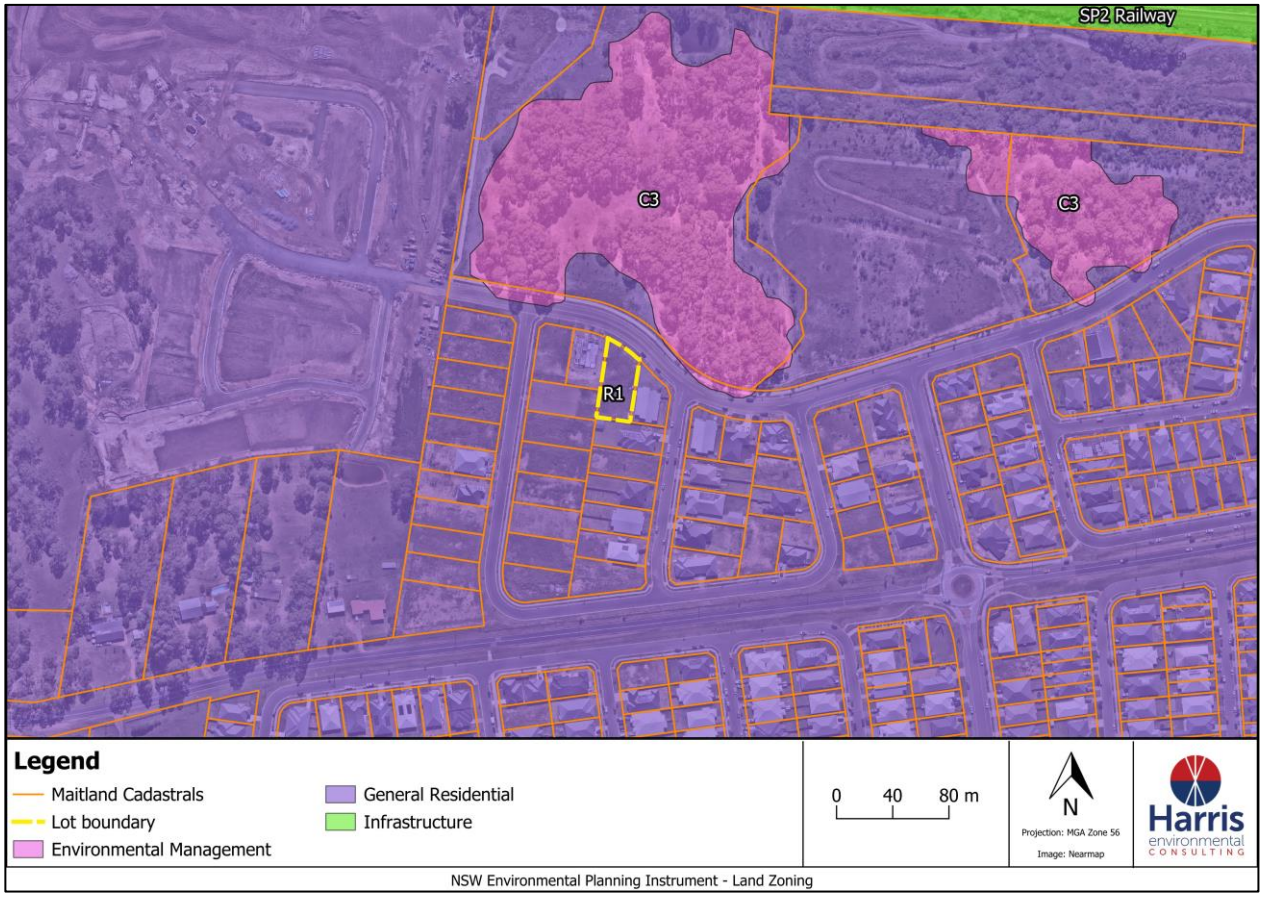


Figure 7 