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REVIEW OF LAND SUITABILITY FOR URBAN RESIDENTIAL DEVELOPMENT, PART 2 – LAND DEVELOPMENT

South Pambula, Bega Valley Shire, NSW

For Bega Valley Shire Council

sustainable thinking

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Document Details and History

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1. INTRODUCTION

1.1 Background

This report is the second and final part of the project *Review of Land Suitability for Urban Residential Development - Pambula and South Pambula*. The aim of the project is to facilitate the provision of affordable housing to cater to the needs of the communities of the Pambula, South Pambula and the wider Merimbula district.

The study has been carried out over two parts – *Part 1 Land Assessment* provided an assessment of the land capability of specific investigation areas in Pambula and South Pambula and identified land within those areas that is suitable for the development of affordable housing. Part 1 also involved estimations of lot yields for existing urban zones and for the land recommended to be rezoned as urban.

Part 2 of the study (this part) comprises preparation of conceptual subdivision layouts for the land identified as being suitable for the development of affordable housing and includes an assessment of Infrastructure augmentation requirements to service this land with reticulated water and sewer, and access roads. Part 2 also includes recommendations for appropriate land use zones and development considerations.

1.2 Land identified for future urban residential development

An investigation into areas of land adjoining the existing settlements of Pambula and South Pambula was carried out in Part 1 of the project. These areas were identified by Bega Valley Shire Council for investigation as to their suitability for urban development.

It was found in Part 1 that the area at Pambula is not suited to any further urban residential subdivision other than that currently permitted under draft Bega Valley LEP 2010. It is heavily constrained and offers only limited and fragmented potential for further residential development.

It is recommended that the land use zone R5 Large Lot Residential with a minimum lot size of 2,000m^2 as applied by draft Bega Valley LEP 2010 over the area bounded by Oaklands Road and Bega, Oregon and Rainbow Streets be retained. It is also recommended that zone RU2 Rural Landscape with a minimum lot size of 120 hectares as proposed in draft Bega Valley LEP 2010 be retained over the area bounded by Oregon, Bega, Pambula, Monaro and Rainbow Streets.

Certain areas of land at South Pambula, however, were found to be suited to urban development. A summary of the recommendations made in the Part 1 report in relation to South Pambula is given below.

Land east of the Princes Highway

It is recommended that the area of land located east of the Princes Highway be considered for rezoning for urban residential development. This may be effected by a planning proposal to amend draft Bega Valley LEP 2010 after gazettal to zone the land as R2 Low Density Residential consistent with the existing settlement of South Pambula. It is further recommended that secondary dwellings be a land use that is permitted with consent in zone R2 to enable the provision of additional housing for rent or for use by extended family.

Land fronting Mount Darragh Road

Land to the west off Mount Darragh Road is zoned E3 Environmental Management under draft Bega Valley LEP 2010 to act as a buffer between the existing settlement and future industrial development on adjoining land. Should Council see the need in the longer term to add to land supplies then this land may be considered for urban residential development, however, Council would need to consider rezoning adjoining industrial land to a zone that is more compatible with residential development.

Land south of the existing settlement

This area is not considered suited to urban development due to constraints related to access, provision of water and sewer services, and visual significance.

Following consultation with Bega Valley Shire Council it was agreed to proceed with the preparation of concept subdivision plans for only the land east of the Princes Highway. Concept plans for roads and lot layouts, water servicing and sewer servicing are given in this report that take into account the development controls identified as appropriate for this land – to respect its sensitivity and to facilitate affordable housing. This area is shown outlined in red in Figure 1.3 below.

Figure 1.1: The South Pambula proposed urban area. Source: Six Maps, NSW Government

2. CONCEPTUAL SUBDIVISION LAYOUT

A subdivision concept plan for land at South Pambula east of the Princes Highway has been prepared by John Healey and Associates Consulting Surveyors. This plan is presented in this section along with an explanation of the rationale for the arrangement of roads and allotments.

2.1 Considerations

The Merimbula District Structure Report noted that South Pambula has a distinct style. It is located to the south of and separated from Pambula by river flats and dairy farms, is relatively new, does not have any commercial development and requires augmentation of services to expand.

Draft Bega Valley DCP 2013 includes the following statement of the desired future character for South Pambula:

Future development in South Pambula complements the spacious urban style of settlement.

The land is also located within a designated Premium Rural Landscape. In recognition of the existing settlement character of South Pambula and the visual sensitivity of land identified for future urban development, certain recommendations were made in the Part 1 report to guide the subdivision layout of land east of the Princes Highway.

It was recommended in the Part 1 report that:

- In recognition of scenic landscape values, lot sizes be large, say around 1,000m^2, so that adequate landscaping may be carried out on each allotment to screen built structures when viewed from the highway looking towards the river flats and wetlands.

- The subdivision design should incorporate north-south roads and a perimeter road parallel to the eastern boundary so that lots are oriented east-west to maximise solar access and energy efficiency.

- Developable areas are setback from the highway at least 40 metres to enable adequate vegetation screening from the highway and lots within the subdivision should face the highway so that the front facades of dwellings are visible to motorists rather than the rear yards and rear fences.

The ecological assessment carried out for this project included a survey of the cleared farming land east of the highway. The survey found no evidence of threatened flora species nor functional endangered ecological communities but that there is the potential for off-site impacts on the Pambula River floodplain which includes areas of intact Freshwater Wetland,

Swamp Oak Floodplain Forest and Coastal Saltmarsh. The subject land drains to the floodplain and such impacts could occur through water pollution, increased stormwater flows and the usual impacts of increased residential development in close proximity, such as an increase in weed seed incursion from nearby gardens, or an increase in predation on native fauna by roaming domestic pets.

Though the probability of impacts on threatened fauna species is not high, these urban development induced factors could also adversely affect threatened bird species that are likely to inhabit the floodplain. Because the land is almost entirely cleared no further survey work is necessary, however, subdivision design should take into account potential adverse impacts on the floodplain and incorporate measures to mitigate or minimise such impacts.

Other considerations are:

- The need to provide a buffer to the top of the bank of the 1st order watercourse that crosses the south east corner of the land and drains into the floodplain. The subdivision layout is to incorporate this buffer as reserve,

- The extent of a 1% flood encroaches into the land at the north eastern corner. The precise extent of this flood affected land requires further survey. The subdivision layout is to be above the probable flood line,

- The land is mapped as category 2 bushfire prone. There is no existing bushfire hazard surrounding the land, however, a perimeter road should be incorporated in subdivision design, and

- The site of the sewer pump station is rectangular in shape with dimensions of 20 metres wide (the road reserve) and 40 metres long as shown in Figure 2.1 below. A buffer of minimum 25 metres surrounding the SPS site boundary for residential development is to be provided.

Figure 2.1: The site of the sewer pump station

2.2 Subdivision concept plan

Three iterations of the subdivision concept plan were prepared taking into account these considerations. The preferred plan is given in Figure 2.2 below.

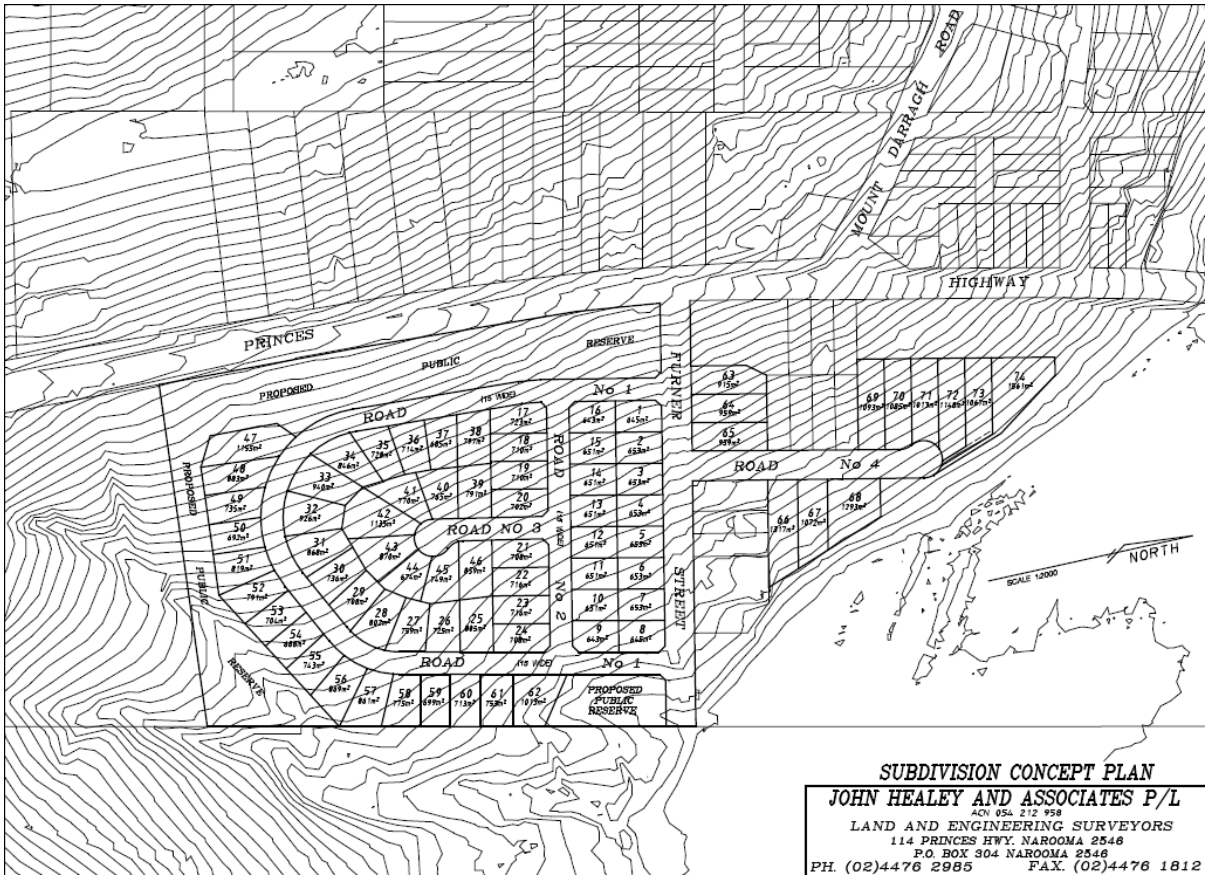


Figure 2.2: Subdivision Concept plan

The concept plan has the following features:

