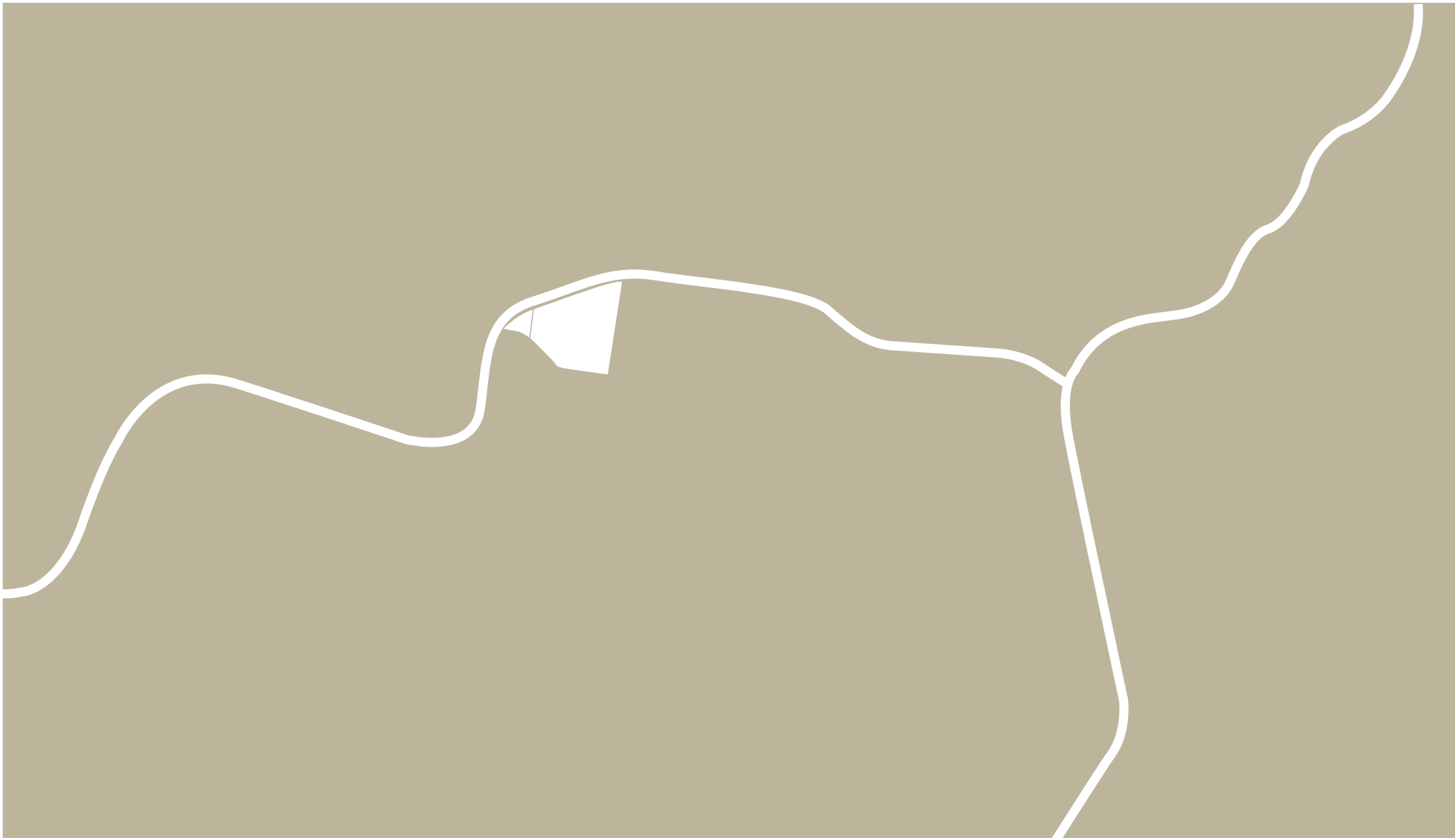




MASTER PLAN
120 MONA VALE ROAD
WARRIEWOOD

OCTOBER 2012



GMU

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Date: OCTOBER 2012

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CHAPTER 1 - INTRODUCTION



GMU

PURPOSE OF REPORT AND BRIEF

GM Urban Design & Architecture (GMU) has been appointed by Opera Properties Pty Ltd to provide urban design and master planning services for a proposed residential subdivision of the site, which comprises of two parcels of land at No.120 -122 Mona Vale Road and No.4 Boundary Street, Warriewood. This master plan report is to form part of a planning application to rezone the site from its existing zone 1(a) non-urban "A" (No.120 -122 Mona Vale Road) and zone 1(b) non-urban "B" (No.4 Boundary Street) to residential 2(a). This report documents the initial site analysis that led to the formulation of issues and strategy diagrams, translated into the concept options and the preferred master plan.

The aims and objectives of the current planning controls for the Warriewood locality have also been taken into account within this study. The current zoning 1(a) (Non- Urban "A") and 1(b) (Non-Urban "B") does not permit residential uses on the site. The findings of this report including the master plan for the site form part of a rezoning planning application to subdivide the site for the introduction of residential uses on site.

BROAD CONTEXT

METROPOLITAN STRATEGY

According to the Strategy's Economy and Employment Section, Pittwater LGA has an employment capacity target of 6,000 to year 2031. It is envisaged that the Warriewood Valley's commercial and industrial zone will have a key function focusing on utilities and urban services. In terms of housing targets, the Metropolitan Strategy indicates that the subject site has 0-5 dwellings per hectare and is located in between a Land Release Area to the west of No.120-122 Mona Vale Road and Rezoned Land Release Area to the east of Boundary Street.

The closest centre to the site is Mona Vale. This centre is expected to contribute to the dwelling targets for Pittwater Council. The natural attributes of the site, proximity to the centre and generous recreational opportunities in the immediacy of the site make it an ideal location to assist with meeting the housing targets for the Mona Vale Centre.



Map showing the location of subject site and the surrounding centres (Courtesy: NSW Metropolitan Strategy)

BROAD CONTEXT CONTINUED

COUNCIL'S VISION FOR THE WARRIEWOOD LOCALITY

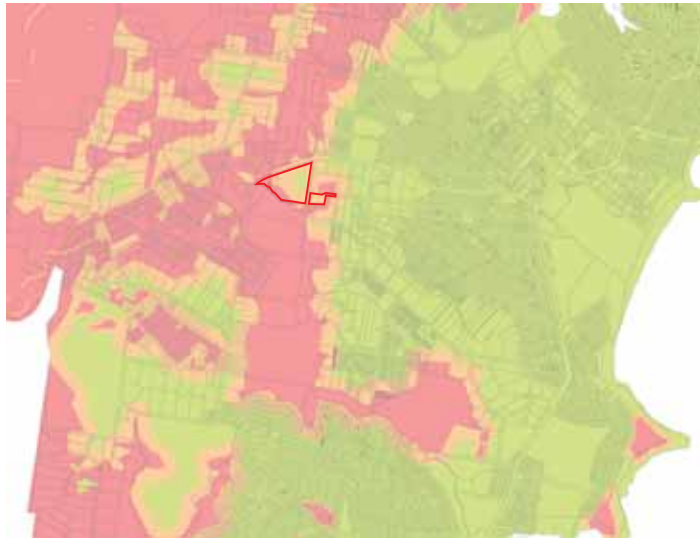
According to the Pittwater DCP 21, the desired future character for residential uses within the Warriewood locality is “primarily low-density” dwellings with a “maximum of two storeys in any one place in a landscaped setting, integrated with the landform and landscape.” The desired future character for multi-unit housing is that it will be located within and around commercial centres, public transport and community facilities.”

The DCP also requires “existing and new native vegetation, including canopy trees to be integrated with the development. Contemporary buildings will utilise facade modulation and/or incorporate shade elements, such as pergolas, verandahs and the like. Building colours and materials will harmonise with the natural environment. Development on slopes will be stepped down or along the slope to integrate with the landform and landscape, and minimise site disturbance. Development will be designed to be safe from hazards.”

As shown later in this report, the proposed master plan envisions dwellings for this site that include well articulated 2 storey homes set within a canopy of trees with fenestration, shading devices, private open spaces that will respond to the varying orientations, topography and view corridors. The layout of lots and roads has been designed to respond to the topography and to maximize viewing opportunities to critical landscape features from the public domain. The master plan ensures that an efficient road layout is complemented by special moments and high amenity in the form of communal open spaces including landscape features, walking trails and viewing points. As this report will show, the proposed development has taken into account Council's vision for the locality in the design of the lots and the overall master plan layout.



Map showing the location of subject site and the surrounding recreational spaces in the region (Courtesy: NSW Metropolitan Strategy)



Bushfire (excerpt from Pittwater Council's Land Use Planning Strategy)

- A - Other land
- B - Bushfire buffer area
- C - Bushfire flame zone
- Subject site



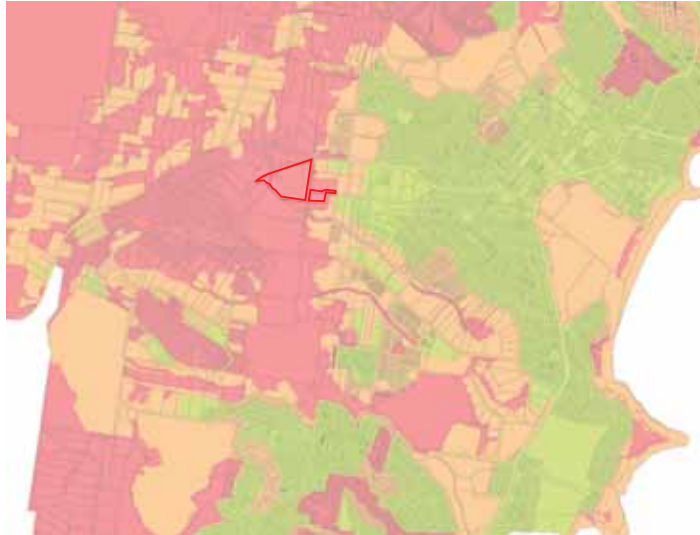
Ridge Line (excerpt from Pittwater Council's Land Use Planning Strategy)

- A - Other land
- B - Within 50m of a secondary ridgeline or between 50-100m of a major ridgeline or escarpment edge
- C - Within 50m of a major ridgeline or escarpment edge
- Subject site



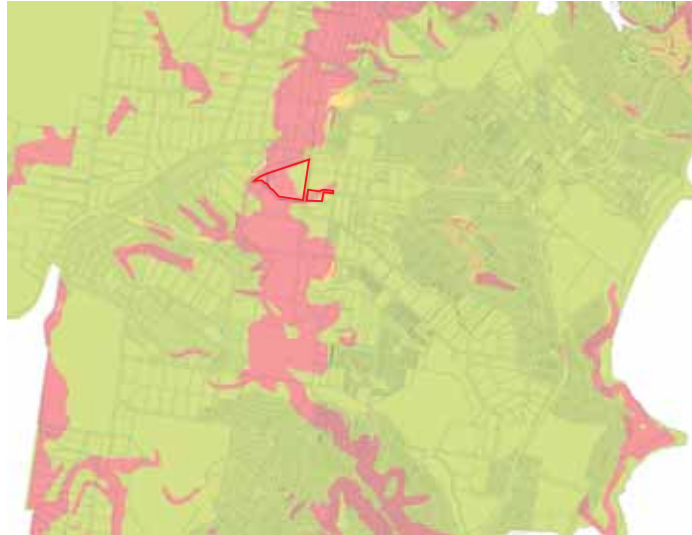
Slope (excerpt from Pittwater Council's Land Use Planning Strategy)

- A - Slope less than 15%
- B - Slope between 15% - 25%
- C - Slope greater than 25%
- Subject site



Biodiversity (excerpt from Pittwater Council's Land Use Planning Strategy)

- A - Low biodiversity value
- B - Medium biodiversity value
- C - High biodiversity value
- Subject site



Geotechnical (excerpt from Pittwater Council's Land Use Planning Strategy)

- A - Other land
- B - Areas of medium geotechnical hazard (Zone H2)
- C - Areas of high geotechnical hazard (Zone H1)
- Subject site



Proximity to public transport (excerpt from Pittwater Council's Land Use Planning Strategy)

- A - Land within 400m walking distance from a bus stop on a public transport route
- B - Land within 400-800m walking distance from a bus stop on a public transport route
- C - Land more than 800m walking distance from a bus stop on a public transport route
- Bus Stop
- Public Transport Route
- Subject site

BROAD CONTEXT CONTINUED

The site is located within the Pittwater Council LGA about 2km from the major centre of Mona Vale. It is located to the east of important recreational areas and to the west of the Warriewood Commercial and Industrial Hub, an important local employment zone. At the moment, the site is connected to Mona Vale Centre via Mona Vale Road which is a major east-west road that connects to Barrenjoey Road to the north and Pittwater Road to the south. This road network also connects the site to the ocean front and natural reserves available along the coast such as Mona Vale Golf Club and North Narrabeen Reserve. Nearby centres include Elanora Heights Village Centre to the south and the stand alone shopping centre at Warriewood Square.

The nearby densities vary from 5-9 dwelling per hectare to the south east to pockets of 25 dwellings per hectare in areas close to the periphery of Warriewood Square and Mona Vale Centre. The majority of the land holdings to the west are part of the Land Release Areas which are yet to be given a density designation. The largest concentration of residential densities is located south of Mona Vale Centre, east of Pittwater Road and northeast of the Warriewood Escarpment and Wetlands and it straddles on both sides of Mona Vale Road as it gets closer to the connection with Pittwater Road. No.120-122 Mona Vale Road is generally located to the north-west along Mona Vale Road and can be linked to the rezoned release area through the proposed access road through No.4 Boundary Street.

According to Pittwater Council's mapping, the natural environment in the Broad Context is formed by areas affected by bush fire along natural ridge lines as shown on page 6. Council's maps also show that the site is affected by areas of high geotechnical hazard (Zone HI) where the slope on the site varies between 15% to areas with slopes greater than 25%. The site is located along a ridge which links the site to a north-south corridor affected by similar slope conditions. The site is also recognised for having High Biodiversity value. A contributory watercourse to the Warriewood wetlands known as the Narrabeen Creek Green Corridor runs along the southern boundary of the site and terminates at the wetlands. However, the mapping by Council still reflects the former condition of the land and this mapping needs to be updated to reflect the recent changes to the legislation in terms of bushfire and riparian corridors as well as the site's existing biodiversity. A number of preliminary reports have been commissioned as part of this study in order to document the existing site conditions in terms of slope, bushfire, access, geotechnical and biodiversity. These findings will be discussed later as part of the next chapters of this report.