Vegetation Mapping

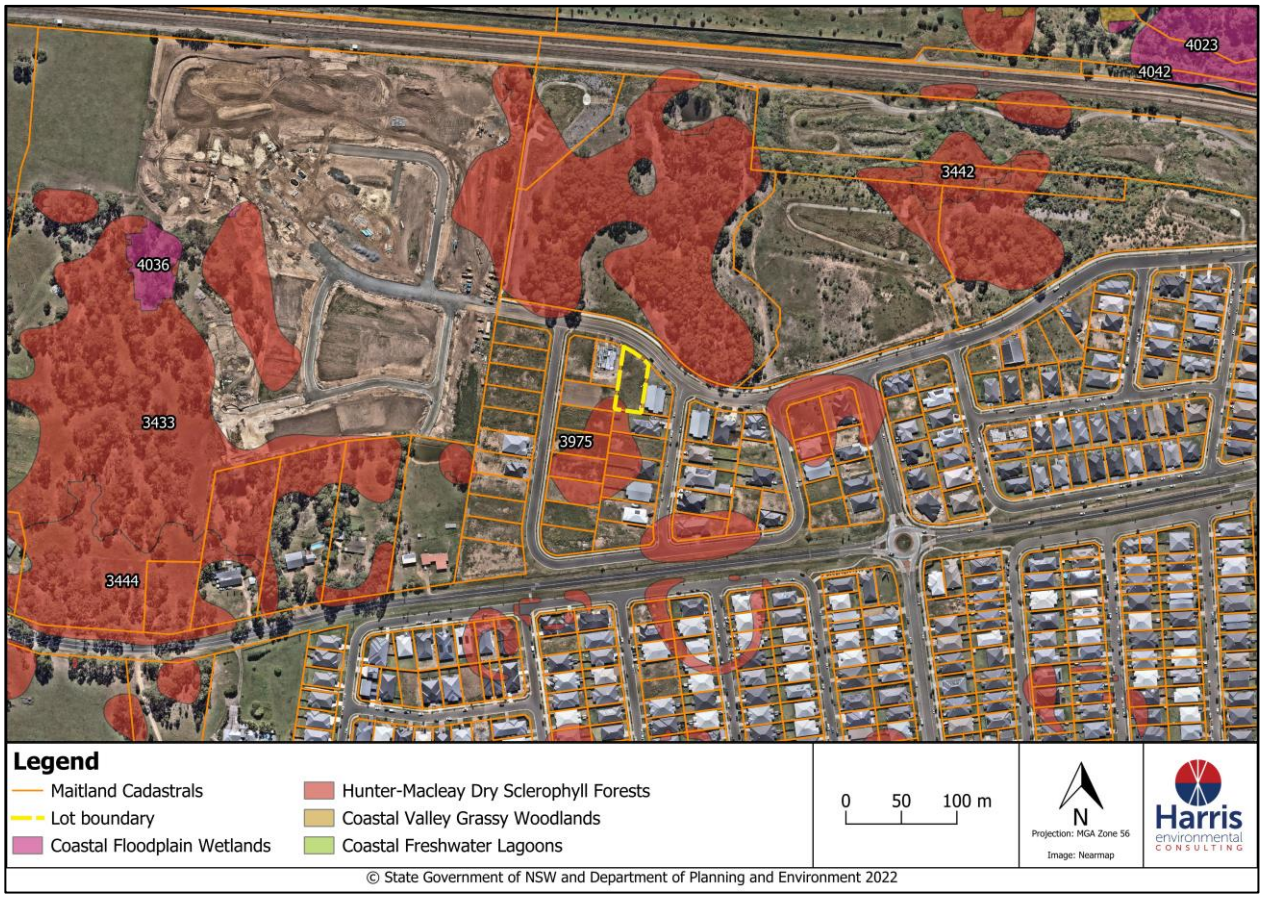