- The subdivision design contains a mix of lot sizes, ranging from 643m^2 to 1,561m^2 with an average lot size of 821m^2,
- All lots are of sufficient size to accommodate dual occupancy development and a secondary dwelling,
- Lot dimensions are a minimum of 18 metres at the front boundary (other than those fronting the cul-de-sac bulb) with side boundaries a minimum of 31 metres,
- Access to the subdivision is off Furner Street which is an existing local road connecting directly with the Princes Highway,

- All lots along Furner Street front the street so as to reduce exposure to long side fences along the street,

- The intersection of Furner Street and Road No 1 is located 70 metres from the Princes Highway intersection measured between centrelines. The intersections of Road No 1 and Road No 4 with Furner Street are 52 metres apart,

- Road No 1 is a semi-circular road that facilitates unimpeded access throughout the subdivision. It is a partial perimeter road that provides for bushfire protection and ensures there are no rear fences of private allotments south of Furner Street presenting to the highway,

- Road No 3 is a short cul-de-sac of approximately 80 metres in length. Road No 4 is an existing cul-de-sac road that has been extended to enable access to developable land to the north of existing dwellings. It is noted that cul-de-sacs are an efficient and cost-effective means of providing access as all sections of road constitute a lot frontage,

- The concept plan includes public reserve between the Princes Highway and perimeter Road No 1, along the southern boundary and immediately south of the sewer pump station site,

- The public reserve adjoining the sewer pump station site may act as a drainage basin for stormwater flows emanating from the subdivision area. Similarly, the public reserve along the western boundary of the subdivision may also act as a drainage line for stormwater albeit for a limited catchment, and

- Land north of Furner Street that fronts the Princes Highway is encumbered by a restriction on title preventing any new access points with the highway. Lots 68 to 73 at the northern end of Road No 4 gain access via that road and rear boundaries are setback 40 metres from the highway to enable screening to rear fences that are visible from the highway.

2.3 Rationale

The concept plan responds to the recommendations of Part 1 of this project and other considerations in the following ways:

- The layout will allow future development to take advantage of views across the floodplain and wetlands due to lot orientation and the topography of the land which slopes to the east and north east,

- Lots along the western edge of the subdivision are separated from the highway by a perimeter road so that the front facades and yards of private lots (and not rear fences) are visible to motorists travelling along the highway,

- Lots along the western edge of the subdivision are also separated from the highway by a 40 metre public reserve to enable screening with vegetation,
- Internal roads are predominantly oriented north-south. There is a mix of north-south and east-west oriented lots according to topography, the road layout and having regard to the need to maximise amenity and lot yield,
- a public reserve at the end of Furner Street south of the sewer pump station can act as a drainage basin to ensure that polluted stormwater runoff does not leave the land and to assist to protect the water quality of the Pambula River,
- a buffer to the watercourse at the south eastern corner of the land has been incorporated within public reserve,
- most lots are above the 1% flood line. The rear of lots 65, 66, 67 and 73 may encroach into the flood prone area to a minor extent which needs to be confirmed by a flood study, and
- A buffer of minimum 25 metres surrounding the sewer pump station site boundary for residential development has been observed

The concept plan would ensure that the character of South Pambula is maintained and lot layout would not be inconsistent with the existing pattern of settlement. Lots less than the recommended minimum of 1,000 square metres have been included in order to reduce the costs of individual allotments in the interest of facilitating affordable housing.

3. SERVICES

Water supply and sewerage system requirements for additional development on land east of the Princes Highway at South Pambula is discussed in this section. The extent and cost of new roads and any necessary alterations to existing arrangements are also discussed.

The estimated lot yield from the proposed urban area is 73 lots. Analysis of the existing systems' spare capacity is based on 185 existing subdivided lots as at June 2012, 11 of which are vacant infill blocks.

In addition, the potential for unsubdivided land in the existing South Pambula urban area makes up an additional 117 lots. Not all of these lots may eventuate, but have been included in an estimate of ultimate capacity for the sake of completeness.

3.1 Water Supply

Reservoir Capacity

Since 2001 the Pambula and South Pambula areas have received water from Council's southern source and storage (Kiah bore field and Ben Boyd Dam). From Bellbird Reservoir water flows by gravity to South Pambula, Pambula and Pambula Beach.

South Pambula reservoir has a top water level of 94.3m AHD. The land east of the highway is at a maximum elevation of 34m AHD. There is therefore at least 60 metres static head available for a secure water supply to this area.

The reservoir has a capacity of 0.6ML which would service daily demand for 300 ET. The reservoir capacity is easily able to meet the current peak daily demand from South Pambula. Bringing the additional area on line plus infill would increase the peak daily demand to 0.52 ML. The reservoir would still be capable of storing a peak day's demand once the subdivision is on line.

There is however a 'hidden' load of existing unsubdivided urban land at South Pambula excluding the subdivision area of an additional 117 lots. If ultimately all this potential was converted to single lots, the reservoir demand would increase to 0.75 ML. Ultimately the reservoir capacity would be overloaded if urban subdivision eventuated to its full potential.

Distribution Mains

Existing consumers along the western side of the highway opposite the subdivision are currently serviced from the 225mm trunk main. Council proposes the construction of a new 100mm PVC reticulation main under its 2013 works program, running along the western side of the highway to replace the trunk main feed for this area. This would provide a more reliable supply at constant pressure.

Development of land east of the highway would require a new reservoir outlet of 150mm diameter PVC from the reservoir along Summerhill Road as far as the southern part of the site. This would link to the proposed 100mm highway reticulation main. A new highway crossing in 100mm at Furner Street would link to the 100mm reticulation main for initial stages of the subdivision. A second 150mm highway crossing would be required to service the more elevated southern part of the subdivision in its final stages. This would provide a loop feed to the land for security of supply and flow balancing.

Water supply considerations would not restrict the orderly development of the site.

Internal Pipework

The land east of the highway would be serviced by a network of 100mm reticulation pipework. This would include hydrants for fire fighting supply in accordance with standard Council practice. A conceptual water supply layout is shown in Figure 3.1.

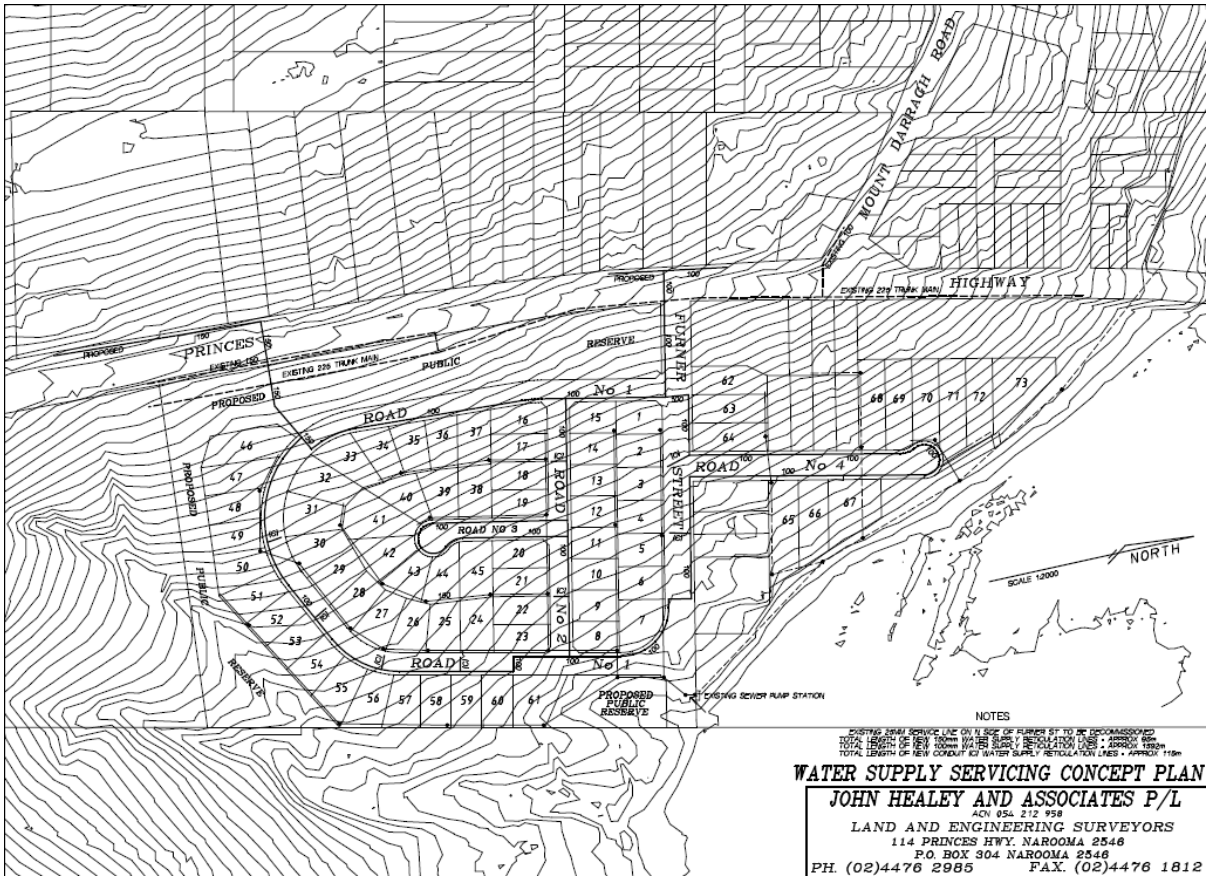


Figure 3.1: Water supply servicing concept plan

Cost Estimates

Cost estimates have been developed for water supply works external to the site and for works within the subdivision as follows.