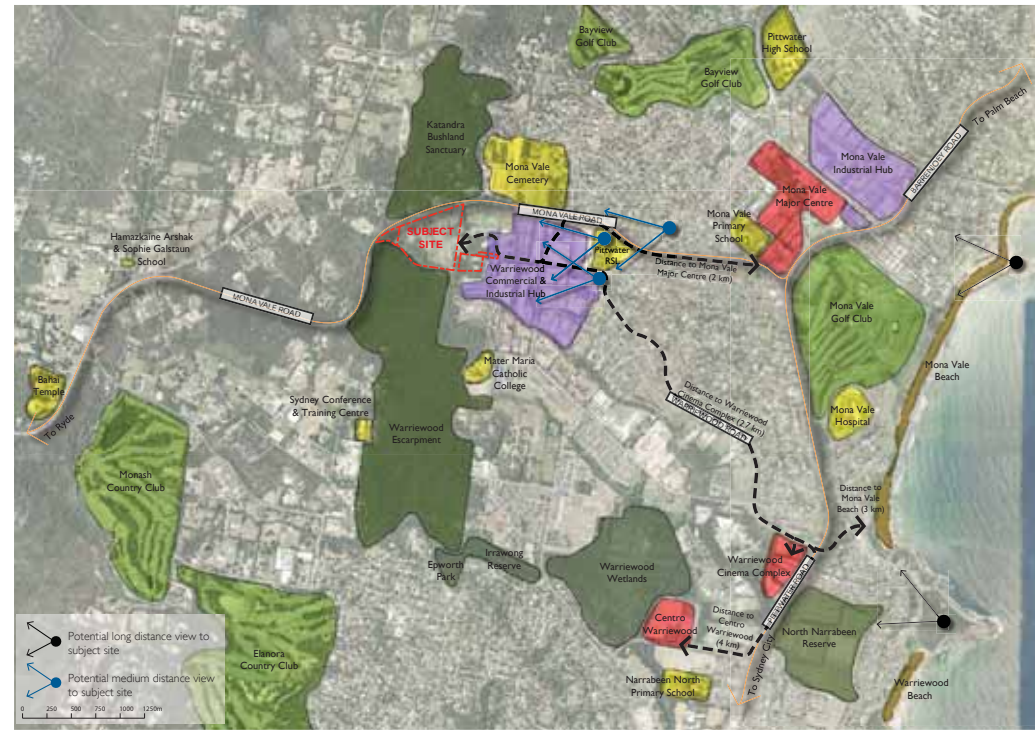
SURROUNDING CONTEXT

The site is located in the transitional area where a change in the dwelling density occurs between Mona Vale Town Centre to the east and rural areas to the west. The site is located adjacent to heavily vegetated bushland to the west and light industrial, commercial and some residential areas to the east. This area is known as the Warriewood Commercial and Industrial Hub which provides important employment opportunities for the region.

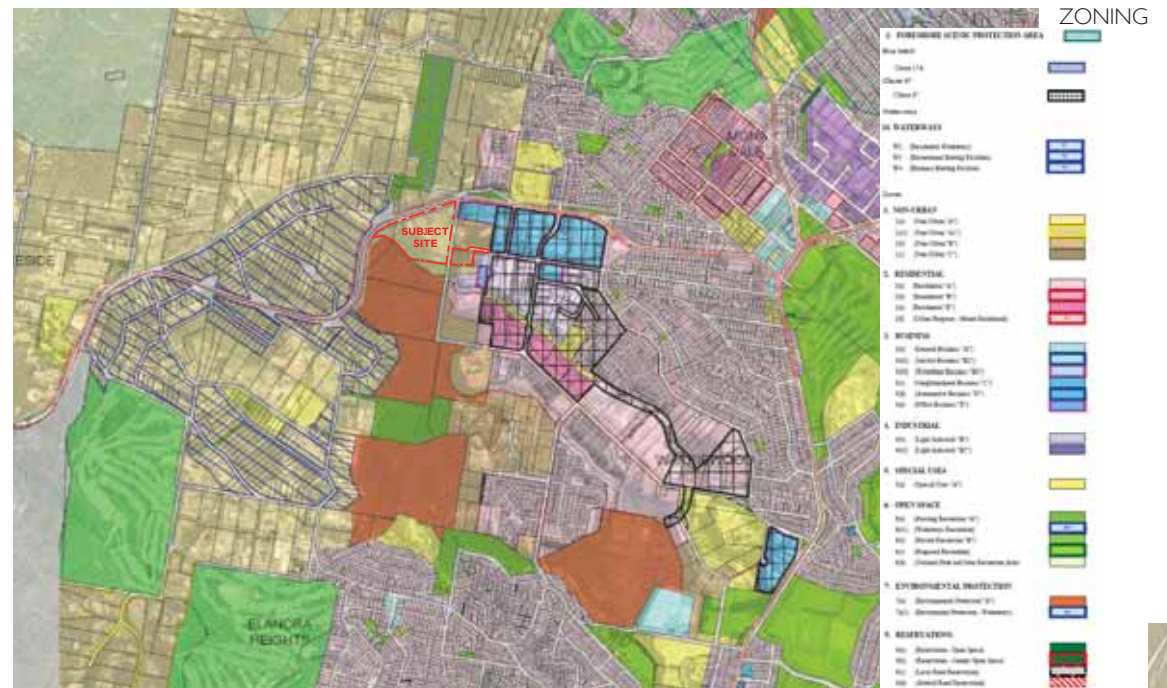
The immediate surroundings of No.120-122 Mona Vale Road are zoned (1a) Non-Urban "A" to the north and west and (7a) Environmental Protection "A" to the south. The immediate surrounding of No.4 Boundary Street is zoned (1b) Non-Urban "B" to the north and south and (1b) Non-Urban "B" and (4b) Light Industrial "B" to the east. The site is directly adjacent to the Warriewood Valley Rezoned Land Release Area, where most of the sectors within the area consist of medium density residential. The urban design objectives of the Land Release Area are:

- To ensure that future development achieves an overall standard of urban design and amenity which is commensurate with surrounding development and provides a vibrant, pleasant and attractive neighbourhood;
- To provide a sense of community and identity to the future population of the development.

Other zonings include business uses (Office Business "E") and Recreation uses.

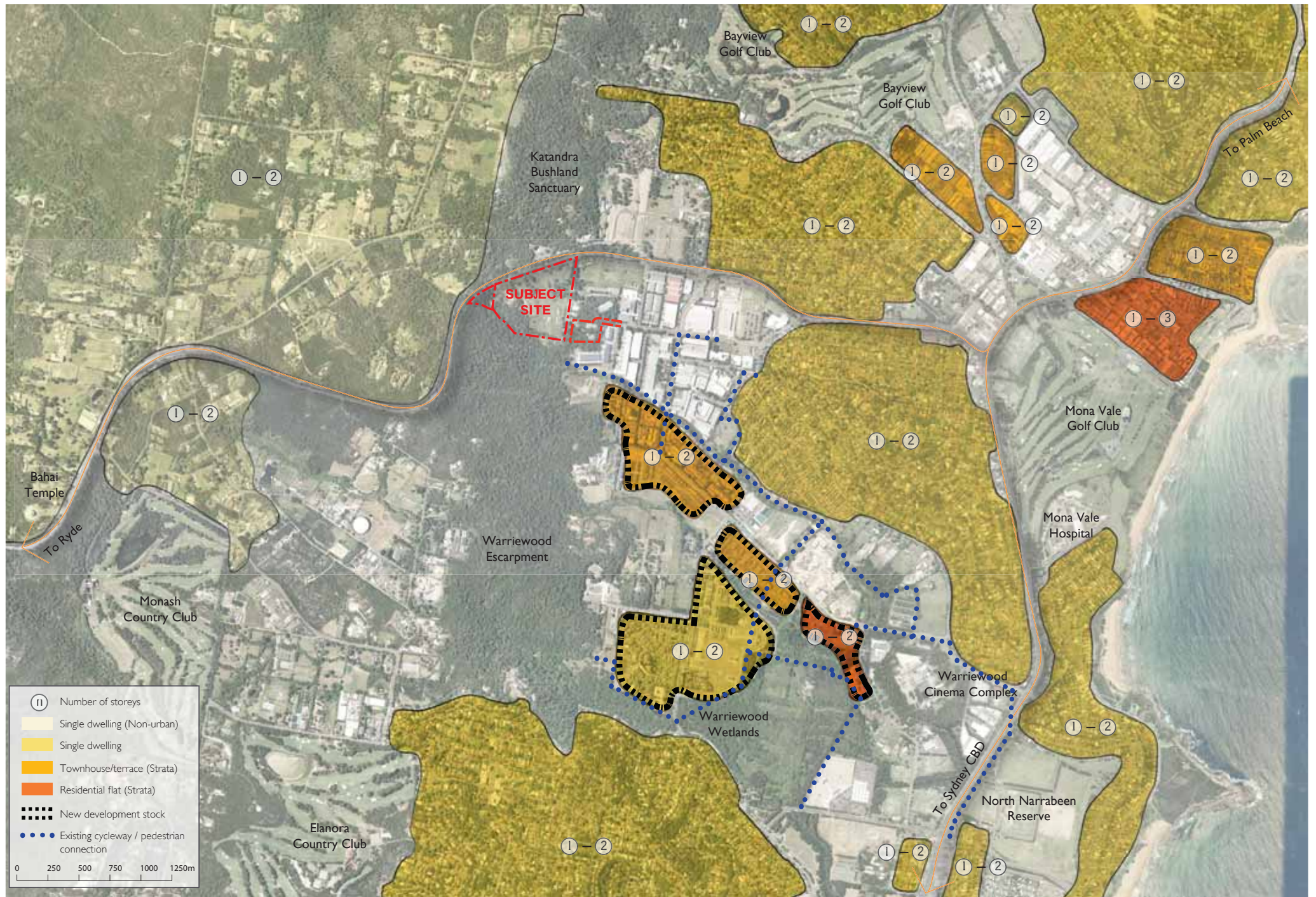


LAND USE

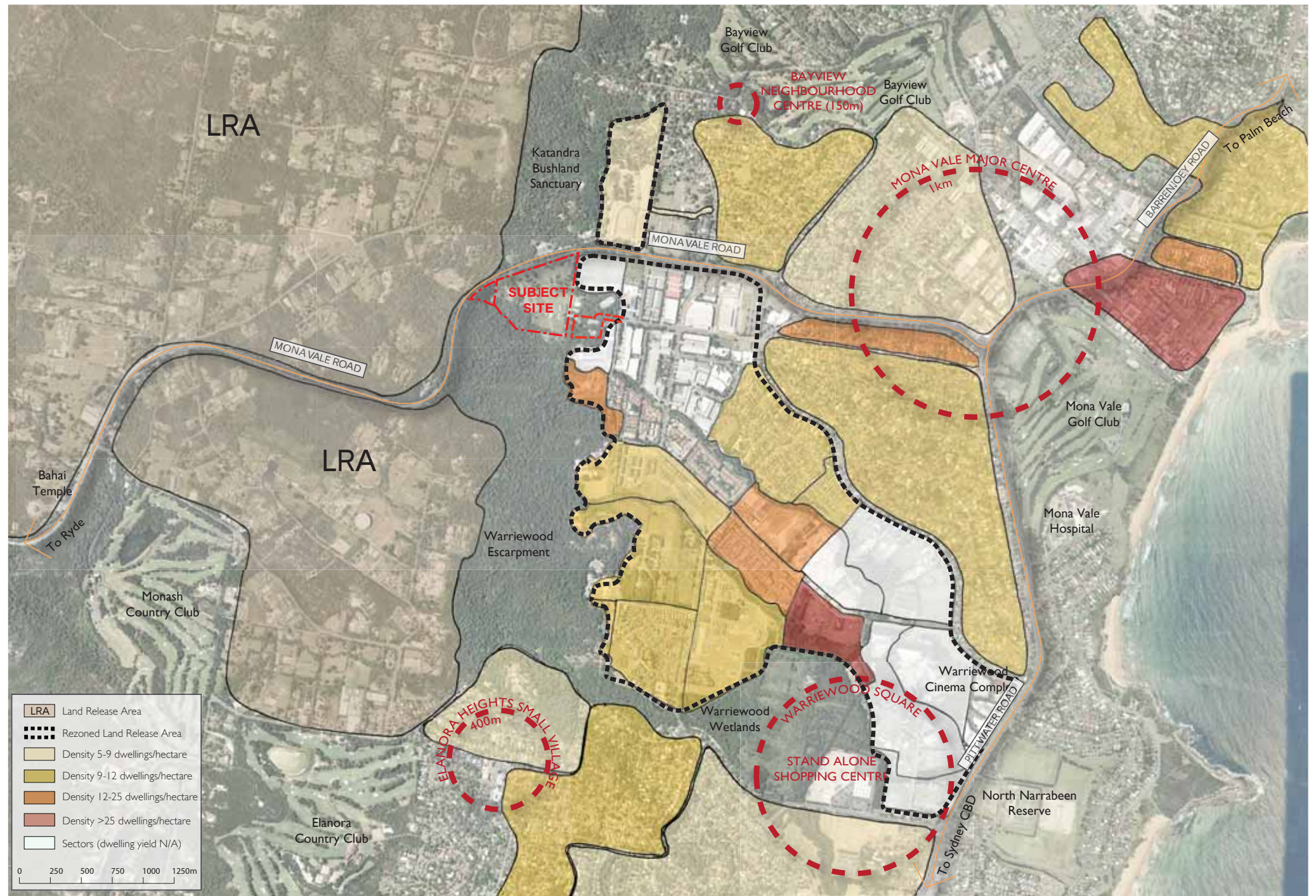


ZONING

BUILT FORM



DENSITY



NETWORK



THE SITE

The subject site comprises of two land parcels, hereafter referred to as No.120 -122 Mona Vale Road and No.4 Boundary Street divided by Boundary Street. No.120-122 Mona Vale Road is composed of four adjacent lots (Lot 1 DP383009 and Lot 3, 4 and 5 DP124602) bound by Mona Vale Road to the north, Narrabeen Creek to the south west and Boundary Street to the east. No.4 Boundary Street is bounded by Boundary Street to the west, Lot No.8 Jubilee Avenue to the south and Lot No.10 Jubilee Avenue to the north (also known as Pittwater Uniting Church). The site is bounded to the east by the Warriewood commercial and industrial hub. The combined lot area of No.120 Mona Vale Road is approximately 7.94ha and it is largely vacant except for a few single residential dwellings and farming structures which currently gain access directly from Mona Vale Road. Access is also possible from Boundary Street to the east. No.4 Boundary Street measures around 1ha and is also largely vacant except for a single storey cottage in the south-east corner and various farming structures and sheds which currently gain access from Boundary Street. The combined site area (No.120-122 Mona Vale Road + No.4 Boundary Street) is approximately 8.94ha.

