



DRAFT

Visual Analysis & Impact Assessment

December 2010

Parkside@Terrigal
Kings Avenue, Terrigal



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ARCHITECTURE • PLANNING • LANDSCAPE • ENVIRONMENT • URBAN DESIGN

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2. Introduction

PROJECT

This report has been prepared as part of the rezoning application for the site known as Parkside @ Terrigal. The site is currently zoned 7c(2) and 7(a) conservation under Gosford City Council Local Environmental plan. Crighton properties are seeking a rezoning of the 7c(2) parcel to a residential zone that will support proposed home business. The Visual Analysis and Impact Statement has been prepared with consideration to the following Council Development Control Plans;

DCP 89 SCENIC QUALITY

This DCP identifies the site as being part of the North Coastal Geographic Unit and describes it as being enclosed by topography. It describes the slightly elevated, rural-residential hinterland as providing a natural backdrop to coastal areas. The DCP suggests that particular attention should be paid to maintaining the co-dominance of development and landscape areas with regard given to retention of Scenic Protection and Conservation zoned land. DCP 89 suggests that the Absorption Capacity for development is moderate to high on the lower slopes and lower for the upper slopes and the Visual Sensitivity is high for the rural-residential hinterland.

DCP 159 CHARACTER

The plan was written for the protection and enhancement of Gosford City Council's environmental character and enhancement of character related builtform and landscape design.

The DCP identifies the site as falling within Character Zone 11, Scenic Buffer. The desired character for this area includes; Maintain semi rural buffers to urban areas.Restrict fragmentation of canopy along ridgetops and water courses. Pier and beam construction for sloping sites Building form should reflect traditional rural structures. Fences to road frontages should be open style or screened by landscaping. Community facilities should maximize benefit to users and consider education/recreation and conservation. Shade trees should be considered for new roads.

This report aims to discuss the visual characteristics of the site and its broader context as well as investigating the impacts of the proposed Masterplan (refer Appendix A). Given that the site is located on a ridge system that forms a scenic backdrop to Terrigal beach the report will discuss the local and regional impacts of the project, if any.

LOCATION

The project site is located on the newly formed Kings Avenue at Terrigal on the NSW Central Coast. The site is located within an elongated valley running east west and generally characterised by residential development on the valley floor and lower slopes while the upper slopes are more vegetated. The upper valley slopes include a mix of residential, rural residential and bushland reserve therefore providing the opportunity for greater retention of vegetation. The valley floor is traversed by a number of drainage lines which have been revegetated throughout the development period of the valley and provide a contrast and visual backdrop to the developed areas.

The site is bounded by Kings Avenue & adjoining to the north, rural residential and bushland reserve (Kincumber Mountain), to the south. Established residential developments exist on the east and west boundaries and form part of an extensive residential corridor between Erina and Terrigal. The residential corridor links the coastal village of Terrigal with the regional shopping, commercial and light industrial precinct of Erina.

