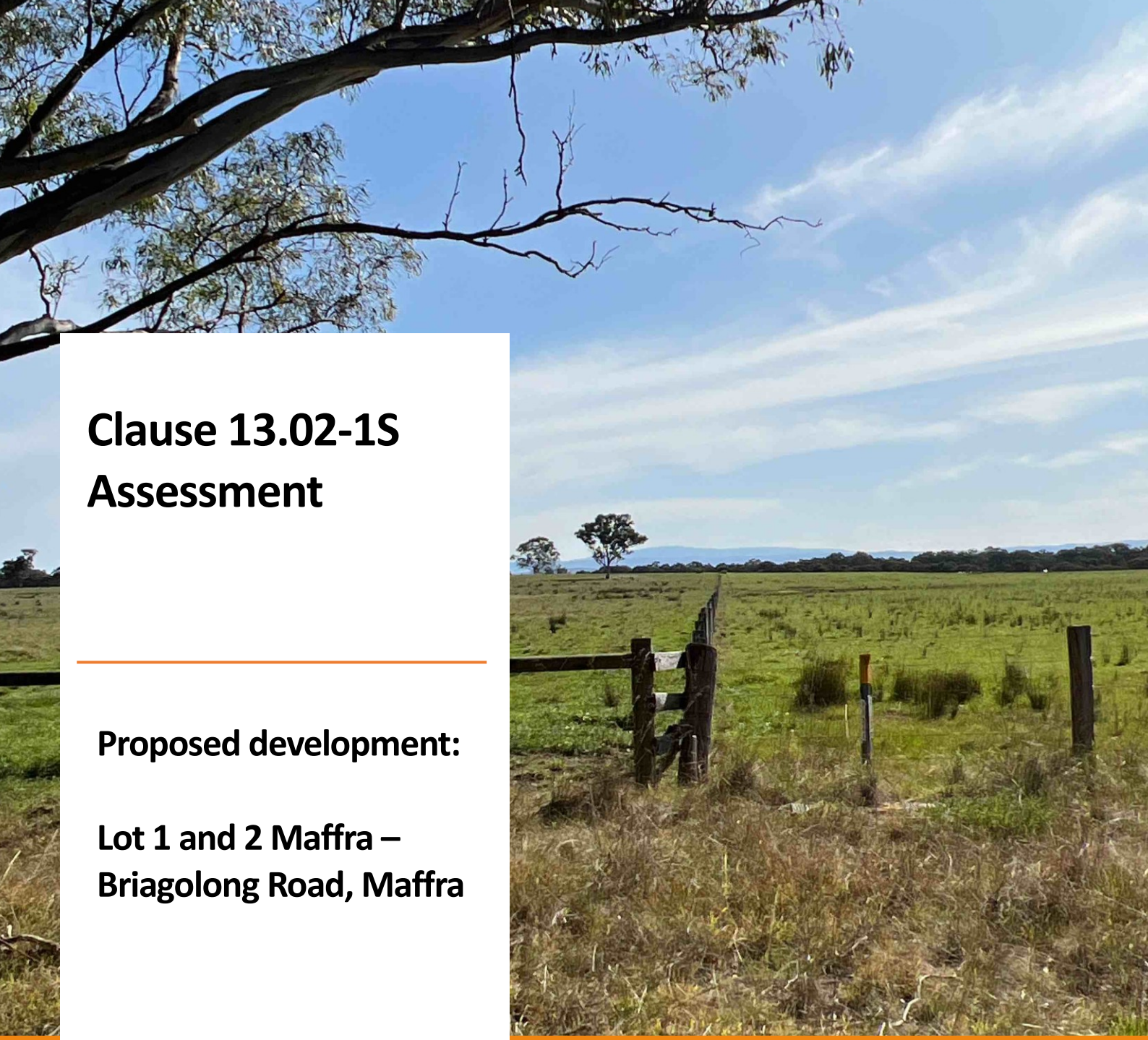

Clause 13.02-1S Assessment

Proposed development:

Lot 1 and 2 Maffra – Briagolong Road, Maffra

March 2026

FIRE RISK Consultants

Cover image: View of the typical vegetation on and around the property

Prepared by:	**Fire Risk Consultants Pty Ltd**
Approved by:	Fire Risk Consultants Pty Ltd
Date:	17/3/2026
Version:	V3

Fire Risk Consultants

www.fireriskconsultants.com.au

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Any fire safety work, including but not limited to planned burning, back burning and/or fire suppression, on any property or building is specifically excluded from this report.

*Where the term **"Bushfire prevention and mitigation related activities"** (or words to that effect) are used, this is to be defined as the clearance of vegetation in accordance with the Victorian State Government guidelines, including clearing and maintenance of existing fire breaks and/or fire access for fire fighters under electricity pylons and properties that have been constructed to Australian Standard AS3959 and/or the National Construction Code.*

Table of Contents

1. Introduction

This report has been developed to assess the proposed development against the requirements of Clause 13.02-1S of the Wellington Planning Scheme. The objective of clause 13.02-1S is 'to strengthen the resilience of settlements and communities to bushfire through risk-based planning that prioritises the protection of human life'. As this property is partially within a Bushfire Management Overlay and within a Bushfire Prone Area it meets the 'Policy Application' test to be assessed against the Clause 13.02-1S Policy.

This report addresses the phased development of land located on Briagolong Road, Maffra, which will proceed in stages. The land identified within the Maffra Structure Plan is appropriate for increased density rural living development, subject to further investigation and preparation of technical reports.

The Site is currently zoned to facilitate subdivision into 23 rural living zoned lots with a nominated schedule of 2.0 hectares and is proposed to be developed through a coordinated three phase planning process (staged):

- Phase 1: Preparation and approval of a Development Plan to establish the overall subdivision and servicing framework to address the requirements of the Development Plan Overlay Schedule 1.

- Phase 2: A planning permit application for the creation of 22 lots generally 6,000 m² in size, together with a balance lot, addressing the current requirements of the Rural Living Zone (Schedule 2).

- Phase 3: A Planning Scheme Amendment to the Wellington Planning Scheme to change the Zone Schedule and planning permit application to facilitate the subdivision of the balance land into 64 additional lots, also generally 6,000 m² in size. The stage proposes to delete the Development Plan Overlay applying to the land.

This report addresses all three phases (stages) of the development and considers both interim and ultimate development outcomes for the subject land.

This report should be read in conjunction with the Development Plan submission prepared by Beveridge Williams.

The current property zoning i.e. Rural Living Zone (Schedule 2), specifies a minimum Lot size of two hectares. The proposed rezoning Rural Living Zone (Schedule 5) will lower the specified minimum Lot size to 6,000m², which will allow a higher density residential development. This rezoning provides the potential for increased bushfire risk management opportunities noting that re-vegetation is less likely to occur on smaller residential lost and lot owners will have improved ability to implement defendable space provisions.

At the completion of the three phases, the development will allow a subdivision that includes roads, drainage reserves and 64 residential lots. There will be external road connections to both Three Chain Road on the west side and Maffra Briagolong Road on the east side, as well a temporary access road built along the northern perimeter.

The development is to the north of Maffra and is within an area zoned for residential development. To the south of the development is the Maffra Cemetery, small acreage residential properties and then further south are residential areas of Maffra.

The report has been developed following an extensive assessment of the landscape and local bushfire risk along with access, egress and topography. It has been developed following a site

inspection, analysis of various plans and publications that assess bushfire risk within this area and assessment against Clause 13.02-1S of the Wellington Planning Scheme. Figure 1 provides an overview of the surrounding area and the various land uses.

This assessment has been prepared having regard to the broader strategic bushfire risk assessment undertaken as part of the Maffra Structure Plan, which considered the suitability of future settlement growth to the north of the existing township. That strategic assessment concluded that, subject to appropriate design and mitigation measures, northward expansion of Maffra can be managed without introducing unacceptable bushfire risk.

The purpose of this report is not to revisit the strategic justification for growth in this location, but to demonstrate that the proposed rezoning and increased residential density are consistent with that accepted framework and that bushfire risk can be appropriately managed at the site, neighbourhood and settlement scale in accordance with Clause 13.02-1S of the Wellington Planning Scheme.

2. Application Details

Table 1 - Application details

Municipality	Wellington
Address	Lot 1 and 2 Maffra – Briagolong Road, Maffra
Overlays	Bushfire Management Overlay (BMO) and Development Plan Overlay (DPO)
Zoning	Rural Living Zone (RLZ)

3. Site Description

Table 2 - Site description

Existing use of buildings and works on or near the land	The property is currently used for farming purposes. It is approximately 48 hectares in size. To the south are developed properties including small acreage and residential areas. The Maffra cemetery is also located to the south west of the development. To the north and northeast are farming properties. The paddocks are primarily cleared apart from an old Plantation on the eastern side of Maffra – Briagolong Road. This is a small blue gum plantation with limited undergrowth. It appears that the Plantation has not been managed as due to a lack of thinning, the trees have not grown to their full potential. The fuel loads in this area would likely be similar to a woodland environment when assessed against AS3959. To the east of the development is the Maffra – Briagolong Road which is a main north/south thoroughfare through the local area. The surrounding landscape is mostly consistent with Class G – Grassland. When assessed against AS3959.
Development size	Approximately 48 hectares.

Existing vehicle access arrangements	Access to the existing property is from Maffra – Briagolong Road and Three Chain Road.
Location of nearest fire hydrant	There are street fire hydrants in the surrounding area. These are shown in Appendix 2.

Figure 1 – Subject site and surrounding landscape.

4. Bushfire risk in south east Australia

The southeast of Australia is one of the most fire prone areas in the world.

The rate a bushfire can spread is a direct result of the weather, fuel hazard (including dryness, quantity and arrangement) and the topography in which the fire is burning. Bushfire fuel is the only one of these three factors that it is possible to modify.

Extreme fire conditions can occur in south-eastern Australia when dry winters and springs are followed by summers where bushfire fuels become very dry.

When these conditions combine, fires can be expected to move quickly under the influence of strong, gusty north westerly winds. These fires can then move rapidly in a different direction when the subsequent south–westerly wind change arrives. Fires that start under these conditions can reach a very high intensity, even in areas of relatively low fuel loads and can be difficult to control until the weather conditions abate.

The height of a bushfire's intensity is directly linked to its destructiveness and the more difficult it is to control. As the intensity increases so does the difficulty of containment and effective suppression. Very high intensity fires with flame heights greater than 10 metres are generally uncontrollable.

Bushfire intensity is a function of the heat content of the fuel, the quantity of fuel and the rate of spread of the bushfire. The heat content of vegetation fuels is roughly constant. It has been found that the quantity and distribution of fine fuels are the main factor influencing bushfire behaviour. Larger fuels burning during a bushfire do not contribute significantly to the spread of a bushfire.

Fine fuels available to a bushfire are fuels such as grass, leaves, dead pine needles and twigs that ignite readily and are consumed rapidly when dry. They are often defined as those dead fuels less than 6mm in thickness. Fine fuel load (measured in tonnes per hectare) has therefore been used as a convenient measure of the underlying bushfire hazard in areas dominated by woody vegetation. The fine fuel load at any given time is a balance between the rate of fuel build up, and factors that remove fuel such as litter decomposition and fire. In the absence of fire, fuel loads in forests and woodlands with a shrubby or heathy understorey build up to a quasi-equilibrium state where the rate of fuel production equals the rate of decomposition. The maximum levels vary for different vegetation types and for the same vegetation types in different locations.