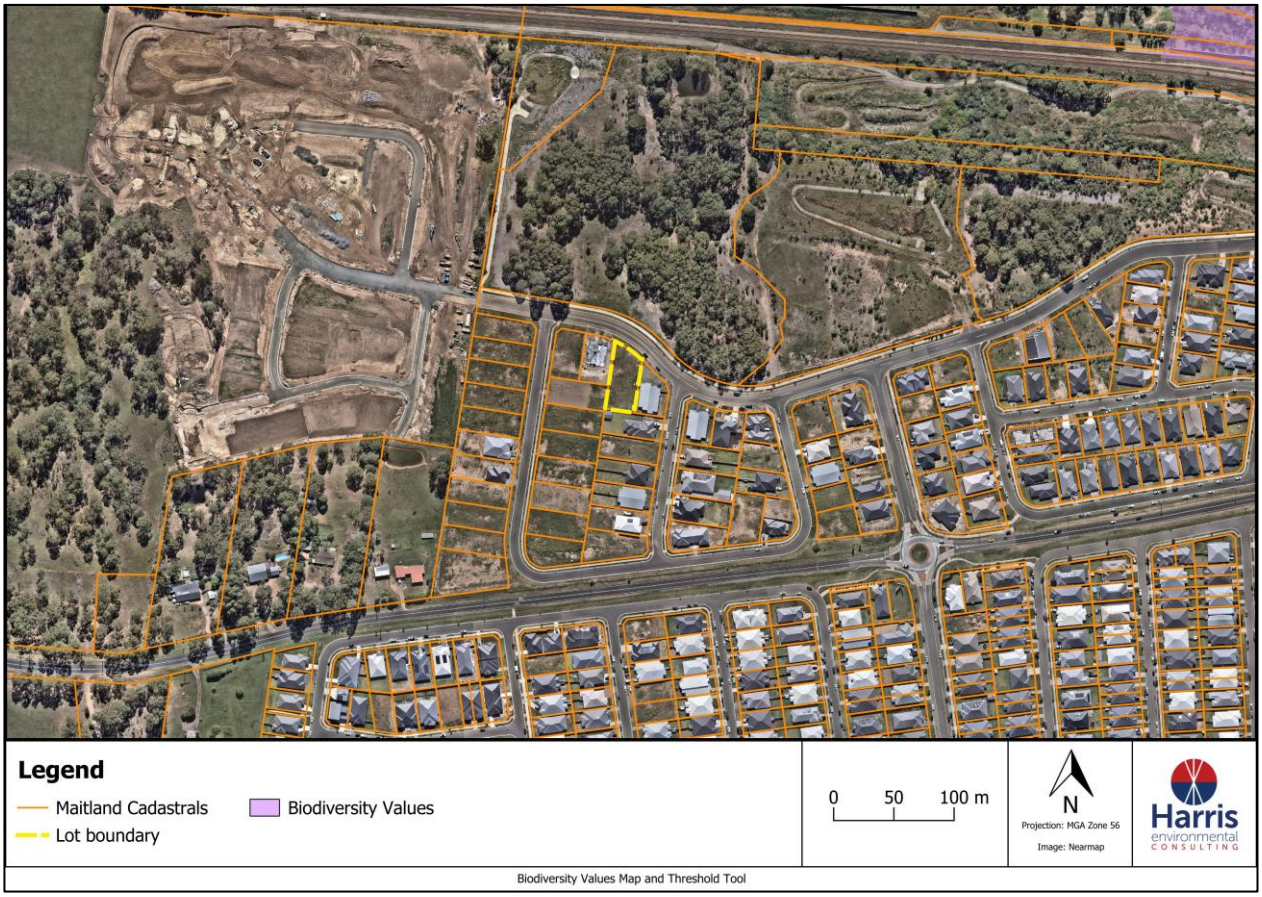