Table 3.1: Water supply cost estimate South Pambula land east of the highway

Water Supply Cost Estimate	South Pambula Rezoning Area			
ITEM	**DETAILS**	**UNIT RATE PER METRE**	**LINEAR METRES**	**TOTAL**
EXTERNAL				
Water trunk main extension 150mm	150mm main from reservoir to Princes Highway	$145	1,150	$166,750
Cross-connections		Item	-	$10,000
INTERNAL				
Water reticulation	150mm main to retic	$140	95	$13,300
	100mm mains and conduit crossings	$130	1,707	$221,910
Allowance for highway bored crossings	100mm @ 50m long	$130	50	$6,500
and cross-connections	150mm @ 80m long	$200	80	$16,000
	SUB-TOTAL			**$434,460**
	SID, Tenders & fees 15%			$65,169
	Contingencies 20%			$86,892
	TOTAL			**$586,521**

Note: SID = survey, investigation & design

3.2 Sewerage

Pumping Station Loading

Pumping Station 16B is situated within the site at the end of Furner Street. It pumps sewage from all of South Pambula via Rising Main 16B to Pumping Station 5 at Pambula.

PS 16B has a pump capacity of 28 L/s and a current (June 2012) peak wet weather flow of about 21 L/s including 14 L/s pumped inflow from Pump Station 16A at Northview Drive.

Bringing the subdivision on line would increase the overall loading of PS16B from 21L/s to 27 L/s. Note this includes a modest allowance for sewering the South Pambula Industrial Area and also includes infill development of 11 vacant blocks. No augmentation works are required to cater for these loadings.

If, in addition, all unsubdivided potential lots at South Pambula (117 lots) were converted to development, PS 16B would be overloaded. Upgrade to an ultimate pump capacity of 35 L/s would be required at that time.

Detailed calculation of loadings for these three development scenarios are presented in the table below.

Table 3.1: Sewer flow calculations South Pambula land east of the highway

Sewer Flow Calculator		ADWF @	0.009				
Pambula Growth Area			L/sec/ET				
CURRENT DEVELOPMENT	174 lots						
Catchment	**TOTAL ET 2012**	**ADWF L/s**	**r**	**PDWF L/s**	**SA L/s**	**PWWF L/s**	**Pump Capacity (L/s)**
16A	100	0.9	3.3	2.9	5.8	8.7	**14**
16B	74	0.7	3.4	2.3	4.3	**6.6**	
Cumulative to PS 16B	**174**	1.6		5.2	10.1	**20.6**	**28.0**
GROWTH AREA ON LINE	11 vacant lots plus 73 growth area lots extra						
Catchment	**TOTAL ET**	**ADWF L/s**	**r**	**PDWF L/s**	**SA L/s**	**PWWF L/s**	**Pump Capacity (L/s)**
Future Industrial to 16A	20	0.2	4.3	0.8	1.2	1.9	3
16A	106	1.0	3.2	3.1	6.1	9.2	**14**
16B	152	1.4	3.0	4.2	8.8	**13.0**	
Cumulative to PS 16B	**278**	2.3		7.2		**27.0**	**28.0**
ULTIMATE WITH 100% INFILL SUBDIVISION	11 vacant lots plus 73 growth area lots plus infill subdivision 117 lots						
Catchment	**TOTAL ET**	**ADWF L/s**	**r**	**PDWF L/s**	**SA L/s**	**PWWF L/s**	**Pump Capacity (L/s)**
Future Industrial to 16A	20	0.2	4.3	0.8	1.2	1.9	3
16A	150	1.4	3.0	4.1	8.7	12.8	**14**
16B	225	2.0	2.9	5.8	13.1	**18.8**	
Cumulative to PS 16B	**395**	3.4				**32.8**	**28.0**

Notes:

ADWF = average dry weather flow
r = standard co-efficient
PDWF = peak dry weather flow
SA = storm allowance
PWWF = peak wet weather flow

Rising Main

Rising main16B operates within design standards at present and would be suited to the loading with the subdivision on line. With the development of all unsubdivided potential lots at South Pambula (117 lots), and with upgrading of sewer pumps in PS16B to 35 L/s as discussed above, a flow velocity of 2.2 m/sec would result. The existing rising main would

continue to be suitable for this potential. The pump upgrade would need to allow for friction losses in this rising main of about 48 metres.

Internal Sewer Servicing

The South Pambula site would be serviced with standard gravity sewers. These would drain to existing sewers near Sewer Pumping Station 16B in Furner Street.

A conceptual sewer layout showing 150mm sewers and manholes is shown on Figure 3.2. Note this layout incorporates a buffer of 25 metres around the existing sewer pumping station boundary.

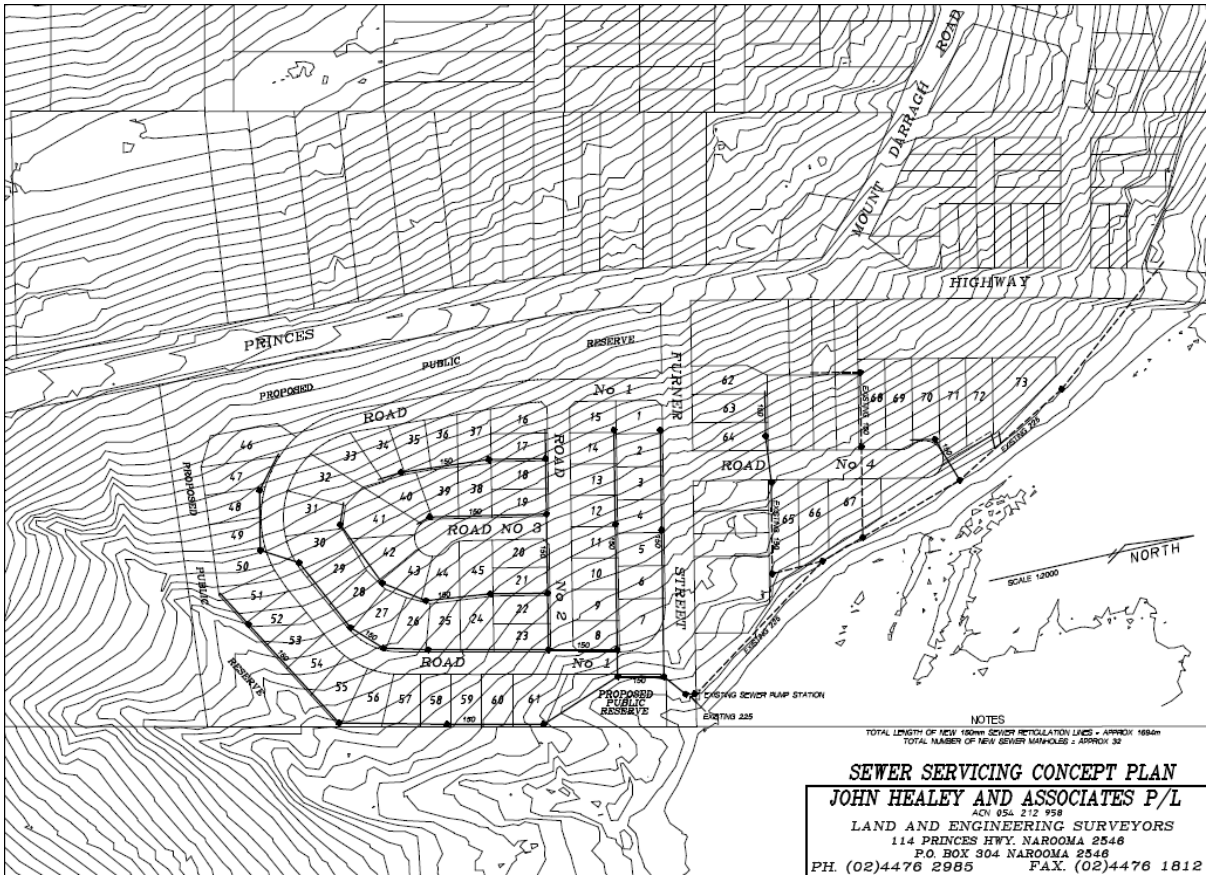


Figure 3.2: Sewer servicing concept plan

Cost Estimates

Cost estimates have been developed for sewerage system works to service the subdivision as follows. It is assumed that owing to low recent demand for vacant land in South Pambula (only 6 new dwellings were approved and 2 new lots were created between 2007 and 2012) that the rezoning to generate additional residential development would proceed to development and occupation before that of existing zoned land. The costs to upgrade the

capacity of the sewer pump station to cater to full capacity have therefore not been factored into the above cost estimates.

Table 3.3: Sewer servicing cost estimate South Pambula land east of the highway

Sewerage Servicing Cost Estimate	South Pambula Rezoning Area			
ITEM	**DETAILS**	**UNIT RATE**	**AMOUNT**	**TOTAL**
EXTERNAL				
NIL				$0
INTERNAL				
Sewer reticulation	100mm gravity mains per metre	$85	1700	$144,500
Manholes 0 - 1.5m deep	No. off	$1,800	32	$57,600
Allowance for connection to existing		Item	$10,000	$10,000
	SUB-TOTAL			**$212,100**
	SID, Tenders & fees 15%			$31,815
	Contingencies 20%			$42,420
	TOTAL			**$286,335**

3.4 Roads

A conceptual subdivision design for the South Pambula land is presented in this section along with an explanation of the rationale behind the layout and indicative costings.

Road layout and upgrades

The internal road layout includes a perimeter road along the western edge of the subdivision to ensure that dwelling frontages face the Princes Highway and prevent rear yard fences from intruding upon views across the flats when approaching from the south along the highway.

