

Date: 2nd April 2019

Our ref: 12165

Attn: NSW Department of Planning and Environment

Subject: Jemalong Subdivision DA of 320 lots within the Mundamia URA – Development Approval N25489

I refer to our meeting of 1st March 2019 at Nowra and related discussions about the bushfire risk associated with the abovementioned development approval. As agreed this report addresses the bushfire risk associated with the single road portion of the access to the development site and recommendations on how to further lower this risk.

I have also read the report entitled *“Mundamia MP 08_0141 Assessment of Bushfire Impacts for the NSW Department of Planning and Environment”* prepared by Australian Bushfire Protection Planners (ABPP, 29.1.19). This report does not review the ABPP report but focuses on an approach that lowers the evacuation risk to an acceptable level. For completeness, an overview comment (1 page) on the shortcomings of the ABPP report is provided in Appendix 1.

1. Acceptable Solutions versus Alternate Solutions

The Acceptable Solutions within Planning for Bushfire Protection (PBP 2006/2018) do not totally remove or avoid bushfire risk. All development on Bush Fire Prone Land has a residual bushfire risk and the Acceptable Solutions identify one means of lowering the residual risk to an ‘acceptable level’.

Alternate Solutions (Performance Solutions) are also used to lower the residual risk and they are not a ‘lesser standard of solution’. In fact, Alternate Solutions typically require a more accurate site/risk assessment, higher level of bushfire safety and usually provide better outcomes for non-bushfire related objectives.

Residual risks associated with Acceptable Solutions and detailed evacuation studies have been completed by the author in various jurisdictions around Australia over the past 2 years (e.g. SFPP development (NSWRFS), single access road subdivision (WA Department of Fire and Emergency Service), and Strategic Bushfire Study (ACT Emergency Service Agency). Each of these investigations have demonstrated through fire spread models (SPARK) a high level of residual bushfire risk remaining under the Acceptable Solutions of ‘two alternate egress roads’.

Quality bushfire risk assessment with lower risk outcomes can be missed by the if it is assumed that Acceptable Solutions are always the best solutions. As an example, a subdivision can be approved if it has two alternate egress roads with little to no regard of the quality or feasibility of reaching the evacuation destinations, or the length or vulnerability of the egress roads. Also, under ‘rapid on-set bushfire’ all egress roads on bushfire prone land are cut by bushfire within minutes of each other and

this occurs regardless of how many egresses there are, or their direction of egress (SPARK models demonstrate this).

A 'rapid on-set bushfire', among other things, is one that impacts a road or a development prior to the time when safe evacuation can be completed. In other words, it is a fire attack that renders unfeasible the 'early evacuation' preferred bushfire safety plan response to bushfires.

Our scientifically robust evacuation studies using the weather benchmarks of the jurisdiction (e.g. FFDI 100) have repeatedly shown that 'rapid on-set bushfire' poses the highest risk to life associated with development on bush fire prone land. This is because there is no time to evacuate and the fires cannot be stopped by firefighters as they are either too intense or have impacted a site/road before firefighters can control them.

A key residual risk associated with two alternate egress routes under the Acceptable Solutions within PBP can be quantified by the likelihood and consequence of a bushfire attack when 'early evacuation' cannot occur. In situations where early evacuation is not feasible the Acceptable Solutions are silent and in so doing inherently accept the risk of 'sheltering in place' in a minimum BAL 29 dwelling with a BAL 29 sized APZ.

Whilst 'sheltering in place' in a PBP compliant dwelling may be a suitable 'last resort' it is of a lesser standard than the national guideline within the Handbook for a Community Bushfire Shelter (ACBC¹) or the Neighbourhood Safer Places (RFS, 2017²).

An Alternate Solution, however, can provide an 'early evacuation' to a suitable evacuation destination when a single access road is far less prone to failure and a 'shelter in place' design within a 'Neighbourhood Safer Place' as the second alternative evacuation destination.

The adequacy of an Alternate Solution can be assessed in various ways, one robust measure is whether it has a lower residual risk (or a higher 'acceptable level of safety') than the Acceptable Solution it is replacing.

2. A hierarchy of evacuation safety

As discussed at the 1st March 2019 meeting a general hierarchy of refuge/evacuation options exists for the subject land to reduce the risk to life to an 'acceptable level' on bushfire prone lands.

a. Early evacuation

Early evacuation is the primary bushfire survival option advocated by the NSW RFS and other similar agencies nationally. However, it is reasonably foreseeable on all bush fire prone lands that early evacuation is not always feasible or safe and therefore an alternative is required. An alternate egress is also not likely to be feasible at the same time as the primary egress under rapid on-set bushfire.

b. Neighbourhood Safer Places (NSP)

¹ <https://www.abcb.gov.au/-/.../Handbook-Community-Bushfire-Refuges-2014.pdf>

² https://www.rfs.nsw.gov.au/_data/assets/pdf_file/0019/55252/NSP-Places-of-Last-Resort-Guidelines.pdf

Community Bushfire Shelters and NSP are described by fire agencies as ‘places of last resort’, that is, if early evacuation is not feasible/safe then these facilities are suitable for ‘sheltering in place’.

With greater understanding of the higher risks associated with rapid on-set bushfires, in the author’s opinion, NSP are vital to good bushfire protection design, at least for larger subdivisions. The standards required for a NSP are primarily defined by its separation from the hazard to achieve a radiant heat exposure of $<10\text{kW/m}^2$ and an appropriate design and use arrangement.

c. Shelter in place in a dwelling

Dwellings constructed under PBP 2006/2019 are designed to survive a bushfire attack on a Catastrophic Fire Danger Rated Day (FFDI 100) and no buildings in NSW designed under PBP 2006 have been lost in bushfires despite many being exposed to bushfire attack (Pers. Comm: Justin Leonard, Research Leader, Bushfire Urban Design, CSIRO (2018)).

PBP compliant dwellings therefore offer a potentially safe ‘refuge of last resort’, however, not all dwellings and their APZ are guaranteed to be maintained at the standard required under their development consent. In situations where houses are located relatively close, a poorly maintained neighbours’ property can lead to it being ignited and then house to house fire spread (as in the Canberra 2003 bushfires).

Enlarging APZs or increasing construction standards of dwellings will lower their residual risk, but as a community-wide safety strategy it is less effective than using NSP where evacuees are all in one place where communication, safety and management is more effective and reliable.

d. Summary

Early evacuation is the best bushfire survival plan for the protection of life. However, it is not possible to always evacuate early, even when two or more alternate egress roads exist. Rapid on-set bushfires that prevent early evacuation are reasonably foreseeable on bushfire prone lands and NSP offer a shelter in place option compliant with national guidelines for this purpose. Sheltering in place in a dwelling is feasible but has a higher residual risk than a NSP.

3. Mundamia: Alternate Solution to the alternate egress roads

Most of the proposed lots in the Mundamia development do not abut the bushfire hazard (see Figure 1) and are therefore only vulnerable to burning debris attack and not the other two primary means of bushfire attack of flame contact or radiant heat.

Figure 1 also shows (using the data inputs previously approved by the RFS for the rezoning application) that most of the proposed lots are located where they are exposed to $<10\text{kW/m}^2$ (i.e. the NSP separation standard). The modelling reports used to prepare Figure 1 are shown in Appendix 2.

These bushfire attack level characteristics for the subdivision facilitate a quality Alternate Solution of a Neighbourhood Safer Place for evacuees located within 100 m of the hazard (See Figure 1), as an alternative to reliance on two alternate egress roads leading from the site. A shelter in place approach is acceptable for lots located beyond 100 m from the hazard (Figure 1) and this will comply with PBP as they will be located on land that will (post-development) not be classified as bush fire prone.

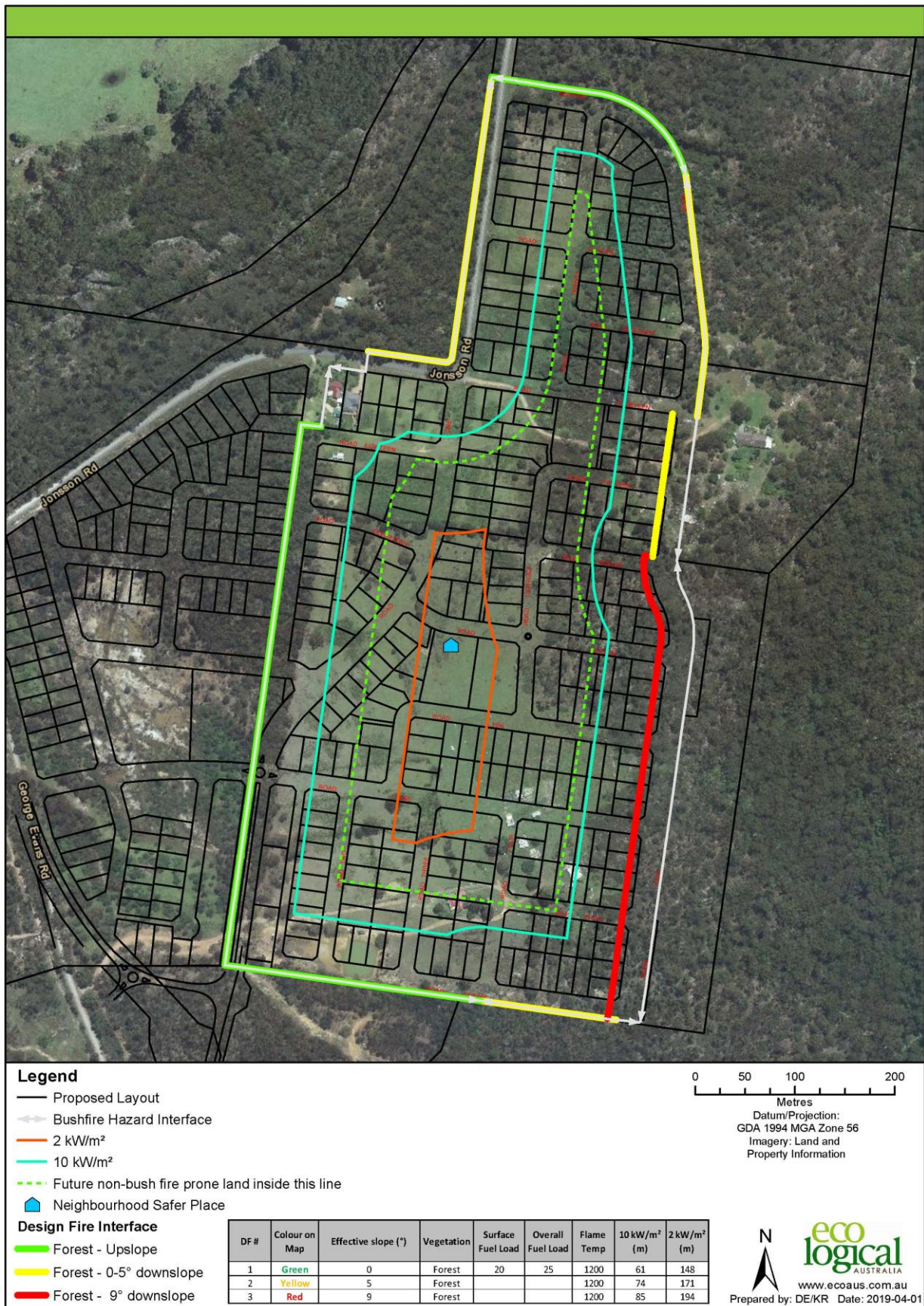


Figure 1: Development overview

4. Location and design of NSP

The Alternate Solution proposed is a NSP on the Public Reserve (see Figure 1). It is located beyond the 10 kW/m² exposure as determined from models assuming a flame temperature of 1200 °C, as required for NSP. Shoalhaven City Council have given in-principle support (see Appendix 3) for a revision of the location and timing of the Community Facility (Project 01CFA0014) which can service as the NSP.