Figure 8 Biodiversity Values Map



3 SITE DESCRIPTION

3.1 Slope and Aspect of the Site within 100m

The slope that most significantly influenced fire behaviour was determined over a distance of at least 100 m out from the proposed development. This assessment used 2 m contour intervals.

The *Australian Standard AS3959 - 2018* and *PBP 2019* identify that the slope of the land under the classified vegetation is much more important than the slope between the site and the edge of the classified vegetation.

As can be seen in Figure 9, the subject lot is located on land that downslopes to the north and upslopes to the south.

Figure 9 Slope

3.2 Vegetation Formation Within 140m of Proposed Development

Figure 10 shows the managed and unmanaged land within 140 m of the proposed development. The vegetation formations are described below and summarised in Table 2.

The vegetation to the north of the subject lot has been mapped as “Hunter-Macleay Dry Sclerophyll Forests”. This has been classified as ‘Forest’ in accordance with Planning for Bushfire Protection (PBP) 2019.

The remaining unmanaged and unmapped vegetation to the north of the subject lot has been classified as ‘Grassland’ in accordance with PBP 2019.

Table 2 Predominate Vegetation Classification

	Vegetation Formation	Effective Slope	Distance from façade to hazard
Lot 1 Primary Dwelling			
North	Forest	4° Downslope	26.7 m
Lot 1 Secondary Dwelling			
North	Forest	4° Downslope	54.8 m
Lot 2			
North	Forest	4° Downslope	26.4 m
Lot 3			
North	Forest	4° Downslope	25.9 m

Figure 10 Bushfire Prone Vegetation within 140 metres of the Proposed Development

4 BUSHFIRE THREAT ASSESSMENT

4.1. Asset Protection Zones (APZ)

Table A1.12.5 *Planning for Bush Fire Protection 2019* has been used to determine the width of the required APZ for the proposed development using the vegetation and slope data identified.

To determine any potential reduced APZ for the northern elevation, Method 2 AS3959 has been used to calculate the radiant heat emission utilising the Bushfire Attack Assessor Program licensed by Newcastle Bushfire Consulting (*NBC 2020*). Full details of the assessment are in Appendix iii, and the summarised findings are presented in Table 4 and shown in Figure 11.

Table 3 and Figure 12 below show the APZ for the proposed dwellings on lots 1, 2 and 3.

The APZ is required to be established as part of the development and maintained for perpetuity throughout each of the subject lots.

Table 3 BAL Determination for the Proposed Development

	Primary Dwelling (Lot 1)	**Secondary Dwelling (Lot 1)**	**Lot 2**	**Lot 3**
Aspect	North	North	North	North
Fuel Load	Hunter-Macleay Dry Sclerophyll Forests	Hunter-Macleay Dry Sclerophyll Forests	Hunter-Macleay Dry Sclerophyll Forests	Hunter-Macleay Dry Sclerophyll Forests
Vegetation Slope	4˚ Downslope	4˚ Downslope	4˚ Downslope	4˚ Downslope
Site Slope	4˚ Downslope	4˚ Downslope	4˚ Downslope	4˚ Downslope
Distance from façade to hazard	26.7 m	54.8 m	26.4 m	25.9 m
BAL 29 required APZ (Method 2 AS 3959 2018)	**19 -< 27 m**	19 -< 27 m	**19 -< 27 m**	**19 -< 27** m
BAL 12.5 required APZ (Method 2 AS 3959 2018)	38 -< 58 m	**38 -< 58 m**	38 -< 58 m	38 -< 58 m
Construction BAL Required	**BAL 29**	**BAL 12.5**	**BAL 29**	**BAL 29**

4.2. Relevant Construction Standard

The Australian Standard AS3959 – 2018 and/or *NASH Standard Steel Framed Construction in Bushfire Areas* (2014) are the enabling standards that address the performance requirements of both parts 2.3.4 and Part GF5.1 of the Building Code of Australia for the Construction of Class 1, 2 and Class 3 buildings within a designated Bushfire Prone Area.

The following was determined for this site:

Relevant fire danger index……FDI 100
Flame temperature ……1090 K

The **proposed primary dwelling** within lot 1 can be constructed to **BAL 29** (Section 7 and Section 3) as specified by AS3959 - 2018 Construction for Buildings in Bushfire Prone Areas, *NASH Standard Steel Framed Construction in Bushfire Areas* (2014) and PBP 2019.

The **proposed secondary dwelling** within lot 1 can be constructed to **BAL 12.5** (Section 5 and Section 3) as specified by AS3959 - 2018 Construction for Buildings in Bushfire Prone Areas, *NASH Standard Steel Framed Construction in Bushfire Areas* (2014) and PBP 2019.

The **proposed dwellings** within lots 2 and 3 can be constructed to **BAL 29** (Section 7 and Section 3) as specified by AS3959 - 2018 Construction for Buildings in Bushfire Prone Areas, *NASH Standard Steel Framed Construction in Bushfire Areas* (2014) and PBP 2019.