It has been found that fuel structure is possibly more important than the total fine fuel load in determining bushfire behaviour. Fuels in forests, woodlands and shrublands can be categorised into four layers with differing effects on fire behaviour (Hines, et al., 2010). These layers are:

- Surface fine fuels: leaves, bark, small twigs and other fine fuel lying on the ground. These fuels provide the horizontal continuity that allows a bushfire to spread

- Near surface fine fuels: grasses, low shrubs, bracken etc. up to about .5 m above the ground surface. Fuels in this layer will burn when the surface fuel layer burns and will increase bushfire intensity

- Elevated fuels: larger shrubs and small saplings with most of the fuel closer to the top of this layer and a clear gap between them and the surface fuels. These interact with the two-layer fuel layers to further increase bushfire intensity. They also contribute to the vertical continuity of fire that allows fire to 'climb' into the tree canopy

- Bark fuels: flammable bark on trees, saplings and large bushes from ground level to the canopy. Loose fibrous bark on string-bark eucalypts, and candle bark on some gums can generate large amounts of burning embers which can start spot fires ahead of the main fire front.

5. Bushfire Hazard Assessment

A Bushfire Hazard Assessment is a key component of assessing risk as outlined within Clause 13.02-1S of the Wellington Planning Scheme. The requirements outline the need to consider and assess the bushfire hazard on the basis of:

- Landscape conditions (20 kilometres)
- Local conditions (1 kilometre)
- Neighbourhood conditions (400 metres)
- The site for the development

In addition to this assessment, analysis of past bushfire history and the development of likely bushfire scenarios supports the response to the 'settlement planning' requirements of Clause 13.02-1S.

5.1 Bushfire History

The historical information provided by DEECA indicates that bushfires have occurred in the surrounding landscape but some distance from this development. The bushfires have mainly been contained to the forested areas associated with the Great Dividing Range to the north of the development. In the areas surrounding the development, there is a history of small grassfires within the DEECA data.

Figure 2 outlines the location of historical bushfires as they relate to the development site.

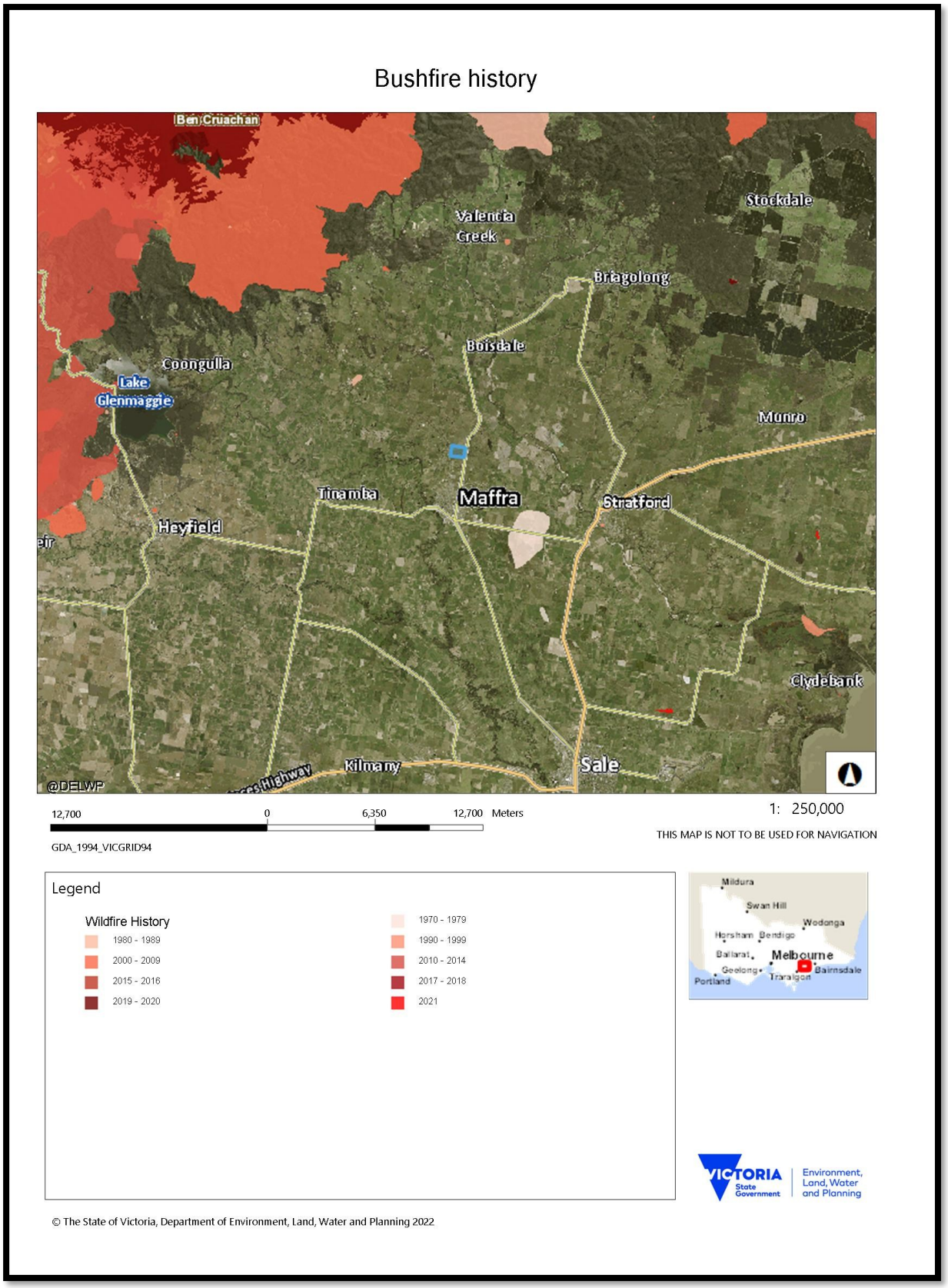

Figure 2 - Bushfire history with the development outlined in blue.

5.2 Vegetation

The predominant vegetation on and around the property is grassland when assessed against AS3959. To the south where residential development has occurred, several areas would be considered excluded as per Clause 2.2.3.2 of AS3959.

The area to the north of the development is dominated by farming properties. There are areas of plantation to the east of Maffra-Briagolong Road that in conjunction with patches of trees, has triggered a Bushfire Management Overlay declaration that covers a small part of the development on the eastern side. These trees are Blue Gums that are associated with small plantings that occurred in the early 1990's. The areas have been conservatively assessed as Class A – Forest but would exhibit bushfire behaviour similar to Class B – Woodland.

Figure 4 shows the location of the Bushfire Prone Area (BPA) which is another indicator of bushfire risk. The BPA is allocated to most of Victoria. There are small areas within the Maffra locality where the BPA is not allocated, and these areas are associated with residential developments.

5.3 Access/egress

The site is currently accessible from either Maffra-Briagolong Road or Three Chain Road. The future development will provide access to the development from Three Chain Road and Maffra Briagolong Road. Both access points provide direct access to the central business area of Maffra via Boisdale Road.

In general, the development is in an area that provides effective access into the central areas of Maffra. This can be via Boisdale Road or Maffra-Briagolong Road. During a bushfire event, it would be highly likely for the safest option being to travel towards Maffra.

Figure 3 - Bushfire Management Overlay in relation to the proposed development site

Figure 4 - Bushfire Prone Area coverage of the development site and surrounding area.

5.4 Existing bushfire risk assessments

An analysis of available bushfire risk information has identified the following sources:

- Wellington Municipal Fire Management Plan (MFMP) 2023 - 2026[1]
- Bushfire Planning Assessment - Amendment c120 Maffra Structure Plan prepared by Kevin Hazell Bushfire Planning (November 2025)

The Wellington MFMP identifies the Maffra interface bushfire risk as medium as outlined within the Victorian Fire Risk Register analysis. The MFMP doesn't specify any actions for the Maffra interface area apart from the standard bushfire mitigation treatments that includes:

- Community education
- Fuel reduction burning
- Roadside vegetation management
- Private property preparedness
- Community information boards.

In relation to this development, it is likely for the surrounding landscape to be regularly maintained by the property owners. The community members would receive regular updates and information from CFA in relation to preparing their properties for the bushfire period.

A strategic bushfire risk assessment prepared as part of the Maffra Structure Plan considered the suitability of future urban expansion to the north of the existing township. That assessment examined landscape-scale bushfire behaviour, prevailing wind influences, vegetation patterns and the interaction between agricultural land, irrigation infrastructure and settlement areas. It concluded that, while grassfire under north-westerly wind conditions represents the primary bushfire hazard, the fragmented agricultural landscape and proximity to the established township limit the potential for high-intensity fire behaviour to impact future development areas. The report determined that northward expansion of Maffra can be appropriately managed through considered subdivision design, defendable space, appropriate construction standards and effective access to the township, and does not present an unacceptable bushfire risk when assessed in accordance with settlement planning principles.

5.5 Likely Bushfire Scenarios

Due to the nature of the landscape surrounding the proposed development, the presence of residential developments will likely reduce the potential for bushfires to approach this development. A bushfire could approach from the east however this will likely be under low fire danger conditions and will be easily suppressed by firefighters.

Table 1 outlines the hazard assessment relating to the proposed development.

5.6 Alignment with other assessments

The findings of this site-specific bushfire hazard assessment are consistent with the broader landscape-scale conclusions reached through the Maffra Structure Plan. Both assessments identify

[1] https://cdn.prod.website-files.com/6021ed7c89cc1c1c01fccf29/65e1719947b92e7c158e11f6_Municipal%20Fire%20Prevention%20Plan.pdf

grassfire as the dominant bushfire hazard, with limited potential for high-intensity forest fire behaviour to impact the northern interface of the township.

The surrounding agricultural landscape, irrigation infrastructure, fragmented vegetation pattern and existing settlement footprint act to limit the potential for bushfires to develop into large, high-intensity events before reaching the subject land. As such, the proposed development does not represent an escalation of bushfire exposure beyond that already contemplated and accepted for future township growth.