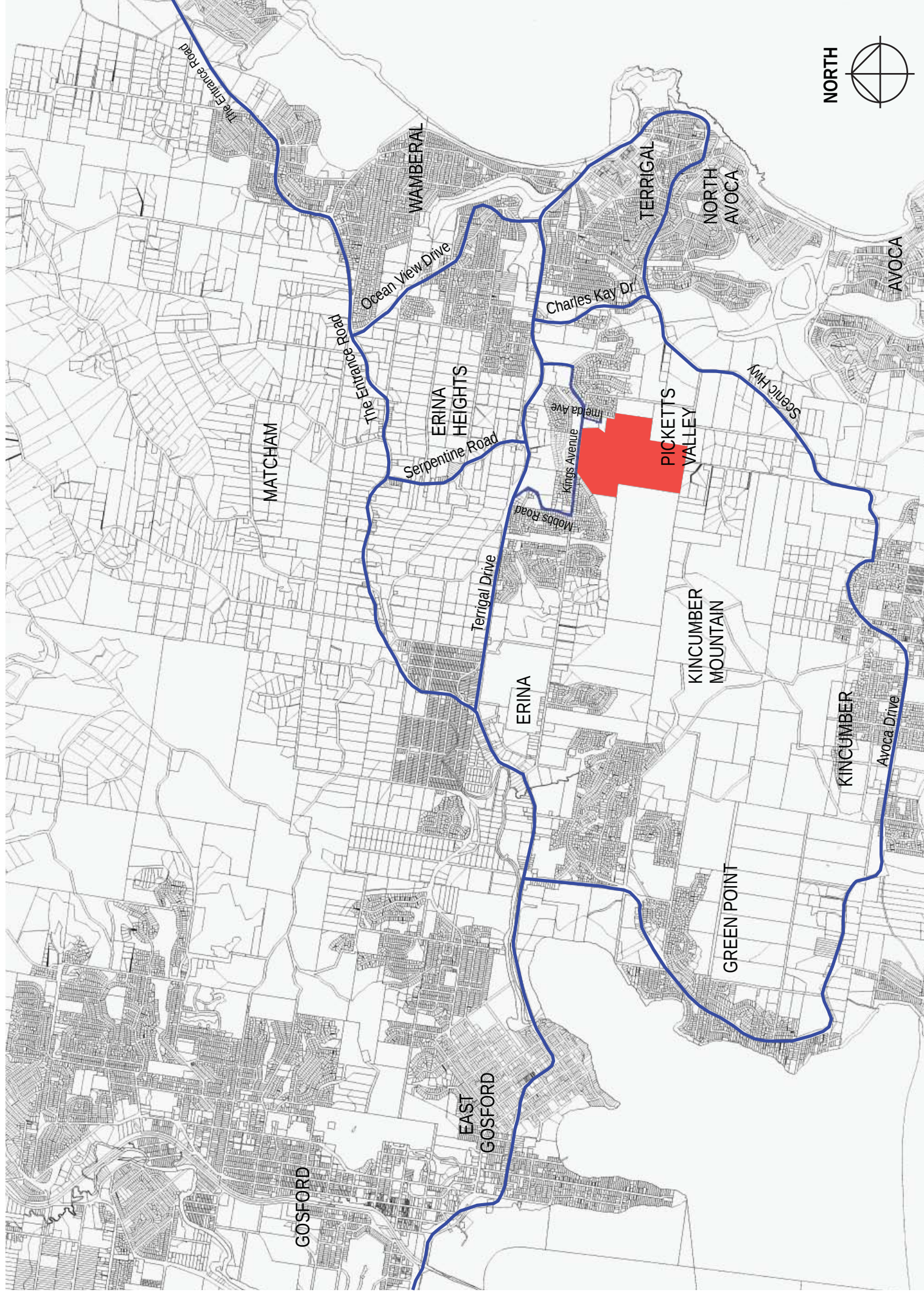


FIGURE 1



3. Landscape Character Analysis

SITE CONTEXT

The site lies on the southern side of an elongated valley that is dissected by drainage lines and ridgelines with residential areas occurring on the valley floor and lower slopes, refer to adjoining Map. The valley has a limited visual catchment which is defined by the Terrigal Drive ridge to the north and Kincumber Mountain reserve to the south. An intermediate ridge that contains Port Jackson Road inhibits views from the valley floor to the east.

The valley extends from Erina in the west to Terrigal in the east and is characterised by recent residential development that commenced approximately 15 years ago. The residential area is essentially continuous along the valley with the ridgelines remaining generally vegetated. Fingers of vegetation extend into the valley in the form of drainage lines and reconstructed channels, breaking up the urban settlement pattern.

The project site is located on the elevated, southern side of the valley with a generally northerly aspect that overlooks the valley and has views extending to the ridgelines of Wamberal and also to the coast.