4.3. Emergency Management

The owners are advised to obtain the *NSW Rural Fire Service – "Guidelines for the Preparation of Bush Fire Evacuation Plans"* & *'Bush Fire Survival Plan'* In the event of an emergency, the owners should ensure they are familiar with the RFS Bush Fire Alert Levels and use their Bush Fire Survival Plan.

4.4. Adequate Water and Utility Services

Reticulated water is supplied to the subject lot. Hydrants are location on Roses Way within 70 m of the development.

Any bottled gas will be installed and maintained in accordance with AS1596 and the requirements of the relevant authority. If gas cylinders need to be kept close to the buildings, the release valves must be directed away from the building and away from any combustible material. Polymer sheathed flexible gas supply lines to gas meters adjacent to buildings are not to be used.

Electrical transmission lines, if above ground, will be managed in accordance with specifications issued by the respective energy provider.

4.5. Safe Operational Access

The Planning for Bushfire Protection 2019 requires the provision of safe operational access to structures and water supply for emergency services while residents are seeking to evacuate from an area.

The subject lot is located on Emanuel Drive. This is a two-wheel drive, all weather, through road. Road surfaces and bridges are sufficient to carry fully loaded firefighting vehicles.

There are no specific access requirements in an urban area where an unobstructed path (no greater than 70m) is provided between the most distant external part of the proposed development and the nearest part of the public access road (where the road speed limit is not greater than 70kph) that supports the operational use of emergency firefighting vehicles.

5 LANDSCAPING

The APZ should be maintained in perpetuity throughout each of the subject lots.

Appendix 4 (*PBP 2019*) provides guidelines for landscaping and Bushfire Provisions within the APZ. To incorporate bushfire protection measures into future development, the owner is advised to consider the following:

- Avoid planting trees species with rough fibrous bark or which retain/shed bark in long strips or retain dead material in their canopy.
- Avoid planting deciduous species that may increase fuel at surface/ground level by the fall of leaves.
- Avoid climbing species to walls and pergolas.
- Locate combustible materials such as woodchips/mulch, flammable fuel stores (LPG gas bottles) away from the building.
- Locate combustible structures such as garden sheds, pergolas, and materials such as timber furniture away from the building.
- Ensure any vegetation planted around the house is a suitable distance away so these plants do not come into physical contact with the house as they mature.
- The property should be developed to incorporate suitable impervious area surrounding the house, including courtyards, paths, and driveways.

The APZ is to be managed as an IPA. The IPA is the area closest to the building and creates a fuel-managed area which can minimise the impact of direct flame contact and radiant heat on the development and act as a defendable space. Vegetation within the IPA should be kept to a minimum level. Litter fuels within the IPA should be kept below 1cm in height and be discontinuous. In practical terms the IPA is typically the curtilage around the building, consisting of a mown lawn and well-maintained gardens.

When establishing and maintaining an IPA the following requirements apply:

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 2m above the ground.
- tree canopies should be separated by 2 to 5m; and
- 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: and
- 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 to no more than 100mm in height); and
- leaves and vegetation debris should be removed.

6 SUMMARY

- The proposed dwellings can be constructed to:
  - **BAL 29** (Section 7 and Section 3) for the dwellings on lot 2 and 3
  - **BAL 29** (Section 7 and Section 3) for the primary dwelling on lot 1
  - **BAL 12.5** (Section 5 and Section 3) for the secondary dwelling on lot 1

- The APZ is required to be established as part of the development and maintained in perpetuity throughout each of the subject lots

- The subject lot is located on Emanuel Drive. This is a two-wheel drive, all weather, through road. Road surfaces and bridges are sufficient to carry fully loaded firefighting vehicles.

- There are no specific access requirements in an urban area where an unobstructed path (no greater than 70m) is provided between the most distant external part of the proposed development and the nearest part of the public access road (where the road speed limit is not greater than 70kph) that supports the operational use of emergency firefighting vehicles.

- Reticulated water is supplied to the subject lot. Hydrants are location on Roses Way within 70 m of the development.

- Any bottled gas will be installed and maintained under AS1596 and the relevant authority's requirements. Electrical transmission lines, if above ground, will be managed under specifications issued by the respective energy provider.