Table 3 - Overview of bushfire hazard and likely scenarios

Bushfire hazard type	Description	Scenario/s	Considerations
Landscape conditions (10 kilometres)	The landscape is dominated by farming properties that operate varying types of agricultural activities including grazing and cropping. Refer to Figure 6 for further detail.	The type of bushfire activity in the surrounding landscape will be influenced by the availability of grass fuels. Isolated clumps of trees and shrubs may assist with fire spread thought the generation of embers. There is a small area of blue gum plantation on the eastern side of Mafra Briagolong Road. The likely bushfire approach is from the northwest. The Maffra township and the riparian areas to the southwest will limit bushfire approach from this direction. The surrounding road network and fragmented vegetation will likely slow and under lower fire danger conditions, stop bushfires spread. The northwestern approach is dominated by grassland areas that are associated with farming activities. The McAlister irrigation District is also prevalent for much of the northwestern approach,	There are effective access and egress options to a safer place if required. Once developed, the site will have areas that could be considered 'safer' that can be utilised during a bushfire if required. The provision of defendable space within the development will limit the impact of bushfire activity from the northwest. Static water supplies will be provided within the development for firefighting purposes. Access and egress points are in the northeastern and southwestern areas of the development.
Local conditions (1 kilometre)	Within one kilometre of the site, the vegetation includes grassland primarily associated with stock grazing and cropping. Refer to Figure 5 for further detail.	The likely scenario is for a grassfire to start and under the prevailing wind conditions travel towards the development. This will only occur from the northwest as the southwest approach is unlikely due to the type of landscape that is present. The risk of fires starting from the roadsides is reduced due to the ongoing slashing program that occurs during the fire danger period along the surrounding roads. Farming practices will ensure that the grasslands surrounding the property will be reduced through stock grazing and likely limit a bushfires intensity making it easier to suppress by firefighters.	As above
Neighbourhood conditions (400 metres)	The vegetation surrounding the property is considered grassland associated with agricultural activities. A small area of Plantation to the east of Maffra Briagolong Road is	The predominant threat to the development at the neighbourhood level is a fire starting to the northwest of the property. The grassed areas that are managed during the fire danger period by grazing stock may support a bushfire but at a lower intensity. The plantation to the northeast may generate embers and elevated bushfire activity. However, this elevated bushfire activity	As above

Bushfire hazard type	Description	Scenario/s	Considerations
	present. Further detail is provided within Figure 7.	will likely occur under a north westerly or south westerly wind influence. Under both scenarios that bushfire will be pushed away from the new development. A bushfire approaching from the northeast or east will likely be under a lesser fire danger condition and may generate embers but will unlikely be burning at its maximum intensity.	
The site for the development	The site is currently grassland and utilised for farming activities.	There is the potential for a grassfire to start on the property during the development construction phase. Due to the number of people likely to be onsite and with large machinery, early notification of the fire brigade will be provided. The activities will need to comply with the requirements of the Country Fire Authority Act. Once the development is completed, it is unlikely for fires to start within the development and spread externally.	As above.

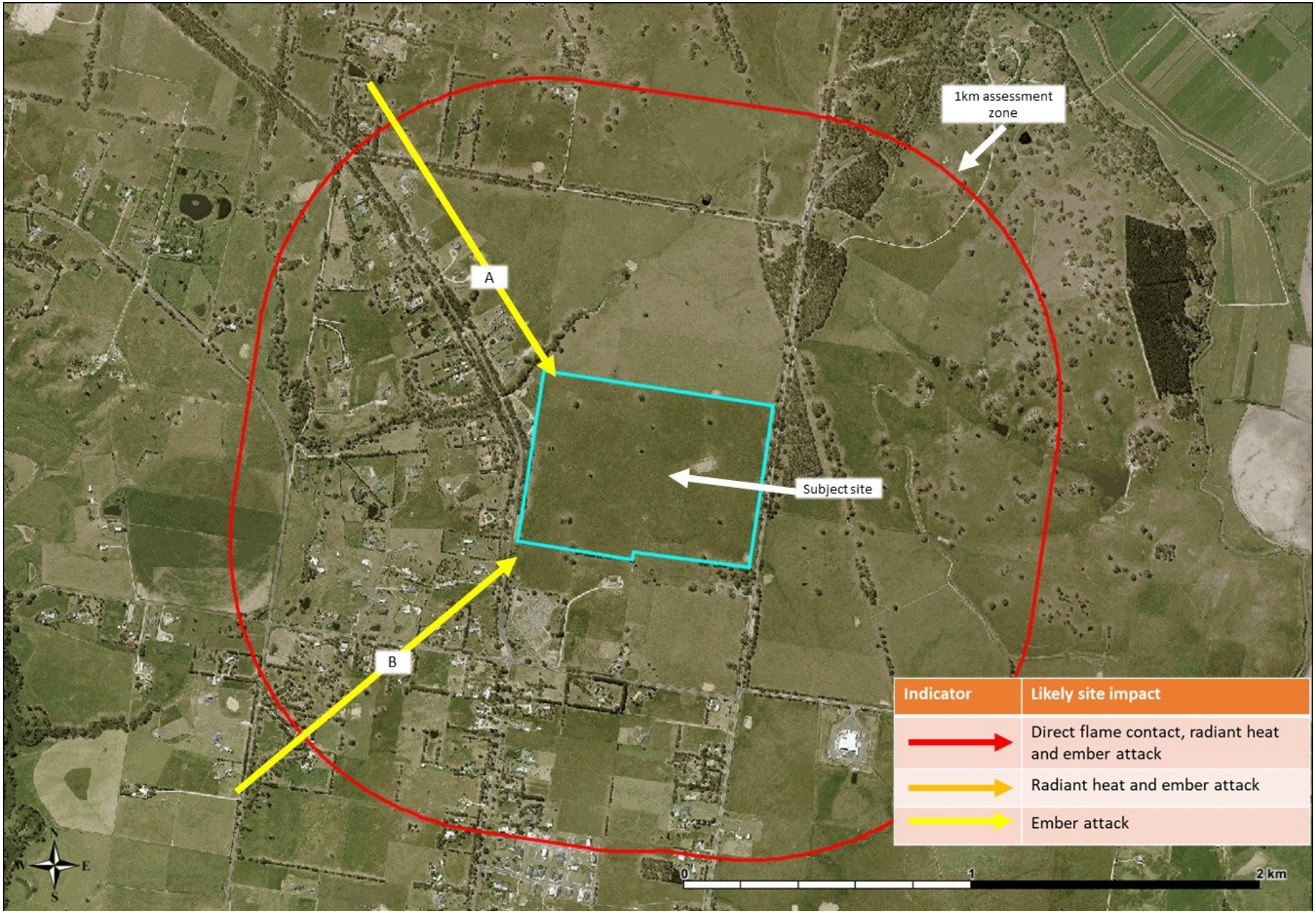

Figure 5 - 1 kilometre landscape risk analysis

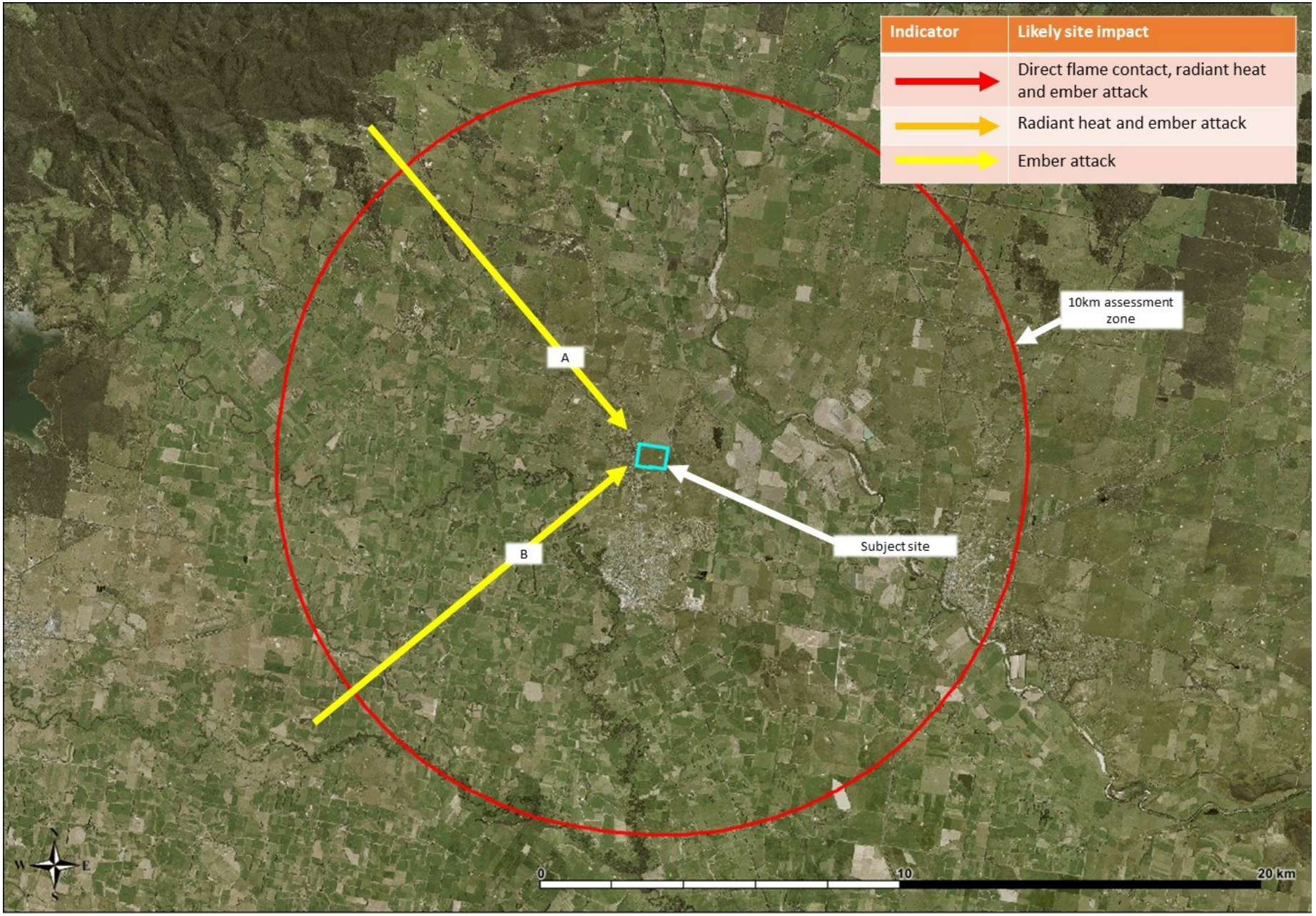

Figure 6 - 10 kilometre landscape risk analysis

In summary, the scenarios are possible with ember attack being the key bushfire attack mechanism along with low levels of radiant heat from combustible materials burning on and around the property. The embers may start smaller fires in the local areas surrounding the site.

6. Landscape type

The determination of the landscape type enables the consideration of other treatments depending on the level of risk. These treatments may include additional construction requirements, vegetation management or other solutions. Note that whilst the determination of a landscape risk level is part of this analysis, the determination of the need for additional treatments will be considered as part of future activities.

Table 4 - Landscape type assessment

	Landscape risk descriptors
Type 1	There is little vegetation beyond 150 metres of the site (except grasslands and low threat vegetation). • Extreme bushfire behaviour is not possible. • The type and extent of vegetation is unlikely to result in neighbourhood-scale destruction of property. • Immediate access is available to a place that provides shelter from bushfire.
Type 2	The type and extent of vegetation located more than 150 metres from the site may result in neighbourhood-scale destruction as it interacts with the bushfire hazard on and close to a site. • Bushfire can only approach from one aspect and the site is located in a suburban, township or urban area managed in a minimum fuel condition. • Access is readily available to a place that provides shelter from bushfire. This will often be the surrounding developed area.
Type 3	The type and extent of vegetation located more than 150 metres from the site may result in neighbourhood-scale destruction as it interacts with the bushfire hazard on and close to a site. • Bushfire can approach from more than one aspect. • The site is located in an area that is not managed in a minimum fuel condition. • Access to an appropriate place that provides shelter from bushfire is not certain
Type 4	The broader landscape presents an extreme risk. • Fires have hours or days to grow and develop before impacting. • Evacuation options are limited or not available.