The major characteristics of the site include the topography, available views and a few constrained areas for development due to slope conditions and the need to provide an APZ due to bush fire prone land.

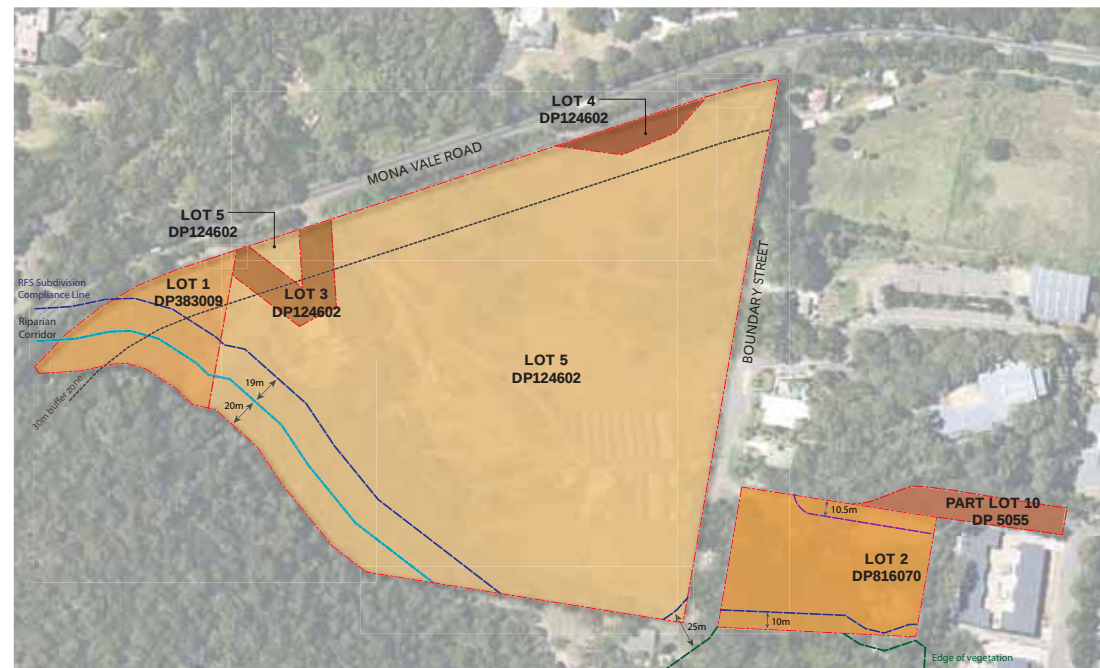
BUSH FIRE AND GEOTECHNICAL HAZARDS

The Narrabeen Creek which runs along the south-western end of No.120-122 Mona Vale Road, requires the provision of a riparian corridor of 20m (10m to either side from the top of bank) plus a 19 metre wide Asset Protection Zone. This zone limits the developable area of No.120-122 Mona Vale Road towards the centre, north and eastern boundaries. A vegetated corridor is also required along Mona Vale Road which is not bush fire affected, but limits the area in which houses can be located.

The western half of No.120-122 Mona Vale Road falls into the Pittwater Council Geotechnical Risk Map (Zone H1) as high risk, which had been confirmed by the preliminary geotechnical study undertaken by Aargus. This high risk zone extends across Boundary Street to the east into No.4 Boundary Street and occupies a large proportion in the center of that land parcel.

ECOLOGICAL SITE ANALYSIS (BIO-DIVERSITY)

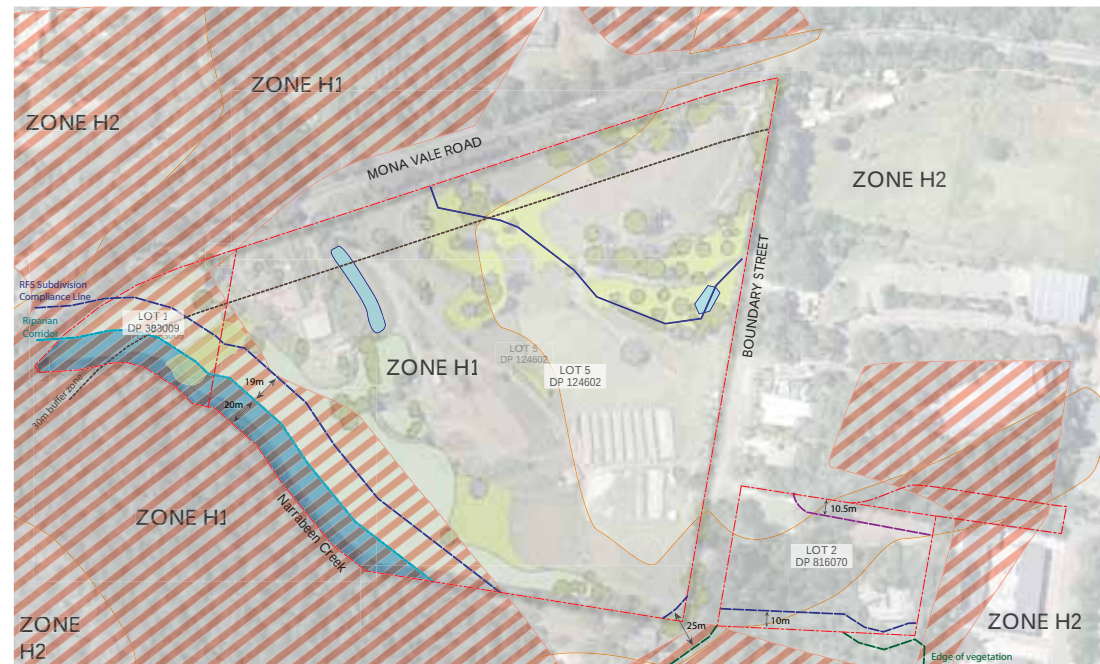
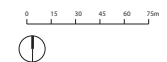
Extensive studies were conducted with regards to ecology including flora and fauna surveys to understand the site's vegetation, ecological communities and habitats of threatened species. This testing of No.120-122 Mona Vale Road concluded that there are 3 main habitat areas considered in the report based on the current land use and level of disturbance which include an area of Open Forest, generally located along the south western boundary of the site parallel to the Narrabeen Creek; smaller areas of disturbed woodland and scrubland areas dispersed across various locations across the site and the open paddocks and infrastructure areas occupying the remainder of the site.



LOTS INVOLVED

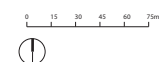
- Subject site
- Landscape buffer - 30m
- Riparian corridor - 20m
- RFS Subdivision Compliance Line
- RFS Subdivision Compliance Line (Applicable only to Option 1)
- Edge of vegetation

LOT	DP	ADDRESS
3	124602	120 Mona Vale Road
4	124602	120 Mona Vale Road
5	124602	120 Mona Vale Road
1	383009	122 Mona Vale Road
2	816070	4 Boundary Street
Part Lot 10	5055	10 Jubilee Avenue



ANALYSIS

- Subject site
- Landscape buffer - 30m
- Edge of vegetation
- Riparian corridor - 20m
- Drainage line
- Creek bank
- 20m riparian zone
- Bushfire hazard vegetation
- Bushland vegetation
- Regrowth forest partially cleared
- Existing dam
- Existing trees (Priority / consider for retention)
- Existing trees (Priority / consider for removal)
- Geotechnical hazards zoning (Zone H1, Zone H2)
- RFS Subdivision Compliance Line
- RFS Subdivision Compliance Line (Applicable only to Option 1)



Despite extensive field survey across all areas of No.120-122 Mona Vale Road, the Magenta Lillypilly and the Eastern Bent-wing Bat were the only threatened species recorded on site. The general recommendations provided for the redevelopment of No.120-122 Mona Vale Road include the retention of the vegetation and habitats in the riparian areas (20m from top of bank along Narrabeen Creek); maximising the retention of vegetation and habitats within the open forest area, the lower gully line in the disturbed Woodland and Scrubland and of indigenous trees in the open paddocks and infrastructure areas of the site.

TOPOGRAPHY

The existing topography of No.120-122 Mona Vale Road generally slopes down from the north western to the eastern and southern parts of the land parcel. The highest point is located around the common boundary to the north-west and it is visible from the lower areas of the Valley floor as far as Warriewood Beach. The northern boundary along Mona Vale Road slopes from west to east. The lowest points are located at the gullies to the south where Narrabeen Creek runs in an east to west direction and to the east along Boundary Street. The difference between the highest and lowest points is approximately 56m. The gradient of the slope has the largest drop along Narrabeen Creek to the southern part of the land parcel. The parts that have minimum gradients (0-5 degrees) are considered to be relatively flat and are suitable for development. These areas are generally located to the south eastern part (RL+50m), the centre (between contour of RL+60m and RL+80m) and the north western part (RL+80m).

The slope on No.4 Boundary Street is generally flat (0-14.9%) along the northern boundary of the site and sharply chops towards the south western corner of the site where the lowest point is generally at RL+30m.

VIEWS

The nature of the site's sloping topography affords the site wide view corridors towards the coastline. Major unobstructed panoramic views are oriented towards east and southeast directions and they are evident from locations as shown on the adjacent diagrams. This presents the opportunity to create a master plan that shares views with both the private and public domain. The views to the north and west of the site are towards heavily vegetated bushland and largely vegetated areas. In terms of the visibility of the site, the uppermost part of the site (above RL+80m) is visible from the valley floor (Warriewood Valley to the southeast). The site above RL+60m is visible from the RSL Club located approximately 1.4km to the east of the site. No.4 Boundary Street is generally between RL+30m to the south gully and RL+48.5 to the north-east corner of the site. This lot is not visible from the Valley floor.

SUITABILITY OF THE LAND FOR REDEVELOPMENT

No.120-122 Mona Vale Road is currently zoned I(a) (Non-Urban A) while No.4 Boundary Street is zoned I(b) (Non-Urban "B") which does not permit residential uses to be developed within the site. However it is GMU's opinion that the location of the site in close proximity to Mona Vale Centre, employment hubs to the east and large areas to the east of Boundary Street designated by Council as Land Release Areas present the site as a suitable location for residential uses due to its proximity to compatible adjoining uses and the area's high levels of amenity.

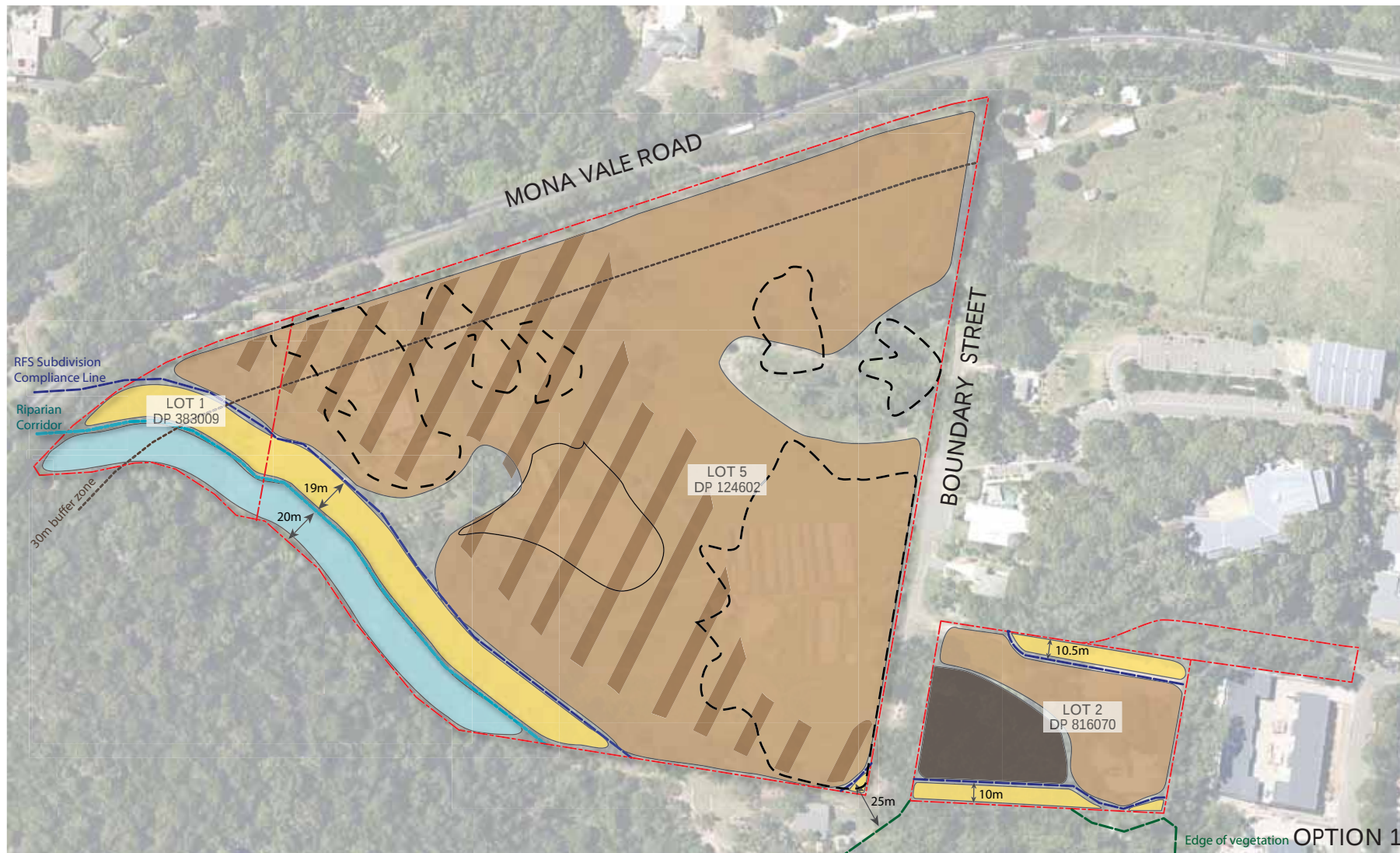
The preliminary assessment obtained from independent consultants established the site's potential and capacity to redevelop considering its many opportunities and the ability to easily manage some of its existing constraints. It is GMU's opinion, therefore, that the site's opportunities outweigh the existing constraints and that the site is suitable for residential subdivision provided that redevelopment adheres to a master plan outlining the parameters and principles to be applied in the redevelopment of the site. The preliminary independent consultant reports included Traffic and Access analysis, Bushfire Hazard and Management, Geotechnical Assessment, Arboriculture Impact Assessment, which identified some constraints for the site, but these reports also identify areas within the site where development is possible provided that appropriate setbacks and buffer zones are given in response to the surrounding fire prone and geotechnical hazard zones as well as maximizing the retention of existing habitats, indigenous trees and vegetation along riparian corridors.