7 REFERENCES

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APPENDIX I DEFINITION OF ASSET PROTECTION ZONES

Vegetation within the APZ should be managed in accordance with APZ specifications for the purposes of limiting the travel of a fire, reducing the likelihood of direct flame contact, and removing additional hazards or ignition sources. The following outlines some general vegetation management principles for APZs:

1) Discontinuous shrub layer (clumps or islands of shrubs not rows);

2) Vertical separation between vegetation stratums;

3) Tree canopies not overhanging structures;

4) Management and trimming of trees and other vegetation in the vicinity of power lines and tower lines in accordance with the specifications in "Vegetation Safety Clearances" issued by Energy Australia (NS179, April 2002);

5) Maintain low ground covers by mowing / whipper snipper / slashing; and

6) Non-combustible mulch e.g., stones and removing stores of combustible materials;

7) Vegetation to be planted should consist of fire retardant/ less flammable species strategically located to reduce attack from embers (i.e., as ember traps when in small clumps and short wind breaks).

APPENDIX II DEFINITIONS & ABBREVIATIONS

Asset Protection Zone- A fuel reduced area surrounding a buffer zone between a bushfire hazard and an asset. The APZ includes a defendable space within which firefighting operations can be carried out. The size of the required APZ varies with slope, vegetation and FFDI.

AS3959-2019: Australian Standard AS 3959:2018 Construction of buildings in bush fire-prone areas.

Bush fire prone area- an area of land that can support a bush fire or is likely to be subject to bushfire attack, as designated on a bush fir prone land map.

Bush fire prone vegetation (BFPV) – A map prepared by Council in accordance with RFS guidelines and defining area of vegetation by BFPV categories.

Bushfire prone land map (BFPL) A map prepared in accordance with RFS guidelines and certified by the Commissioner of the NSW RFS under section 146 (2) of the Environmental Planning and Assessment Act (1979)

BFSA: Bush fire safety authority.

Effective Slope: The land beneath the vegetation which most significantly affects fire behaviour, having regard to the vegetation present.

Fire Danger Index (FDI) The chance of a fire starting, its rate of spread, its intensity and the difficulty potential for its suppression, according to various combinations of air temperature, relative humidity, wind speed and both the long- and short-term drought effects.

Fire hazard: the potential for land to carry a bush fire, utilizing materials or fuels that can be ignited.

Grasslands- Grassed areas capable of sustaining a fire. Under Australia standard 3959 Construction of buildings in bushfire -prone areas, identified as low open shrubland, hummock grassland, closed tussock grassland, tussock grassland, open tussock, sparse open tussock, dense sown pasture, sown pasture, open herbfield and sparse open herb field. Grass, whether exotic or native, which is regularly maintained at or below 10 cm in height (includes maintained lawns, golf course, maintained public reserves, parklands, nature strips and commercial nurseries) are regarded as managed land.

Inner Protection Area (IPA): the component of an APZ which is closest to the asset (measured from unmanaged vegetation). It consists of an area maintained to minimal fuel loads so that a fire path is not created between the hazard and the building.

Managed land- Managed land is land that has vegetation removed or maintained to limit the spread and impact of bushfire. It may include existing developed land (i.e. residential, commercial or industrial) roads, golf course fairways, playgrounds or sports fields, vineyards, orchards, cultivated ornamental gardens, and commercial nurseries.

PBP 2019: Planning for Bushfire Protection 2019.

APPENDIX III BUSHFIRE ATTACK MODEL

NBC Bushfire Attack Assessment Report V4.1

AS3959 (2018) Appendix B - Detailed Method 2

Print Date: 7/07/2025 **Assessment Date:** 7/07/2025

Site Street Address: 13 Emanuel Drive, Farley

Assessor: Katherine Harris; Harris Environmental Consulting

Local Government Area: Maitland **Alpine Area:** No

Equations Used

Transmissivity: Fuss and Hammins, 2002
Flame Length: RFS PBP, 2001/Vesta/Catchpole
Rate of Fire Spread: Noble et al., 1980
Radiant Heat: Drysdale, 1985; Sullivan et al., 2003; Tan et al., 2005
Peak Elevation of Receiver: Tan et al., 2005
Peak Flame Angle: Tan et al., 2005