The Community Facility will have a floor area compliant with the guideline for ABCB Community Bushfire Refuges for 1sqm per person. It will have a capacity capable of 'sheltering in place' all occupants of all lots within 100 m of the bushfire hazard (i.e. approximately 600 assuming an average of 2.5 persons per dwelling) either within the Community Building or immediately outside in the large area of <2kW/m² (see Figure 1). Whilst it is extremely unlikely that the maximum number of evacuees would use the NSP at any one time, the availability at the NSP of areas <2kW/m² means that any overflow from sheltering inside the building can be safely located outside (<2kW/m² is the 'refuge in the open' standard for NSP).

A NSP protocol can be prepared to ensure the more vulnerable evacuees are located inside. It is also probable that if some are required to shelter outside they will be shielded from the hazard by 3 to 6 rows of dwellings and therefore are unlikely to see the flames or experience any radiant heat exposure.

The NSP should be constructed to the standard within the ABCB Handbook on Design and Construction of Community Bushfire Refuges (2014) and compliant with the current RFS NSP requirements.

5. Nowra West by-pass

As discussed at the 1st March 2019 meeting the likelihood of bushfire impact on the subject site will reduce after the Nowra West bypass is constructed. While it is uncertain when this will be completed it will ultimately represent a significant lowering of the risk of fire impacting the site from the highest risk direction (west) in the future. Major roads of this type are often used as major control lines by firefighters.

6. University of Wollongong refuge

Whilst the UOW has buildings suitable for refuge, and their own equivalent to a NSP, these have not been relied upon as there is a risk (albeit low) that these evacuation centres may be fully occupied if a fire coincided with a full occupancy time at the University (Pers. Comm. UOW Security Manager, 2019).

7. Staging requirements

It is proposed to construct the Community Building suitable as a NSP in Stage 1 of the development (see Appendix 4). This means there will be no occupants of the site at any stage that do not have two alternate evacuation destinations of at least NSP standard i.e. Nowra or the on-site NSP.

The revised Staging Plan (Appendix 4) provides APZ and permanent or temporary roads that ensures the NSP and every lot is separated from the hazard by a road/trail and has either a temporary or final APZ matching its required final APZ and/or construction standard under *AS3959 Construction of Buildings in Bushfire Prone Areas*.

Importantly, the NSP (Community Building and outside shelter area) will not be exposed to >2kW/m² radiant heat flux at any time during the staged development of the site.

8. Conclusion

The original proposed 360 Lot Mundamia URA was assessed and accepted by the RFS.

This report identifies the inadequacies of the ABPP review in failing (among other things) to recognise the size of the final development footprint of the URA and the resultant creation of a large low bushfire risk area within its extent. This report (Figure 1) shows most of the site (once developed) will not be bush fire prone land as it will be located more than 100 m from a hazard.

An Alternate Solution is proposed to take advantage of this large development footprint and provides a NSP that is compliant with ABCB Handbook on Design and Construction of Community Bushfire Refuges (2014). This Solution avoids the risk associated with relying on off-site evacuation only and in so doing has a lower residual risk than the Acceptable Solution (if it was provided) for two alternate egress routes which are at risk of being cut simultaneously by a rapid on-set bushfire.

Future occupants of the site will always have available the acceptably safe options of “leaving early’ or ‘staying in place’ in a NSP of a standard equivalent to an evacuation destination by an alternate access road. Furthermore, the ‘staying in place’ strategy significantly lowers the risk of residents feeling compelled to evacuate off site at an unsafe time, or inappropriately judging the risks at the time of using the roads.

History has shown that many people have died on roads having made poor decisions about evacuation. While history shows many have also died sheltering in place (e.g. Black Saturday) these were in buildings and within APZ not meeting any of the current bushfire protection standards and those proposed for the development. The standard of protection achieved under PBP 2006 and the NSP Alternate Solution proposed will in the author’s expert judgement provide a level of residual risk lower than that of the Acceptable Solutions within PBP 2006 requiring two alternate egress routes. It also provides a standard of ‘stay in place’ refuge meeting the national best practice design.

It is emphasised that this is a site-specific risk assessment and it should not be construed that a single access road will be suitable as an Alternate Solution on another site and especially those that do not create similar large areas with a non-bushfire prone land status.

9. Recommendation

The following additional conditions of consent are recommended:

- a. A Neighbourhood Safer Place (NSP) is to be located as shown in Figure 1 and Appendix 4 of the Eco Logical Australia report dated 1.4.19 and completed prior to occupation of any dwellings in the URA.
- b. The NSP is to be constructed to ABCB Handbook on Design and Construction of Community Bushfire Refuges (2014), or any revision of this document.
- c. An Emergency Evacuation and Response Plan is to be prepared for the URA, inclusive of a community wide Bushfire Safety Plan identifying the circumstances under which early evacuation and evacuation to the NSP are to occur and how this is to apply to each Stage of the development. The Plan is to be prepared by a BPAD L3 bushfire consultant, reviewed by an independent BPAD L3 bushfire consultant and approved by Shoalhaven City Council.
- d. Bushfire Protection Measures identified within Section 7 of the Eco Logical Australia report dated 1.4.19 are to be implemented for each Stage of the Development.

Regards,



Rod Rose

Senior Principal – Bushfire

FPAA BPAD Accredited Practitioner No. BPAD1940-L3

Appendix 1: Concerns with ABPP bushfire assessment of the Mundamia proposal.

The following is a brief outline of the limitations or inadequacies in the ABPP report.

- a. Inappropriate bushfire behaviour/risk terms and assessment are used. Assessing predicted fire intensity, bushfire attack levels (BAL), rates of spread etc are objective and measurable and should have been used to better quantify risk. These accepted risk assessment approaches have not been used.
- b. The bushfire conditions under which the risk is assessed are incomplete and the risk ranking concept is flawed (P. 12-13). The approach should consider (among other things) the:
 - i Risk (including likelihood) of a fire in a location and at a time when the wind and fuel conditions enable the fire to be driven toward the access road;
 - ii Risk that the fire spread is not controlled by fire fighters or lower fuel areas;
 - iii Risk that the fire ultimately impacts the egress road precisely when it is used by evacuees/emergency services. NB: a bushfire impacting a road at any other time is NOT a risk to evacuees or emergency responders.
- c. ISO 31000 (2018) sets the international standard for risk assessment. In my opinion the ABPP report does not meet this standard and consequently grossly overestimates likelihood associated with the risk. As risk quantification methodology now exist for assessing bushfire impacts; the traditional, simplistic risk ranking tables used by ABPP are superseded.
- d. Very general potential fire spread directions are used rather than fire simulations e.g. with Phoenix or SPARK fire simulation software. The so-called risk pathways are simply vegetation pathways and have not been assessed in terms of fire control lines along the pathways which may see fires stopped, or the frequency at which based upon fire history and other data that the fires of 'concern' are likely to occur. These are all fundamental and best practice application of science in bushfire risk assessment.
- e. Table 2, the likelihood table, inappropriately uses a severe fire danger period (i.e. a weather condition) as the risk of fire occurring under that weather condition. 'Adverse' fire weather conditions will occur many times each year in the locality, however a fire with the potential to impact life in that locality (not specifically the road) may be once in 50 – 100 years. Fire history records since 1938 in the Shoalhaven demonstrates this.
- f. The Table 4 risk assessment is misleading and inaccurate, and the risk ratings are exaggerated.
- g. There has been no assessment of road use by evacuees and emergency services, nor the resilience of the subdivision design for onsite refuting.
- h. There has been no assessment of the likelihood of a fire occurring that will result in either:
 - i The national policy of early evacuation or stay put no longer being feasible/effective;
 - ii People stopped from evacuating by a wildfire (and under what conditions and how often will this occur);
 - iii People impacted by wildfire while in cars while evacuating;
 - iv Inadequate refuting safety on site.
- i. Comparing the site with a fire disaster in another state under totally different circumstance is flawed risk assessment for the site.
- j. The report does not address bushfire performance solutions and cites the PBP Acceptable Solutions which are only a small part of a risk assessment requirement.

Appendix 2: Modelling reports for calculating the 10 kW/m² and 2 kW/m² zones in Figure 1

NBC Bushfire Attack Assessment Report V2.1

AS3959 (2009) Appendix B - Detailed Method 2

Printed: 14/03/2019 Assessment Date: 14/03/2019



Site Street Address: Lot 30 George Evans and Jonsson Roads, Mundamia

Assessor: Bruce Horkings; Ecological Australia

Local Government Area: Shoalhaven

Alpine Area:

No

Equations Used

Transmissivity: Fuss and Hammins, 2002

Flame Length: RFS PBP, 2001

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: DF1 - 10 kW/m2

Vegetation Information

Vegetation Type: Forest

Vegetation Group: Forest and Woodland

Vegetation Slope: 0 Degrees

Vegetation Slope Type: Level

Surface Fuel Load(t/ha): 20

Overall Fuel Load(t/ha): 25

Site Information

Site Slope: 0 Degrees

Site Slope Type: Level

Elevation of Receiver(m): Default

APZ/Separation(m): 61

Fire Inputs

Veg./Flame Width(m): 100

Flame Temp(K) 1200

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

Category of Attack: LOW

Peak Elevation of Receiver(m): 9.06

Level of Construction: BAL 12.5

Fire Intensity(kW/m): 31000

Radiant Heat(kW/m2): 9.91

Flame Angle (degrees): 77

Flame Length(m): 18.6

Maximum View Factor: 0.116

Rate Of Spread (km/h): 2.4

Inner Protection Area(m): 61

Transmissivity: 0.767

Outer Protection Area(m): 0

Run Description: DF1 - 2 kW/m2

Vegetation Information

Vegetation Type:	Forest	Vegetation Group:	Forest and Woodland
Vegetation Slope:	0 Degrees	Vegetation Slope Type:	Level
Surface Fuel Load(t/ha):	20	Overall Fuel Load(t/ha):	25

Site Information

Site Slope:	0 Degrees	Site Slope Type:	Level
Elevation of Receiver(m):	Default	APZ/Separation(m):	148