Upgrade of the intersection of Furner Street and the Princes Highway would be required to be carried out before any development commences, possibly to type AUR/AUL. The intersection treatment may need to extend far enough to merge with the existing intersection at Mount Darragh Road. It is anticipated that the concurrence of Roads and Maritime Services (RMS) would need to be obtained for the subdivision to proceed and at this time the authority would indicate minimum design standards. It is important that the proposed sewer line in relation to intersection upgrade and left turn into Furner Street be considered in the design of intersection treatments. An existing water main may also need to be relocated if that main is shallow and close to the sealed pavement. Other services may also need to be relocated at additional cost.

Driveways along the western side of the highway that gain direct access off the highway would also need to be rebuilt following intersection treatments and any extension of slip lanes.

Should subdivision proceed in accordance with the concept layout it is proposed that:

- Subdivision lead in roads to a length of 50 metres plus the highway intersection treatment are provided before any lots are developed,
- all existing trees within road reserves are to be retained where possible, and
- there is no building on lots north of Furner Street unless access to these lots is gained off Road No 4. An existing section 88B restriction on developing lots that share a boundary with the highway denies any new accesses from the highway.

At the density of lots contained in the concept layout which proposes lot sizes less than recommended in the Part 1 report, there would be less road reserve per lot which ensures the efficient provision of roads and lower development costs per allotment. No pathway from the cul-de-sac bulb to Road No 1 is provided as it is assumed that pedestrians and cyclists would tend to walk around Road No 1 to gain access to Furner Street and/or the highway.

Stormwater easements

Stormwater detention (drainage basins) may be sited at the south east corner and/or the north east corner of Furner Street adjacent to the sewer pump station, at the south eastern corner along the drainage line and at the end of Road No 4. These would serve to filter stormwater before it enters creeks and eventually the wetlands. Standard drainage easements are suggested for internal roads.

Costs

The total length of proposed new roads internal to the subdivision is approximately 1,300 metres. It is estimated that costs would be $400 to $500 per lineal metre for internal roads. At a midpoint cost of $450 per lineal metre the costs to provide internal roads, including kerb and guttering, would be $585,000.

Upgrading the intersection at the junction of the Princes Highway and Furner Street would cost in the order of a minimum of $250,000 depending upon the requirements of RMS and the type of treatment needed.

Total road costs are estimated to be $835,000 or $11,438 per lot across 73 lots. Including an allowance for SID, tenders and fees of 15% and a further 20% for contingencies brings total costs to $1,127,250 or $15,442 per lot.

This estimate is indicative only and would depend upon the detailed design of the Furner Street/Princes Highway intersection treatment to satisfy RMS requirements.

It is noted that council does not have a roads section 94 development contributions plan to levy for contributions for road works. Council could consider preparing a local plan to enable the equitable distribution of roadworks costs associated with upgrading Furner Street lead in works and the highway intersection treatment based on estimated lot yield after final costings are determined.

3.4 Summary

The water and sewage systems can both contend with loadings from the proposed South Pambula subdivision. In the case of water supply, a new 100mm reticulation line that Council proposes in 2013 will assist in part to cater for the growth. An additional 150mm reservoir outlet will eventually be necessary. In the case of sewerage services, no new works other than those directly servicing the site are required.

For both water supply and sewerage, if the potential for current infill subdivision in the existing South Pambula urban area is realized, additional works would be necessary. In particular, augmentation of the reservoir capacity and sewer pump station capacity would be required.

Internal roads should be constructed in accordance with Council's standards and specifications. Should the concept plan proceed to a development application for subdivision of the land then referral to RMS would be necessary due to the direct access with an arterial State-controlled road. It would be necessary to obtain RMS concurrence for consent to be issued at which time the authority would stipulate the standard and design of upgrading the intersection of the Princes Highway and Furner Street.

The estimated costs to provide essential services to the concept subdivision are summarized in the table below.

Table 3.4: Estimated servicing costs – water, sewer and roads

Infrastructure item	Total cost	Cost per lot @ 73 lots
Water	$586,521	$8,035
Sewer	$286,335	$3,923
Roads	$1,127,250	$15,442
All items	**$2,000,106**	**$27,400**

The above costs do not include the provision of power, lighting and telecommunications services, such as transmission lines, optical fibre cabling, light poles, electricity substations and multiplexers.

Council's Section 94 Contributions Plan No.2 - Carparking requires that a levy be paid for each new residential lot to contribute to the provision of public car parking in commercial centres. The contribution rates are contained in council's Fees and Charges 2012-13. The

current contribution for a single residential lot is $564. Subsequent development of residential lots attracts a levy of $338 per unit for multi-unit housing of up to 2 bedrooms and $451 per unit for multi-unit housing of 3 bedrooms or more.

The Section 94 Contributions Plan No. 3 – Recreation Facilities & Public Reserves requires that a maximum of $5,301 be paid for each new residential lot to contribute to the provision of recreation facilities and the acquisition of public open space. Subsequent multi-unit housing comprising 2 or more dwellings attracts a levy of $1,350 per bedroom for each unit.

Contributions under section 64 of the Local Government Act 1993 for water and sewer also apply to assist the provision of infrastructure headworks. The contributions adopted by council for the financial year 2013-14 are $7,500 for water and $10,500 for sewer for each new residential lot.

The total cost per lot for section 94 development contributions is therefore $5,865 and for section 64 contributions is $18,000 bringing the total cost per lot for water, sewer, roads and contributions to $23,865. All contributions applicable to residential subdivision are summarised in the Table 3.5 below.

Table 3.5: Development contributions for residential subdivision applicable in 2012/13

Infrastructure item	**Contribution per lot**
Roads	$564
Recreation Facilities & Public Reserves	$5,301
Water	$7,500
Sewer	$10,500
All items	**$23,865**

Total costs per lot for the provision of internal services and contributions would be $51,265. The average land value of vacant land in South Pambula was found to be $106.66 per square metre in research carried out for Part 1 of this project. At an average lot size of 821 square metres, the value of a new lot created in the concept subdivision would be $87,568. This value compares favourably to the asking prices for similar sized allotments that were on the market in July 2012 which averaged $92,286 and would continue the provision of housing that is affordable to the market segment that is attracted to South Pambula. It would also provide landowners and developers with an acceptable return on investment noting that this estimate does not include fees associated with approvals and inspections by public authorities, or interest on finance.

4. DEVELOPMENT PLANNING

The subdivision concept plan is consistent with relevant plans (draft Bega Valley DCP 2012) and strategies (Merimbula District Structure Report) that apply to the land and satisfies the criteria applied during this project to ensure future housing development is affordable. An assessment of the subdivision concept plan against the criteria for affordable housing is given below. The land provides a logical extension to the existing settlement, and the layout, range of lot sizes and servicing proposals should ensure that costs are contained and low cost small dwellings are able to be built.

Owing to the extent of studies carried out for this project, future housing development on this land should not require further assessments of flora and fauna, cultural heritage, or geotechnical constraints other than would normally be required by legislation, e.g. a bushfire hazard assessment and structural compliance. It is recommended, however, that a flood study be carried out to establish the extent of the 1 in 100 year flood event over the north-eastern portion of the site.

Due to their being only a single portion of land identified as suitable for future urban development and for which a subdivision concept plan has been prepared, it is not necessary to recommend a land release sequencing strategy. The development of this land may take place in stages or en globo responding to market demand and not be restrained by the aspirations and development intentions of other owners of vacant urban land in the settlement or district.

4.1 Criteria

Criteria were applied to each area investigated in the Part 1 of this project to determine whether these areas are suitable for urban development having regard to the need to ensure that costs are minimised so that future housing is affordable. These criteria are given below with comments regarding how each has been addressed though the concept subdivision layout.

i. Slope equal to or less than 15% (to minimise costly earthworks for dwelling and access construction)

   The slope of the land located each of the Princes Highway at South Pambula that is shown on the subdivision concept plan is less than 15%.

ii. Building capability Class 1 (to avoid costly earthworks or further geotechnical studies)

   Land to the east of the Princes Highway comprises soils that are mostly stable and coherent. This area is predominantly class 1 building capability and suffers little or no limitation to development based on slope.

iii. Able to utilise or extend existing road access off arterial, main or collector road (to avoid intersection upgrades or construct new access roads)

The location is able to utilise an existing arterial road intersection and requires extending an existing internal road. An upgrade to the arterial road intersection will however be required.

iv. Able to be serviced from existing sewer pump station with minor extension of gravity sewers

Land to the east of the Princes Highway is able to be readily serviced via an existing sewer pump station located at the eastern end of Furner Street. A sewer servicing concept plan has been prepared that shows standard gravity sewers draining to existing sewers near the sewer pumping station.

v. Not subject to flooding at 1:100 ARI (to avoid need for raised floor level and/or construction of flood-free access)

All allotments shown in the subdivision concept plan are above the 1% flood level based on best available information. The land is affected by a watercourse that crosses the site at the south-eastern corner. The concept plan incorporates the required riparian buffer within a public reserve.

Prior to any future development it is recommended that Council carry out a flood study to identify accurate flood planning levels for this area and other areas subject to flooding in the Pambula district including the land to be zoned R5 Large Lot Residential and within the Pambula investigation area. The flood line contour needs to be ground-truthed before preparation of the final subdivision plan.

vi. Free of environmental sensitivity:

The land east of the Princes Highway is cleared farm land and is not constrained by environmental factors. Surveys carried out for this project did not identify any threatened flora or fauna species, or functional endangered ecological communities on the land. However, there is the potential for off-site impacts of urban development on the Pambula River floodplain. The potential for polluted stormwater entering the floodplain can be mitigated by the development of a drainage basin alongside the sewer pump station to capture and filter runoff. Further stormwater management measures may be incorporated in the detailed engineering designs for the final subdivision layout.

vii. Predominantly cleared of native vegetation (for bushfire protection and to reduce costs associated with removal)

The land is cleared farmland other than occasional scattered mature trees and shrubs. Although the land is mapped as category 2 bushfire prone, there is no vegetation that is likely to pose a bushfire threat. It is recommended that all existing trees be retained.

viii. No evidence of significant indigenous or non-indigenous cultural heritage items or values (to avoid the need for heritage assessment and potential sterilisation of land)

The on-line search of the Aboriginal Heritage Information System carried out in Part 1 of this project did not identify any items or places of Aboriginal cultural heritage. This process was carried out in accordance with the Due Diligence Code of Practice for the Protection of Aboriginal Objects in NSW. Future urban development of the land would be subject to the provisions of the National Parks and Wildlife Act.

ix. Adjoins existing urban settlement and will be contiguous (to ensure visual amenity protected and to minimise costs for access roads)

The land adjoins the urban settlement of South Pambula and the concept layout is not inconsistent with the existing pattern of subdivision. Entry to the subdivision utilises an existing feeder road (Furner Street) and an existing intersection with the Princes Highway. The inclusion of a 40 metre wide public reserve that is able to be landscaped between allotments and the highway and the internal perimeter road that allows for lot frontages to face west will ensure that future development will not adversely affect the visual qualities of the premium rural landscape, particularly for northbound motorists travelling along the highway and for the occupants of dwellings on the higher western side of the highway. It is noted that the scenic qualities of this land relate to the ability to look beyond the site to the floodplain and riparian bushland of the Pambula River.