Run Description: North Lot 1 – Primary

Vegetation Information

Vegetation Type:	Hunter Macleay DSF		
Vegetation Group:	Dry Sclerophyll Forests (Shrub/Grass)		
Vegetation Slope:	4 Degrees	**Vegetation Slope Type:**	Downslope
Surface Fuel Load(t/ha):	14	**Overall Fuel Load(t/ha):**	24.6
Vegetation Height(m):	0.9	Only Applicable to Shrub/Scrub and Vesta	

Site Information

Site Slope:	4 Degrees	**Site Slope Type:**	Downslope
Elevation of Receiver(m):	Default	**APZ/Separation(m):**	26.7

Fire Inputs

Veg./Flame Width(m):	100	**Flame Temp(K):**	1090

Calculation Parameters

Flame Emissivity:	95	**Relative Humidity(%):**	25
Heat of Combustion(kJ/kg	18600	**Ambient Temp(K):**	308
Moisture Factor:	5	**FDI:**	100

Program Outputs

Level of Construction:	BAL 29	**Peak Elevation of Receiver(m):**	6.43
Radiant Heat(kW/m2):	19.06	**Flame Angle (degrees):**	73
Flame Length(m):	17.34	**Maximum View Factor:**	0.306
Rate Of Spread (km/h):	2.21	**Inner Protection Area(m):**	21
Transmissivity:	0.819	**Outer Protection Area(m):**	6
Fire Intensity(kW/m):	28140		

NBC Bushfire Attack Assessment Report V4.1

AS3959 (2018) Appendix B - Detailed Method 2

Print Date: 7/07/2025 **Assessment Date:** 7/07/2025

Site Street Address:	13 Emanuel Drive, Farley
Assessor:	Katherine Harris; Harris Environmental Consulting
Local Government Area:	Maitland **Alpine Area:** No

Equations Used

Transmissivity: Fuss and Hammins, 2002
Flame Length: RFS PBP, 2001/Vesta/Catchpole
Rate of Fire Spread: Noble et al., 1980
Radiant Heat: Drysdale, 1985; Sullivan et al., 2003; Tan et al., 2005
Peak Elevation of Receiver: Tan et al., 2005
Peak Flame Angle: Tan et al., 2005

Run Description: North Lot 1 – Secondary

Vegetation Information

Vegetation Type:	Hunter Macleay DSF		
Vegetation Group:	Dry Sclerophyll Forests (Shrub/Grass)		
Vegetation Slope:	4 Degrees	**Vegetation Slope Type:**	Downslope
Surface Fuel Load(t/ha):	14	**Overall Fuel Load(t/ha):**	24.6
Vegetation Height(m):	0.9	Only Applicable to Shrub/Scrub and Vesta	

Site Information

Site Slope:	4 Degrees	**Site Slope Type:**	Downslope
Elevation of Receiver(m):	Default	**APZ/Separation(m):**	54.8

Fire Inputs

Veg./Flame Width(m):	100	**Flame Temp(K):**	1090

Calculation Parameters

Flame Emissivity:	95	**Relative Humidity(%):**	25
Heat of Combustion(kJ/kg	18600	**Ambient Temp(K):**	308
Moisture Factor:	5	**FDI:**	100

Program Outputs

Level of Construction:	BAL 12.5	**Peak Elevation of Receiver(m):**	4.73
Radiant Heat(kW/m2):	7.22	**Flame Angle (degrees):**	81
Flame Length(m):	17.34	**Maximum View Factor:**	0.124
Rate Of Spread (km/h):	2.21	**Inner Protection Area(m):**	46
Transmissivity:	0.763	**Outer Protection Area(m):**	9
Fire Intensity(kW/m):	28140		