In terms of access, No.120-122 Mona Vale Road is currently accessible from Mona Vale Road along the northern boundary with the potential for additional access points from Boundary Street along the eastern boundary. While access from Mona Vale Road in its current form is dedicated to a number of existing single dwellings and it is not envisioned as the sole access point for future development, it is possible that this access point will service a reduced number of large lots at the northern most part of No.120-122 Mona Vale Road. Access to No.4 Boundary Street is currently from Boundary Street. Access for the rest of No.120-122 Mona Vale Road can also be provided off Boundary Street through the future connection to Jubilee Avenue or through the reinstatement of the blocked access at the northern end of Boundary Street onto Mona Vale Road. Two alternative access options are discussed in later chapters of this report.

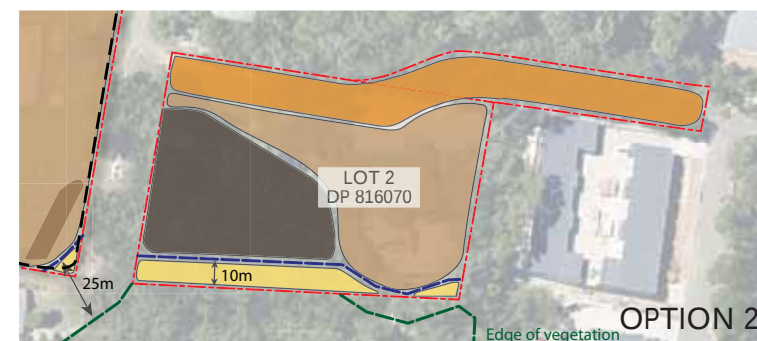
It is important to note that Council's existing mapping as shown on page 6 of this report includes diagrams for bushfire, slope, biodiversity, and areas of high geotechnical hazard (zone H1), which show outdated information or information that does not relate to the existing condition of the site, especially the diagrams with regards to biodiversity. This diagram shows the whole of the site being affected by biodiversity when this information may not be accurate or may be out of date. Some of the constraints identified within these diagrams may no longer be applicable to the site, may not be adequately represented or are in need of updating, especially in light of the more recent in-depth studies available by the independent consultants.

It is GMU's preliminary assessment that the actual level of constraints, especially with regards to biodiversity have been initially overestimated and that they do not represent a genuine impediment to redevelop the site. The possibility to introduce a variety of housing choices while maintaining a low level of density throughout the site which complements the surrounding vegetated character and areas of increased visibility will be a positive outcome for the site and a great opportunity for the local community and it should be allowed to take place.

LAND CAPABILITY



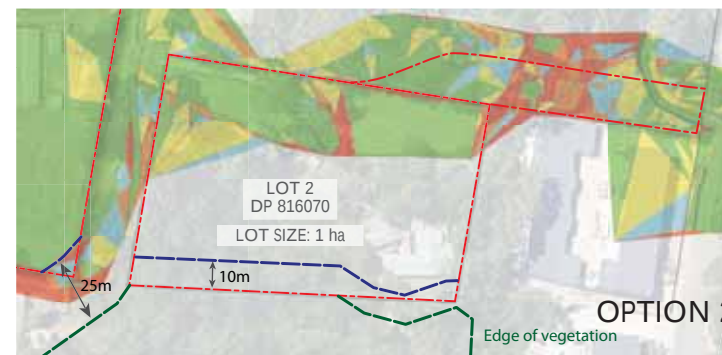
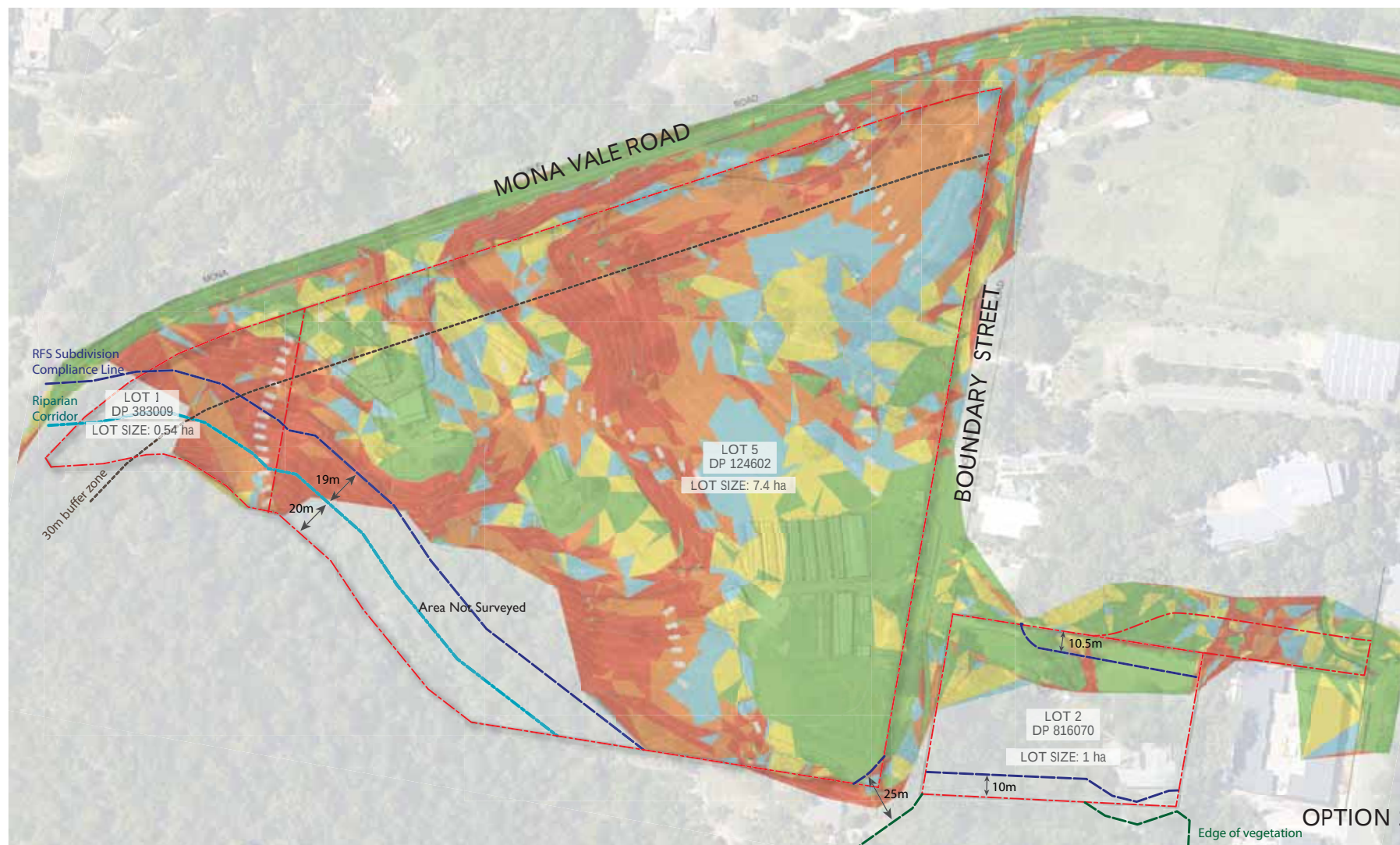
- Subject site
- Landscape buffer - 30m
- Riparian corridor - 20m
- RFS subdivision compliance line
- Edge of vegetation
- Area with slope less than 20%
- Area of high geotechnical hazard
- Potential developable area
- Riparian corridor (20m)
- Area within RFS subdivision compliance line
- Bushland to be managed by APZ
- Area within road reserve (Applicable only to Option 2)



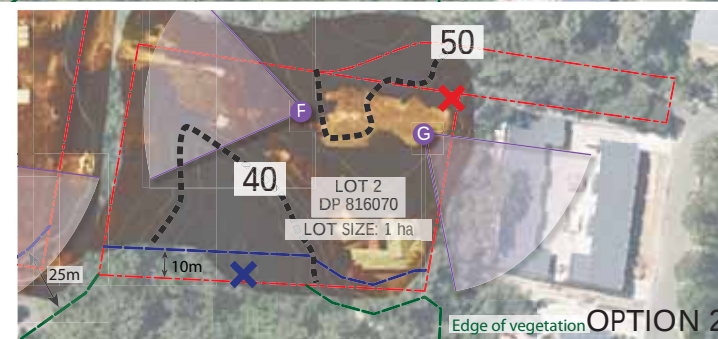
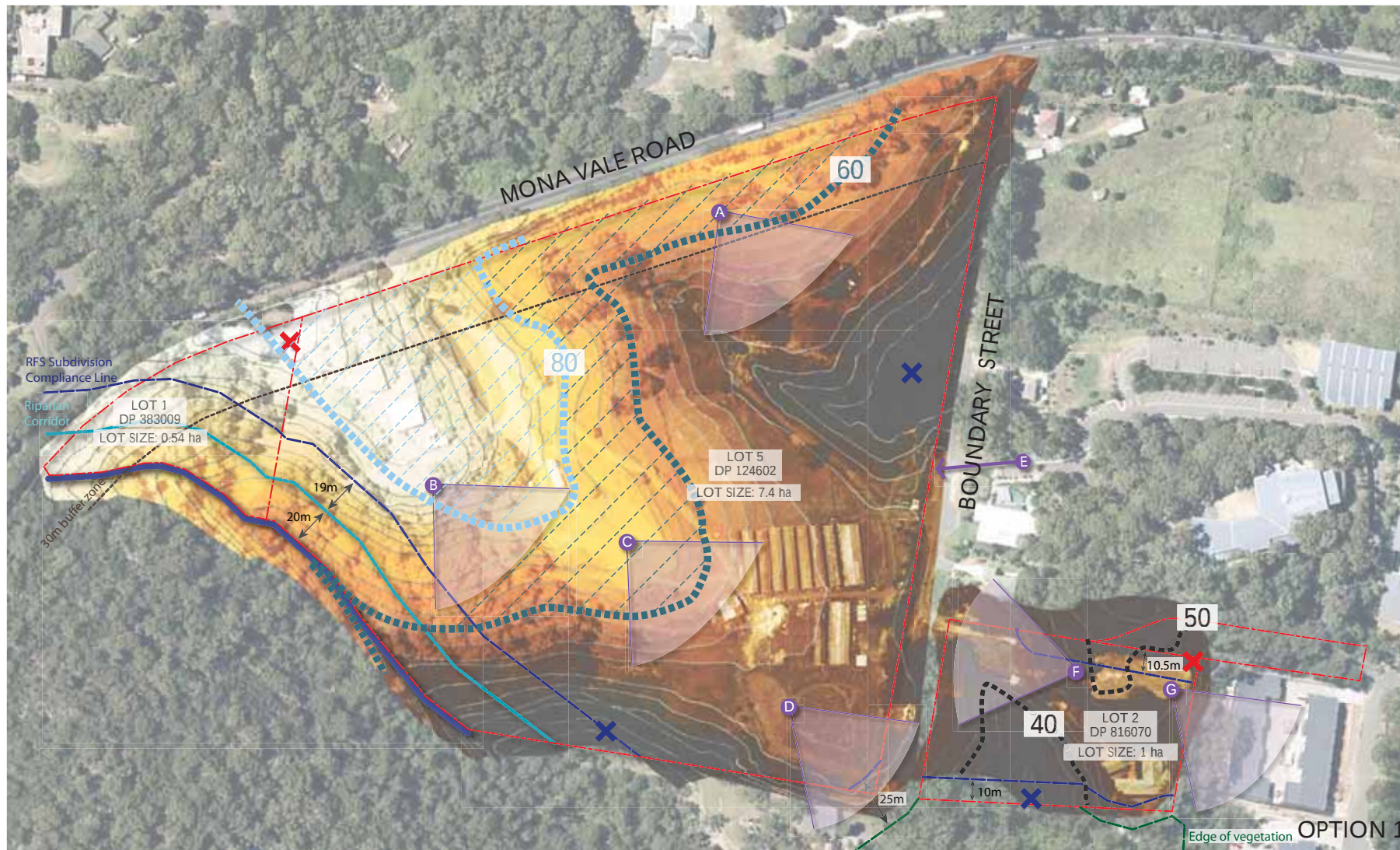
0 15 30 45 60 75m



SLOPE ANALYSIS



VISIBILITY ANALYSIS



0 15 30 45 60 75m





View A



View B



View C



View D



View at south of site looking south



View E



View at north of site looking south



View F



View at middle of site looking east and south east



View G

CHAPTER 2 - ISSUES AND DESIGN STRATEGIES



ISSUES SUMMARY

ACCESS

Site access for Lots 2 and 5 is restricted to Boundary Street. Future access to No.120-122 Mona Vale Road directly from Mona Vale Road will be restricted due to high volume traffic, vehicular speeds and visibility issues.

BUSHFIRE

The area along the western boundary of No.120-122 Mona Vale Road is classified under bushfire threat and is therefore subjected to a 19m RFS Subdivision Compliance Line from the riparian corridor's edge. No.4 Boundary Street will need to be managed in its entirety as an Asset Protection Zone.

TOPOGRAPHY

The landform of No.120-122 Mona Vale Road slopes from the northwest to the southern and eastern parts of the site, where the steepest part occurs along the southern boundary. There are 3 relatively flat landforms across the site that step upwards from the southeast to the northwest of the site. The highest point of No.4 Boundary Street is located at the north-eastern corner with the topography sloping sharply toward the southwestern corner.