4.2 Compliance with draft Bega Valley DCP 2013

The subdivision concept plan generally complies with the most recent version of draft Bega Valley Development Control Plan dated 2013 as described below. Detailed subdivision designs that would be prepared to accompany a development application would need to have regard to council's technical specifications contained in the Development Design Specification and the Development Construction Specification.

5.10 Subdivision standards

Objectives

The concept plan will facilitate appropriate standards of amenity and servicing as the land is subdivided and developed. Future development will ensure the conservation of known ecological, scenic and cultural values and integrate the natural and developed landscape. Recommendations are made in this report to ensure that the principles of sustainable

development are observed, including the protection of adjoining environmentally sensitive areas, avoidance of land affected by flood hazard and the treatment of stormwater drainage.

5.10.1.1 Access and servicing

It is proposed that this land be zoned R2 Low Density Residential (see section 4.4 below). A minimum lot size of 550 square metres applies to that zone. The concept plan shows all lots above larger than the minimum lot size. All lots are provided with an appropriate standard of legal and practical access and access to an appropriate standard of utility and drainage services.

5.10.1.3 Public reserve dedications

The proposed public reserve shown on the concept plan will benefit future occupants of the subdivision by providing a buffer to the highway as well as the community by enabling visual screening from the highway, and the provision of drainage basins to store and filter stormwater.

5.10.1.4 Hazards

The concept subdivision takes into account relevant environmental hazards such as flooding and bushfire. Land that is identified as flood prone at the north-eastern corner of the site has been excluded from the subdivision. Asset protection zones are not required due to the land being surrounded by cleared farmland, roads and existing urban development west of the highway. The land does not contain steep slopes and is not subject to contamination, or erosion and landslip potential.

5.10.1.5 Threatened species, significant and Endangered Ecological Communities and their habitats

There are no identified threatened species, significant and endangered ecological communities and their habitats on the land. Off-site impacts are to be mitigated by the inclusion of a drainage basis at the end of Furner Street south of the sewer pump station to collect and filter stormwater runoff from the developed area. Lots north of Furner Street are larger and able to address stormwater as surface flows that would be substantially filtered before reaching the floodplain. The likelihood for the spreading of weeds from developed lots and predation by domestic pets may be able to be reduced through the distribution of information by council to new residents informing them of the need to protect the floodplain and waters of the Pambula River by avoiding the planting of noxious weeds, and by containing domestic animals using boundary fences.

5.10.1.6 Riparian areas, estuaries and wetlands

The required riparian corridor of 20 metres plus the channel width of the 1st order watercourse that crosses the land at the south-eastern corner has been observed in the subdivision by inclusion within a reserve. This will also facilitate the revegetation of a riparian zone of 10 metres on the subdivision side of the watercourse.

As the land adjoins wetlands, stormwater modelling studies will need to be carried out as part of the detailed design of the subdivision to ensure the ecological and hydrological health of the wetlands is maintained.

5.10.1.8 Energy efficient design

The majority of internal roads are predominantly oriented north-south. There is a mix of north-south and east-west oriented lots according to terrain, the road pattern and having regard to the need to maximise amenity and lot yield. Although not all lots have their larger dimension oriented east-west, future dwellings may be positioned on all lots so as to maximise solar access. The setbacks to new dwellings required by Council's development control plan may be subject to variation on the basis of the size, shape and orientation of the lot, positioning of buildings and residential character, noting that varying boundary setbacks have contributed to the character of the existing settled area.

Furner Street and Road No 1 may serve as a looped bus route throughout the subdivision. School buses would be able to pass within 400 metres of all dwellings. The road reserves are of sufficient width to enable the construction of shared pedestrian/cyclist pathways. A pathway connecting the end of Road No 3 which is a cul-de-sac has not been included in the concept plan as it is considered that the desire line for pedestrians that live at the southern end of Road No 1 would be to follow Road No 1 to the north or south to gain access to Furner Street and eventually the highway.

5.10.1.9 Neighbourhood design – infill development

The subdivision is partly greenfield and partly infill development north of Furner Street. The layout and lot size are in keeping with the existing pattern in the vicinity of Furner Street. Lots south of Furner Street are less than recommended in the Part 1 report and therefore less than the majority of lots in the existing settlement of South Pambula. This is to maximise lot yield from the land and to facilitate smaller more affordable lots. Servicing costs are also reduced as the length of roads and water and sewer mains are distributed amongst a greater number of allotments.

A listed heritage item is located on the Princes Highway off Road No 4 which is oriented north and towards the highway. Development on adjoining lot 68 would not impact on the physical or visual curtilage of that item as the boundaries of each lot adjoin for only a minimal length of each lot.

5.10.1.10 Neighbourhood design – greenfield development

The concept plan is based on a logical and legible road pattern which provides for the safe and effective movement of vehicles, pedestrians and cyclists. Adequate areas of open space have been included along the western and southern boundaries of the land south of Furner Street which serve multiple purposes, including recreation.

5.10.2.2 Residential and village subdivisions

Although the long axis of most lots is not aligned within 20 degrees of east-west, each lot is of sufficient area to enable the positioning of dwellings to achieve adequate sunlight.

Corner allotments are more than 20 metres width and 25 metres depth, except lots 19, 20 and 23 which are approximately 19 metres wide but with a depth of 38 metres. Corner lot 63 is 19 metres wide and 50 metres deep. All other lots exceed the minimum 15 metres width at the building line and minimum depth of 25 metres.

6 Engineering Requirements
6.1 Roads and Easements
6.1.2.3 Residential and Village Subdivisions
All roads are arranged in a logical hierarchy to provide an adequate standard of access, maintain residential amenity and can accommodate the level of traffic likely to be generated by future development. Cul-de-sacs have been incorporated as road construction costs per lots are reduced. Road No 4 is an existing cul-de-sac and the environmental sensitivity of land north of that road means that it is not likely to be extended to provide access to additional land. Road No 3 contributes to lot yield and provides access to only 8 lots. The road pattern is suited to topography and the limited extent of developable land.

Furner Street is a 20 metre wide reserve that services less than 100 dwellings. Road No 1 is a 15 metre wide road reserve that is a perimeter road to the subdivision south of Furner Street. Other roads (Road Nos 2, 3 and 4) are 'access streets' that service no more than 15 dwellings within 15 metres wide reserves. Minimum alignments and layback kerbs can be accommodated within road reserves. Road No 3 and Road No 4 are cul-de-sacs and each has a circular turning area with a radius of 12.5 metres.

Splays of 5 metres are included at each road intersection within the subdivision to ensure optimum safe intersection sight distances for motorists.

6.3 Soil and Stormwater management
Detailed stormwater infrastructure designs should be prepared to accompany a development application to subdivide the land that comply with the provisions of 6.3.1 and development design specifications. The concept plans enable the discharge of stormwater from private allotments to road reserves and finally to a drainage basin located within a reserve to the south of the sewer pump station.

6.4 Utility Services
6.4.2.2 *Residential, Village and Tourist Subdivisions*
Underground electricity and telecommunications infrastructure and street lighting is able to be provided within road reserves, the location and costing of which would be provided with detailed subdivision design.

5. RECOMMENDATIONS

5.1 Recommended policy considerations

It is suggested that council include a range of development considerations to apply to this land. These may be included in the draft comprehensive DCP or as policy considerations for future development. Such considerations should be expressed in a manner that encourages the development of flexible and adaptable low cost housing.

Draft Bega Valley DCP dated April 2013 has been revised to incorporate submissions made during exhibition and now contains additional statements relating to development of land at South Pambula. It is noted that *the area east of the highway ... comprises cleared grazing land with a backdrop of native forest ... contains buildings from the late 19th and early 20th centuries and presents as an historic cultural landscape*. Development has the potential to adversely affect this landscape and it is considered that it has a low ability to accept change whilst maintaining key visual values.

The requirements for development in the South Pambula Rural Landscape are:

The built landscape, if visible from the Princes Highway, must reflect a theme of the late 19th early 20th Century rural cottage style.

Visibility of new dwellings from regionally or locally significant public roads and vantage points (principally the Princes Highway) must be minimised by planting trees and shrubs between the view site and the structure and immediately adjacent the structure.

Recommended provisions and/or policy considerations for council to address the requirements of the draft DCP are:

- Require that the impact of development on demonstrated landscape values are a consideration for council during the assessment of subsequent development applications for dwellings,

- For lots where the rear of the property faces the highway, ensure that fencing has low visual impact through applying a maximum height and specifying suitable materials to retain visual amenity and views across this land from the highway,

- Retain the denial of access off the Princes Highway to lots that share a boundary with the highway north of Furner Street,

- Ensure that the curtilage of the red roofed cottage that is listed as heritage item I704 on Lot 321 DP 1098908 is adequately identified to ensure that new development respects the heritage values of that building,

- Enable flexible setbacks to boundaries for structures within the subdivision to facilitate dual occupancy dwellings and secondary dwellings,
- Encourage the development of housing forms that are able to be adapted to household size and the age of occupants, and
- Ensure that the bulk and scale of new dwellings is modest, and building design and materials are in keeping with the existing housing stock in South Pambula, in particular the late 19th and early 20th century typology.