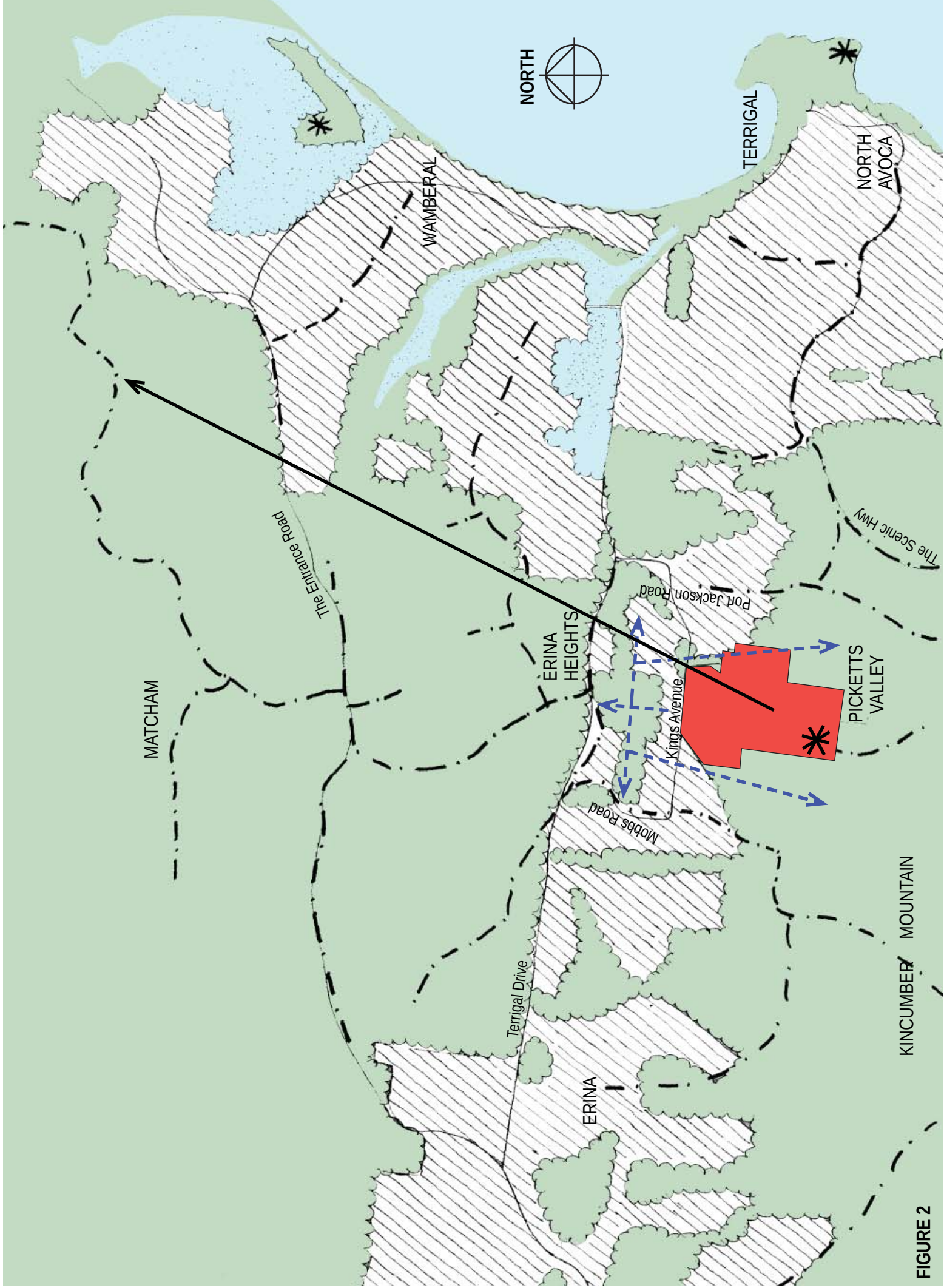


FIGURE 2

Landscape Character Analysis

GENERAL DESCRIPTION - Refer to Figure 3

The site consists of a gently sloping central ridge running north south with gullies on either side. The gullies also have a gentle slope of less than 15% with varying degrees of vegetation cover. The side slopes are steeper, ranging from 15% to over 25%, especially towards the southern boundary.