Fire Inputs

Veg./Flame Width(m):	100	Flame Temp(K)	1200
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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

Category of Attack:	VERY LOW	Peak Elevation of Receiver(m):	9.23
Level of Construction:	BAL LOW	Fire Intensity(kW/m):	31000
Radiant Heat(kW/m2):	1.99	Flame Angle (degrees):	83
Flame Length(m):	18.6	Maximum View Factor:	0.025
Rate Of Spread (km/h):	2.4	Inner Protection Area(m):	148
Transmissivity:	0.705	Outer Protection Area(m):	0

Run Description: DF2 - 10 kW/m2

Vegetation Information

Vegetation Type:	Forest	Vegetation Group:	Forest and Woodland
Vegetation Slope:	5 Degrees	Vegetation Slope Type:	Downslope
Surface Fuel Load(t/ha):	20	Overall Fuel Load(t/ha):	25

Site Information

Site Slope:	0 Degrees	Site Slope Type:	Level
Elevation of Receiver(m):	Default	APZ/Separation(m):	74

Fire Inputs

Veg./Flame Width(m):	100	Flame Temp(K)	1200
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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

Category of Attack:	LOW	Peak Elevation of Receiver(m):	12.09
Level of Construction:	BAL 12.5	Fire Intensity(kW/m):	43772
Radiant Heat(kW/m2):	9.8	Flame Angle (degrees):	75
Flame Length(m):	25.03	Maximum View Factor:	0.116
Rate Of Spread (km/h):	3.39	Inner Protection Area(m):	74
Transmissivity:	0.755	Outer Protection Area(m):	0

Run Description: DF2 - 2 kW/m2

Vegetation Information

Vegetation Type:	Forest	Vegetation Group:	Forest and Woodland
Vegetation Slope:	5 Degrees	Vegetation Slope Type:	Downslope
Surface Fuel Load(t/ha):	20	Overall Fuel Load(t/ha):	25

Site Information

Site Slope:	0 Degrees	Site Slope Type:	Level
Elevation of Receiver(m):	Default	APZ/Separation(m):	171

Fire Inputs

Veg./Flame Width(m):	100	Flame Temp(K)	1200
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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

Category of Attack:	VERY LOW	Peak Elevation of Receiver(m):	12.39
Level of Construction:	BAL LOW	Fire Intensity(kW/m):	43772
Radiant Heat(kW/m2):	2	Flame Angle (degrees):	82
Flame Length(m):	25.03	Maximum View Factor:	0.026
Rate Of Spread (km/h):	3.39	Inner Protection Area(m):	171
Transmissivity:	0.691	Outer Protection Area(m):	0

Run Description: DF3 - 10 kW/m2

Vegetation Information

Vegetation Type:	Forest	Vegetation Group:	Forest and Woodland
Vegetation Slope:	9 Degrees	Vegetation Slope Type:	Downslope
Surface Fuel Load(t/ha):	20	Overall Fuel Load(t/ha):	25

Site Information

Site Slope:	0 Degrees	Site Slope Type:	Level
Elevation of Receiver(m):	Default	APZ/Separation(m):	85

Fire Inputs

Veg./Flame Width(m):	100	Flame Temp(K)	1200
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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

Category of Attack:	LOW	Peak Elevation of Receiver(m):	15.23
Level of Construction:	BAL 12.5	Fire Intensity(kW/m):	57684
Radiant Heat(kW/m2):	9.97	Flame Angle (degrees):	72
Flame Length(m):	32.03	Maximum View Factor:	0.119
Rate Of Spread (km/h):	4.47	Inner Protection Area(m):	85
Transmissivity:	0.748	Outer Protection Area(m):	0

Run Description: DF3 - 2 kW/m2

Vegetation Information

Vegetation Type:	Forest	Vegetation Group:	Forest and Woodland
Vegetation Slope:	9 Degrees	Vegetation Slope Type:	Downslope
Surface Fuel Load(t/ha):	20	Overall Fuel Load(t/ha):	25

Site Information

Site Slope:	0 Degrees	Site Slope Type:	Level
Elevation of Receiver(m):	Default	APZ/Separation(m):	194

Fire Inputs

Veg./Flame Width(m):	100	Flame Temp(K)	1200
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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

Category of Attack:	VERY LOW	Peak Elevation of Receiver(m):	15.82
Level of Construction:	BAL LOW	Fire Intensity(kW/m):	57684
Radiant Heat(kW/m2):	1.99	Flame Angle (degrees):	81
Flame Length(m):	32.03	Maximum View Factor:	0.026
Rate Of Spread (km/h):	4.47	Inner Protection Area(m):	194
Transmissivity:	0.682	Outer Protection Area(m):	0

Appendix 3: Councils agreement in principle to the relocation and earlier construction of the Community building



Bridge Rd, Nowra NSW 2541 02 4429 3111
Deering St, Ulladulla NSW 2539 02 4429 8999

Address all correspondence to
The General Manager, PO Box 42, Nowra NSW 2541 Australia
DX5323 Nowra Fax 02 4422 1816

Council Reference: 3A08/1010-02 (D19/78016)

Matt Philpott
Allen Price & Scarratts Pty Ltd
75 Plunkett Street
NOWRA NSW 2541

Via Email: mattphilpott@allenprice.com.au

Dear Matt

Mundamia – Possible Amendment Development Control Plan and Contributions Plan Community Facility

Thank you for your email in this regard dated 5th March 2019 and subsequently meeting with relevant Council staff and myself to further discuss this issue.

As advised in the meeting, given the planning work that has gone into the Mundamia Urban Release Area (URA) and the need to ensure that there is future residential land supply in the Nowra-Bomaderry area consistent with agreed Council and NSW Government plans, there is 'in principle' support to look at reviewing the location and timing of the community facility (Project 01CFAC0014) that is currently identified in the Councils Contributions Plan for future provision in this URA so that it can also assist as an on-site bushfire refuge, if required.

Council staff are happy to be involved in ongoing discussions to assist with the resolution of this matter and the overall application if required.

Yours faithfully

A handwritten signature in blue ink, appearing to read "Russ Pigg".

Russ Pigg
General Manager
12 March 2019

council@shoalhaven.nsw.gov.au | www.shoalhaven.nsw.gov.au

Appendix 4: Revised Staging Plan

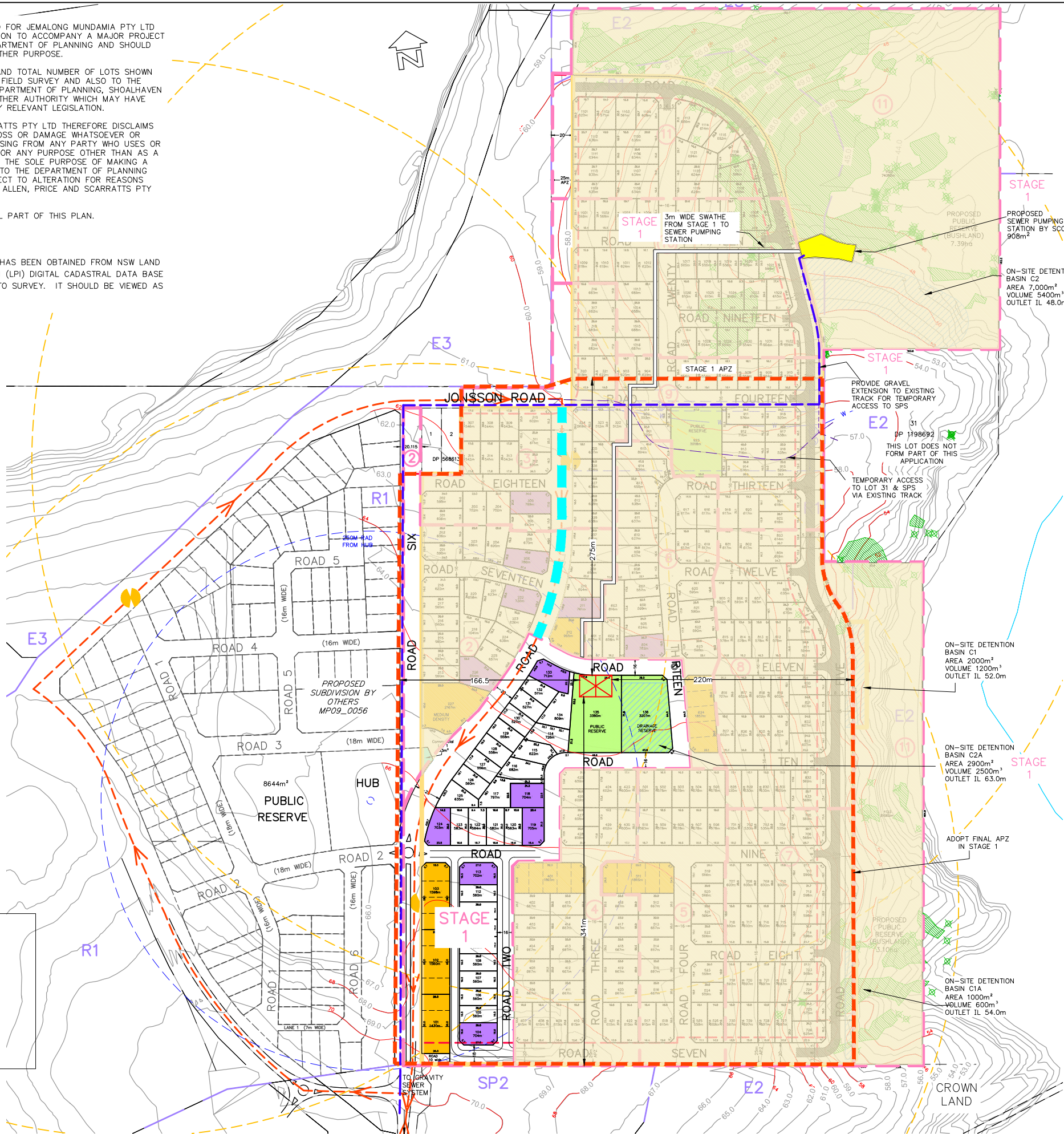
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THE DIMENSIONS, AREAS AND TOTAL NUMBER OF LOTS SHOWN HEREON ARE SUBJECT TO FIELD SURVEY AND ALSO TO THE REQUIREMENTS OF THE DEPARTMENT OF PLANNING, SHOALHAVEN CITY COUNCIL AND ANY OTHER AUTHORITY WHICH MAY HAVE REQUIREMENTS UNDER ANY RELEVANT LEGISLATION.