In accordance with the Technical Guide, the landscape has been assessed as Type 1.

7. Assessment against bushfire planning guidelines

The Victorian government has produced guidelines[2] that outlines the settlement planning requirements at the bushfire interface. These guidelines have been utilised in the assessment of bushfire risk for this proposed development.

The Guide outlines the need to understand the landscape bushfire risk prior to assessing the development. The assessment of the landscape risk has occurred and is discussed previously within this report.

[2] Design Guidelines – Settlement Planning at the Bushfire Interface 2020, DELWP and CFA

The guideline outlines several components of a subdivision that should be considered to reduce bushfire risk. How this development is proposing to address these requirements is outlined within Table 4.

Table 5 - Response to the bushfire planning guidelines

Requirement	Design response
The bushfire hazard in directing settlement growth	The bushfire hazard has been assessed and is considered low. The primary threat is from the northwest, and this is through a landscape that is dominated by farming properties and the MacAlister Irrigation District.
The distribution of land uses in the settlement	The development has been designed to spread the dwellings evenly throughout and to ensure that the potential for house to house transfer is largely eliminated.
Lot sizes in settlement layout	The Lot sizes are of sufficient size to ensure appropriate separation between dwellings and to ensure defendable space can be implemented to the property boundary.
Vegetated areas within a settlement	There are no plans to revegetate within the development. The development will be largely managed through the implementation of defendable space to the property boundaries.
Apply the required development setback	The dwellings within the development will be located as far as possible away from the northern boundary through the provision of building envelopes. These building envelopes will require the dwellings to be constructed closer to the road. The location of the main access road to the south of the properties along the northern boundary is aimed at removing the ability for residents to travel along roads that are exposed to elevated levels of radiant heat that would likely be life threatening. The use of mandatory building envelopes forms a key bushfire risk management mechanism within the subdivision design. By clearly identifying the portion of each lot where dwellings may be constructed, the development ensures that future buildings cannot be in areas exposed to elevated radiant heat flux. This provides long-term certainty that dwellings will achieve a maximum BAL-12.5 exposure and prevents incremental intensification of bushfire risk through ad hoc siting decisions at the building permit stage.
Design the settlement interface	The settlement interface is conforming with the guideline requirement and ensuring that the landscape is managed. The provision of large lots along the northern boundary ensures that additional defendable space can be introduced

	that provides a buffer from the grassland areas to the north. This ensures the residents don't need to travel along roads where they can be exposed to an approaching bushfire front. Any roadway along the northern boundary would likely expose residents and firefighters to radiant heat equivalent to BAL FZ. During the phased development, a s173 agreement will be entered into so that the balance lot will be maintained for 19 metres during the fire danger period to ensure the created lots do not exceed exposure of more than 12.5 kW/m².
Design access and egress	Dual access / egress is provided from the northeastern and southwestern corners of the site. People evacuating the area will be able to assess the conditions and evacuate from the southwestern or northeastern corner of the site. This will allow for egress to Maffra-Briagolong Road or Three Chains Road to travel to Maffra.
Vegetation management	The entire development will be covered by the requirement to manage the properties in accordance with the standard defendable space provisions outlined within the BMO. This will reduce the potential for any fire to burn through the development. It will also ensure that the development does not increase the landscape risk by introducing more vegetation than what is in place currently.
Building construction standards	All the dwellings will be in an area that achieves a BAL12.5 construction requirement.
Excluding development from the setback area	Development will be managed through the provision of building envelopes to ensure dwellings cannot be constructed close to the northern or eastern boundaries. The highest risk location for this development is along the northern boundary where the grassland in the paddocks to the north could become unmanaged. This is considered highly unlikely due to the type of framing activities that occur and the legislative powers available to municipal and CFA staff. To achieve this setback effectively, a main access road will not be placed along the northern boundary as this will then require residents and firefighters to have to drive along a road that is exposed to the effects of a direct fire front. Due to the size of the properties and the ability to control the

	vegetation on the properties, the ability to leave the area along a safe travel route is deemed to be more important. To meet CFA's requirements, a temporary access road is being provided along the northern boundary. This access road will be for emergency vehicle access only to meet CFA's requirements.

It is considered that the layout design conforms with the guidelines and ensures the level of safety is elevated. Whilst it is acknowledged that the DELWP Guidelines recommend a road between the hazard and the development, it is believed that this requirement is more suited to residential development where the Lot size is too small to manage the risk on their property through the provision of defendable space. As this development is based on a minimum Lot size of 6,000 m², the new properties can be allocated defendable space, and to then manage it.

A design that has avoided a roadway along the northern boundary would require the residents in those Lots to travel along a roadway that can be exposed to elevated levels of radiant heat. This scenario has been avoided by placing the road to the south of the properties. This way, the dwellings will also be constructed along the southern side of the properties thereby allowing increased separation between the hazard and the dwellings.

To satisfy CFA's requirements, a temporary access road has been incorporated into the design. It is not intended that this is utilised by the public due to the elevated risk in this area. The type of radiant heat impact that could occur is shown in Figure 7.

The effect of radiant heat is provided in Table 6. Note that reference to a BAL rating is also a radiant heat level (i.e. BAL40 = 40kW/m²).

Table 6 - Radiant heat effects[3]

Heat Radiation [kW/m^2]	Effect
1.2	Received from the sun at noon in summer
2.1	Minimum to cause pain after 1 minute
4.7	Will cause pain in 15-20 seconds and injury after 30 seconds exposure (at least second degree burns will result)
12.6	Significant chance of fatality for extended exposure. High chance of injury After long exposure, causes the temperature of wood to rise to a point where it can be readily ignited by a naked flame Thin steel with insulation on the side away from the fire may reach a thermal stress level high enough to cause structural failure.
23	Likely fatality for extended exposure and chance of fatality for instantaneous exposure Spontaneous ignition of wood after long exposure Unprotected steel will reach thermal stress temperatures which can cause failures Pressure vessel needs to be relieved or failure will occur
35	Cellulosic material will pilot ignite within one minute's exposure Significant chance of fatality for people exposed instantaneously

The subdivision design incorporates defined building envelopes on all lots, particularly those along the northern interface where the potential bushfire exposure is highest. These envelopes require

[3] https://www.planning.nsw.gov.au/sites/default/files/2023-03/hazardous-industry-planning-advisory-paper-no-6-hazard-analysis.pdf

dwellings to be located toward the southern portion of each lot, increasing separation from the grassland hazard to the north and reducing potential radiant heat exposure.

This approach delivers several bushfire protection outcomes:

- Ensures consistent achievement of BAL-12.5 or lower construction requirements
- Locks in defendable space between the hazard and built form
- Prevents future encroachment toward higher-risk boundaries
- Improves firefighter access and operational safety
- Reduces the likelihood of house-to-house fire spread within the subdivision.

By embedding these siting controls at the subdivision stage, the development proactively manages bushfire risk at the settlement scale rather than relying solely on individual building permit assessment. This provides greater certainty that bushfire protection outcomes will be maintained over the life of the development.

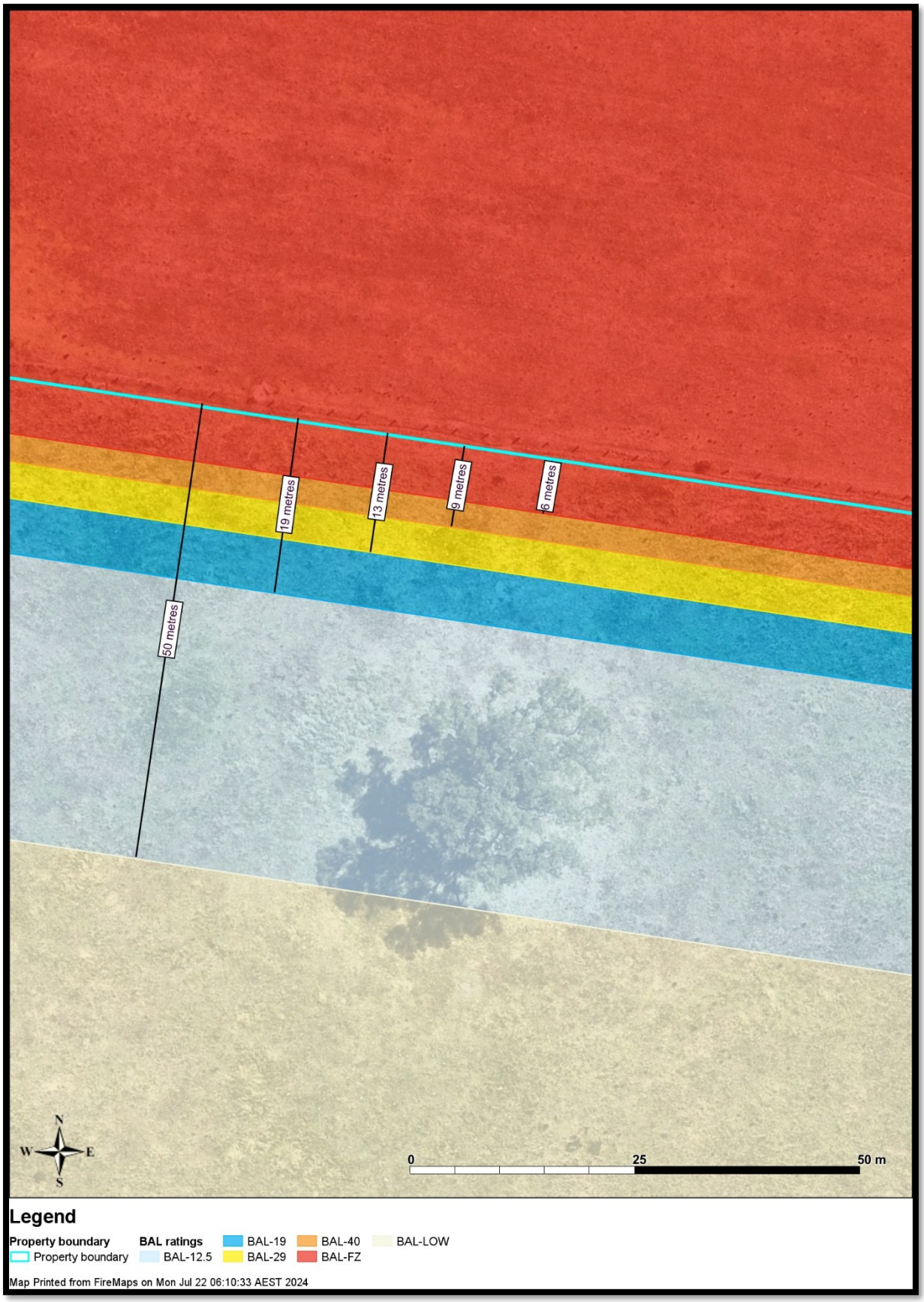

Figure 7 - Potential radiant heat along the northern boundary

8. Settlement Planning – Clause 13.02-1S

Clause 13.02-1S of the Wellington Planning Scheme identifies the objectives that are required to be achieved to strengthen the resilience of settlements and communities and prioritise the protection of human life.

These objectives are addressed within Table 7.