The central ridge is cleared below an electricity easement with a grassy cover remaining while the side slopes are wooded with native canopy trees and grassy understorey. The gullies have the most diverse and dense vegetation. In addition, the gullies suffer from a high degree of weed infestation.

The lack of shrub layer on the ridge and wooded slopes allows views across the site and through the trunks of canopy trees which creates a pleasant parkland character. The vegetated gullies provide a point of interest with a significant change in species and density which includes Turpentine (*Syncarpia glomulifera*) and Cabbage Tree Palms (*Livistona australis*).

SITE EDGES

The site has two clearly defined boundaries including;

The western boundary, which is defined by existing residential development and a distinct lack of significant boundary fencing which results in the residents overlooking the site. The northern boundary, which adjoins Kings Avenue and is variable given that the views into the site are, only available where the gullies meet the road.

The southern and eastern boundaries are less clearly defined. The south west corner is adjoined by Kincumber Mountain reserve which is a densely vegetated closed woodland. The south east and east boundaries are adjoined by rural residential lots which provide a transition between the site and more densely developed areas along the valley floor.



1. View looking west along Kings Avenue. The site is to the left of the road and a steep 'cut' batter limits views along the ridgeline from the road.



2. View looking south towards the cleared eastern valley. Existing stands of vegetation & rural residential lots create a pleasant character amidst the surrounding dense, residential development.



3. Adjoining properties on western boundary, are designed to take advantage of views into the site.



4. View looking north west to surrounding residential area. The back drop of vegetation along the Terrigal Drive ridgeline maintains the sense of "the valley".



5. View looking south towards the central, vegetated ridgeline. The existing site vegetation provides a backdrop to residential areas on the northern side of Kings Avenue.



6. View looking east along Kings Avenue. Existing vegetation & informal road verges evoke a sense of semi-rural living.



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Landscape Character Analysis

SITE CHARACTERISTICS

1. Open wooded and cleared slopes with rural views to the east and south.
These areas generally have an easterly aspect with moderate slopes and a native tree canopy cover of up to 50%. The grassy cover of Kikuyu and limited shrub layer permit filtered views to the east towards of rural properties located off Belar Avenue.

The open grasslands and the rural create the impression of a more expansive landscape. The informal boundary between the site, rural lands and the dwellings in Imelda Lane reinforce the 'grassed land' character.

Views from these slopes extend to Port Jackson Road ridge line where two storey, substantial brick and tile dwellings align the ridge. The view across the rural lands to Port Jackson Road provides visual relief and a buffer zone to the more densely developed ridge beyond.

2. Wooded and cleared slopes with limited views to the west.

This area has a moderate slope with a westerly aspect looking directly into the gully vegetation at the western end of the site. The slopes have a similar open understorey as the first zone, further reinforcing the 'grassed land' character.

These slopes differ from the first zone in that the gully vegetation to the west of the slopes inhibits distant views. Where views are possible they are into the rear yards of large brick and tile homes located along Windermere Road. The views from these slopes are also limited to the south by the rising topography. (Refer photo 3, page 5)