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- COMMERCIAL
- DUAL OCCUPANCY
- MULTI DWELLING HOUSING
- APZ LINE
- PROPOSED BUS ROUTE SHOWING DIRECTION OF TRAVEL
- PROPOSED BUS STOP
- 500m WALKING DISTANCE FROM PROPOSED BUS STOP
- R1 ZONING LINE
- DENOTES LOCATION OF NOWRA HEATH MYRTLE BY SLR- FIG. 8
- DENOTES LOCATION OF NOWRA HEATH MYRTLE PATCHES BY SLR FIG. 8
- PROPOSED SEWER RISING MAIN ROUTE BY SCC
- STAGING
- DEVELOPABLE AREA
- BUSHFIRE TRAIL
- DENOTES EASEMENTS OF DP 1198692 TO BE PROGRESSIVELY EXPUNGED AS WORKS PROGRESS
- DENOTES NEIGHBOURHOOD SAFER PLACE (600m²)
- EASEMENTS CREATED IN DP 1198692
- DENOTES EASEMENT FOR WATER OVER EXISTING LINE OF PIPE (APPROX. POSITION) (DP 1198692)
- RIGHT OF WAY 75 WIDE (DP 1198692)
- EASEMENT FOR SUPPLY OF SERVICES 75 WIDE (DP 1198692)
- EASEMENT FOR ASSET PROTECTION ZONE 40 WIDE (DP 1198692)
- EASEMENT FOR OVERHEAD POWERLINES 9 WIDE (DP 1198692)
- EASEMENT FOR BUSHFIRE TRAIL 10 WIDE (DP 1198692)
- DENOTES TEMPORARY 100M (MIN) APZ
- DENOTES TEMPORARY BUSHFIRE ALTERNATE ACCESS
- DENOTES TEMPORARY FIRE TRAIL
- DENOTES FUTURE STAGES

RESIDENTIAL STAGING	
1	34 LOTS + P.R. + D.R.
2	27 LOTS
3	29 LOTS
4	30 LOTS
5	26 LOTS
6	24 LOTS
7	30 LOTS
8	33 LOTS
9	22 LOTS + P.R.
10	32 LOTS
11	21 LOTS + 2xP.R.
TOTAL 308 LOTS + 4xP.R. + D.R.	

STAGE 1



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RATIO: 1:2000 (AT A1 ORIGINAL)	DATUM: ORIGIN: DATE OF PLAN: 30 MARCH 2016	SURVEY DESIGN MJP DRAWN DGS CHECK'D	REV P1 LOT LAYOUT REVISED P2 SPS AND LOT LAYOUT REVISED P3 APZ MODIFIED TO SUIT REVISED STAGING	BY DS 06.07.2016 DS 10.04.2017 DS 01.04.2019	DATE 06.07.2016 10.04.2017 01.04.2019	allen price & scarratts pty ltd land and development consultants Nowra Branch: 75 Plunkett Street, Nowra NSW 2541 Kiama Branch: 5/125 Terralong Street, Kiama NSW 2533 phone:(02) 4421 6544 fax:(02) 4422 1821 consultants@allenprice.com.au www.allenprice.com.au	PLAN SHOWING PROPOSED INTERIM BUSHFIRE MEASURES OVER EACH STAGE OF THE DEVELOPMENT IN PROPOSED SUBDIVISION OF LOT 30 DP 1198692 AT MUNDAMIA GROWTH AREA FOR JEMALONG MUNDAMIA PTY LTD	DRAWING STATUS PRELIMINARY NOT TO BE USED FOR CONSTRUCTION PURPOSES	DRAWING NUMBER 25489-18	SHEET 1 OF 11	REVISION P3
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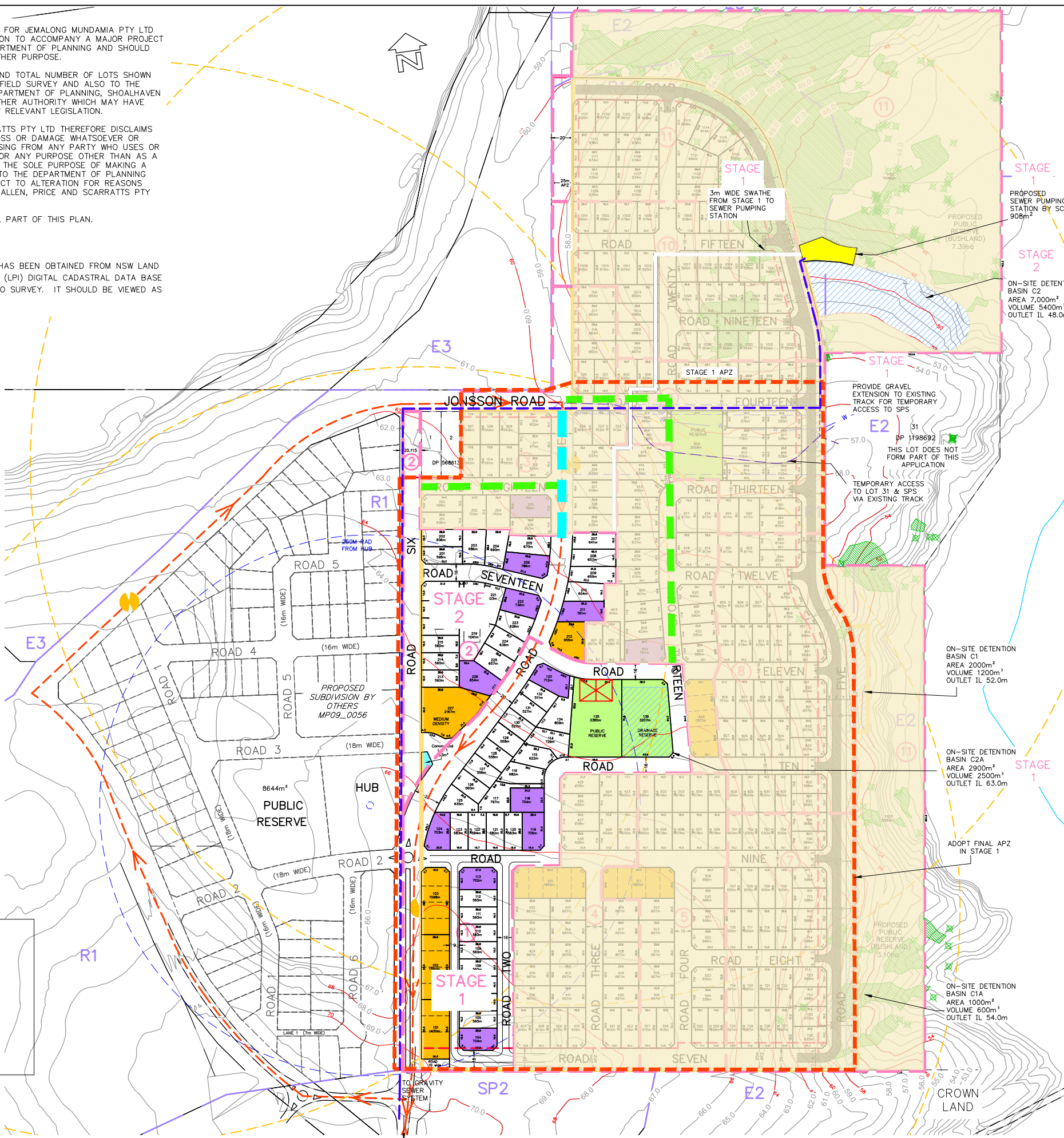
THIS PLAN WAS PREPARED FOR JEMALONG MUNDAMIA PTY LTD AS A PROPOSED SUBDIVISION TO ACCOMPANY A MAJOR PROJECT APPLICATION TO THE DEPARTMENT OF PLANNING AND SHOULD NOT BE USED FOR ANY OTHER PURPOSE.

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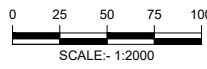
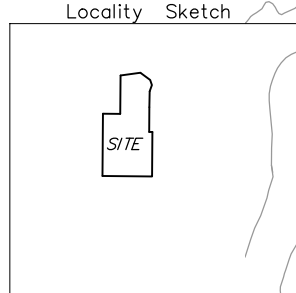
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- COMMERCIAL
- DUAL OCCUPANCY
- MULTI DWELLING HOUSING
- APZ LINE
- PROPOSED BUS ROUTE SHOWING DIRECTION OF TRAVEL
- PROPOSED BUS STOP
- 500m WALKING DISTANCE FROM PROPOSED BUS STOP
- R1 ZONING LINE
- DENOTES LOCATION OF NOWRA HEATH MYRTLE BY SLR- FIG. 8
- DENOTES LOCATION OF NOWRA HEATH MYRTLE PATCHES BY SLR FIG. 8
- PROPOSED SEWER RISING MAIN ROUTE BY SCC
- STAGING
- DEVELOPABLE AREA
- BUSHFIRE TRAIL
- DENOTES EASEMENTS OF DP 1198692 TO BE PROGRESSIVELY EXPUNGED AS WORKS PROGRESS
- DENOTES NEIGHBOURHOOD SAFER PLACE (600m²)
- EASEMENTS CREATED IN DP 1198692
 - DENOTES EASEMENT FOR WATER OVER EXISTING LINE OF PIPE (APPROX. POSITION) (DP 1198692)
 - RIGHT OF WAY 75 WIDE (DP 1198692)
 - EASEMENT FOR SUPPLY OF SERVICES 75 WIDE (DP 1198692)
 - EASEMENT FOR ASSET PROTECTION ZONE 40 WIDE (DP 1198692)
 - EASEMENT FOR OVERHEAD POWERLINES 9 WIDE (DP 1198692)
 - EASEMENT FOR BUSHFIRE TRAIL 10 WIDE (DP 1198692)
- DENOTES TEMPORARY 100M (MIN) APZ
- DENOTES TEMPORARY BUSHFIRE ALTERNATE ACCESS
- DENOTES TEMPORARY FIRE TRAIL
- DENOTES FUTURE STAGES

RESIDENTIAL STAGING	
1	34 LOTS + P.R. + D.R.
2	27 LOTS
3	29 LOTS
4	30 LOTS
5	26 LOTS
6	24 LOTS
7	30 LOTS
8	33 LOTS
9	22 LOTS + P.R.
10	32 LOTS
11	21 LOTS + 2xP.R.
TOTAL 308 LOTS + 4xP.R. + D.R.	