Table 7 - Settlement planning objectives

Settlement Planning objective	Discussion	Achieved
Directing population growth and development to low-risk locations, being those locations assessed as having a radiant heat flux of less than 12.5 kilowatts/square metre under AS 3959-2009 Construction of Buildings in Bushfire-prone Areas (Standards Australia, 2009)	The development layout has been designed to ensure all dwellings will achieve a maximum of 12.5 kW/m² or less exposure. Due to the separation between the northern boundary and the dwellings, the radiant heat exposure will significantly less than the 12.5 kW/m² threshold. This will also be maintained during the phased development through a s173 agreement. The provision of defendable space to the entire development will ensure that the bushfire risk does not increase over time and prevent elevated radiant heat levels from a bushfire approaching from the northwest. The incorporation of building envelopes ensures that development is directed to the lowest risk portion of each lot. This mechanism guarantees that built form remains outside areas that may be exposed to elevated radiant heat levels and reinforces compliance with Clause 13.02-1S by embedding risk-based siting controls into the subdivision layout.	✓
Ensuring the availability of, and safe access to, areas assessed as a BAL-LOW rating under AS 3959-2009 Construction of Buildings in Bushfire-prone Areas (Standards Australia, 2009) where human life can be better protected from the effects of bushfire.	There will be areas of the property that will achieve the BAL LOW requirements and will provide the ability to shelter on site if required during an approaching bushfire. If this is not possible, according to Google maps it is approximately five minutes travel in a vehicle to get to the central area of Maffra which is considered a safer area. The development's access and egress arrangements align with the broader settlement planning approach identified in the Maffra Structure Plan, which recognises the existing township as a lower bushfire risk location and an appropriate destination during bushfire events. The subject land benefits from direct and efficient road connections to Maffra, allowing residents to move toward areas of lower exposure, established emergency services and community infrastructure. This reinforces the appropriateness of the site for increased residential density	✓

Settlement Planning objective	Discussion	Achieved
	and supports the conclusion that the development strengthens, rather than compromises, bushfire safety outcomes for future residents.	
Ensuring the bushfire risk to existing and future residents, property and community infrastructure will not increase as a result of future land use and development.	The development will not increase the bushfire risk to the future residents and any residents, property and community infrastructure in the surrounding area. The development will likely reduce the risk to these areas. The rezoning of the property to allow for a reduction in minimum Lot sizes from two hectares to 5,971m² will allow for greater defendable space management on the properties. The larger Lot sizes are conducive to retaining unmanaged vegetation on the property with the smaller Lots increasing the likelihood of ongoing management of vegetation on the entire property. The proposed reduction in minimum lot size from two hectares to approximately 5,971m² is consistent with contemporary bushfire risk management principles and the strategic intent of the Maffra Structure Plan. Larger rural-residential allotments can result in unmanaged or partially managed vegetation, whereas smaller lots within a planned settlement framework are more likely to be actively maintained and compliant with defendable space requirements. Increased residential density within a structured subdivision layout facilitates improved vegetation management outcomes, clearer responsibility for fuel management, enhanced access for firefighting resources and reduced likelihood of unmanaged fuel accumulation over time. In this context, the proposed rezoning is not expected to increase bushfire risk and is likely to deliver a net improvement in long-term bushfire risk management when compared to the existing zoning controls.	✓

Settlement Planning objective	Discussion	Achieved
Achieving no net increase in risk to existing and future residents, property and community infrastructure, through the implementation of bushfire protection measures and where possible reducing bushfire risk overall.	This development will reduce the risk to the surrounding areas by reducing the vegetation on the property. The properties to the south will now have a buffer that considers effective bushfire design principles.	✓
Assessing and addressing the bushfire hazard posed to the settlement and the likely bushfire behaviour it will produce at a landscape, settlement, local, neighbourhood and site scale, including the potential for neighbourhood-scale destruction.	The bushfire hazard has been assessed and has identified the risk from a grassfire from the northwest. There is limited potential for neighbourhood scale destruction due to the primary vegetation within one kilometre of the development site being grassland. The property is surrounded by managed properties and other landscape features that will reduce bushfire risk.	✓
Assessing alternative low risk locations for settlement growth on a regional, municipal, settlement, local and neighbourhood basis.	The overall bushfire risk was assessed as low. This site has been assessed as having a low risk providing the proposed treatments are implemented.	✓
Not approving any strategic planning document, local planning policy, or planning scheme amendment that will result in the introduction or intensification of development in an area that has, or will on completion have, more than a BAL-12.5 rating under AS 3959-2009 Construction of Buildings in Bushfire-prone Areas (Standards Australia, 2009).	This development along with the proposed treatments will areas achieving less than BAL 12.5 when assessed using AS3959 Construction of buildings in bushfire prone areas.	✓

9. Proposed planning permit conditions

The assessment of bushfire risk has resulted in the development of proposed planning permit conditions. These have been developed by the planning consultant and have been reviewed to ensure they address the mitigation measures:

1. Prior to issue of a statement of compliance for Stage 6, as shown on the endorsed plan, a 2-way laneway must be constructed in the area of common property created through this stage. This laneway shall meet the following construction criteria:

    - All-weather construction of 150mm crushed rock.
    - Double crossover connections to subdivisional roads at each end, i.e. east and west,
    - A load limit of at least 15 tonnes along its entire length, i.e. including at the crossovers and over any culverts.
    - A minimum trafficable width of 6 metres.
    - Be clear of encroachments for at least 4 metres vertically.
    - Curves must have a minimum inner radius of 10 metres.
    - The average grade must be no more than 1 in 7 (14.4%) (8.1°) with a maximum grade of no more than 1 in 5 (20%) (11.3°) for no more than 50 metres.
    - Dips must have no more than a 1 in 8 (12.5 per cent) (7.1 degrees) entry and exit angle.

2. Prior to certification of a plan of subdivision for Stage 6, as shown on the endorsed plan, the following stipulations must be included on the plan:

"The owner's corporation established to manage the area of common property created through this plan of subdivision must include as part of its maintenance schedule a requirement to maintain a two-way vehicle accessway within it to the following standards:

- Accessible to CFA appliances via subdivisional roads at both ends, i.e. east and west, at all times;
- All-weather construction.
- A load limit of at least 15 tonnes along its entire length, i.e. including at the crossovers and over any culverts.
- Provide a minimum trafficable width of 6 metres.
- Be clear of encroachments for at least 4 metres vertically.
- Curves must have a minimum inner radius of 10 metres.
- The average grade must be no more than 1 in 7 (14.4%) (8.1°) with a maximum grade of no more than 1 in 5 (20%) (11.3°) for no more than 50 metres.
- Dips must have no more than a 1 in 8 (12.5 per cent) (7.1 degrees) entry and exit angle.

3. Prior to issue of a statement of compliance for Stage 6, as shown on the endorsed plan, the owner must enter into an agreement with the responsible authority under the provisions of

Section 173 of the Planning and Environment Act 1987. This agreement must stipulate that the owner's corporation created through Stage 6 of the subdivision must maintain the 2-way accessway constructed within the common property it manages in the following manner:

- Accessible to CFA appliances via subdivisional roads at both ends, i.e. east and west, at all times;
- All-weather construction.
- A load limit of at least 15 tonnes along its entire length, i.e. including at the crossovers and over any culverts.
- Provide a minimum trafficable width of 6 metres.
- Be clear of encroachments for at least 4 metres vertically.
- Curves must have a minimum inner radius of 10 metres.
- The average grade must be no more than 1 in 7 (14.4%) (8.1°) with a maximum grade of no more than 1 in 5 (20%) (11.3°) for no more than 50 metres.
- Dips must have no more than a 1 in 8 (12.5 per cent) (7.1 degrees) entry and exit angle.
- The owner will be responsible for all costs involved in the preparation and registration of this agreement.

4. Prior to issue of a statement of compliance for the first stage of the subdivision, the owner must enter into an agreement with the responsible authority under the provisions of Section 173 of the Planning and Environment Act 1987. This agreement must stipulate that all vegetation within:

    - lots created within the development, excluding Superlots, must be maintained by their owner's as 'low threat vegetation', as defined in Australian Standard 3959;
    - a 19 metre strip that is both within a Superlot and along the edge of the most recently registered stage of the development must be maintained by the developer as 'low threat vegetation', as defined in Australian Standard 3959.

The owner will be responsible for all costs involved in the preparation and registration of this agreement.

10. Conclusion

The development location has been identified as being a medium risk from bushfire within the Wellington Municipal Fire Management Plan. This requires consideration and the outcomes of this assessment along with the Bushfire Management Statement to support the Clause 53.02 assessment ensures an elevated level of safety.

It is acknowledged that bushfires could approach the site under a north westerly wind influence. The design of the road network to keep residents away from the northern boundary elevates their level of safety. Easterly wind influences are not expected to support elevated fire danger conditions.

The landscape assessment has identified the potential for bushfires burning in the surrounding landscape that could generate embers that land in and around the development site. A bushfire could also directly impact along the northern boundary. The property to the north is also likely to be developed at some stage in the future, however the risk needs to be managed within the development.

The MFMP outlines a range of mitigation strategies that can be expected to being implemented by the various agencies along with the adjoining property owners regularly managing the vegetation on their properties.

The increased density allowable through the proposed reduction in the specified minimum lot size under the Rural Living Zone will ensure increased management of the landscape. The smaller lot sizes that will be created through the proposed 64 lot development will ensure there is less unmanaged area, which will see a further reduction in bushfire risk.

The mandatory application of building envelopes within the subdivision provides an additional layer of bushfire protection by permanently controlling dwelling siting and ensuring long-term compliance with defendable space and radiant heat exposure thresholds.

The strategic bushfire risk assessment undertaken as part of the Maffra Structure Plan has already demonstrated that future growth to the north of Maffra can be accommodated without unacceptable bushfire risk, subject to appropriate design and mitigation measures.

This Clause 13.02-1S assessment confirms those conclusions at a site-specific level and demonstrates that the proposed rezoning and increase in residential density will not increase bushfire risk to future residents, surrounding land or community infrastructure. The proposed subdivision layout, reduced lot sizes, provision of defendable space, construction to BAL-12.5 standards and improved access arrangements are expected to result in improved long-term bushfire risk management outcomes when compared to the existing rural living development scenario.

Accordingly, the proposed rezoning is considered appropriate from a bushfire risk management perspective and consistent with both strategic and site-specific planning policy objectives.

Appendix 1 – Street fire hydrant locations

GIPPSLAND WATER

Sequence No: 217899055
Job No: 33055101
Location: 65 Three Chain Road, Maffra VIC 3860

DIAL BEFORE YOU DIG www.1100.com.au
The Essential First Step.