3. Transmission easement

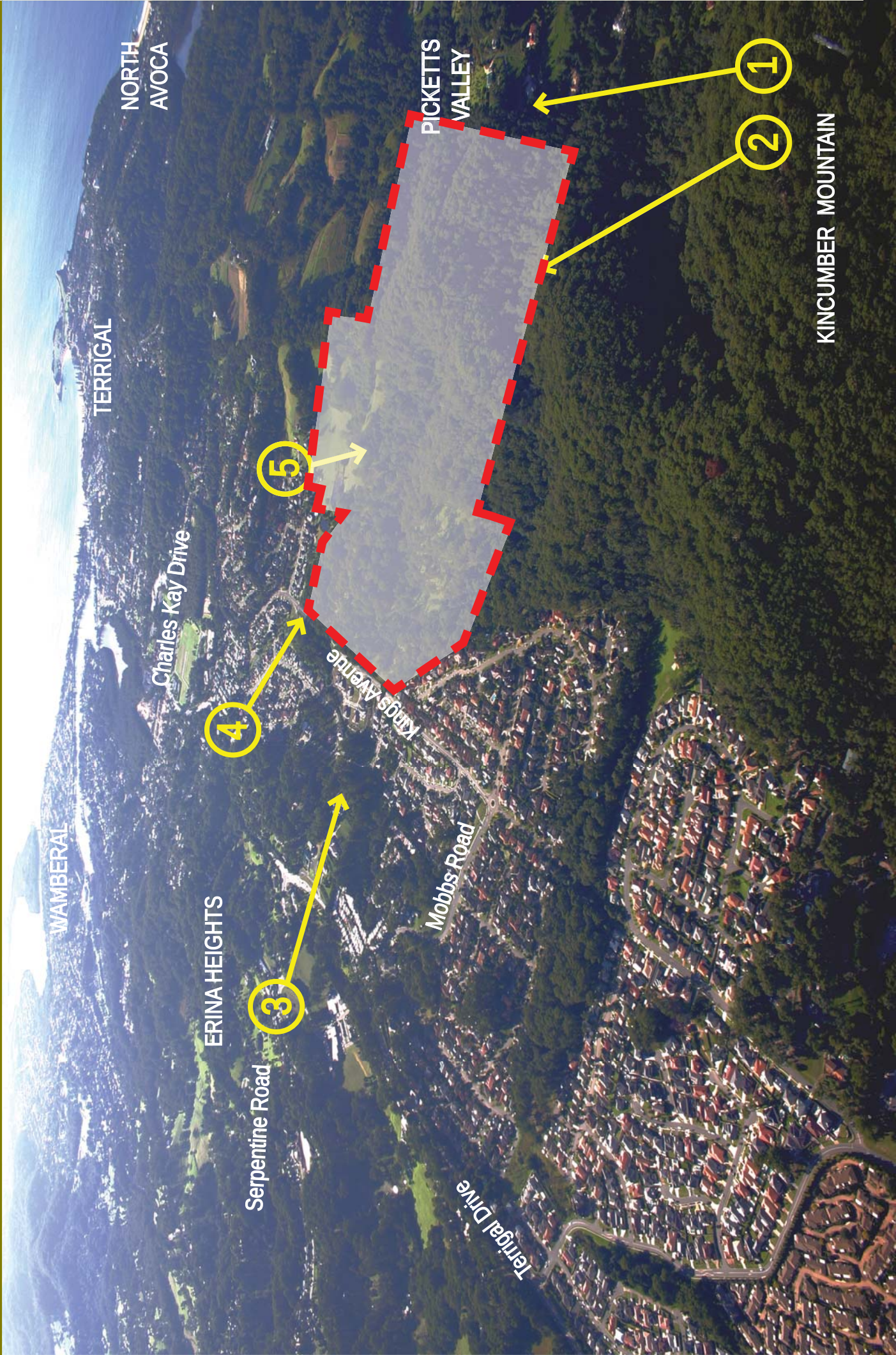
A transmission easement is located along the central ridge and has been cleared of vegetation. The easement is aligned by remnant trees and creates a strong axis along the ridge. The easement continues through the high point of the site there by terminating the vista. The easement in its current form creates an avenue and essentially separates the landscape character zones as well as the physical attributes of the site. The adjoining vegetation screens the impact of clearing.