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RATIO: 1:2000 (AT A1 ORIGINAL)	DATUM: ORIGIN: DATE OF PLAN: 30 MARCH 2016	SURVEY DESIGN MJP DRAWN DGS CHECK'D	REV P1 LOT LAYOUT REVISED P2 SPS AND LOT LAYOUT REVISED P3 APZ MODIFIED TO SUIT REVISED STAGING	DESCRIPTION	BY DS DATE 06.07.2016 10.04.2017 01.04.2019	allen price & scarratts pty ltd land and development consultants Nowra Branch: 75 Plunkett Street, Nowra NSW 2541 Kiama Branch: 5/125 Terralong Street, Kiama NSW 2533 phone:(02) 4421 6544 fax:(02) 4422 1821 consultants@allenprice.com.au www.allenprice.com.au	PLAN SHOWING PROPOSED INTERIM BUSHFIRE MEASURES OVER EACH STAGE OF THE DEVELOPMENT IN PROPOSED SUBDIVISION OF LOT 30 DP 1198692 AT MUNDAMIA GROWTH AREA FOR JEMALONG MUNDAMIA PTY LTD	DRAWING STATUS PRELIMINARY NOT TO BE USED FOR CONSTRUCTION PURPOSES	
								DRAWING NUMBER 25489-18	SHEET 2 OF 11 REVISION P3



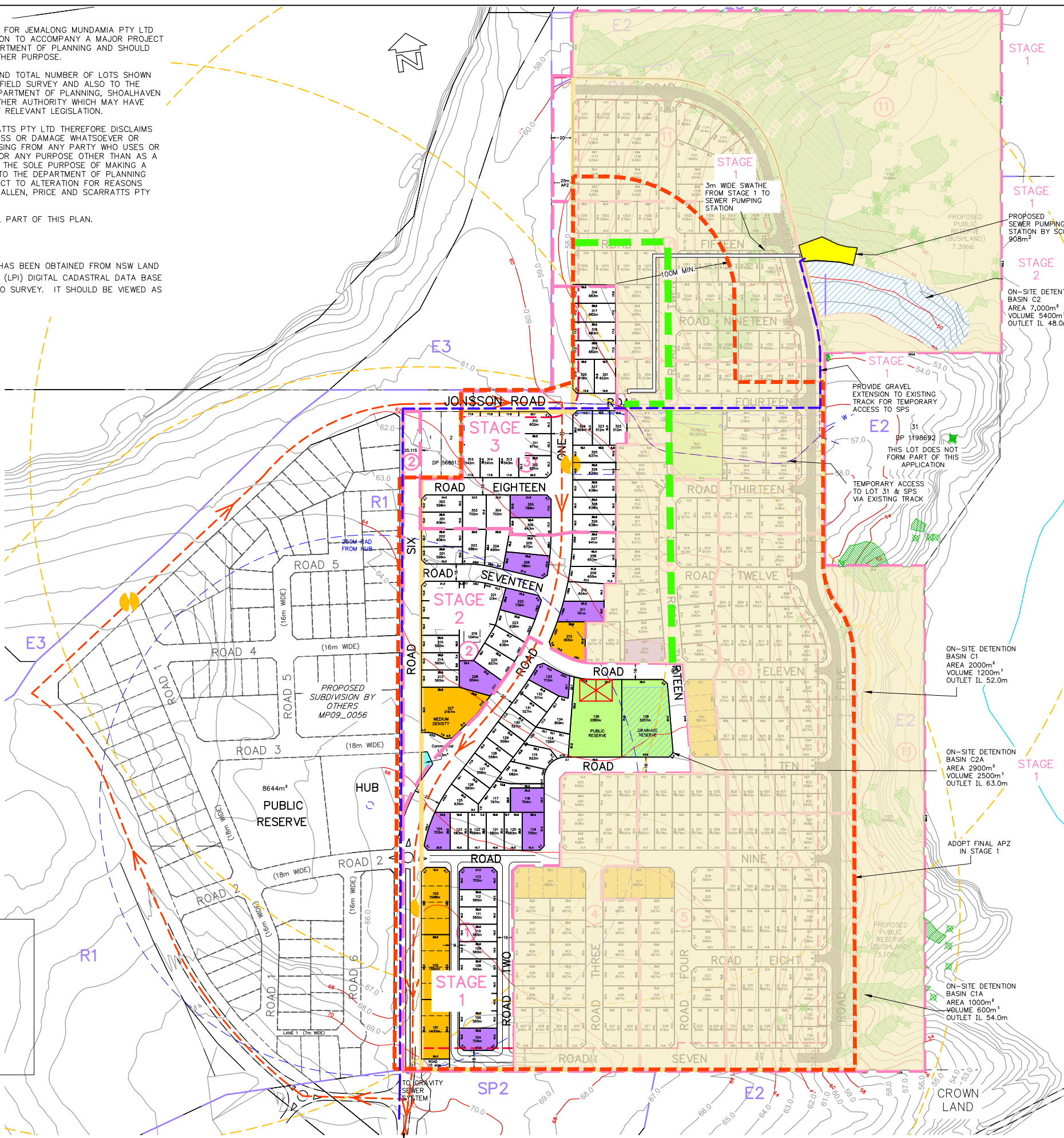
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- COMMERCIAL
- DUAL OCCUPANCY
- MULTI DWELLING HOUSING
- APZ LINE
- PROPOSED BUS ROUTE SHOWING DIRECTION OF TRAVEL
- PROPOSED BUS STOP
- 500m WALKING DISTANCE FROM PROPOSED BUS STOP
- R1 ZONING LINE
- DENOTES LOCATION OF NOWRA HEATH MYRTLE BY SLR- FIG. 8
- DENOTES LOCATION OF NOWRA HEATH MYRTLE PATCHES BY SLR FIG. 8
- PROPOSED SEWER RISING MAIN ROUTE BY SCC
- STAGING
- DEVELOPABLE AREA
- BUSHFIRE TRAIL
- DENOTES EASEMENTS OF DP 1198692 TO BE PROGRESSIVELY EXPUNGED AS WORKS PROGRESS
- DENOTES NEIGHBOURHOOD SAFER PLACE (600m²)
- EASEMENTS CREATED IN DP 1198692
 - DENOTES EASEMENT FOR WATER OVER EXISTING LINE OF PIPE (APPROX. POSITION) (DP 1198692)
 - RIGHT OF WAY 75 WIDE (DP 1198692)
 - EASEMENT FOR SUPPLY OF SERVICES 75 WIDE (DP 1198692)
 - EASEMENT FOR ASSET PROTECTION ZONE 40 WIDE (DP 1198692)
 - EASEMENT FOR OVERHEAD POWERLINES 9 WIDE (DP 1198692)
 - EASEMENT FOR BUSHFIRE TRAIL 10 WIDE (DP 1198692)
- DENOTES TEMPORARY 100M (MIN) APZ
- DENOTES TEMPORARY BUSHFIRE ALTERNATE ACCESS
- DENOTES TEMPORARY FIRE TRAIL
- DENOTES FUTURE STAGES

RESIDENTIAL STAGING	
1	34 LOTS + P.R. + D.R.
2	27 LOTS
3	29 LOTS
4	30 LOTS
5	26 LOTS
6	24 LOTS
7	30 LOTS
8	33 LOTS
9	22 LOTS + P.R.
10	32 LOTS
11	21 LOTS + 2xP.R.
TOTAL 308 LOTS + 4xP.R. + D.R.	

STAGE 3



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RATIO: 1:2000 (AT A1 ORIGINAL)	DATUM: ORIGIN: DATE OF PLAN: 30 MARCH 2016	SURVEY DESIGN MJP DRAWN DGS CHECK'D	REV P1 LOT LAYOUT REVISED P2 SPS AND LOT LAYOUT REVISED P3 APZ MODIFIED TO SUIT REVISED STAGING	BY DS 06.07.2016 DS 10.04.2017 DS 01.04.2019	DATE 06.07.2016 10.04.2017 01.04.2019	allen price & scarratts pty ltd land and development consultants Nowra Branch: 75 Plunkett Street, Nowra NSW 2541 Kiama Branch: 5/125 Terralong Street, Kiama NSW 2533 phone:(02) 4421 6544 fax:(02) 4422 1821 consultants@allenprice.com.au www.allenprice.com.au	PLAN SHOWING PROPOSED INTERIM BUSHFIRE MEASURES OVER EACH STAGE OF THE DEVELOPMENT IN PROPOSED SUBDIVISION OF LOT 30 DP 1198692 AT MUNDAMIA GROWTH AREA FOR JEMALONG MUNDAMIA PTY LTD	DRAWING STATUS PRELIMINARY NOT TO BE USED FOR CONSTRUCTION PURPOSES	DRAWING NUMBER 25489-18	SHEET OF 11	REVISION P3
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- COMMERCIAL

DUAL OCCUPANCY

MULTI DWELLING HOUSING

APZ LINE

PROPOSED BUS ROUTE SHOWING DIRECTION OF TRAVEL

PROPOSED BUS STOP

500m WALKING DISTANCE FROM PROPOSED BUS STOP

R1 ZONING LINE

DENOTES LOCATION OF NOWRA HEATH MYRTLE BY SLR- FIG. 8

DENOTES LOCATION OF NOWRA HEATH MYRTLE PATCHES BY SLR FIG. 8

PROPOSED SEWER RISING MAIN ROUTE BY SCC

STAGING

DEVELOPABLE AREA

BUSHFIRE TRAIL

DENOTES EASEMENTS OF DP 1198692 TO BE PROGRESSIVELY EXPUNGED AS WORKS PROGRESS

DENOTES NEIGHBOURHOOD SAFER PLACE (600m²)

EASEMENTS CREATED IN DP 1198692

DENOTES EASEMENT FOR WATER OVER EXISTING LINE OF PIPE (APPROX. POSITION) (DP 1198692)

RIGHT OF WAY 75 WIDE (DP 1198692)

EASEMENT FOR SUPPLY OF SERVICES 75 WIDE (DP 1198692)

EASEMENT FOR ASSET PROTECTION ZONE 40 WIDE (DP 1198692)

EASEMENT FOR OVERHEAD POWERLINES 9 WIDE (DP 1198692)

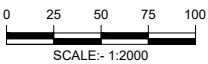
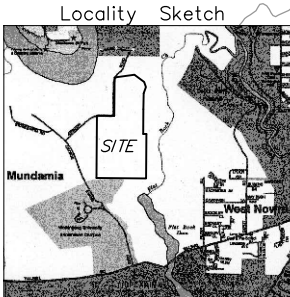
EASEMENT FOR BUSHFIRE TRAIL 10 WIDE (DP 1198692)

DENOTES TEMPORARY 100M (MIN) APZ

DENOTES TEMPORARY BUSHFIRE ALTERNATE ACCESS

DENOTES TEMPORARY FIRE TRAIL

DENOTES FUTURE STAGES
- | RESIDENTIAL STAGING | |
|--------------------------------|-----------------------|
| 1 | 34 LOTS + P.R. + D.R. |
| 2 | 27 LOTS |
| 3 | 29 LOTS |
| 4 | 30 LOTS |
| 5 | 26 LOTS |
| 6 | 24 LOTS |
| 7 | 30 LOTS |
| 8 | 33 LOTS |
| 9 | 22 LOTS + P.R. |
| 10 | 32 LOTS |
| 11 | 21 LOTS + 2xP.R. |
| TOTAL 308 LOTS + 4xP.R. + D.R. | |