WATERCOURSE

A 20m riparian zone along the western boundary generally follows the Narrabeen Creek along the boundary of No.120-122 Mona Vale Road. There is an existing natural drainage feature that runs generally across this land parcel toward the north-eastern boundary. The topography of No. 4 Boundary Street suggest that a similar drainage feature is also located on that site towards the south-western boundary.

VEGETATION

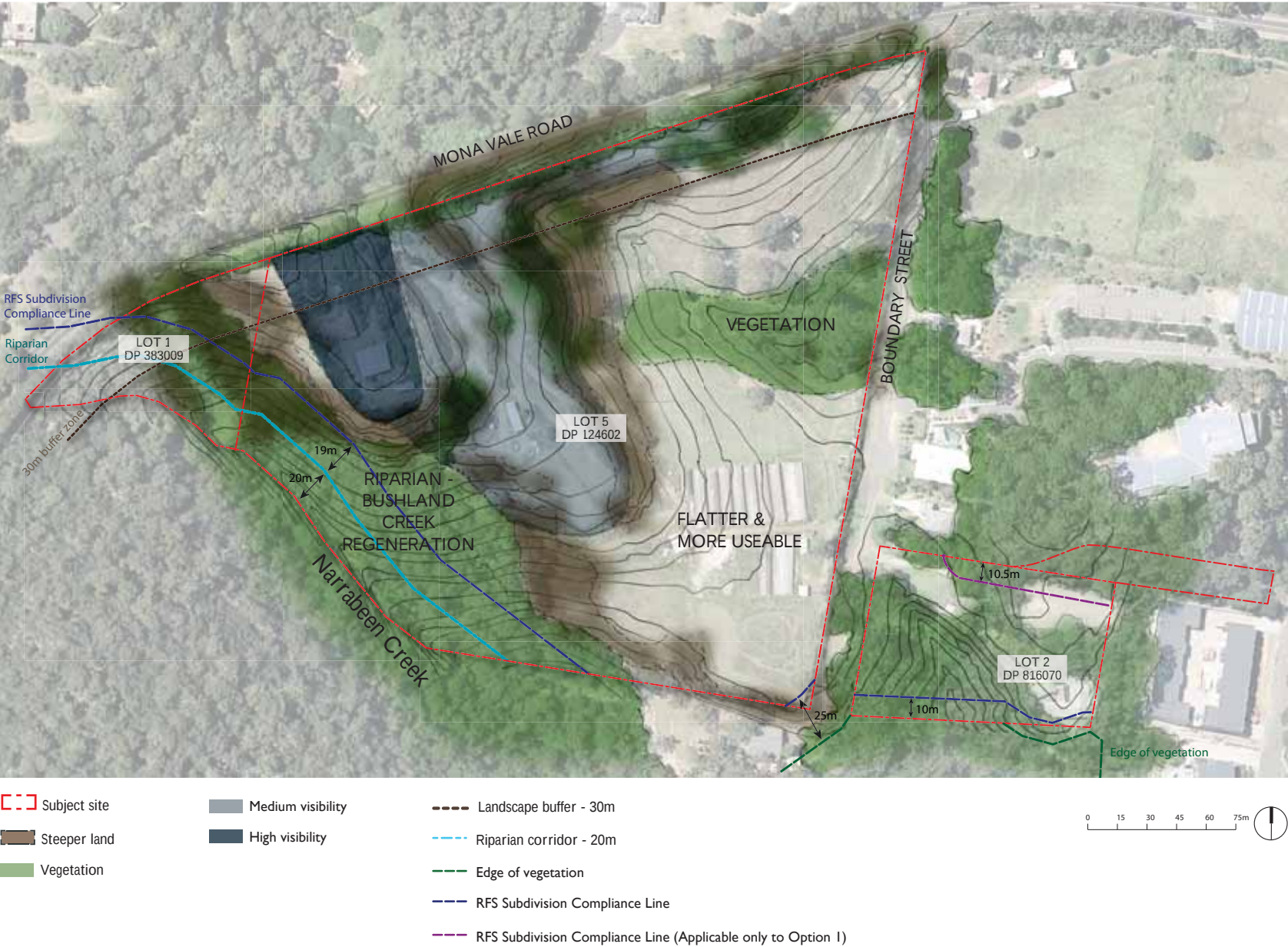
The western boundary of No.120-122 Mona Vale Road is heavily vegetated with existing bushland/ open forest. Majority of this land parcel is scattered with vegetation (including disturbed woodland and scrubland) except to the south eastern part. No.4 Boundary Street contains approx. 3,940sqm of open bushland and approximately 290sqm, which potentially can be modified and result in the potential removal of individual trees, modification of drainage lines for lots 1, 5 and 2 as well as the overall loss of rural land.

VIEWS

The area of No. 120-122 Mona Vale Road above RL+60m to RL+80m has limited visibility. Land above RL+80m has high visibility and must be carefully treated to avoid visual impacts to the surrounding and long distance context. The portion of the site on No. 4 Boundary Street is generally between +RL 50 and 30 which have little visibility from the Valley floor.

ACOUSTIC

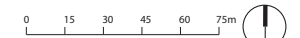
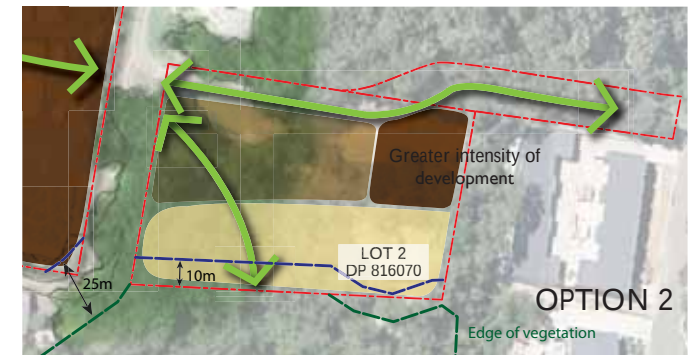
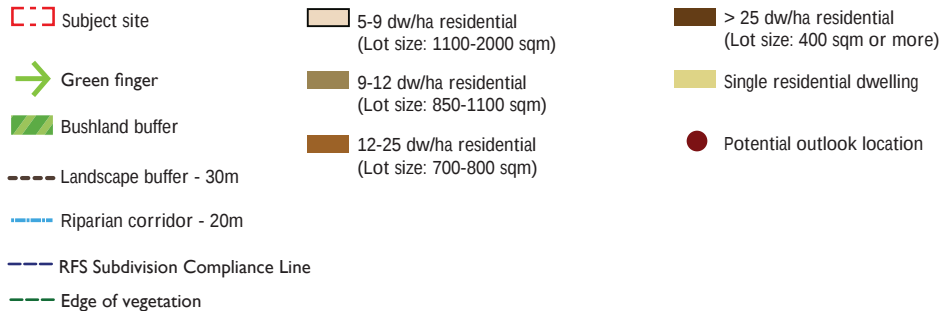
Potential traffic noise from the heavily used Mona Vale Road to the north of the site.



DESIGN STRATEGIES

Design Strategies for the site include:

- Introduce a variety of development densities to create social diversity and provide affordability and housing choice
- Provide low density development towards the upper end of the site to minimize visual impacts and the maintain vegetated character
- Take advantage of low visibility to increase development density to the lower parts of the site
- Introduce public domain benefits such as viewing points, pocket parks, playgrounds and walking trails
- Provide multiple access points into the site from Boundary Street and maintain access for larger lots only from Mona Vale Road
- Maximise connectivity and visual permeability (green fingers) across the site to link the existing bushlands and habitat areas within and across all existing lots
- Provide bushland screening to Mona Vale Road and acknowledge bushland corridor
- Take advantage of the slope direction to capture distant ocean and district views for public and private domain
- Maximise preservation of bushland to the south western parts of lots 1, 5 and 2
- Retain and re-vegetate the natural drainage feature as a landscape feature at the northeaster portion of Lot 5 and at the southwestern corner of Lot 2
- Retain existing trees on site where possible within verges and rear gardens
- Explore the potential for water management measures that include bio-swales and water quality basins as features to add amenity and landscape character.



DENSITY STRATEGY

The density strategy allows a combination of green fingers across the site that straddle across Boundary Street from Lot 5 to Lot 2 at No. 4 Boundary Street with the majority of the densities being concentrated toward the centre and eastern boundaries of the 120-122 Mona Vale Road and along the northern or eastern boundaries of No. 4 Boundary Street depending on the chosen access strategy. The majority of Lots 1 and 5 are surrounded by bush land buffers along Mona Vale Road and the riparian corridor along the Narrabeen Creek, which also requires the RFS Subdivision Compliance Zone to be located approximately 19m parallel to the riparian corridor. The suggested density strategy, proposes a network of interconnected green green boulevards and a pedestrian east-west green link across the larger site. A secondary green finger along the central access road for Lot 5 is in direct alignment with the access road for Lot 2 across Boundary Street to the east and allows for the continuation of the green finger and to potentially connect to Jubilee Avenue. The system of green fingers helps to organize the distribution of densities across the site. Larger single dwelling lots (1000-2000sqm and over 2000sqm lots) are generally located toward the northern and southern boundaries of Lot 5 while lot sizes ranging approximately between 700-800sqm cover approximately 1ha at the centre of that lot. Smaller lots ranging between 400 and 650sqm will be located toward the eastern boundary of Lot 5 comprising approximately 1.35ha and along the northern or eastern boundaries of Lot 2 at No. 4 Boundary Street depending on the chosen access option. Depending on the chosen access option the area comprising 400-650sqm lots for Lot 2 vary between 0.35 ha in Option 1 and 0.12ha in Option 2.

The most visible portion of No.120-122 Mona Vale Road along the northwestern corner is envisioned to have very large lots (over 2000sqm) with single houses to maintain the current character and minimize any potential visual impacts from the lower areas of the valley floor. Larger lots are also proposed toward the southwestern corner of Lot 2 at No 4 Boundary Street in order to preserve the majority of the existing bush land and the existing structures on that part of the site. This approach balances a sensible yield with the proposed bush fire management, access and site specific landscape strategies including large vegetated areas along the northern and southern boundaries for the majority of the lots.

Lot 3, 4 & 5 DP124602 & Lot 1 DP383009	
Types of lot size	Approx. area (ha)
400-650 sqm	1.35
700-800 sqm	1.00
1000-2000 sqm	1.28
>2000 sqm	0.20
TOTAL	3.83

- Subject site
- RFS Subdivision Compliance Line
- Landscape buffer - 30m
- Riparian corridor - 20m
- Edge of vegetation

Option 1 (Lot 2 DP816070)	
Types of lot size	Approx. area (ha)
400-650 sqm	0.35
>2000 sqm	0.50
TOTAL	0.85

Option 2 (Lot 2 DP816070)	
Types of lot size	Approx. area (ha)
400-650 sqm	0.12
1000-2000 sqm	0.28
>2000 sqm	0.41
TOTAL	0.71

- Green bushland / park / creek
- Single dwelling Lot size: 700 - 800 sqm
- Single dwelling Lot size: 400 - 650 sqm
- Single dwelling Lot size: 1000 - 2000 sqm
- Single dwelling Lot size: > 2000 sqm



CHAPTER 3 - DESIGN PRINCIPLES AND OPTIONS



MASTER PLAN AND DESIGN PRINCIPLES

The site's opportunities and constraints and the density strategy discussed in the previous sections led to the formulation of objectives and design principles in order to guide the proposed master plan for the subject site. The proposed objectives and design principles are discussed in the following sections of this report.

OBJECTIVES

The aims and objectives for the subject site have evolved from consideration of the existing context, the desired future character for residential uses within the Warriewood locality and the DCP's aim for future development to 'maintain a height limit below the tree canopy and minimise bulk and scale'. The objective of the size and location of proposed lots is to reduce any visual impacts from surrounding developments and from lower areas along the coast line as well as providing a choice of housing and affordability.

The location of proposed lots and streets aims to create public and private domain views by responding to the existing slope and geotechnical constraints. The master plan aims to improve connectivity and way-finding as well as enhancing the landscape character through the use of 'green links', tree-lined streetscapes and the retention of major vegetated features and clusters of trees as landscape markers throughout the site.

The master plan aims to provide a comprehensive water management strategy that incorporates bio-swales detention ponds and rain gardens throughout as part of the visual amenity for the sites. The master plan aims to mitigate bushfire and slope constraints through the careful location of lots, observance of RFS Compliance Lines and through the construction techniques themselves. In general, the master plan objectives seek to create a high amenity subdivision that enhances the local character and maximises the site's attributes with regards to views, the existing vegetated setting as well as the topography. In summary, the objectives of the master plan aim to:

- Provide a choice of housing and affordability
- Enhance the desired future residential character of Warriewood
- Minimise bulk and scale
- Reduce visual impacts to surrounding developments
- Create public and private domain views
- Improve connectivity and way-finding
- Provide a choice of pedestrian and vehicular access networks
- Enhance the landscape character throughout the site
- Provide amenity and recreational opportunities to future residents
- Provide a comprehensive water management strategy
- Preserve the existing bio-diversity habitats
- Mitigate bushfire and slope constraints

Based on the aims and objectives for the site, the key design principles for the master plan include the following:

- Create a range of housing typologies (1-2 storey houses) to respond and work well with the existing topography, vegetated setting and future desire character for the locality.
- Provide a range of densities including low to medium density lots along the lower, less visible areas of the site and larger lots (lesser density) along Mona Vale Road and the most visible upper sections of the site.
- Locate medium density lots toward the centre of the site to minimize visual impacts to surrounding developments and from the coast line.
- Provide a choice of access strategies that will connect Boundary Street to either Mona Vale Road or Jubilee Avenue.
- Locate and orient lots and streets to respond to the existing topography and to create public and private domain views toward the ocean front.
- Create 'green links' to the bush area across the site and enhance the site's landscape character through a careful selection of trees, under-storey planting and bio-swales.
- Add character and legibility along the primary access boulevard/street and courts with distinct tree species to add color and character during certain months of the year.
- Provide a comprehensive water management strategy for the site that works with the existing slope and contours and that adds to the overall landscape character of the site.
- Create a public domain outlook to district views as a termination point or as part of the pedestrian link and/or street networks.
- Provide recreational amenities along the bushland in the form of boardwalks, trails, playgrounds and other passive recreational activities.
- Suggest adequate building typologies that can adapt to the slope and bush land character.