4. Enclosed landscape character

Exists on the western boundary and is characterised by a generally cleared understorey below a canopy of remnant native trees. The slope has a south easterly aspect and is noticeably moist under foot. The canopy cover is over 50% and views are limited to the east by the dense gully vegetation, and by topography and residential dwellings to the west. The dwellings on the western boundary are generally designed to overlook the gully and have an informal boundary with the site.



FIGURE 3



VIEWPOINT ANALYSIS
The viewpoint analysis is used to determine where issues of visual impact may potentially be raised. Views to the site and from the site are considered when determining areas that may be visually impacted upon by the proposal. Views to the site are taken from key public spaces such as roads, parklands and lookouts. For this project views to the site were also considered from the carpark of the Fruit Barn on the Scenic Highway and the Terrigal United Church as both sites are located on key ridgelines and frequented by the public on a regular basis. Views from the site were also considered to assist in determining both

views that should be screened and or views that may be enhanced as part of the masterplanning and design phase of the project to determine the key viewpoints from where the site may be visible, a review of topographic maps and aerial photographs was used in conjunction with the generation of a Viewshed Analysis using the GIS program, Mapinfo. Refer to Appendix 'B' Following the generation of the Viewshed Analysis a vehicular site inspection was conducted to verify the findings. Views to and from the sitewill be discussed in the following section with regards to the current Masterplan (see Appendix A).

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Kings Avenue, Terrigal

Landscape Character Analysis

VIEWS TO THE SITE



1. Easterly Views from the top of Kincumber Mountain, extends to the scenic highway ridgeline.



2. Views looking northeast from Kincumber Mountain are obscured by vegetation however the central ridgeline of the site can be identified (see view shed analysis Map 1).



3. Ridgeline in front of Kincumber Mountain



4. Views to South East gully from Terrigal United Church.



5. Eastern slopes are visible from Port Jackson Road.

Landscape Character Analysis

VIEWS FROM THE SITE

Tumbi Umbi



1. View looking north east near high point of site.



2. View to west filtered by existing vegetation.

Picketts Valley



3. Views from the top of Site, overlooking Picketts Valley.

Belar Ave



4. Views to east looking over rural residential.



5. View from lower ridge looking north to recent residential development.



CRIGHTON
PROPERTIES

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Landscape Character Analysis

View to the site

Maps 1 - 6 "Viewshed Analysis", demonstrate the likelihood of viewing the site from selected points and the photographs on page 6 illustrate the actual view.

The site is easily viewed from the immediate surrounding residential areas off Mobbs Road, Kings Avenue, Imelda Avenue, Belar Avenue and Port Jackson Road. The new estate on the opposite side of Kings Avenue has views directly to the site, however, the rising topography of the central ridge and the cut road batter will limit views to approximately half way along the ridge (see View Shed analysis map 7).

Currently, the site provides a 'green gap' between development areas and has a visual link with Kincumber Mountain to the south/ west. The retention of the visual link between Kincumber Mountain and the central ridgeline of the site is important to defining the visual catchment of the valley. Photograph 3 on page 6 illustrates the visual connection between the two areas. The Masterplan indicates that vegetation will be retained on the ridge as part of the road reserve. Given the degree of clearing required for the housing additional planting of canopy trees in the road reserve and in private lots will reinforce the visual link to Kincumber Mountain.

Retention of existing vegetation, particularly canopy trees on ridges and gullies will retain some of the key site characteristics. The Masterplan indicates retention of vegetation in the western gully and proposes a series of large lot and open space connections along the eastern gully. Views into the site from Kings Avenue are mostly possible along the gullies and with the current Masterplan layout the amenity of the gullies will be retained. The Masterplan includes the retention of a stand of existing vegetation on the eastern side of the ridgeline which will support the visual link to Kincumber Mountain.

Development of the site as a residential estate is consistent with surrounding landuses however, sensitive edge treatments (refer to Recommendations) should be applied to allow for integration with the different residential characters adjoining the site. The Masterplan partially accommodates this recommendation in that large lots are proposed for the southern boundary which will ensure retention of significant amounts of vegetation.