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RATIO: 1:2000 (AT A1 ORIGINAL)	DATUM:	SURVEY	REV	DESCRIPTION	BY	DATE	PLAN SHOWING PROPOSED INTERIM BUSHFIRE MEASURES OVER EACH STAGE OF THE DEVELOPMENT IN PROPOSED SUBDIVISION OF LOT 30 DP 1198692 AT MUNDAMIA GROWTH AREA FOR JEMALONG MUNDAMIA PTY LTD	DRAWING STATUS	
	ORIGIN:	DESIGN MJP	P1	LOT LAYOUT REVISED	DS	06.07.2016		PRELIMINARY	
	DATE OF PLAN: 30 MARCH 2016	DRAWN DGS	P2	SPS AND LOT LAYOUT REVISED	DS	10.04.2017		NOT TO BE USED FOR CONSTRUCTION PURPOSES	
		CHECK'D	P3	APZ MODIFIED TO SUIT REVISED STAGING		01.04.2019		DRAWING NUMBER	SHEET
								25489-18	4
								OF 11	REVISION
									P3

allen price & scarratts pty ltd

land and development consultants

Nowra Branch: 75 Plunkett Street, Nowra NSW 2541

Kiama Branch: 5/125 Terralong Street, Kiama NSW 2533

phone:(02) 4421 6544 fax:(02) 4422 1821

consultants@allenprice.com.au www.allenprice.com.au

STAGE 4



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- COMMERCIAL

DUAL OCCUPANCY

MULTI DWELLING HOUSING

APZ LINE

PROPOSED BUS ROUTE SHOWING DIRECTION OF TRAVEL

PROPOSED BUS STOP

500m WALKING DISTANCE FROM PROPOSED BUS STOP

R1 ZONING LINE

DENOTES LOCATION OF NOWRA HEATH MYRTLE BY SLR- FIG. 8

DENOTES LOCATION OF NOWRA HEATH MYRTLE PATCHES BY SLR FIG. 8

PROPOSED SEWER RISING MAIN ROUTE BY SCC

STAGING

DEVELOPABLE AREA

BUSHFIRE TRAIL

DENOTES EASEMENTS OF DP 1198692 TO BE PROGRESSIVELY EXPUNGED AS WORKS PROGRESS

DENOTES NEIGHBOURHOOD SAFER PLACE (600m²)
- EASEMENTS CREATED IN DP 1198692

DENOTES EASEMENT FOR WATER OVER EXISTING LINE OF PIPE (APPROX. POSITION) (DP 1198692)

RIGHT OF WAY 75 WIDE (DP 1198692)

EASEMENT FOR SUPPLY OF SERVICES 75 WIDE (DP 1198692)

EASEMENT FOR ASSET PROTECTION ZONE 40 WIDE (DP 1198692)

EASEMENT FOR OVERHEAD POWERLINES 9 WIDE (DP 1198692)

EASEMENT FOR BUSHFIRE TRAIL 10 WIDE (DP 1198692)

DENOTES TEMPORARY 100M (MIN) APZ

DENOTES TEMPORARY BUSHFIRE ALTERNATE ACCESS

DENOTES TEMPORARY FIRE TRAIL

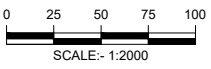
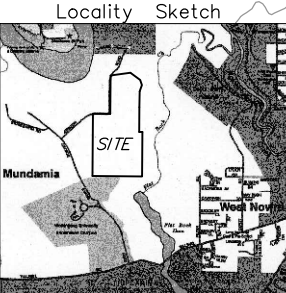
DENOTES FUTURE STAGES

RESIDENTIAL STAGING	
1	34 LOTS + P.R. + D.R.
2	27 LOTS
3	29 LOTS
4	30 LOTS
5	26 LOTS
6	24 LOTS
7	30 LOTS
8	33 LOTS
9	22 LOTS + P.R.
10	32 LOTS
11	21 LOTS + 2xP.R.
TOTAL 308 LOTS + 4xP.R. + D.R.	

STAGE 5



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RATIO: 1:2000 (AT A1 ORIGINAL)	DATUM:	SURVEY		REV	DESCRIPTION	BY	DATE	 allen price & scarratts pty ltd land and development consultants Nowra Branch: 75 Plunkett Street, Nowra NSW 2541 Kiama Branch: 5/125 Terralong Street, Kiama NSW 2533 phone: (02) 4421 6544 fax: (02) 4422 1821 consultants@allenprice.com.au www.allenprice.com.au	PLAN SHOWING PROPOSED INTERIM BUSHFIRE MEASURES OVER EACH STAGE OF THE DEVELOPMENT IN PROPOSED SUBDIVISION OF LOT 30 DP 1198692 AT MUNDAMIA GROWTH AREA FOR JEMALONG MUNDAMIA PTY LTD	DRAWING STATUS PRELIMINARY NOT TO BE USED FOR CONSTRUCTION PURPOSES		
	ORIGIN:	DESIGN	MJP	P1	LOT LAYOUT REVISED	DS	06.07.2016			DRAWING NUMBER 25489-18	SHEET OF 11	REVISION P3
		DRAWN	DGS	P2	SPS AND LOT LAYOUT REVISED	DS	10.04.2017					
		CHECK'D		P3	APZ MODIFIED TO SUIT REVISED STAGING	DS	01.04.2019					
	DATE OF PLAN: 30 MARCH 2016											

aps

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- COMMERCIAL

DUAL OCCUPANCY

MULTI DWELLING HOUSING

APZ LINE

PROPOSED BUS ROUTE SHOWING DIRECTION OF TRAVEL

PROPOSED BUS STOP

500m WALKING DISTANCE FROM PROPOSED BUS STOP

R1 ZONING LINE

DENOTES LOCATION OF NOWRA HEATH MYRTLE BY SLR- FIG. 8

DENOTES LOCATION OF NOWRA HEATH MYRTLE PATCHES BY SLR FIG. 8

PROPOSED SEWER RISING MAIN ROUTE BY SCC

STAGING

DEVELOPABLE AREA

BUSHFIRE TRAIL

DENOTES EASEMENTS OF DP 1198692 TO BE PROGRESSIVELY EXPUNGED AS WORKS PROGRESS

DENOTES NEIGHBOURHOOD SAFER PLACE (600m²)
- EASEMENTS CREATED IN DP 1198692

DENOTES EASEMENT FOR WATER OVER EXISTING LINE OF PIPE (APPROX. POSITION) (DP 1198692)

RIGHT OF WAY 75 WIDE (DP 1198692)

EASEMENT FOR SUPPLY OF SERVICES 75 WIDE (DP 1198692)

EASEMENT FOR ASSET PROTECTION ZONE 40 WIDE (DP 1198692)

EASEMENT FOR OVERHEAD POWERLINES 9 WIDE (DP 1198692)

EASEMENT FOR BUSHFIRE TRAIL 10 WIDE (DP 1198692)

DENOTES TEMPORARY 100M (MIN) APZ

DENOTES TEMPORARY BUSHFIRE ALTERNATE ACCESS

DENOTES TEMPORARY FIRE TRAIL

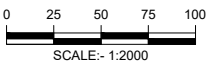
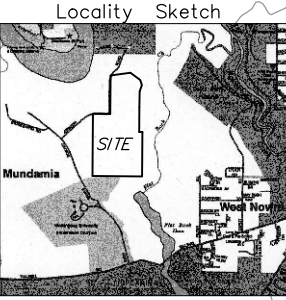
DENOTES FUTURE STAGES

RESIDENTIAL STAGING	
1	34 LOTS + P.R. + D.R.
2	27 LOTS
3	29 LOTS
4	30 LOTS
5	26 LOTS
6	24 LOTS
7	30 LOTS
8	33 LOTS
9	22 LOTS + P.R.
10	32 LOTS
11	21 LOTS + 2xP.R.
TOTAL 308 LOTS + 4xP.R. + D.R.	

STAGE 6



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RATIO: 1:2000 (AT A1 ORIGINAL)	DATUM:	SURVEY	REV	DESCRIPTION	BY	DATE	 allen price & scarratts Pty Ltd land and development consultants Nowra Branch: 75 Plunkett Street, Nowra NSW 2541 Kiama Branch: 5/125 Terralong Street, Kiama NSW 2533 phone: (02) 4421 6544 fax: (02) 4422 1821 consultants@allenprice.com.au www.allenprice.com.au	PLAN SHOWING PROPOSED INTERIM BUSHFIRE MEASURES OVER EACH STAGE OF THE DEVELOPMENT IN PROPOSED SUBDIVISION OF LOT 30 DP 1198692 AT MUNDAMIA GROWTH AREA FOR JEMALONG MUNDAMIA PTY LTD		DRAWING STATUS		
	ORIGIN:	DESIGN	MJP	P1	LOT LAYOUT REVISED	DS				06.07.2016	PRELIMINARY	
		SPS AND LOT LAYOUT REVISED	P2	DS	10.04.2017	NOT TO BE USED FOR CONSTRUCTION PURPOSES						
		APZ MODIFIED TO SUIT REVISED STAGING	P3	DS	01.04.2019							
	CHECK'D							DRAWING NUMBER	SHEET	6	REVISION	
	DATE OF PLAN: 30 MARCH 2016							25489-18	OF 11		P3	

aps

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- COMMERCIAL

DUAL OCCUPANCY

MULTI DWELLING HOUSING
- APZ LINE

PROPOSED BUS ROUTE SHOWING DIRECTION OF TRAVEL

PROPOSED BUS STOP

500m WALKING DISTANCE FROM PROPOSED BUS STOP
- R1 ZONING LINE

DENOTES LOCATION OF NOWRA HEATH MYRTLE BY SLR- FIG. 8

DENOTES LOCATION OF NOWRA HEATH MYRTLE PATCHES BY SLR FIG. 8

PROPOSED SEWER RISING MAIN ROUTE BY SCC
- 11 STAGING

DEVELOPABLE AREA

BUSHFIRE TRAIL

DENOTES EASEMENTS OF DP 1198692 TO BE PROGRESSIVELY EXPUNGED AS WORKS PROGRESS

DENOTES NEIGHBOURHOOD SAFER PLACE (600m²)
- EASEMENTS CREATED IN DP 1198692

DENOTES EASEMENT FOR WATER OVER EXISTING LINE OF PIPE (APPROX. POSITION) (DP 1198692)

RIGHT OF WAY 75 WIDE (DP 1198692)

EASEMENT FOR SUPPLY OF SERVICES 75 WIDE (DP 1198692)

EASEMENT FOR ASSET PROTECTION ZONE 40 WIDE (DP 1198692)

EASEMENT FOR OVERHEAD POWERLINES 9 WIDE (DP 1198692)

EASEMENT FOR BUSHFIRE TRAIL 10 WIDE (DP 1198692)
- DENOTES TEMPORARY 100M (MIN) APZ

DENOTES TEMPORARY BUSHFIRE ALTERNATE ACCESS

DENOTES TEMPORARY FIRE TRAIL

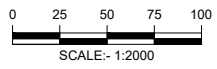
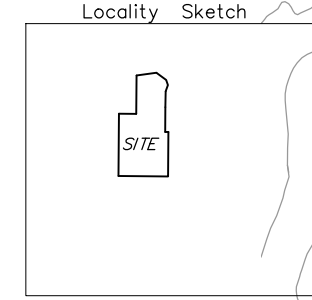
DENOTES FUTURE STAGES

RESIDENTIAL STAGING	
1	34 LOTS + P.R. + D.R.
2	27 LOTS
3	29 LOTS
4	30 LOTS
5	26 LOTS
6	24 LOTS
7	30 LOTS
8	33 LOTS
9	22 LOTS + P.R.
10	32 LOTS
11	21 LOTS + 2xP.R.
TOTAL 308 LOTS + 4xP.R. + D.R.	