Council may also wish to consider the preparation of a development contributions plan to ensure that the costs to provide services are equitably shared amongst land owners. The contributions plan may also spread the costs associated with stormwater infrastructure. It is suggested that council update its development servicing plans to encompass the servicing of this land with reticulated water and sewer.

5.2 Statutory recommendations

Land zoning

It is recommended that the land be zoned part R2 Low Density Residential (those areas that are shown as private allotments and roads on the subdivision concept plan) and part RE1 Public Recreation (shown as public reserve on the subdivision concept plan).

The RE2 land may be dedicated to council as open space as a condition of consent for subdivision to act as a buffer to the Princes Highway and to the watercourse that crosses the land at the south-eastern corner. The Land Reservation Acquisition map should be amended to mark this land as "Local open space" enabling council to be the relevant acquisition authority.

It is suggested that the proposed zoning of RU2 Rural Landscape be retained over land north of Furner Street that fronts the Princes Highway and over land that is flood prone.

Recommended amendments to Land Zoning Map Sheet LZN_020A are shown on the extract from draft Bega Valley LEP 2010 below.

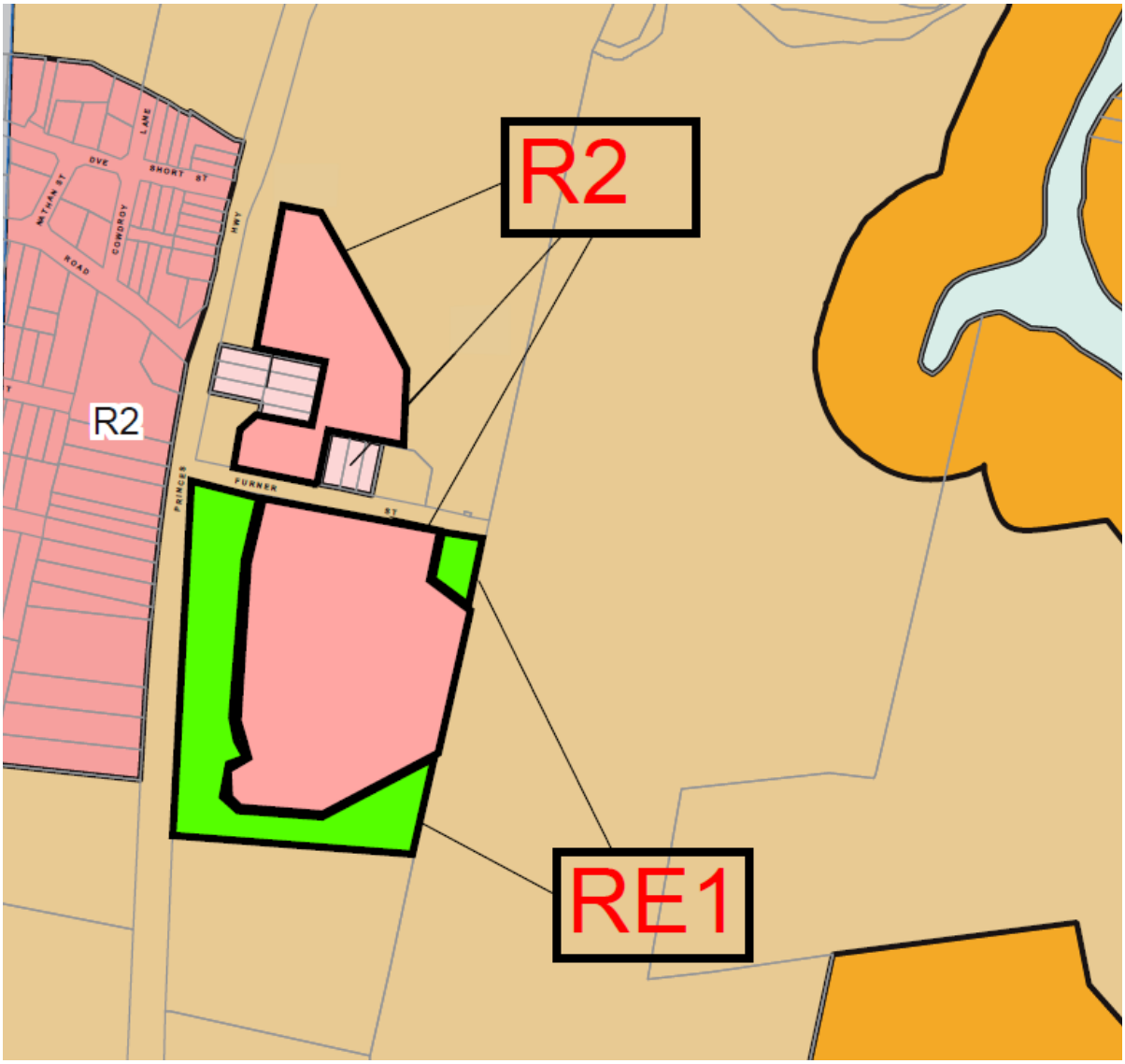


Figure 5.1: Recommended land zoning of the subject land

Permissible uses

Dwelling houses, attached and detached dual occupancy development, and semi-detached dwellings are proposed to be permitted with consent in the R2 Low Density zone. These residential uses are defined as:

dwelling means a room or suite of rooms occupied or used or so constructed or adapted as to be capable of being occupied or used as a separate domicile.

dwelling house means a building containing only one dwelling.

dual occupancy means a dual occupancy (attached) or a dual occupancy (detached).

dual occupancy (attached) means 2 dwellings on one lot of land that are attached to each other, but does not include a secondary dwelling.

dual occupancy (detached) means 2 detached dwellings on one lot of land, but does not include a secondary dwelling.

semi-detached dwelling means a dwelling that is on its own lot of land and is attached to only one other dwelling.

It is recommended that secondary dwellings be permitted either specifically on the subject land or in the R2 zone generally to facilitate the development of other styles of housing to accommodate different lifecycle needs. This residential use is defined as:

secondary dwelling means a self-contained dwelling that:
(a) is established in conjunction with another dwelling (the ***principal dwelling***), and
(b) is on the same lot of land as the principal dwelling, and
(c) is located within, or is attached to, or is separate from, the principal dwelling.

The permissibility of secondary dwellings may best be enabled through inclusion of the site in *Schedule 1 Additional permitted uses* of the draft LEP. This would mean that the land use table for zone R2 remains as proposed in the draft plan in order to retain the character of existing settlements.

Development standards

A minimum lot size of 550 square metres applies to the proposed R2 Low Density zoned land that is the existing settlement of South Pambula. It is recommended that this lot size also be applied to that part of the land east of the highway that is recommended to be zoned R2. Clause 4.1B applies a minimum lot size for the development of attached dual occupancies of 550 square metres.

A maximum building height of 10 metres applies to the proposed R2 Low Density zone west of the highway. It is recommended that this building height also be applied to that part of the land east of the highway that is recommended to be zoned R2.

A maximum floor space ratio of 0.5:1 applies to the proposed R2 Low Density zone west of the highway. It is recommended that the same maximum FSR be applied to that part of the land east of the highway that is recommended to be zoned R2. Although this may be restrictive over proposals to develop dual occupancy housing, it would prevent the development of large single detached dwellings occupying the majority of an allotment. Such would be out of character with the existing settlement and contrary to the principles guiding the development of affordable housing.

Clause 5.4 of the draft LEP specifies that the total floor area of a secondary dwelling (excluding any area used for parking) cannot exceed 60 square metres or 30% of the total

floor area of the principal dwelling. This is an appropriate means to facilitate the development of 'granny flats' to accommodate family members or to make small dwellings available as rental accommodation.

Recommended amendments to Lot Size Map Sheet LSZ_020A and Floor Space Ratio Map Sheet FSR_020A are shown on the extracts from draft Bega Valley LEP 2010 below.