NBC Bushfire Attack Assessment Report V4.1

AS3959 (2018) Appendix B - Detailed Method 2

Print Date: 7/07/2025 **Assessment Date:** 7/07/2025

Site Street Address: 13 Emanuel Drive, Farley

Assessor: Katherine Harris; Harris Environmental Consulting

Local Government Area: Maitland **Alpine Area:** No

Equations Used

Transmissivity: Fuss and Hammins, 2002
Flame Length: RFS PBP, 2001/Vesta/Catchpole
Rate of Fire Spread: Noble et al., 1980
Radiant Heat: Drysdale, 1985; Sullivan et al., 2003; Tan et al., 2005
Peak Elevation of Receiver: Tan et al., 2005
Peak Flame Angle: Tan et al., 2005

Run Description: North Lot 2

Vegetation Information

Vegetation Type:	Hunter Macleay DSF		
Vegetation Group:	Dry Sclerophyll Forests (Shrub/Grass)		
Vegetation Slope:	4 Degrees	**Vegetation Slope Type:**	Downslope
Surface Fuel Load(t/ha):	14	**Overall Fuel Load(t/ha):**	24.6
Vegetation Height(m):	0.9	Only Applicable to Shrub/Scrub and Vesta	

Site Information

Site Slope:	4 Degrees	**Site Slope Type:**	Downslope
Elevation of Receiver(m):	Default	**APZ/Separation(m):**	26.4

Fire Inputs

Veg./Flame Width(m):	100	**Flame Temp(K):**	1090

Calculation Parameters

Flame Emissivity:	95	**Relative Humidity(%):**	25
Heat of Combustion(kJ/kg	18600	**Ambient Temp(K):**	308
Moisture Factor:	5	**FDI:**	100

Program Outputs

Level of Construction:	BAL 29	**Peak Elevation of Receiver(m):**	6.45
Radiant Heat(kW/m2):	19.32	**Flame Angle (degrees):**	73
Flame Length(m):	17.34	**Maximum View Factor:**	0.31
Rate Of Spread (km/h):	2.21	**Inner Protection Area(m):**	21
Transmissivity:	0.82	**Outer Protection Area(m):**	5
Fire Intensity(kW/m):	28140		

NBC Bushfire Attack Assessment Report V4.1

AS3959 (2018) Appendix B - Detailed Method 2

Print Date: 7/07/2025 **Assessment Date:** 7/07/2025

Site Street Address: 13 Emanuel Drive, Farley

Assessor: Katherine Harris; Harris Environmental Consulting

Local Government Area: Maitland **Alpine Area:** No

Equations Used

Transmissivity: Fuss and Hammins, 2002
Flame Length: RFS PBP, 2001/Vesta/Catchpole
Rate of Fire Spread: Noble et al., 1980
Radiant Heat: Drysdale, 1985; Sullivan et al., 2003; Tan et al., 2005
Peak Elevation of Receiver: Tan et al., 2005
Peak Flame Angle: Tan et al., 2005

Run Description: North Lot 3

Vegetation Information

Vegetation Type:	Hunter Macleay DSF		
Vegetation Group:	Dry Sclerophyll Forests (Shrub/Grass)		
Vegetation Slope:	4 Degrees	**Vegetation Slope Type:**	Downslope
Surface Fuel Load(t/ha):	14	**Overall Fuel Load(t/ha):**	24.6
Vegetation Height(m):	0.9	Only Applicable to Shrub/Scrub and Vesta	

Site Information

Site Slope:	4 Degrees	**Site Slope Type:**	Downslope
Elevation of Receiver(m):	Default	**APZ/Separation(m):**	25.9

Fire Inputs

Veg./Flame Width(m):	100	**Flame Temp(K):**	1090

Calculation Parameters

Flame Emissivity:	95	**Relative Humidity(%):**	25
Heat of Combustion(kJ/kg	18600	**Ambient Temp(K):**	308
Moisture Factor:	5	**FDI:**	100

Program Outputs

Level of Construction:	BAL 29	**Peak Elevation of Receiver(m):**	6.48
Radiant Heat(kW/m2):	19.76	**Flame Angle (degrees):**	73
Flame Length(m):	17.34	**Maximum View Factor:**	0.316
Rate Of Spread (km/h):	2.21	**Inner Protection Area(m):**	20
Transmissivity:	0.822	**Outer Protection Area(m):**	6
Fire Intensity(kW/m):	28140		