STAGE 7



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RATIO: 1:2000 (AT A1 ORIGINAL)	DATUM:	SURVEY	REV	DESCRIPTION	BY	DATE	PLAN SHOWING PROPOSED INTERIM BUSHFIRE MEASURES OVER EACH STAGE OF THE DEVELOPMENT IN PROPOSED SUBDIVISION OF LOT 30 DP 1198692 AT MUNDAMIA GROWTH AREA FOR JEMALONG MUNDAMIA PTY LTD	DRAWING STATUS PRELIMINARY NOT TO BE USED FOR CONSTRUCTION PURPOSES	
	ORIGIN:	DESIGN MJP DRAWN DGS CHECK'D	P1 P2 P3	LOT LAYOUT REVISED SPS AND LOT LAYOUT REVISED APZ MODIFIED TO SUIT REVISED STAGING	DS	06.07.2016 10.04.2017 01.04.2019		DRAWING NUMBER 25489-18	SHEET 7 OF 11 REVISION P3

aps

allen price & scarratts pty ltd
land and development consultants
Nowra Branch: 75 Plunkett Street, Nowra NSW 2541
Kiama Branch: 5/125 Terralong Street, Kiama NSW 2533
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- COMMERCIAL

DUAL OCCUPANCY

MULTI DWELLING HOUSING

APZ LINE

PROPOSED BUS ROUTE SHOWING DIRECTION OF TRAVEL

PROPOSED BUS STOP

500m WALKING DISTANCE FROM PROPOSED BUS STOP

R1 ZONING LINE

DENOTES LOCATION OF NOWRA HEATH MYRTLE BY SLR- FIG. 8

DENOTES LOCATION OF NOWRA HEATH MYRTLE PATCHES BY SLR FIG. 8

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EASEMENTS CREATED IN DP 1198692

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EASEMENT FOR SUPPLY OF SERVICES 75 WIDE (DP 1198692)

EASEMENT FOR ASSET PROTECTION ZONE 40 WIDE (DP 1198692)

EASEMENT FOR OVERHEAD POWERLINES 9 WIDE (DP 1198692)

EASEMENT FOR BUSHFIRE TRAIL 10 WIDE (DP 1198692)

DENOTES TEMPORARY 100M (MIN) APZ

DENOTES TEMPORARY BUSHFIRE ALTERNATE ACCESS

DENOTES TEMPORARY FIRE TRAIL

DENOTES FUTURE STAGES
- RESIDENTIAL STAGING

1 34 LOTS + P.R. + D.R.

2 27 LOTS

3 29 LOTS

4 30 LOTS

5 26 LOTS

6 24 LOTS

7 30 LOTS

8 33 LOTS

9 22 LOTS + P.R.

10 32 LOTS

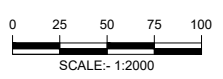
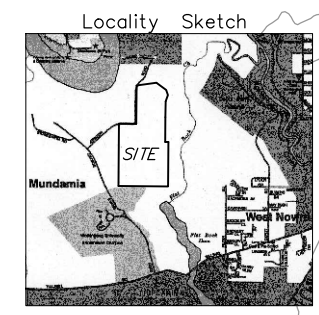
11 21 LOTS + 2xP.R.

TOTAL 308 LOTS + 4xP.R. + D.R.

STAGE 8

Liability limited by a scheme approved under Professional Standards Legislation.

COVER OF EXCELLENCE



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RATIO: 1:2000 (AT A1 ORIGINAL)	DATUM:	SURVEY	REV	DESCRIPTION	BY	DATE	PLAN SHOWING PROPOSED INTERIM BUSHFIRE MEASURES OVER EACH STAGE OF THE DEVELOPMENT IN PROPOSED SUBDIVISION OF LOT 30 DP 1198692 AT MUNDAMIA GROWTH AREA FOR JEMALONG MUNDAMIA PTY LTD	DRAWING STATUS	
	ORIGIN:	DESIGN MJP DRAWN DGS CHECK'D	P1 P2 P3	LOT LAYOUT REVISED SPS AND LOT LAYOUT REVISED APZ MODIFIED TO SUIT REVISED STAGING	DS	06.07.2016 10.04.2017 01.04.2019		PRELIMINARY NOT TO BE USED FOR CONSTRUCTION PURPOSES	DRAWING NUMBER
	DATE OF PLAN: 30 MARCH 2016								25489-18
									SHEET 8 OF 11
									REVISION P3

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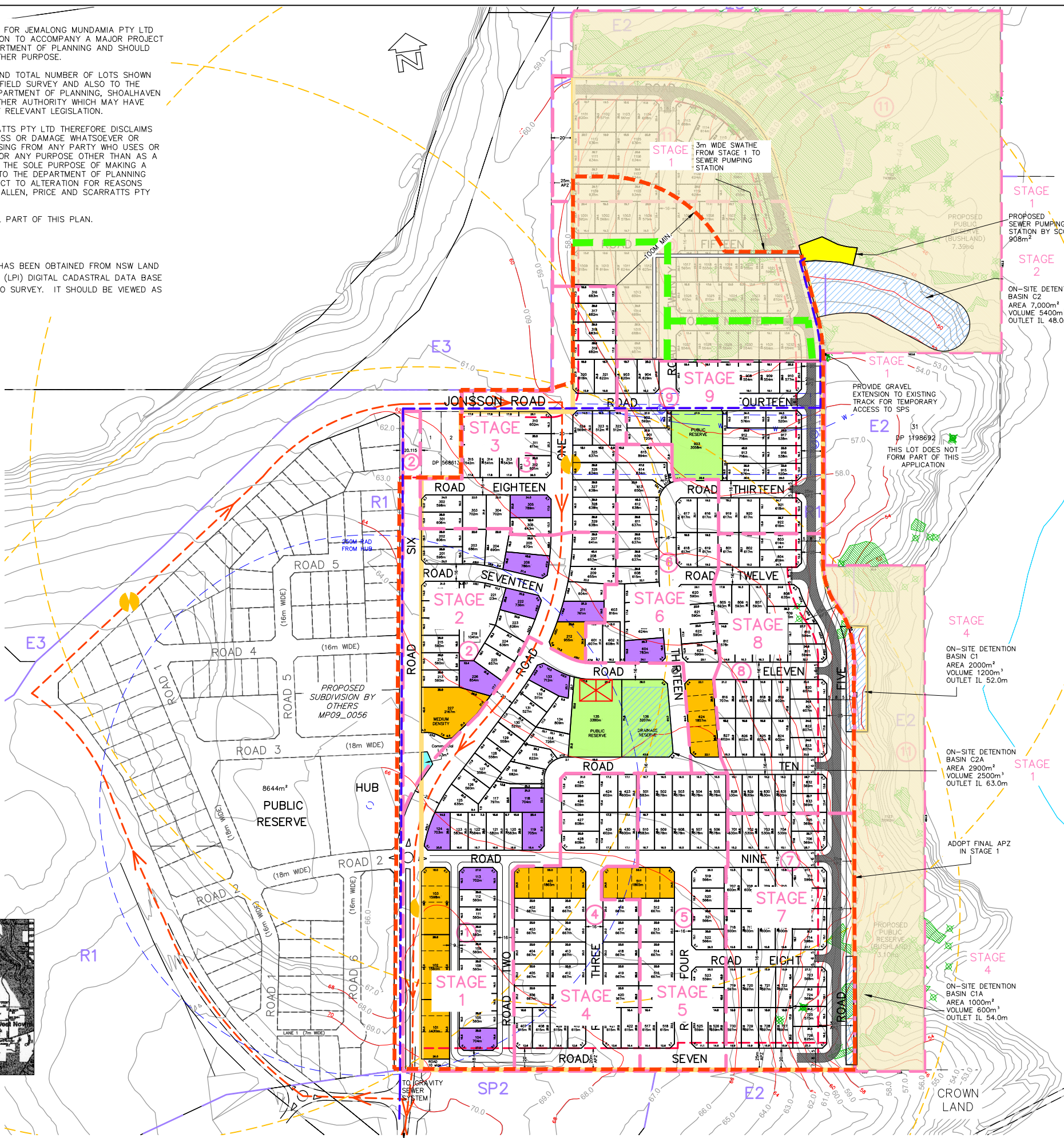
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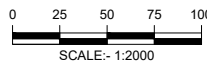
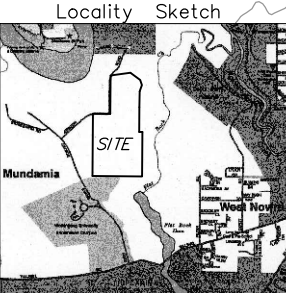
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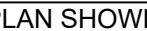
- COMMERCIAL
- DUAL OCCUPANCY
- MULTI DWELLING HOUSING
- APZ LINE
- PROPOSED BUS ROUTE SHOWING DIRECTION OF TRAVEL
- PROPOSED BUS STOP
- 500m WALKING DISTANCE FROM PROPOSED BUS STOP
- ZONING LINE
- DENOTES LOCATION OF NOWRA HEATH MYRTLE BY SLR- FIG. 8
- DENOTES LOCATION OF NOWRA HEATH MYRTLE PATCHES BY SLR FIG. 8
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 - EASEMENT FOR BUSHFIRE TRAIL 10 WIDE (DP 1198692)
- DENOTES TEMPORARY 100M (MIN) APZ
- DENOTES TEMPORARY BUSHFIRE ALTERNATE ACCESS
- DENOTES TEMPORARY FIRE TRAIL
- DENOTES FUTURE STAGES

RESIDENTIAL STAGING	
1	34 LOTS + P.R. + D.R.
2	27 LOTS
3	29 LOTS
4	30 LOTS
5	26 LOTS
6	24 LOTS
7	30 LOTS
8	33 LOTS
9	22 LOTS + P.R.
10	32 LOTS
11	21 LOTS + 2xP.R.
TOTAL 308 LOTS + 4xP.R. + D.R	



STAGE 9



RATIO: 1:2000 (AT A1 ORIGINAL)	DATUM:	SURVEY		REV	DESCRIPTION	BY	DATE	 allen price & scarratts pty ltd land and development consultants Nowra Branch: 75 Plunkett Street, Nowra NSW 2541 Kiama Branch: 5/125 Terralong Street, Kiama NSW 2533 phone:(02) 4421 6544 fax:(02) 4422 1821 consultants@allenprice.com.au www.allenprice.com.au	PLAN SHOWING PROPOSED INTERIM BUSHFIRE MEASURES OVER EACH STAGE OF THE DEVELOPMENT IN PROPOSED SUBDIVISION OF LOT 30 DP 1198692 AT MUNDAMIA GROWTH AREA FOR JEMALONG MUNDAMIA PTY LTD	DRAWING STATUS PRELIMINARY NOT TO BE USED FOR CONSTRUCTION PURPOSES		
	ORIGIN:	DESIGN	MJP	P1	LOT LAYOUT REVISED	DS	06.07.2016			DRAWING NUMBER 25489-18	SHEET 9 OF 11	REVISION P3
		DRAWN	DGS	P2	SPS AND LOT LAYOUT REVISED	DS	10.04.2017					
		CHECK'D		P3	APZ MODIFIED TO SUIT REVISED STAGING	DS	01.04.2019					
	DATE OF PLAN: 30 MARCH 2016											