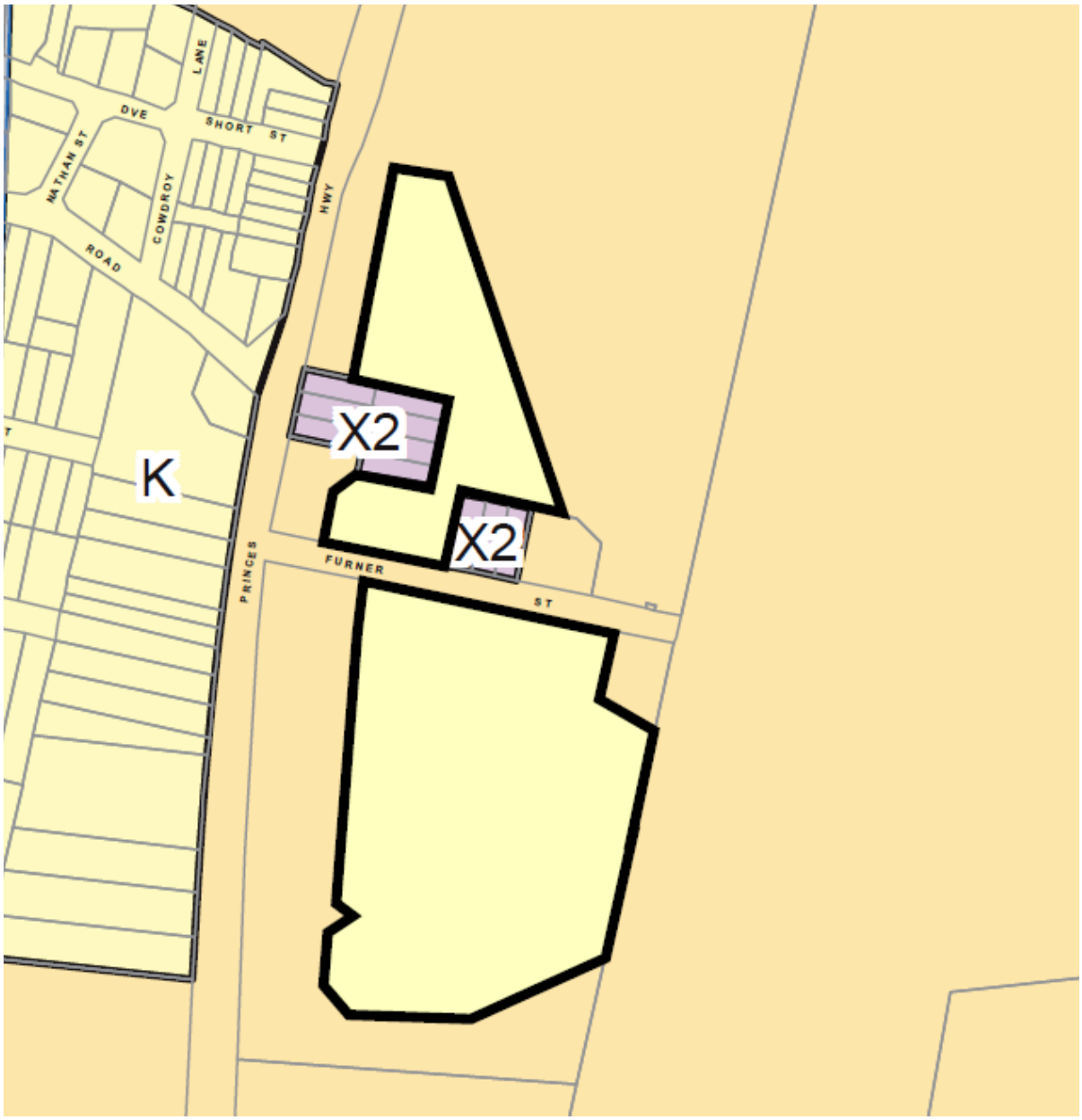


Figure 5.2: Recommended minimum lot size for the subject land

Figure 5.3: Recommended maximum floor space ratio for the subject land

Environmental overlays

Following the completion of a flood study for the site and Pambula district that establishes the extent of inundation during the 1% flood event, it is recommended that amendments be made if necessary to show accurate boundaries of the Coastal Risk Area as mapped on the Coastal Risk Planning Map Sheet CHZ_020A, the Flood Planning Area shown on Flood

Planning Map Sheet FLD_020A and the Constrained Land shown on the Natural Resource Land Map Sheet NRL_020A.

Implementation

It is recommended that Council prepare and submit a planning proposal to the Department of Planning and Infrastructure. The aim of the planning proposal would be to implement the above statutory recommendations. The Part 1 and Part 2 reports prepared for this project should be attached as supporting information.

APPENDIX

Subdivision concept plan

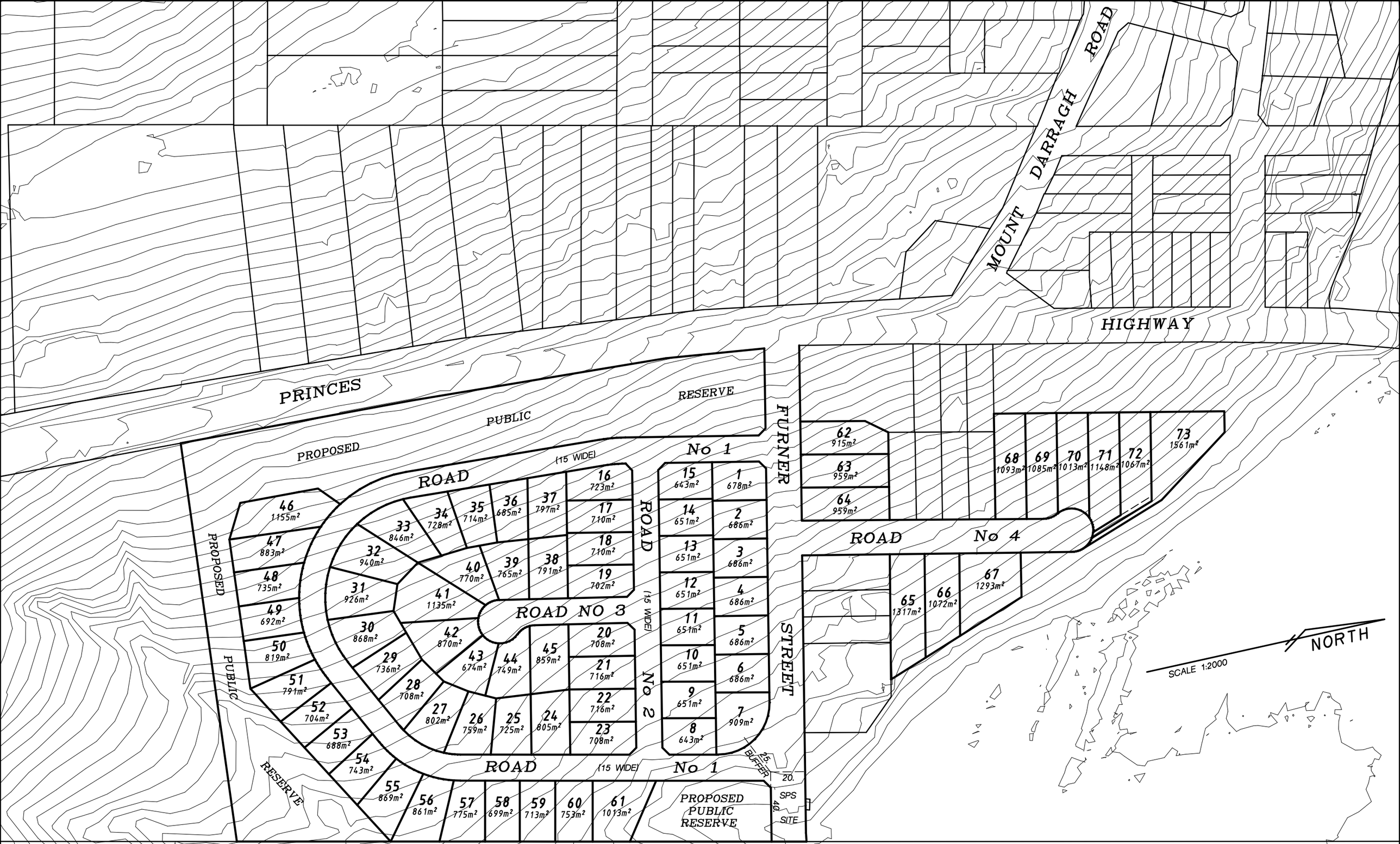
Water supply servicing concept plan

Sewer servicing concept plan

Amended land zoning map

Amended minimum lot size map

Amended maximum floor space ratio map



SUBDIVISION CONCEPT PLAN

JOHN HEALEY AND ASSOCIATES P/L

ACN 054 212 958

LAND AND ENGINEERING SURVEYORS

114 PRINCES HWY. NAROOMA 2546

P.O. BOX 304 NAROOMA 2546

PH. (02)4476 2985 FAX. (02)4476 1812

MOUNT DARRAGH ROAD

EXISTING 100

HIGHWAY

EXISTING 225 TRUNK MAIN

PROPOSED 100

FURNER STREET

RESERVE

PUBLIC

PRINCES

PROPOSED 150

EXISTING 150

EXISTING 225 TRUNK MAIN

PROPOSED 150

ROAD No 1

ROAD No 2

ROAD No 3

ROAD No 4

PROPOSED PUBLIC RESERVE

EXISTING SEWER PUMP STATION

SCALE 1:2000

NORTH

NOTES

EXISTING 25MM SERVICE LINE ON N SIDE OF FURNER ST TO BE DECOMMISSIONED
TOTAL LENGTH OF NEW 150mm WATER SUPPLY RETICULATION LINES = APPROX 95m
TOTAL LENGTH OF NEW 100mm WATER SUPPLY RETICULATION LINES = APPROX 1592m
TOTAL LENGTH OF NEW CONDUIT (C) WATER SUPPLY RETICULATION LINES = APPROX 115m

WATER SUPPLY SERVICING CONCEPT PLAN

JOHN HEALEY AND ASSOCIATES P/L

ACN 054 212 958

LAND AND ENGINEERING SURVEYORS

114 PRINCES HWY. NAROOMA 2546

P.O. BOX 304 NAROOMA 2546

PH. (02)4476 2985 FAX. (02)4476 1812

MOUNT DARRAGH ROAD

HIGHWAY

PRINCES PROPOSED PUBLIC RESERVE

FURNER STREET

ROAD No 1

ROAD No 2

ROAD NO 3

ROAD No 4

PROPOSED PUBLIC RESERVE

PUBLIC RESERVE

EXISTING 150

EXISTING 225

EXISTING SEWER PUMP STATION

SCALE 1:2000

NORTH

NOTES

TOTAL LENGTH OF NEW 150mm SEWER RETICULATION LINES = APPROX 1694m

TOTAL NUMBER OF NEW SEWER MANHOLES = APPROX 32

SEWER SERVICING CONCEPT PLAN

JOHN HEALEY AND ASSOCIATES P/L

ACN 054 212 958

LAND AND ENGINEERING SURVEYORS

114 PRINCES HWY. NAROOMA 2546

P.O. BOX 304 NAROOMA 2546

PH. (02)4476 2985 FAX. (02)4476 1812

Bega Valley Shire Council

Bega Valley
Local Environmental Plan 2010

Land Zoning Map
Sheet LZN_020A

Zone

- B1 Neighbourhood Centre
- B2 Local Centre
- B4 Mixed Use
- E1 National Parks and Nature Reserves
- E2 Environmental Conservation
- E3 Environmental Management
- E4 Environmental Living
- IN1 General Industrial
- IN2 Light Industrial
- IN4 Working Waterfront
- R2 Low Density Residential
- R3 Medium Density Residential
- R5 Large Lot Residential
- RE1 Public Recreation
- RE2 Private Recreation
- RU1 Primary Production
- RU2 Rural Landscape
- RU3 Forestry
- RU4 Rural Small Holdings
- RU5 Village
- SP1 Special Activities
- SP2 Infrastructure
- SP3 Tourist
- W1 Natural Waterways
- W2 Recreational Waterways
- W3 Working Waterways