Legend

- Electrical Cables
- Hydrant
- Water Valve
- Sewer Manhole
- Water Main (Critical)
- Water Main
- Sewer Main (Critical)
- Sewer Main
- Decom Water Main
- Decom Sewer Main

Scale: 1:3700

N

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Location: 65 Three Chain Road, Maffra VIC 3860

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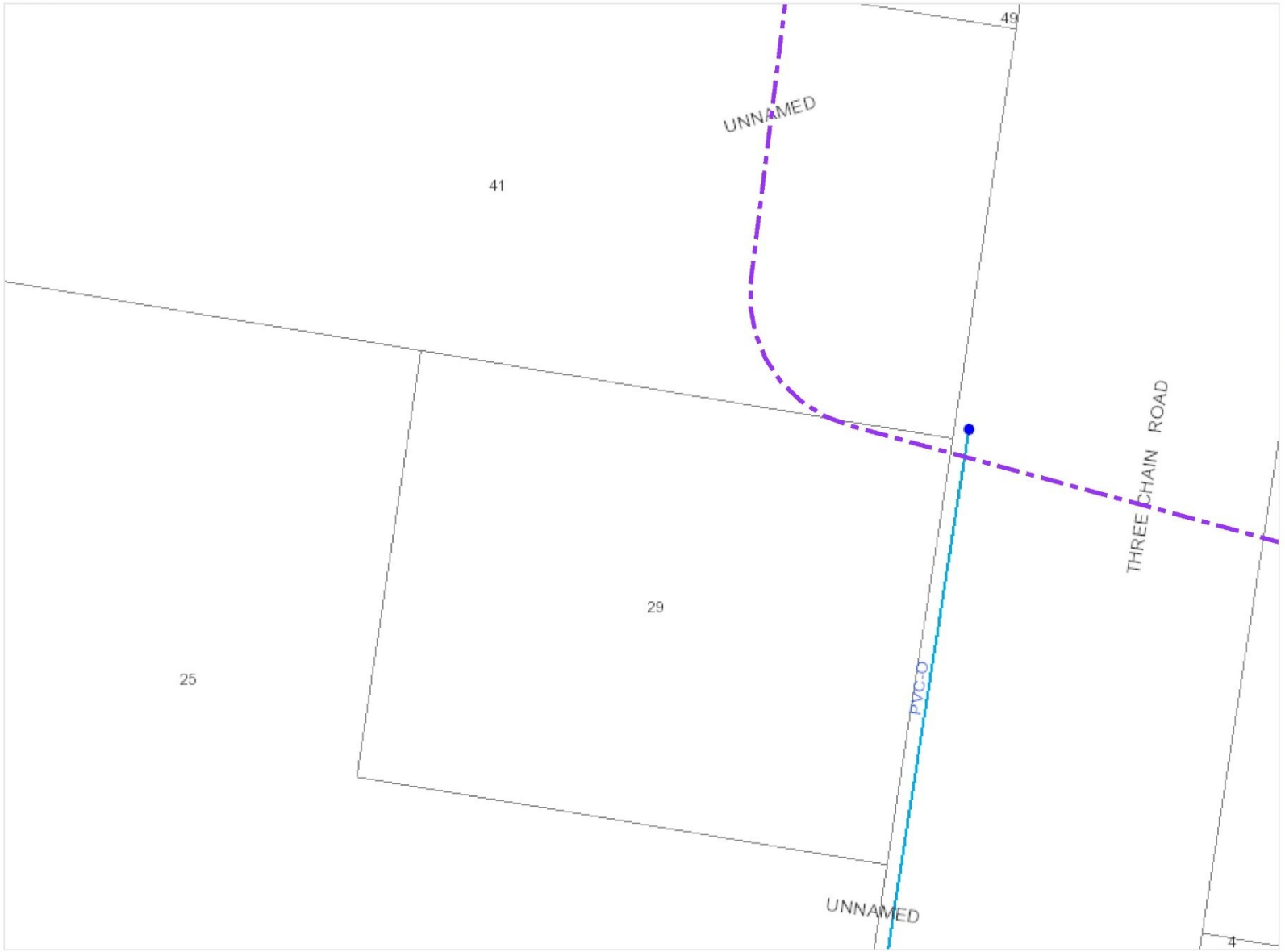
The Essential First Step.



Legend

- Electrical Cables
- Hydrant
- Water Valve
- Sewer Manhole
- Water Main (Critical)
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Scale: 1:1000

N

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GIPPSLAND WATER

Sequence No: 217898984
Job No: 33055089
Location: 347 Maffra-briagolong Road, Maffra VIC 3860

DIAL BEFORE YOU DIG www.1100.com.au
The Essential First Step.

Legend

- Electrical Cables
- Hydrant
- Water Valve
- Sewer Manhole
- Water Main (Critical)
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Scale: 1:7175

N

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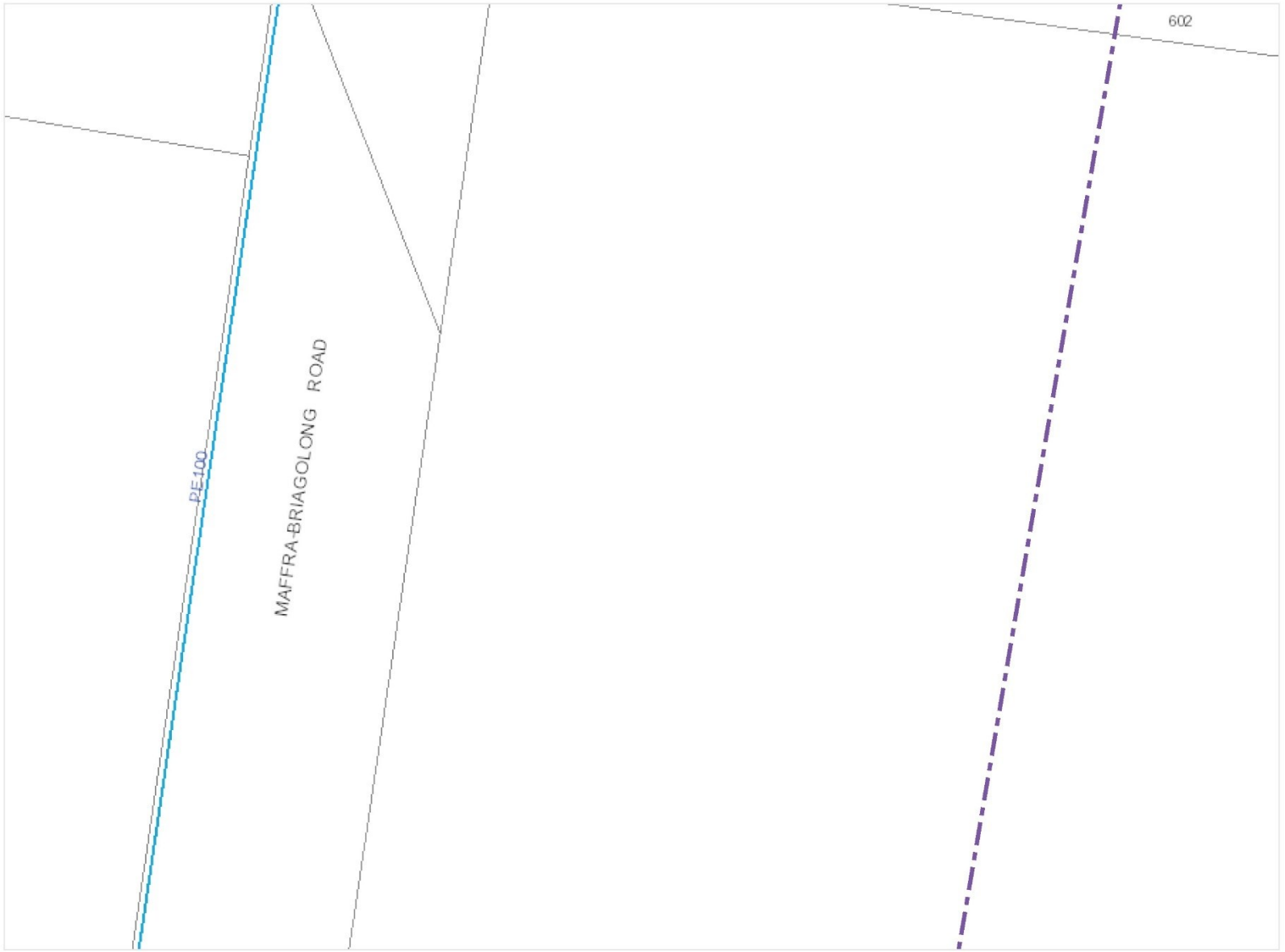

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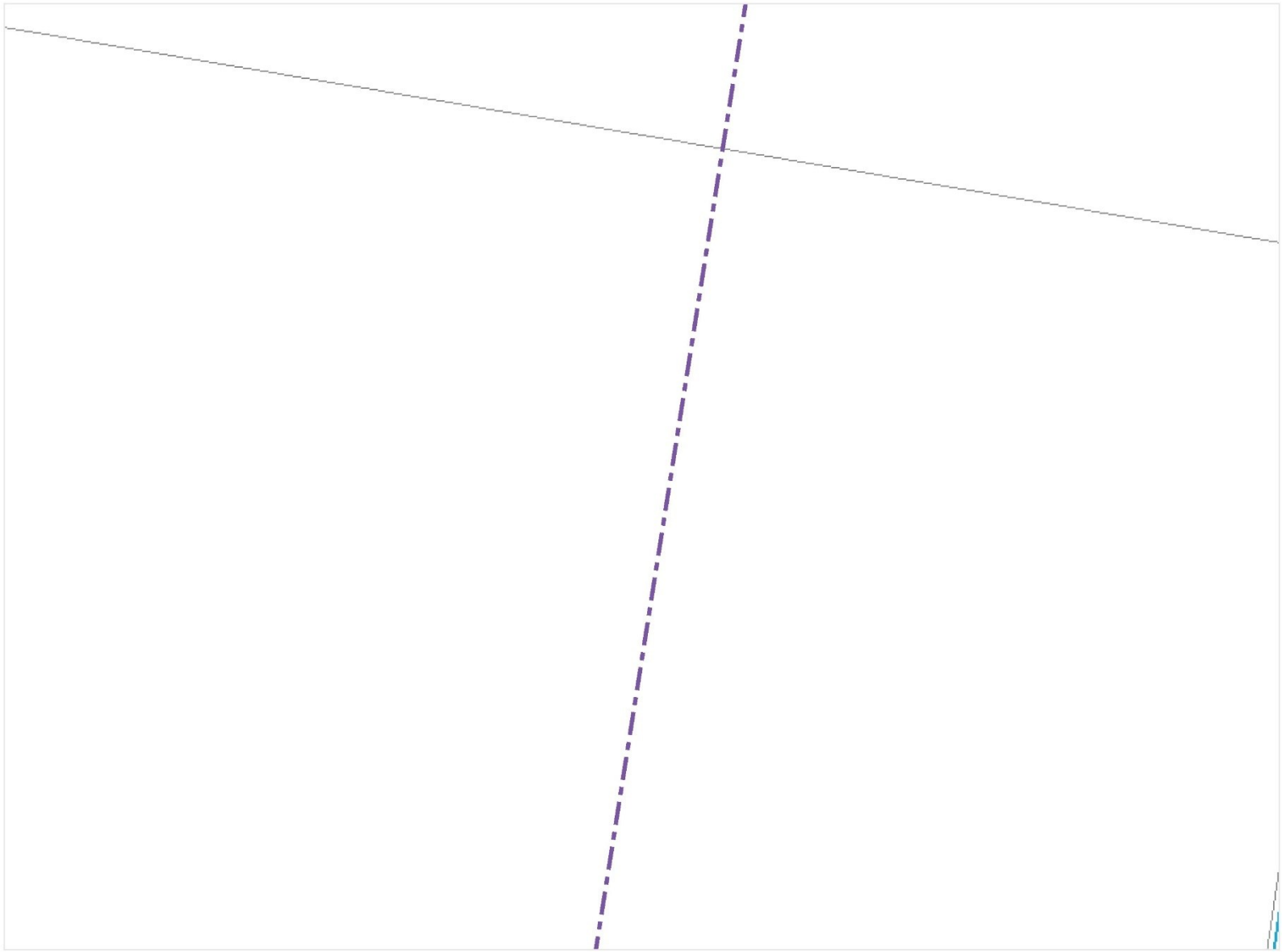