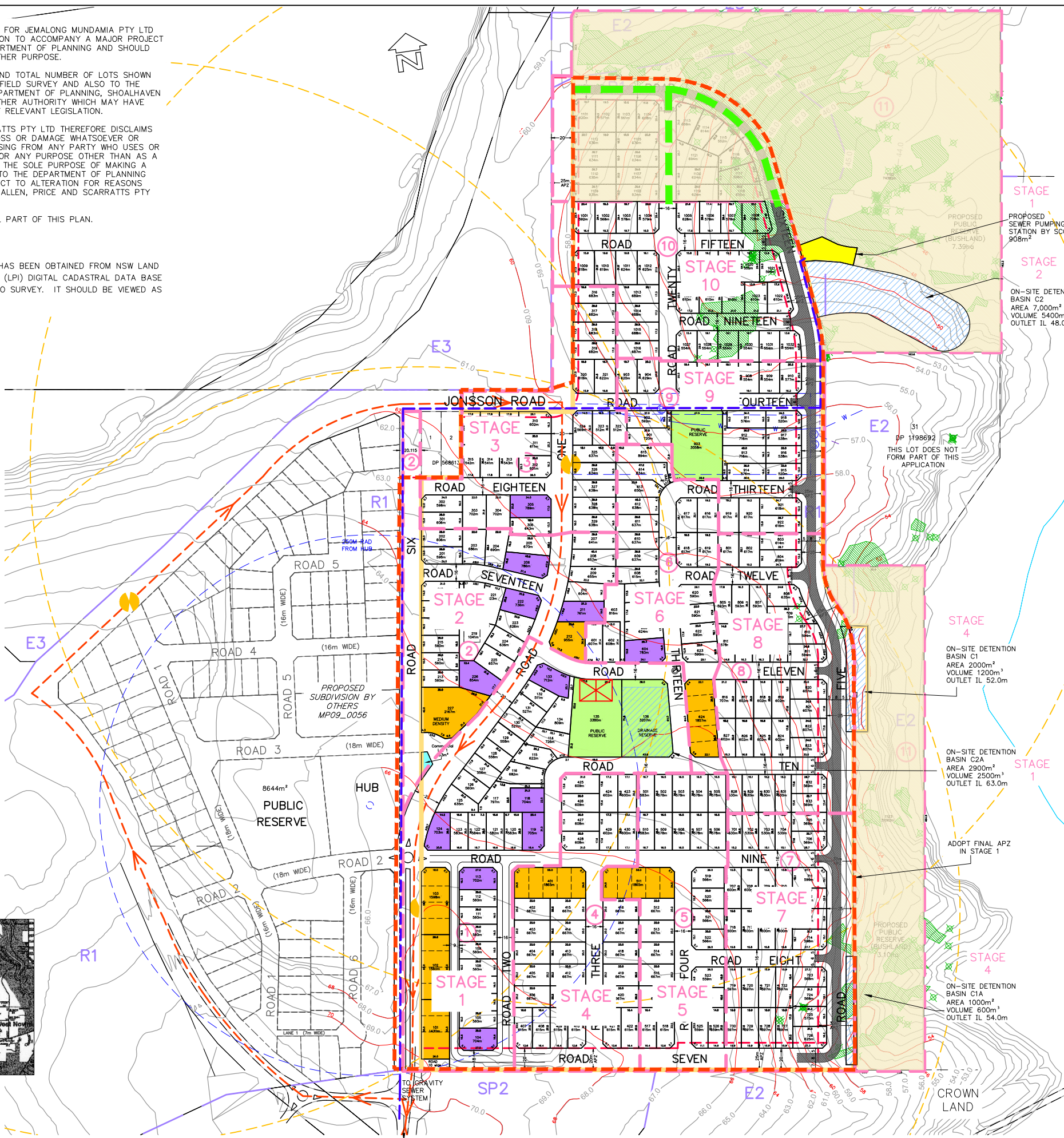
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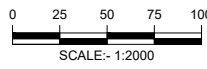
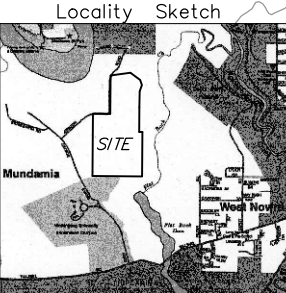
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- MULTI DWELLING HOUSING
- APZ LINE
- PROPOSED BUS ROUTE SHOWING DIRECTION OF TRAVEL
- PROPOSED BUS STOP
- 500m WALKING DISTANCE FROM PROPOSED BUS STOP
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- DENOTES TEMPORARY 100M (MIN) APZ
- DENOTES TEMPORARY BUSHFIRE ALTERNATE ACCESS
- DENOTES TEMPORARY FIRE TRAIL
- DENOTES FUTURE STAGES

RESIDENTIAL STAGING	
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8	33 LOTS
9	22 LOTS + P.R.
10	32 LOTS
11	21 LOTS + 2xP.R.
TOTAL 308 LOTS + 4xP.R. + D.R	



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RATIO: 1:2000 (AT A1 ORIGINAL)	DATUM: ORIGIN: DATE OF PLAN: 30 MARCH 2016	SURVEY DESIGN MJP DRAWN DGS CHECK'D	REV P1 LOT LAYOUT REVISED P2 SPS AND LOT LAYOUT REVISED P3 APZ MODIFIED TO SUIT REVISED STAGING	DESCRIPTION	BY DS DATE 06.07.2016 10.04.2017 01.04.2019	allen price & scarratts pty ltd land and development consultants Nowra Branch: 75 Plunkett Street, Nowra NSW 2541 Kiama Branch: 5/125 Terralong Street, Kiama NSW 2533 phone:(02) 4421 6544 fax:(02) 4422 1821 consultants@allenprice.com.au www.allenprice.com.au	PLAN SHOWING PROPOSED INTERIM BUSHFIRE MEASURES OVER EACH STAGE OF THE DEVELOPMENT IN PROPOSED SUBDIVISION OF LOT 30 DP 1198692 AT MUNDAMIA GROWTH AREA FOR JEMALONG MUNDAMIA PTY LTD	DRAWING STATUS PRELIMINARY NOT TO BE USED FOR CONSTRUCTION PURPOSES	
								DRAWING NUMBER 25489-18	SHEET 10 OF 11 REVISION P3

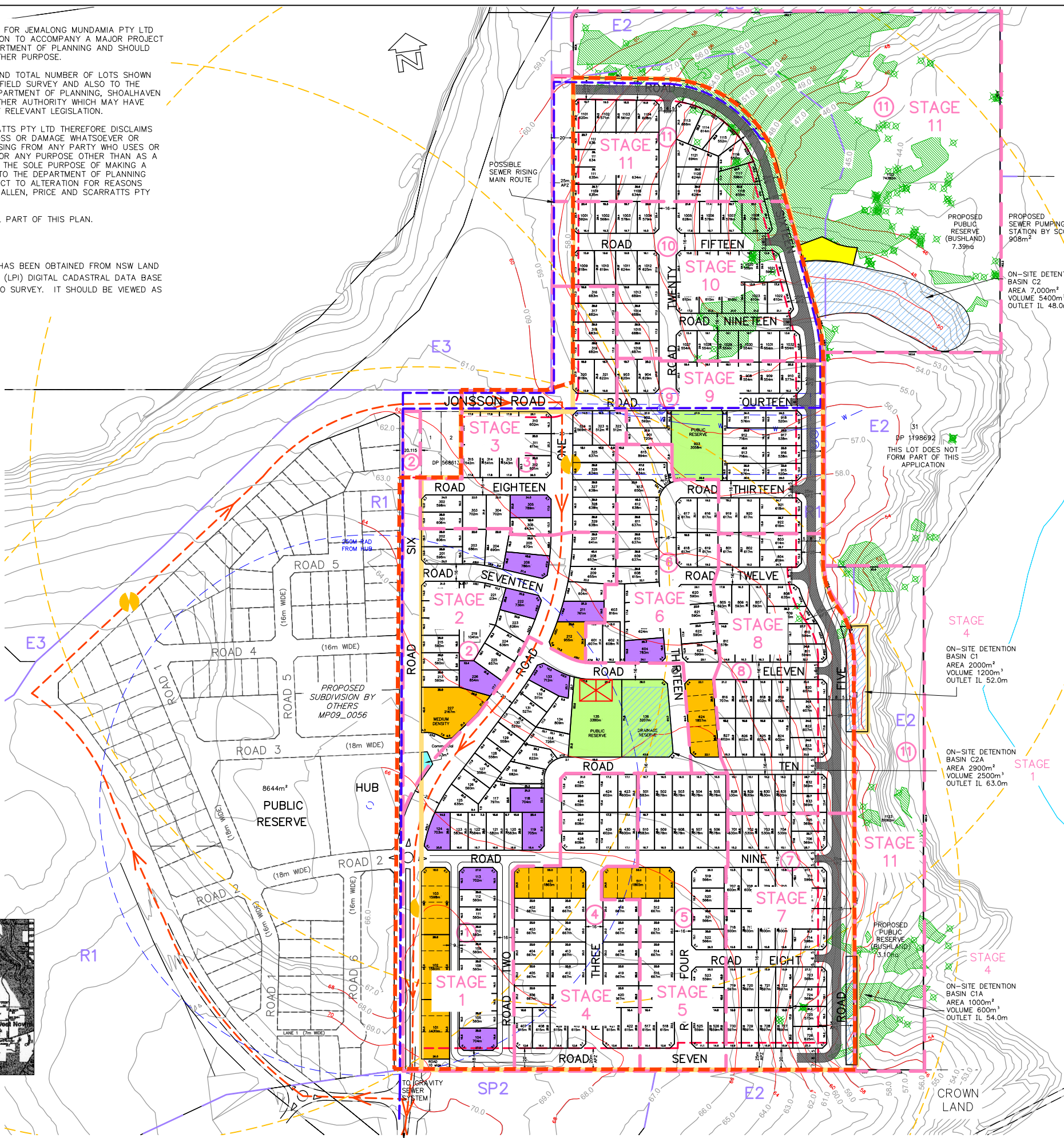
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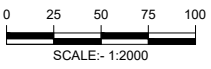
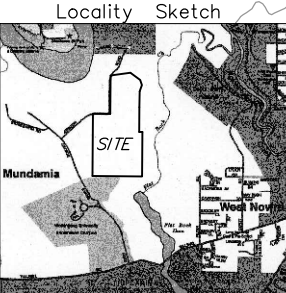
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STAGE 11

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