OPTIONS

Based on the design principles formulated for the site and discussed in the previous section, a preferred option was created with two distinct access strategies. These access strategies, which are discussed in detail in the following chapter, are not presented in any order of preference or importance.

Depending on the chosen access strategy, the layout for Lot 2 at No. 4 Boundary Street varies between 8 (Option 1) or 6 proposed lots (Option 2). Both options attempt to create a balance between a viable development and a design guided by place-based design principles including that provide high levels of amenity and value add to the community.

The proposed Options 1 and 2, are based on two distinct access strategies. Both allow access to a small number of large lots (4) through a private road directly off Mona Vale Road, but provide a choice of two potential vehicular access strategies for the rest of the site. A second access strategy shared by both options is the internal vehicular access to the larger portion of the site west of Boundary Street (Lot 5). This is achieved through an efficient road system consisting of a north-south road access intersecting an east to northwest road that aligns towards its eastern end to the access point on lot 2 (DP 816070). Both of these roads will have a distinct landscape character to help way-finding and create a 'sense of place'. Access from the east to northwest road to the lots to the south is achieved through access courts in order to provide a street address to each lot and to enhance their sense of 'community' through shared entry points with central landscaped gardens.

Both Option 1 and 2 will provide pole house typologies to work with the existing slopes where the general location and lot sizes locates larger lots toward the upper north-western corner of the site. This is intended to work in combination with the landscape in order to maintain the existing vegetated character along the most visible parts of the site. While both options are similar in terms of internal amenity, landscape character and general distribution of densities on the larger portion of the site (Lot 5), their basic difference lays in the proposed overall vehicular access strategy. Option 1 and 2 are diverse in the way Boundary St. links to the surrounding street network. Because Option 2 proposes a new road link through Lot 2 also (No. 4 Boundary St), this affects the access arrangement, lot configuration and overall yield for that lot only.

Option 1 proposes a left turn from Mona Vale Road into Boundary Street and a left out only from that road. A left in and left out along Mona Vale Road from Boundary Street eliminates the need for a new road connecting to Jubilee Avenue through Lot 2, which is effectively Option 2. Option 2 proposes the construction of a new road through Lot 2 (DP 816070) and through part of Lot 10 DP 5055 (10 Jubilee Avenue). The lot distribution for Option 1 includes 3 large hill lots over 2000sqm, 21 lots (1000 -2000sqm) and 5 lots (700-800sqm) as well as 23 smaller lots ranging between 400 and 650sqm located on the existing Lot 5 east of Boundary St. This option proposes 1 large lot (>2000sqm) and 7 smaller lots (400-650sqm) on Lot 2. The total for Option 1 is 79 lots between Lot 5 and Lot 2.

Option 2 includes a similar arrangement for Lot 5 (DP 124602) with 3 large hill lots over 2000sqm, 21 lots (1000 -2000sqm) and 5 lots (700-800sqm) as well as 23 smaller lots ranging between 400 and 650sqm. Option 2 proposes 1 large lot (>2000sqm), 2 lots ranging between 1000-2000sqm and 3 smaller lots (400-650sqm) on Lot 2 (DP816070). The total for Option 2 is 77 lots between Lot 5 and Lot 2. Based on the desire future character of the area, both options present suitable lot mix and house typologies to meet the existing market demand and life style choices prevalent within this locality. Both options are discussed in further detail as part of the next chapter of this report.



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CHAPTER 4 - MASTER PLAN



MASTER PLAN RESPONSE

Consideration and weighing of the site constraints, design strategies and principles has informed the preferred master plan. The existing topography, visual impacts, vegetation, hazard zones and natural site attributes have been taken into account in formulating the master plan for the subject site.

This section of the report provides an overview of the final master plan and its response to the topography, bush fire requirements and the quality of the landscape character including special places and open spaces. This section will also discuss the master plan's response with regards to the proposed movement and access network, water management as well as the suggested lot and housing typology.

SUITABILITY TO LOCALITY

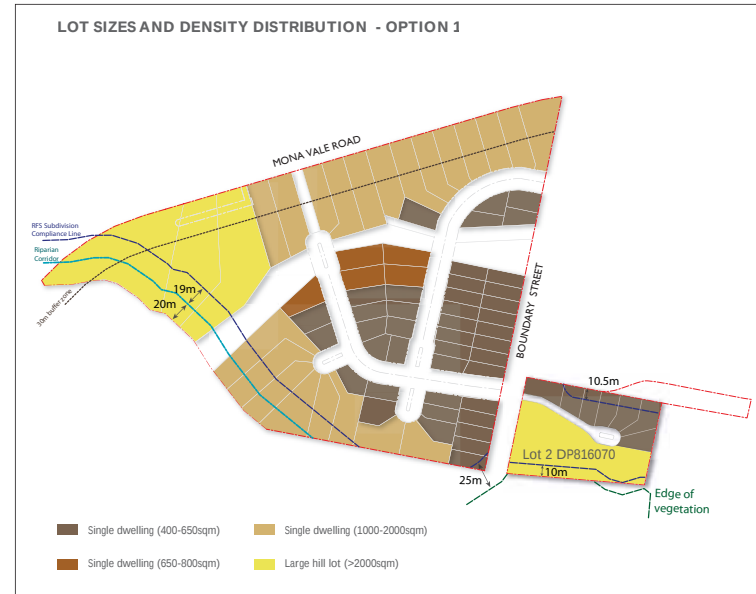
The location of the site and its proximity to employment areas in the Mona Vale Town Centre present a range of opportunities for the proposed development on this site and for the community in general. The proposal provides a range of housing choices in close proximity to the Town Centre that adheres to Council's desire future character with a predominant residential character of 1-2 storey single residential dwellings within a landscaped setting.

LOT TYPOLOGY

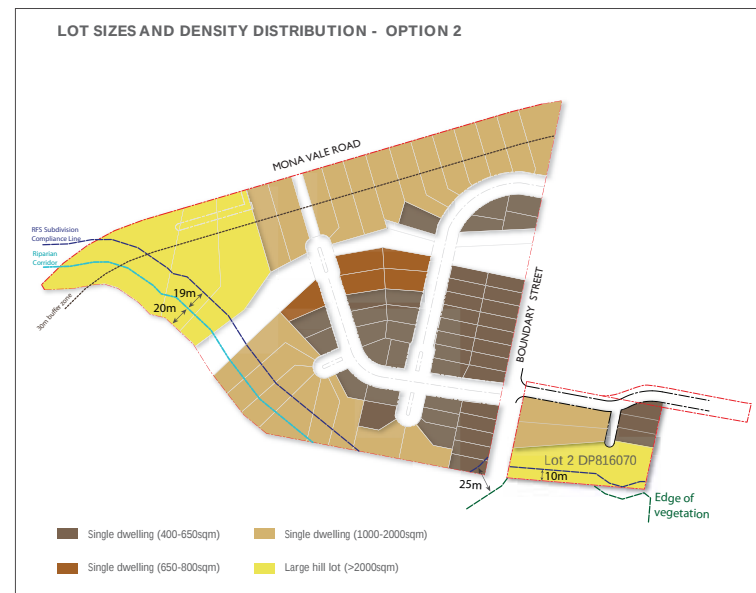
The proposed master plan provides diversity in housing through a range of lot sizes and configurations. This will facilitate a range of dwelling types which offer lifestyle and affordability choices to suit the community and allow residents to age in place. Both Option 1 and 2 include a total of 4 large lots over 2000sqm of which 3 are located in the upper section of Lot 5 with great distance views available to the coastline. The proposed plan also includes a large number of lots ranging between 1000-2000sqm; 21 in Option 1 and 23 for Option 2 depending on the chosen access strategy. Both Options include a total of 7 lots ranging between 700-800sqm. The larger concentration of lots corresponds to smaller size lots ranging between 400 and 650sqm for a total of 49 lots in Option 1 and 45 in Option 2. This corresponds approximately to 62 and 58 percent of the total yield accordingly. The distribution of densities on site is designed to minimize the visual impact to the surroundings, retain the existing vegetated character and to maximise affordability choices. This offers a suitable lot mix to meet the existing market demand and life style choices prevalent within the locality.

The master plan proposes 'pole house' typologies to work with the site's existing slopes. The 'pole house' typology will be used to respond to slopes greater than 18 degrees (32%) in order to minimize the need for cut and fill, which is a better response to the context. This moderates the effects of building heights, bulk and scale as well as promoting the retention of the existing topography.

OPTION 1



OPTION 2



MASTER PLAN RESPONSE

HOUSING AND BUILT FORM CHARACTER

Due to the site's topography and varying gradients, adequate housing typology in conjunction with different cut and fill strategies are necessary in accordance to *Tweed Development Control Plan Section A1 Discussion Paper 2 - Sloping Sites*, in order to manage the impact on the natural environment including drainage, soils' stability, structural integrity, privacy of adjoining neighbours and the visual impact on the streetscape of substantially changing landforms.

With reference to the *Tweed Development Control Plan Section A1 Discussion Paper 2 - Sloping Sites*, the proposed master plan options seek to find a balance that:

- ensures housing selection and design that responds to the topography of the area;
- discourages re-contouring of land post subdivision as the preferred method of construction;
- promotes the retention of the existing topography resulting in the houses retaining a consistent relationship with the natural topography;
- provides for appropriate cut and fill to allow a range of housing choice;
- moderates the effects of building height, bulk and mass on sloping land;
- reduces the instance of drainage problems and retaining wall subsidence;
- provides guidance for sites that may have a slope greater than 10 degrees (approximately 18%);
- considers the wider community impacts such as streetscape, privacy, overshadowing and access to breezes;
- facilitates home owner requirements, such as good housing design, usable outdoor spaces; and
- does not unduly impact on housing affordability (adapted from the Tweed Shire Council)

The diagram to the right describes housing typologies that are suitable for each category of site gradient to achieve the better built form outcomes.

RESPONSE TO TOPOGRAPHY

The proposal responds well to the existing topography with the placement of roads and proposed lots. The proposal has located larger lots (1000 - 2000sqm) on steeper slopes to address the topography and smaller lots (400 - 650sqm) on flatter land to maximise the lot yield. The lots are oriented to respond to the topography and create views towards the ocean front. The proposed streets are generally designed to run along contours resulting in gradually sloping streets which enable views from and along the length of the street. The proposed street alignment will encourage stepped buildings along the streets, creating a staggered roof line yielding attractive results in terms of availability of views.

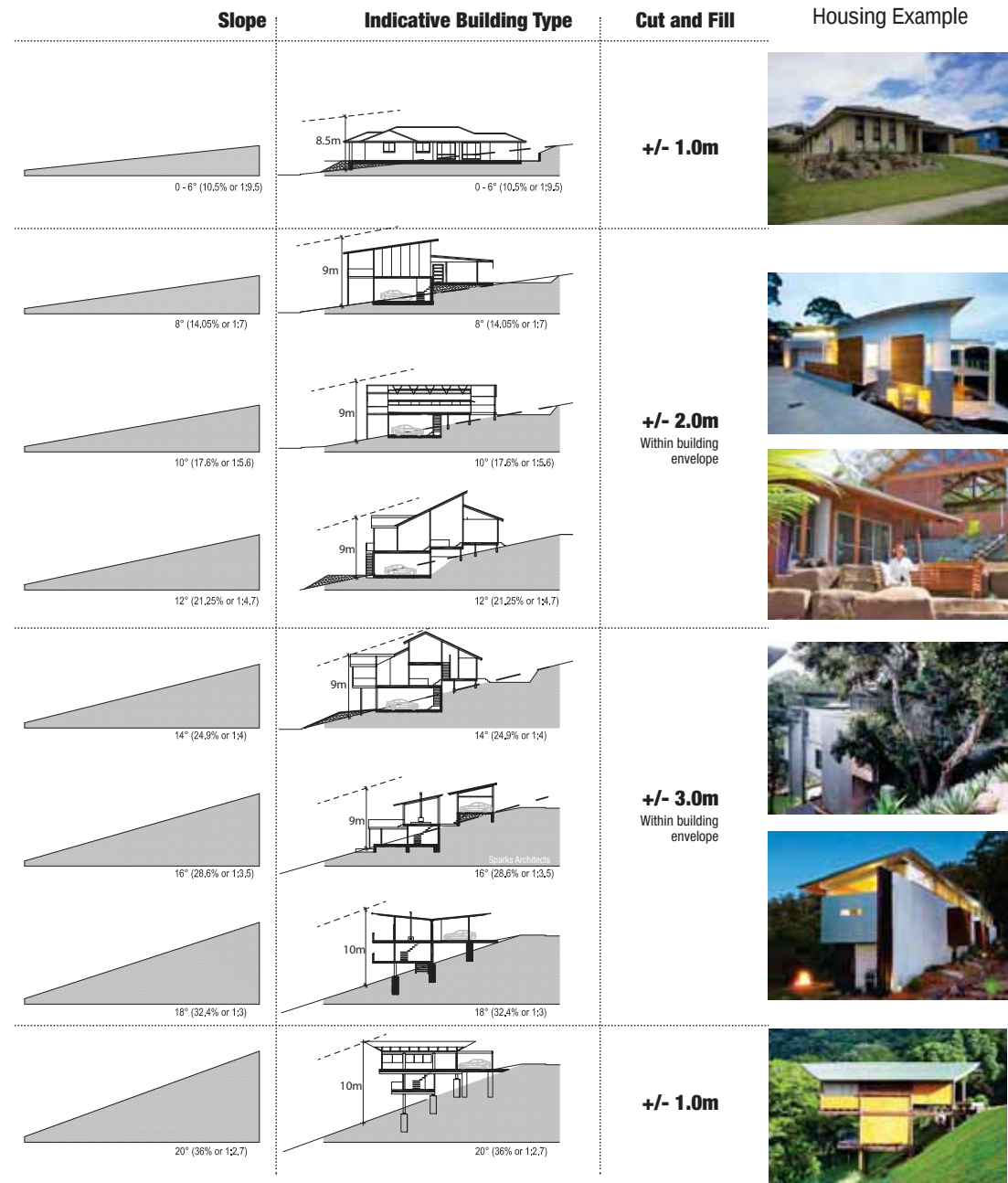


Diagram - Relationship between degree of slope and appropriate structure types (Courtesy Tweed Shire Council)

MASTER PLAN RESPONSE

URBAN STRUCTURE, ACCESS AND MOVEMENT NETWORK

The proposed master plan works with the existing access constraints along Mona Vale Road and provides a choice of access strategies in order to link the proposed development to the existing surrounding road network. Please note that the options are not presented in any order of preference or importance and are both presented and discussed below for Council's consideration.