A 'hard edge', such as fencing along the south east boundary should be avoided to maintain the amenity of the cleared eastern slopes and rural outlook for existing and future residents. The masterplan proposes larger lots on the north western boundary which will allow for the retention of vegetation and protect the current amenity enjoyed by existing residents. Fencing to the boundary in this area is currently informal, generally consisting of low open style fencing allowing residents access and views directly into the proposed development site. Proposed fencing should consider the amenity of existing residents and reflect the character of this part of the site.

A fence style similar to timber paling fencing will compliment the character of this area and have a low visual impact.

Due to the undulating topography and existing vegetation, the site is not easily viewed from the south (Picketts Valley).

Visual Analysis & Impact Assessment

From Kincumber Mountain, the site can be seen from Collin Watters Lookout which is a 20minute walk from the parking and facilities area of the reserve. Map 4 on page 7 indicates that views to the east and north east over the site are available from the lookout. Views of the site are limited by the vegetation cover on the site and are also filtered by existing vegetation at the lookout, refer to photographs 1 - 6. From the lookout, the rural residential area of Picketts Valley provides an attractive outlook and a transition between the densely developed valley of Kings Avenue and the bushland reserve of Kincumber Mountain.

The proposed large lots on the southern boundary are complimentary to the character of Picketts Valley and the rural residential areas off Belar Avenue and Imelda Avenue.

Views along the eastern, cleared valley are available from the Terrigal United Church on Terrigal Drive. Views from this point take in the densely developed areas immediately south of the church and extend to Kincumber Mountain in the background. Views of the site are in the middleground and the proposed development along the ridgeline will be visible, however, the dark form of the Kincumber Mountain vegetation will remain the dominant visual feature. The view from Serpentine Road includes a small section of the lower part of the ridgeline, this is not a significant viewpoint as the dominant visual feature from this location is Kincumber Mountain and the residential areas off Mobbs Road are visible in the foreground refer photo 3, page 6.

Views from the Site

Views from the site are contained by the ridgelines of Terrigal Drive, Mobbs Road, Kincumber Moutain and Port Jackson Road. It is possible to see the ocean in the distance from the mid point along the ridgeline although it is an insignificant view.

Northerly views are the most frequently available from the site and extend as far as the hills between Tumbi Umbi and Wamberal. These distant view are possible from the mid to highest points along the ridgeline and below that the views are limited by the Terrigal Drive ridgeline. The northerly side of the valley is vegetated on the low to mid slopes with expanses of vegetation occurring towards the ridgeline. A number of large lots occur on the ridge which support expanses of vegetation and provide a vegetated backdrop to the northern side of the valley.

A pleasant rural outlook occurs over the cleared eastern valley which will be partially retained through the retention and embellishment of existing dams in an open space corridor.

The density of housing to the east of this open space is consistent with adjoining areas however rural residential lots occur to the south east. The Masterplan has accommodated for the potential visual impact on the existing rural dwellings by designing the lots so that they have a frontage to the rural areas.