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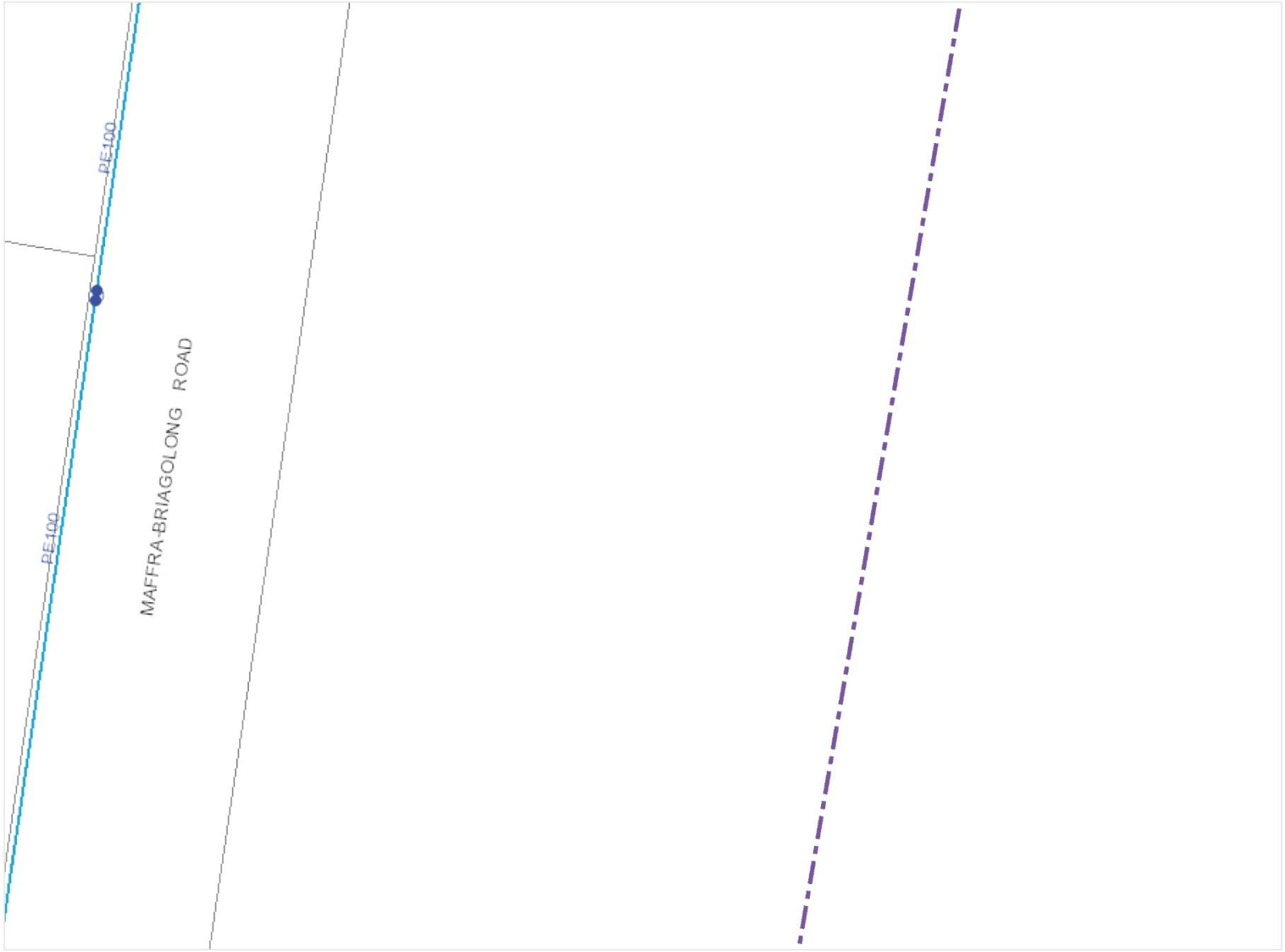

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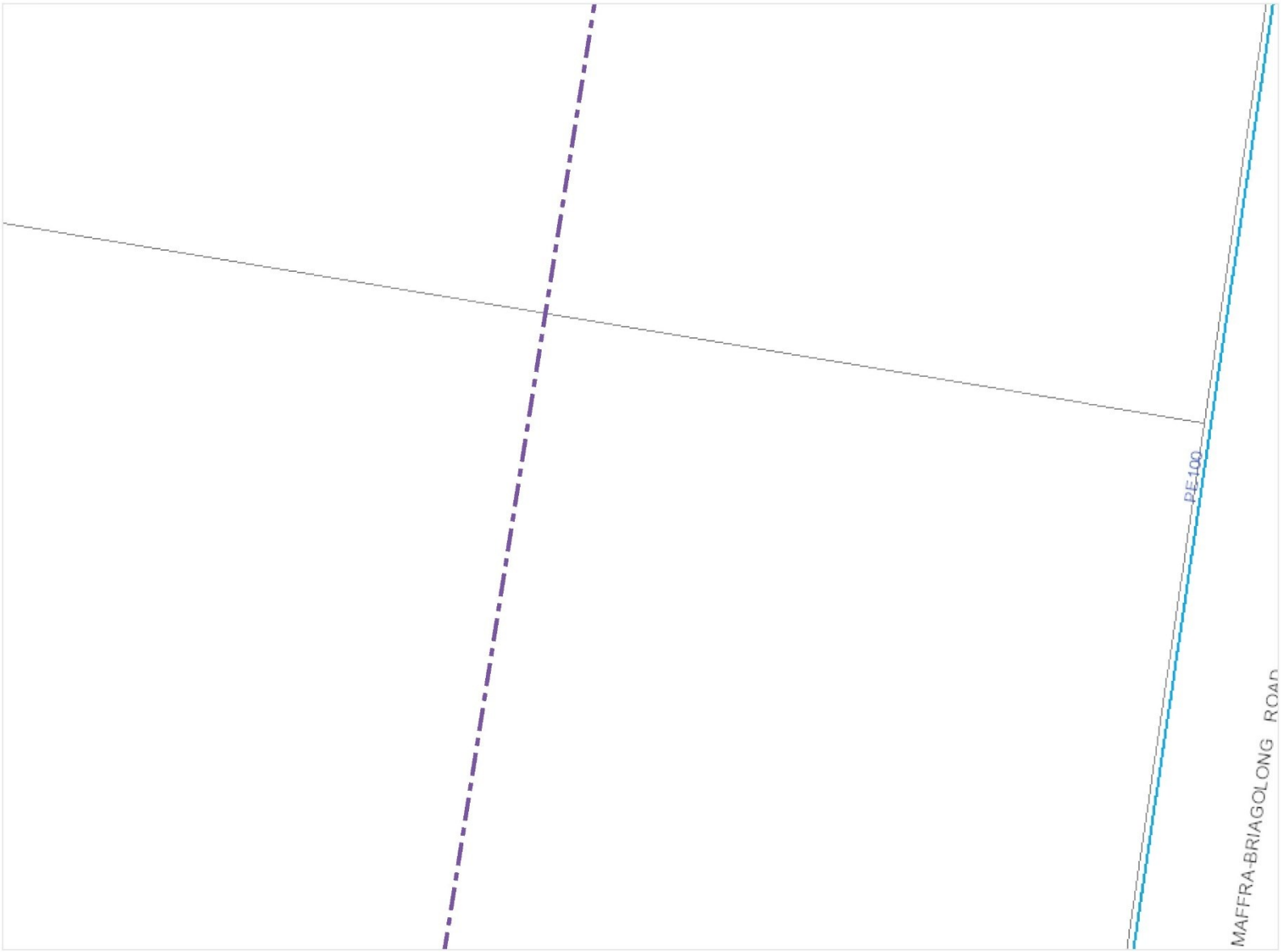

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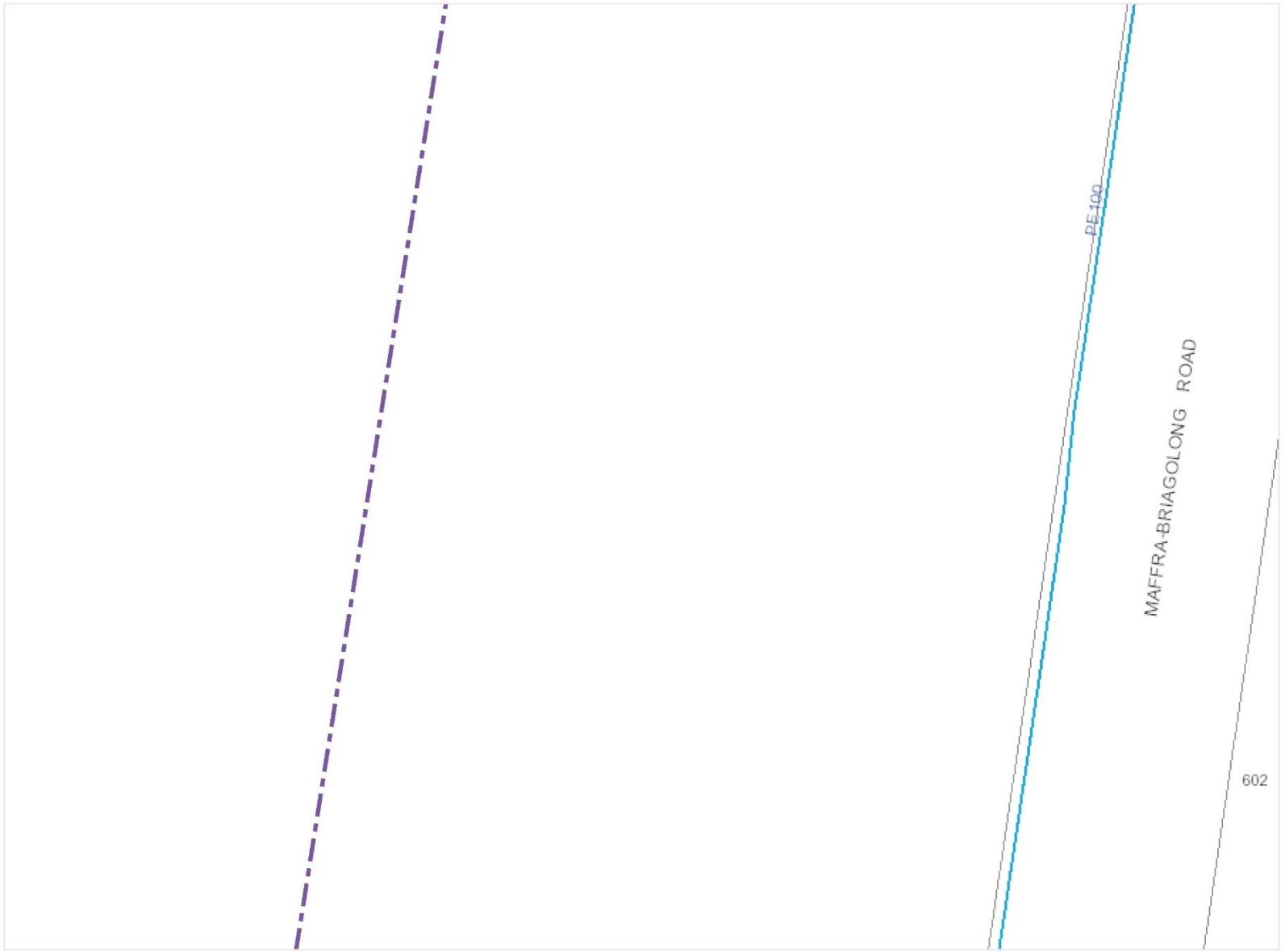