Option 1 proposes a left in and left out only from Mona Vale Road into Boundary Street. This will require the reinstatement of the former available access on that intersection. If RMS agrees to the access from Mona Vale Road, vehicular access via the R.O.W. on Jubilee Lane will be disallowed.

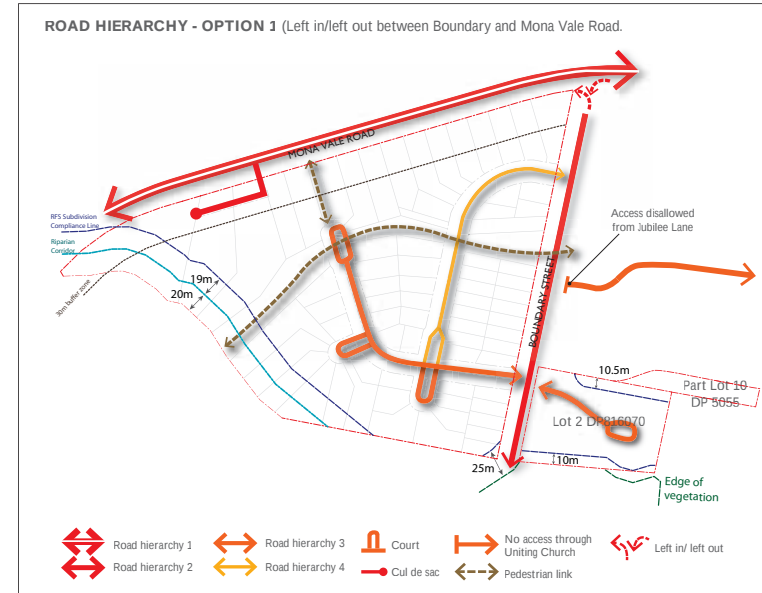
Option 2 proposes to connect to the existing street grid through a proposed new road through No.4 Boundary Street (Lot 2 DP816070) and part of Lot 10 (DP 5055) known as 10 Jubilee Avenue. The new road will link to Jubilee Avenue and the Mona Vale Town Centre. The new road also provides access to No.4 Boundary Street as part of Option 2; otherwise access to this parcel is achieved by a dedicated access road and landscaped court in Option 1. In the event that Council agrees to the alternative route connecting Boundary Street with Jubilee Avenue, access via the R.O.W. on Jubilee Lane will be disallowed.

Only a small number of large lots (4) on No.120-122 Mona Vale Road will be accessed through a private road directly off Mona Vale Road. A traffic study undertaken by TAR Technologies concludes that the additional traffic generated by the rezoning of the site will have a negligible impact on the surrounding development and road network and can easily be accommodated within the Warriewood Valley road network.

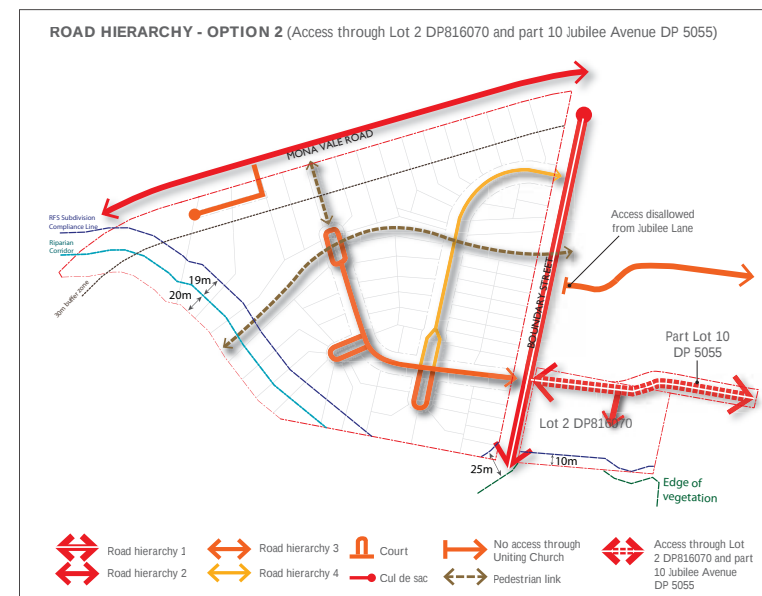
Internal vehicular access for the majority of Lot 5 west of Boundary Street is achieved through an efficient road system consisting of a north-south road access intersecting an east to northwest road. Both of these internal roads will have a distinct landscape character to help way-finding and create a 'sense of place'. Water management features in the form of bio-swales are incorporated to the overall street design, which will form part of the landscape character of each of the proposed internal streets. Access to the lots towards the southern boundary of Lot 5 is achieved through landscaped courts, which provide a street address to each lot.

Pedestrian connectivity is achieved in the form of a 'green finger' running east-west and through a landscaped trail/link, which gives access to pedestrians to the bus stop in Mona Vale Road and to other walking trails beyond the site. Both of these features form part of the site's amenity as meandering walk/trails across the site. In summary, the proposal presents a flexible access and movement network with two choices for the overall access strategy to the local street network for Council's consideration and with a robust internal vehicular and pedestrian network that includes active recreational amenities and high quality landscape.

OPTION 1



OPTION 2



MASTER PLAN RESPONSE

ON SITE DETENTION AND WATER QUALITY

The proposal has incorporated a series of on-site detention (OSD) and water quality ponds to ensure that the rezoning of the land does not cause downstream flooding both in the local drainage system downstream and along the creek. The proposed incorporates Water Sensitive Urban Design (WSUD) elements such as bio-retention swale system along one side of the verge and in the central median of the landscaped courts. The bio-retention system will maximise the visual and recreational amenity of the development in general. It is important to note that the proposed volume to be set aside for OSD and Water Quality is more than what is required under the Pittwater 21 DCP and that more detailed model and calculations will be undertaken as part of subsequent DA stages.

RESPECT FOR THE ENVIRONMENT AND LANDSCAPE CHARACTER

The proposed master plan protects and enhances the existing flora and fauna on the site by incorporating a vegetated buffer zone along Mona Vale Road and the creation of habitat links throughout the site to connect significant pockets of trees and natural features existing within the site. The master plan also incorporates the riparian corridor and the RFS Subdivision Compliance Line along the Narrabeen Creek as part of the backdrop to the master plan along the southern boundary. The overall intent is for the landscape character to dominate the proposed built form environment. The general location and size of the lots in combination with the landscape are intended to screen the hill houses and maintain the existing vegetated character along the most visible parts of the site. The proposed landscape character including the streetscape character, open space corridor and private domain & open space as well as bio-retention, pavements, street furniture and plant material are discussed further as part of the Landscape Master Plan Section later in this report.

RESPONSE TO BUSH FIRE AND GEOTECHNICAL HAZARDS

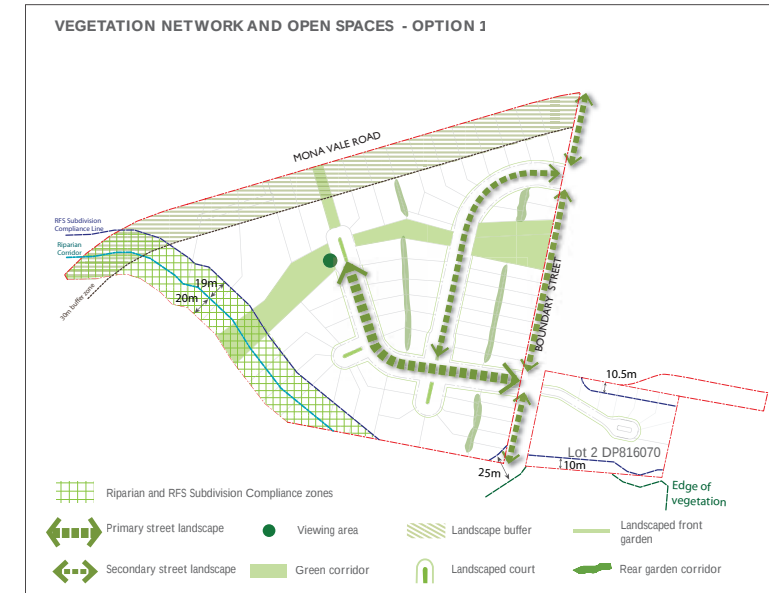
The proposed master plan Options provide a 19m RFS Subdivision Compliance Line parallel to the riparian zone for the Narrabeen Creek along the south-western edge of Lot 5 in accordance with the provisions of Planning for Bush Fire Protection 2006 (PBP2006; Rural Fire Service). The Bush Fire Assessment undertaken by Advanced Bushfire Performance Solutions concludes that the proposal meets the performance criteria in PBP2006 by providing adequate setbacks to the surrounding bushland. The proposed roads and services infrastructure supports compliance with the provisions with the Rural Fire Services (RFS) guidelines.

According to the report by Advanced Bushfire Performance Solutions, the assessment for Lot 2 has determined a setback to the north of 10m and a setback to the south of 10m. This is based on management of the entire lot to APZ standards.

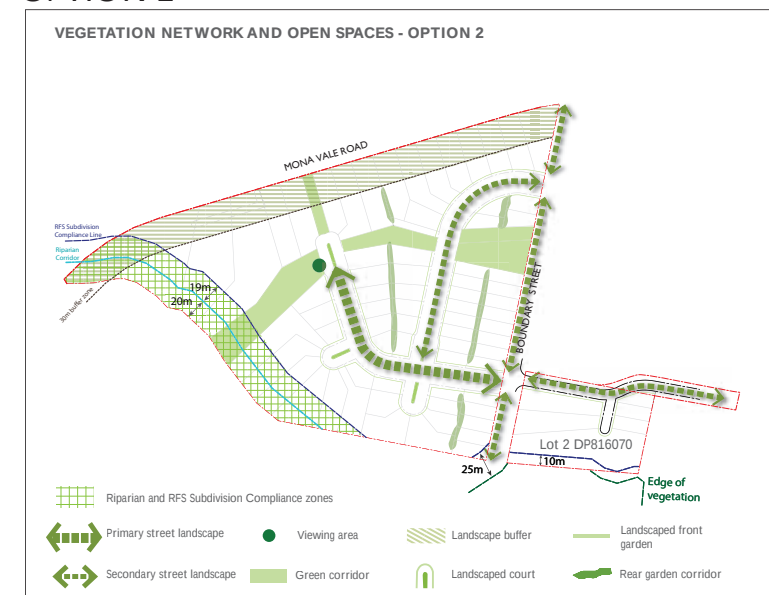
The preliminary geotechnical assessment undertaken by Aargus Pty Ltd concludes that although the western half of No.120-122 Mona Vale Road falls into the Pittwater Council Geotechnical Risk Map (H1) as high risk, the proposed lots with the high risk area are still capable of being built upon as long as all future development follows the Geotechnical Risk management Policy for Pittwater - 2009 and Australian Geomechanics Society (AGS) 2007 guidelines. The assessment recommends the following:

- A geotechnical assessment for all lots and roads within the high risk area before construction
- All completed works to be certified by a suitably qualified engineer
- All developed lots in high risk area to undertake a pre and post risk assessment as per design requirements (AGS 2007)

OPTION 1



OPTION 2



LANDSCAPE MASTER PLAN

As part of the overall Master Plan for the subject site Group GSA has prepared an indicative Landscape Master Plan for the site. The following is a description of their landscape vision for the site.

Through the residential layout, residents will live in a vibrant community, with an integrated landscape of open space, leafy streetscapes and gardens – set against a vegetated backdrop - where homes will be subservient to the landscape. The overall intent is for the landscape character to dominate the proposed built form environment.

The landscape will be a major defining characteristic of the residential development, with a continuous canopy of trees along the local streets combined with vegetated swales to create a layered effect.

This proposal serves to provide a high quality, environmentally responsible residential development, whilst enabling the improvement of the local catchment through implementation of best practice in Water Sensitive Urban Design (WSUD), with verges widened within the street to include the water sensitive urban design requirements.

The landscape treatments will not be unique or separate from the surrounding area; nor will it be a facsimile of the existing native vegetation community. The proposed landscape character is a balance between the adjacent woodland character combined with the demands of a new low-key, visually unobtrusive residential development.

The proposed master plan seeks to further protect and enhance the existing flora and fauna on the site by incorporating a vegetated buffer zone along Mona Vale Road and the creation of habitat links throughout the site. The master plan also incorporates the riparian corridor and the RFS Subdivision Compliance Line running parallel to the riparian corridor of Narrabeen Creek. This will form part of the backdrop to the master plan along the south-eastern boundary of Lot 5.

The landscaping scheme will aim to protect, enhance and expand the core vegetation community, through the planting of endemic species within the open space corridor and as part of the treatment of bio-swales and detention basins. Plant selection will take into consideration the specific climatic and soil conditions of the site, as well as solar access and protection from prevailing winds and be predominantly based on endemic plant lists. The use of endemic plants will assist in reducing water and maintenance requirements as well as enhancing biodiversity and integration with the local surroundings, views and vistas.

In addition, the new community will support ongoing management of the site, which includes removal of pest plants and reintroduction of indigenous plants.

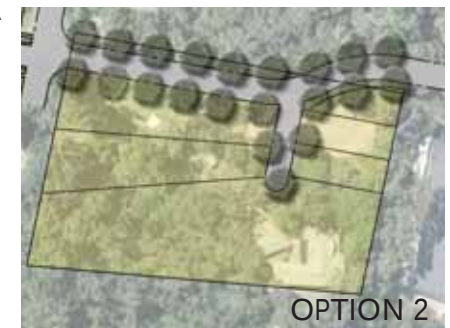


OPTION 1

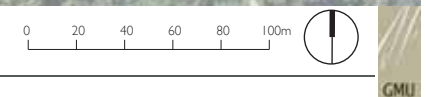
Courtesy: Group GSA

LEGEND

- A. Open space connection, incorporating stormwater management, walking trails and seating
- B. Bio-swales an integral part of the streetscape
- C. Buffer to Mona Vale Road
- D. Existing bushland edge
- E. Avenue of colourful trees combined with threshold at main entry
- F. Pedestrian link to Mona Vale Road
- G. Paved mews incorporating central median / bio-swales
- H. Nodal point at intersection, incorporating central median / bio-swales
- I. Canopy trees along internal boundary
- J. Extension of front gardens into streetscape



OPTION 2



LANDSCAPE MASTER PLAN

STREETSCAPES

The proposed residential development for Lot 5 is served by a simple framework of two intersecting roads, which both provide access to Boundary Street. Lot 2 at No. 4 Boundary Street can be accessed in two different ways depending on the overall access strategy (Option 1 or 2) chosen by Council.