Cadastre

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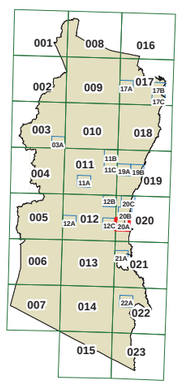

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0 200 400 600 Metres

Scale 1:20,000 @ A3

Projection GDA 1994
Zone 55

Map identification number:
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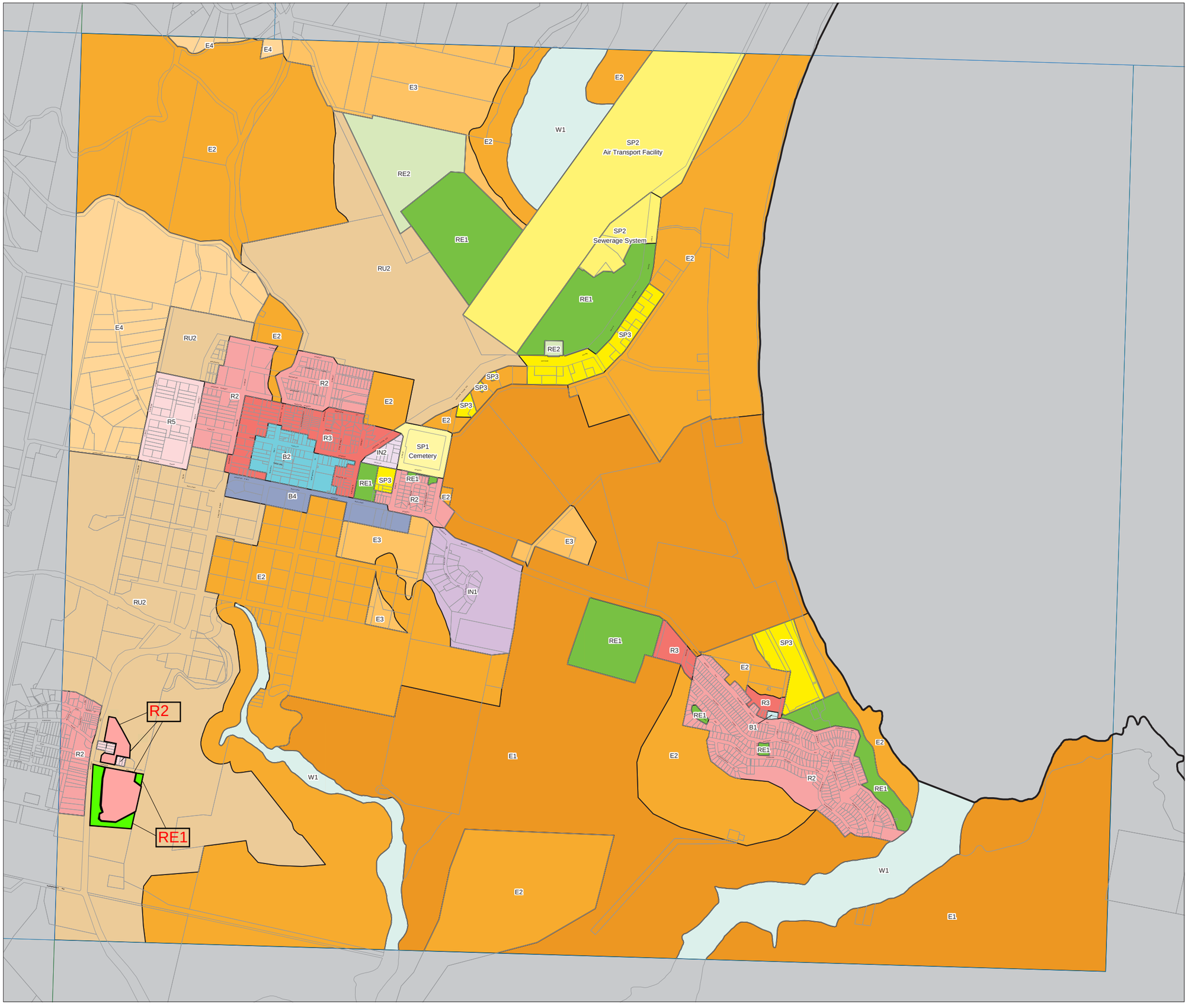

Bega Valley Shire Council

Bega Valley
Local Environmental Plan 2010

Lot Size Map
Sheet LSZ_020A

Lot Size

K	550 sq m
U	1,000 sq m
V	2,000 sq m
W	4,000 sq m
X1	5,000 sq m
X2	7,000 sq m
X3	8,000 sq m
Y	1 ha
Z1	2 ha
Z2	3 ha
Z3	4 ha
AA1	5 ha
AA2	7 ha
AA3	8 ha
AB1	10 ha
AB2	20 ha
AB3	30 ha
AB4	40 ha
AC	50 ha
AD	120 ha

Cadastre

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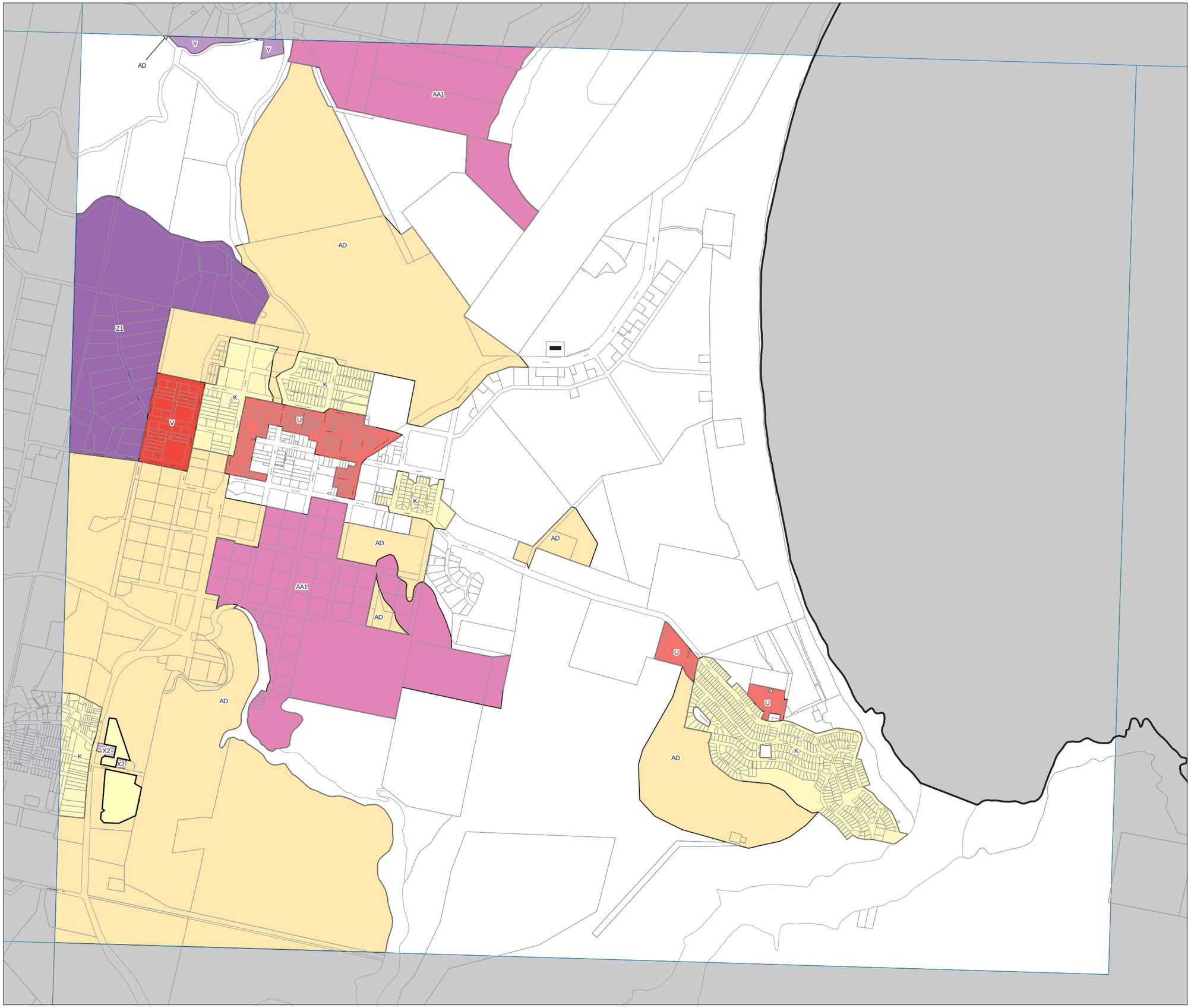

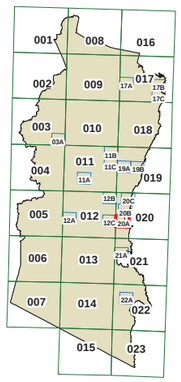

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Projection GDA 1994
Zone 55

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Map identification number:
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Bega Valley Shire Council

Bega Valley
Local Environmental Plan 2010

Floor Space Ratio Map
Sheet FSR_020A

Floor Space Ratio (n:1)

- D 0.5
- F 0.6

Cadastre

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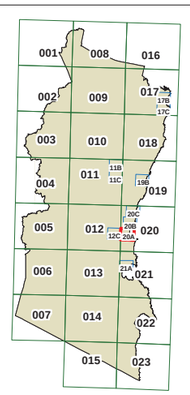

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Projection GDA 1994
Zone 55

0 200 400 600 Metres

Scale 1:20,000 @ A3

Map identification number:

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