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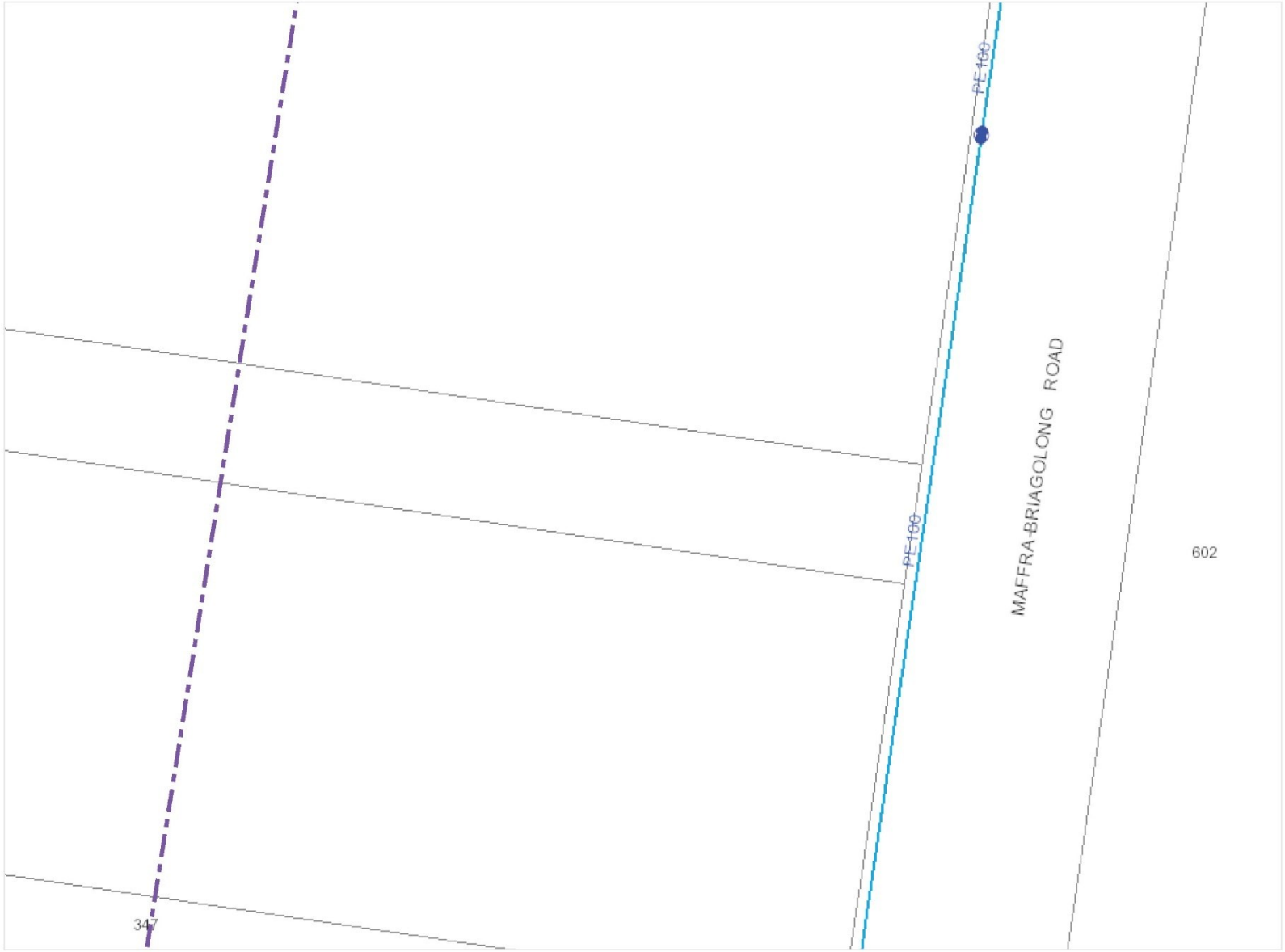

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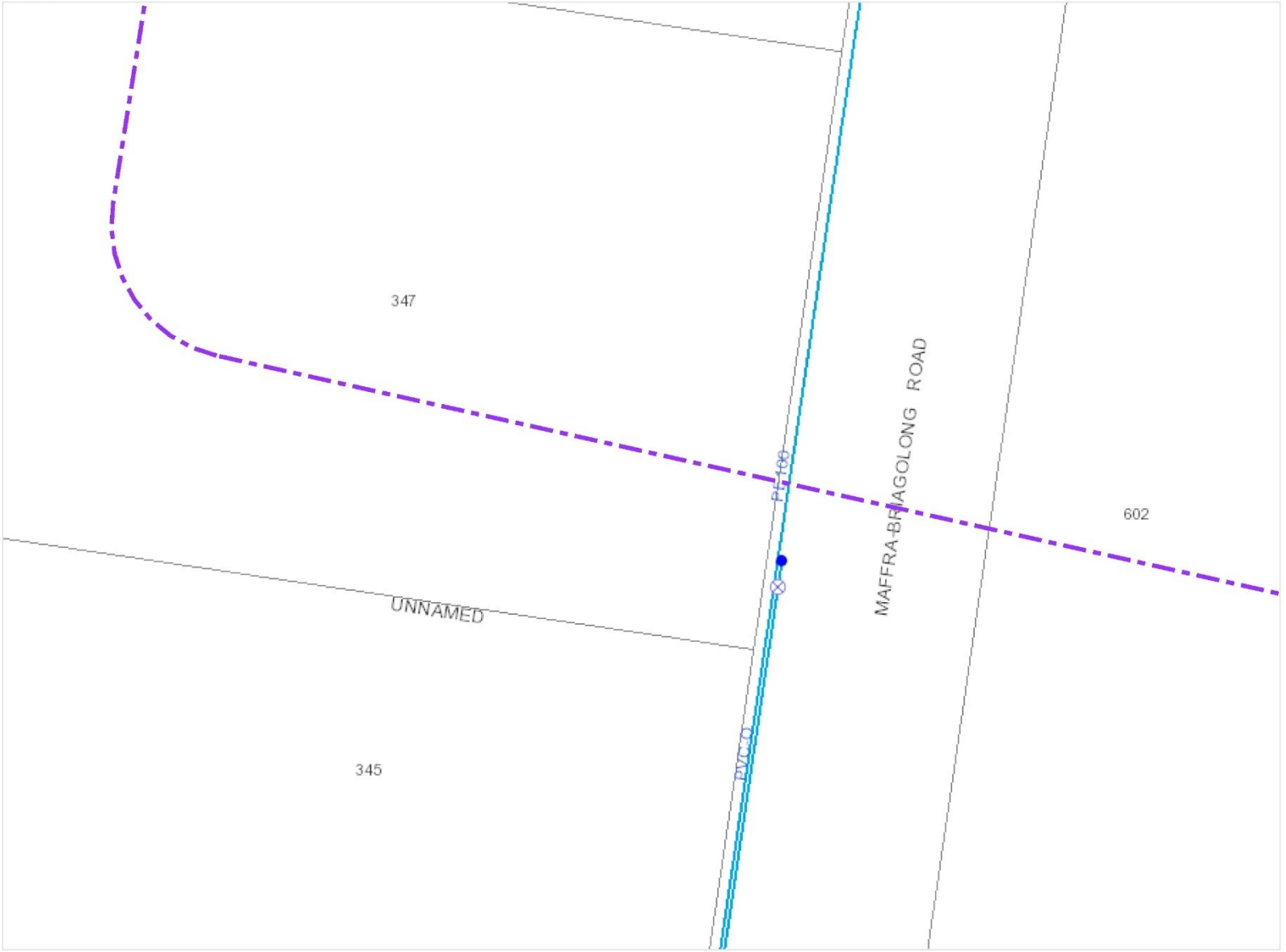

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Appendix 2 – References

Francis Hines, Kevin G Tolhurst, Andrew AG Wilson and Gregory J McCarthy 2010, *Overall Fuel Hazard Guide* 4th Edition, Department of Sustainability and Environment, 44 pp

Ahern, A. and Chladil, M. (1999) *How far do bushfires penetrate urban areas?* Aon Re Worldwide and Tasmanian Fire Service.

Attorney-General's Department (2015) *National Emergency Risk Assessment Guidelines.* Commonwealth of Australia.

Blanchi, R. and Leonard, J. (2005) *Investigation of Bushfire Attack Mechanisms Resulting in House Loss in the ACT Bushfire 2003.* CSIRO and Bushfire CRC.

Bull, H. (2011) *Fire Ecology: Guide to Environmentally Sustainable Bushfire Management in Rural Victoria.* Burwood East: Country Fire Authority

Byram, G. (1959) Combustion of Forest Fuels, in: *Forest Fire: Control and Use.* New York: McGraw-Hill, pp. 113-126

Cheney, P. and Sullivan, A. (2008) *Grassfires: fuel, weather and fire behaviour, second edition.* CSIRO Publishing, Melbourne.

DSE (2012) *Code of Practice for Bushfire Management on Public Land.* Melbourne: Department of Sustainability and Environment.

Gill, M. (2008) *Underpinnings of fire management for biodiversity conservation in reserves* (No. 73). East Melbourne, Victoria: Department of Environment, Land, Water and Planning.

Gould, J. S., McCaw, W. L., Cheney, N. P., Ellis, P. F. and Mathews, S. (2007) *Field guide: fuel assessment and fire behaviour prediction in dry eucalypt forest.* Ensis-CSIRO, Canberra, ACT and Department of Environment and Conservation, Perth, WA.

Leonard, J. (2009) *Report to the 2009 Victorian Bushfires Royal Commission: Building Performance in Bushfires* (Report to the VBRC). p. 80. CSIRO

Luke, H. R, and McArthur, A. G. (1986) *Bushfires in Australia.* CSIRO Division of Forest Research, Canberra

Standards Australia (2018) *AS 3959-2018 Construction of Buildings in Bushfire Prone Areas* (No. up to amendment 3 (Nov 2011). Sydney: SAI Global.

Standards Australia Limited (2009) *AS/NZS ISO 31000:2009 Risk management – Principles and guidelines.* Sydney: SAI Global Limited.

Tolhurst, K. (1994) Effects of Fuel Reduction Burning on Fuel Loads in a Dry Sclerophyll Forest. In DEST (1994) *Fire & Biodiversity: The Effects & Effectiveness of Fire Management,* Biodiversity Series, Paper No. 8, Biodiversity Unit, Canberra.

Tolhurst, K. and Cheney, N. (1999) *Synopsis of the Knowledge Used in Prescribed Burning in Victoria.* Melbourne: Department of Natural Resources and Environment, Fire Management.