In both Options, the generous verges will ensure a green theme, providing opportunity for soft engineering and extensive streetscape planting whilst providing footpaths for pedestrian access. The green streets are supplemented by the landscape and pedestrian links to Mona Vale Road and through the open space corridor. Verges will be wide enough (approx. 20m) to include the water sensitive urban design requirements. These will appear as fully landscaped areas and will provide additional visual amenity for the residents.

Regular footpaths are to be provided on both sides of the streets to create an accessible, permeable and safe community. The streetscape treatment incorporates the following concepts:

- Avenue of taller canopy trees, combined with low colourful planting is proposed to the primary entry and adjacent intersection at the southern portion of the site reflecting the importance of the entry.
- An alternative treatment to the entry road, such as granite setts and signage will reinforce the entry into the residential development.
- Alternative trees are proposed to local access roads and for the mews or landscaped courts to establish an appropriate streetscape scale throughout the development, with a preference for use of trees with clear stem trunks combined with turf and low shrubs for greater visibility and thereby a safer environment.

The road reserve is generally 20 metres incorporating the following:

- Carriageway: 8m two way
- Verges: 4.0m to one side, incorporating 1.5m footpath to one side
- Verges: 8.0m to one side, incorporating 1.5m footpath and swale (as required)
- Street trees: Planted in verge

At the intersection and mews the road reserve increases to 22 metres incorporating the following:

- Carriageway: Two five metre one - way carriageway separated by a central 4.0m wide planted median / bio-swale
- Verges: 4.0m to both sides, incorporating 1.5m footpath to both sides
- Street trees: Planted in verge and median

OPEN SPACE CORRIDOR

Within the development there is an open space corridor strategically located running east-west across the site. The open space corridor will provide a green connection between the internal roads as well as a connection between Boundary Street and the adjacent bushland along the western boundary, and to the pedestrian link to Mona Vale Road. Whilst the open space corridor accommodates the required water management requirements, it also incorporates walking trail and seating areas for the local residents.

BIO-RETENTION

The master plan nominates a series of bio-swales along the local roads, as part of the stormwater and water management strategies. The proposed bio-swales will be formed and planted to read as an integral part of the overall landscape with gentle slopes and a combination of grasses and native tree planting providing both visual amenity as well as adequate treatment of the run-off. Where bio-swales are proposed in front of lots, driveways will be strategically combined to minimise crossings and disruption to the bio-swales. A range of stormwater quality improvement devices will also be incorporated into the development as part of individual lots and across Lot 5 and Lot 2.



Section A-A

Courtesy: Group GSA



Section B-B

Courtesy: Group GSA



Section C-C

Courtesy: Group GSA



LANDSCAPE MASTER PLAN

PAVEMENTS

Ground surface treatments and pavements can be a defining landscape element, providing character and unity. A simple palette of paving materials is proposed throughout the site, with a limited selection of materials being used for each different pavement type.

In general, roads will be constructed with asphalt surfaces, except at entry roads, thresholds and courts (mews) where concrete paving (coloured and/ or unit pavers) will be introduced for visual contrast and traffic calming. Footpaths and driveways will be generally in-situ with brush or coloured finish.

STREET FURNITURE

The quality of site furniture will convey a strong image about the character of the development. A suite or family of elements is proposed across the development. The design or selection of individual elements will complement not only themselves, but also the visual context they are located in.

The appearance of street furniture elements, their style, structural soundness and the degree they can withstand vandalism (man-made or by natural elements) will be deciding factors in the final selection. The final furniture selection will also comply with Council standards.

PRIVATE DOMAIN OPEN SPACE

The vision for the private domain is that it relates to its context whilst at the same time developing the individual and garden landscape oriented character at the residential level. This aim for the private domain open space is to enhance the visual interest, sense of place and identity of the proposal as well as heightening residential pride in the quality of the private domain environment.

Key objectives for the private domain landscape include:

- Maximisation of existing tree retention: The retention of existing trees which have long term viability through residential development areas will provide an immediate level of character and landscape amenity to these areas, given the time periods for tree planting to mature and provide maximum visual, shade and scale benefits.
- Reinforcement of native canopy: In addition to the maximisation of existing tree retention and the reinforcement of these specimens / stands where they occur, it is desirable that scattered native canopy is extended through the private domain in appropriate locations (e.g. to property boundaries and front boundaries, integrating consideration of overshadowing / stability issues).
- The private realm within the development should reflect and enhance the character of the site and surrounds. Achieving a continued landscape amenity within the private realm requires an appreciation of the composition of the development and architectural elements.
- Front yards or 'town gardens' of the private lots will provide the opportunity for residents to express their own style and contribute to the streetscape without changing the dominant woodland character of the area. Planting will be encouraged to provide seasonal flowering habitats, pleasant scents of flowers, textures and colours of foliage and bark. Use of native species should be encouraged to achieve the desired 'woodland' character of the development. Exotic species will be encouraged to be restricted to the immediate periphery of the building platform.
- Front gardens should extend to the street boundary and be defined by a fence, shrubs, mass planting or hedges that clearly define the private and public domains, additionally providing for both, privacy and to give the streetscape a green leafy character.

PLANT MATERIAL

Plants, particularly trees, are to be selected and located with consideration to their functional, aesthetic and horticultural requirements. A schedule of planting species has been prepared with the aim of providing a consistent framework of vegetation and planting character across the site.

Obviously there will be variations as a result of the design layout and site conditions in later stages of the development process; however, a shaded woodland planting character is desired throughout the site with minor species variations made in light of design considerations.

The planting schedules provide below are an indicate list of native trees, shrubs and groundcover/ grasses that can be chosen as part of the later stages of design. These species are compliant with Council's list of approved species.



A Residential dwelling



B Residential dwelling at hillside



C Small scale communal outlook to district views



D Sculptures within pedestrian trails across site

Courtesy: Group GSA



L Landscape buffer to Mona Vale Rd



Courtesy: Group GSA



E Preservation of bushland with boardwalks



K Pedestrian link to Mona Vale Rd



F Vegetated streetscape between green open spaces



J Landscape along local streets negotiates with topography



I Court with median strip serving residential lots



H Bio-swales as an integral part of streetscape

Courtesy: Group GSA



G Central avenue marks entry into site

LANDSCAPE MASTER PLAN

The planting schedules provide below are an indicate list of native trees, shrubs and groundcover/ grasses that can be chosen as part of the later stages of design. These species are compliant with Council's list of approved species.

Trees	
Common name	Botanic name
Blueberry Ash	<i>Eleaocarpus reticulatus</i>
Sydney Green Wattle	<i>Acacia parramattensis</i>
Sickle Wattle	<i>Acacia falcata</i>
Hickory Wattle	<i>Acacia implexa</i>
Black She-oak	<i>Allocasuarina littoralis</i>
Forest Oak	<i>Allocasuarina torulosa</i>
Sydney Red Gum	<i>Angophora costata</i>
Roughbarked Apple	<i>Angophora floribunda</i>
NSW Christmas Bush	<i>Ceratopetalum gummiiferum</i>
Bangalay Gum	<i>Eucalyptus botryoides</i>
Spotted Gum	<i>Eucalyptus maculata</i>
Blueberry Ash	<i>Elaeocarpus reticulatus</i>
Grey Gum	<i>Eucalyptus punctata</i>
Bastard Mahogany	<i>Eucalyptus umbra</i>
Port Jackson Fig	<i>Ficus rubiginosa</i>
Turpentine	<i>Syncarpia glomulifera</i>



Eucalyptus Maculata¹



Eleaocarpus Reticulatus¹



Acacia Iplexa¹



Allocasuarina Littoralis¹



Allocasuarina Torulosa¹



Allocasuarina Verticillata²



Pandorea Pandorana²



Hardenbergia Violacea²

Shrubs, Groundcovers and Grasses	
Common name	Botanic name
Blackthorn	<i>Bursaria spinosa</i>
Hop Bush	<i>Dodonaea triquetra</i>
Pink Spider Flower	<i>Grevillea sericea</i>
White Spider Flower	<i>Grevillea linearifolia</i>
False Sarsparilla/ Sweet Tea	<i>Hardenbergia violacea</i>
Twining Guinea Flower	<i>Hibbertia dentata</i>
Weeping Meadow Grass	<i>Microleana stipoides</i>
Blechnum	<i>Blechnum spp.</i>
Woolly Xanthosia	<i>Xanthosia pilosa</i>
Lilly Pilly/ Broad-leaf Lillypilly	<i>Acmena smithii</i>
Coastal She-Oak	<i>Allocasuarina distyla</i>
Drooping She-oak	<i>Allocasuarina verticillata</i>
Coastal Banksia	<i>Banksia integrifolia</i>
Sydney Golden Wattle	<i>Acacia longifolia var. sophorae</i>
Myrtle Wattle	<i>Acacia myrtifolia</i>
Sweet-Scented Wattle	<i>Acacia suaveolens</i>
Breynia	<i>Breynia oblongifolia</i>
Sweet Scented Wattle	<i>Acacia suaveolens</i>
Grey Myrtle	<i>Backhousia myrtifolia</i>
Hairpin Banksia	<i>Banksia spinulosa</i>
Blackthorn	<i>Bursaria spinosa</i>
Narrow leaved bottlebrush	<i>Callistemon linearifolium</i>
Willow Bottlebrush	<i>Callistemon salignus</i>
NSW Christmas Bush	<i>Ceratopetalum gummiiferum</i>
Hop Bush	<i>Dodonaea triquetra</i>
Pink Spider Flower	<i>Grevillea sericea</i>
Hop Goodenia	<i>Goodenia ovata</i>
Trailing Guinea Flower	<i>Hibbertia empetrifolia</i>
Showy Guinea Flower	<i>Hibbertia linearis</i>
Paperbark Tea-tree	<i>Leptospermum trinervium</i>
Lemon Scented Tea-tree	<i>Leptospermum polygalifolium</i>
Burrawang Palm	<i>Macrozamia communis</i>
Maytenus	<i>Maytenus silvestris</i>
Paperbark	<i>Melaleuca hypericifolia</i>
Mock Olive	<i>Notelaea longifolia</i>
Bleeding Heart	<i>Omalanthus populifolius</i>
Native Holly	<i>Oxylobium ilicifolium</i>
Everlasting Paper Daisy	<i>Ozothamnus diosmifolium</i>
Large-leaved Bush-pea	<i>Pultenaea daphnoides</i>
Spiny-headed Mat rush	<i>Lomandra longifolia</i>
Weeping Meadow Grass	<i>Microleana stipoides</i>
Basket Grass	<i>Oplismenus species</i>
Wonga-Wong Vine	<i>Pandorea pandorana</i>
Native Poa Grass	<i>Poa affinis</i>

The planting schedules indicate exotic trees, shrubs and groundcover/ grasses:

Trees	
Common name	Botanic name
Pistichio	<i>Pistachia chinensis</i>
Chinese Tallow tree	<i>Sapium sebiferum</i>
Flowering Ash	<i>Fraxinus griffithii</i>
Weeping Elm	<i>Ulmus parvifolia</i>
Claret Ash	<i>Fraxinus oxycarpa 'Raywood'</i>
Bradford Pear	<i>Pryus calleryana "Bradford "</i>
Plane tree	<i>Plantanus x acerfolia</i>
Silver Birch	<i>Betula pendula</i>
Japanese Zelkova	<i>Zelkova serrata</i>

Shrubs, Groundcovers and Grasses	
Common name	Botanic name
Abelia	<i>Abelia x grandiflora</i>
Yellow Star Jasmine	<i>Trachelospermum asiaticum</i>
Dwarf Heath Myrtle	<i>Baeckea virgata 'Dwarf'</i>
Barberry	<i>Berberis thunbergia 'Atropurpurea'</i>
English Lavender	<i>Lavandula angustifolia</i>
Leucadendron	<i>Leucadendron 'Safari Sunset'</i>
Pittosporum tenuifolium 'Green Pillar'	<i>Green Pillar Pittosporum</i>
Rosemary	<i>Rosmarinus officinalis</i>
Purple Mexican Bush Sage	<i>Salvia leucantha</i>
Silverbush	<i>Convolvulus cneorum</i>
Escallonia	<i>Escallonia macrantha</i>
Gardenia	<i>Gardenia augusta 'Florida'</i>
Hebe	<i>Hebe 'Wiri Cloud'</i>
Bronze Baby Flax	<i>Phormium tenax 'Bronze Baby'</i>
Photinia	<i>Photinia glabra 'Rubens'</i>
Laurestinus	<i>Viburnum tinus</i>
Indian Hawthorn	<i>Raphiolepis indica</i>



Fraxinus Griffithii¹



Betula Pendula¹



Zelkova Serrata¹



Rosmarinus Officinalis²



Escallonia Macrantha²

¹ Image courtesy: Fleming's Urban Tree Guide

² Image courtesy: Google Images



CHAPTER 5 - CONCLUSION AND RECOMMENDATION

FINAL RECOMMENDATIONS

The location of the site and its proximity to employment areas, Mona Vale Town Centre and major bushland corridors presents a range of opportunities for the rezoning and redevelopment of the subject site. The site can extend and connect the bushland corridors as part of the landscape buffer to future land release areas providing a range of houses in close proximity to the centre and employment zones. This land can provide high quality housing within a delightful bushland setting, connected to the broader area by new and existing road connections (to be agreed with Council).

There are many positive outcomes and benefits to the community should this land be rezoned for residential uses. They include:

- Provision of additional housing to meet targets within the proximity of major centres;
- Creation of a safe and attractive community with value add in the form of communal spaces, natural features and communal outlook;
- Provision of green and vegetated links across the site;
- Conservation of water courses on site and enhancement of swale ponds, bush paths through riparian corridors as communal areas for residents' use;
- Introduction of various housing typologies to improve local housing choices and affordability;
- Preservation of the landscape character of the ridge in distance views;
- A robust vehicular and pedestrian access network;
- Integration of the existing vegetated character with sustainability designed built environment; and
- Promotion of high quality life style choices;

For these reasons, we encourage Council and the Department of Planning and Infrastructure to consider the proposed Master Plan as part of a planning application for the rezoning of the site.