4.Recommendations

- Retain existing ridgeline vegetation where possible and encourage tall native trees to be retained and planted in private lots. Lots located along the ridgeline should allow for tree planting in front and rear yards. Lots in these locations appear to be of suitable depth. The ridgeline is the most visible aspect of the site when viewed from the surrounding areas and retention of canopy trees in this area will reduce the visual impact of clearing.
- Allow for larger lots on the southern and south eastern boundaries to provide a transition between the densely developed valley near Kings Avenue and the adjoining rural residential and bushland areas. This appears to be accommodated in the M.P.
- Rural style fencing (eg: post and rail), is preferred for the south east boundary and for lots adjoining Kincumber Mountain.
- Where solid, perimeter, fencing is required a vegetation screen should be incorporated to soften the visual impact and maintain amenity for adjoining landowners.
- A vegetation buffer to the north west boundary will retain current amenity and privacy for existing residents.
- Retain appropriate vegetation and open space characteristics of the two gullies.
- Retain views along the two gullies from Kings Avenue.
- Dwellings adjoining Kings Avenue should be designed so that rear fencing is either screened by vegetation (on the Kings Avenue side) or that they have a dual frontage to ensure that the development contributes to the amenity of the streetscape.
- Low, open style fencing in conjunction with landscaping is recommended for the side boundaries of the two north eastern most lots, adjacent to Belar Avenue.
- Given that the site can be viewed from nearby high points such as Kincumber Mountain the selection of roof colours and materials should be in accordance with the specific architectural guidelines.
- Landscaping should be used to compliment the site characteristics and in particular, accommodate the planting of new canopy trees using endemic species.



FIGURE 4

SIGNIFICANT VISUAL AMENITY



Significant visual amenity

1. The Ridgeline is significant to the broader site context as it is visible from Terrigal Drive, from Terrigal Drive, Kincumber Mountain & within the adjoining valley. Although the ridge is partially cleared, due to the presence of an established electricity easement, Most views to the site are from an angle & screened by the ridgeline vegetation.
2. Views into the gullies from Kings Avenue extend the sense of the rural landscape.
3. Area 3 has a highly scenic character & provides amenity to residents on higher ground to the east of the site.

Visual Analysis & Impact Assessment

Kings Avenue, Terrigal

Appendix 'A' - Masterplan

5. Appendix 'A'

DEVELOPMENT STATISTICS:

Overall site area	55.3Ha	100%
Area dedicated to council	27.28Ha	49.3%
Additional on-site conservation	10.64Ha	19.3%
Area to be developed	17.38Ha	31.4%

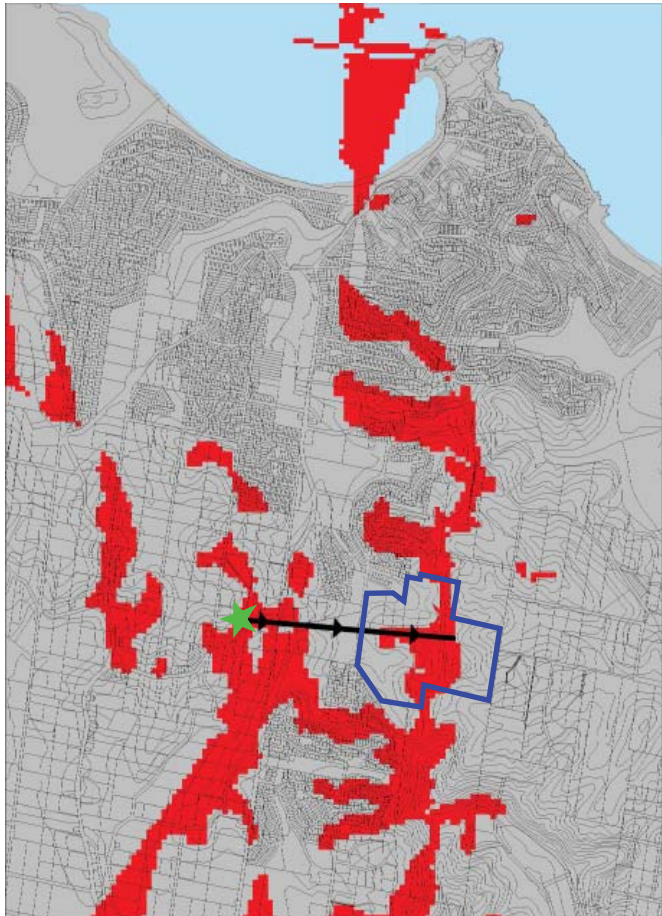


Appendix 'B' - Viewshed Analysis & Point to Point Visibility

VIEWSHED ANALYSIS

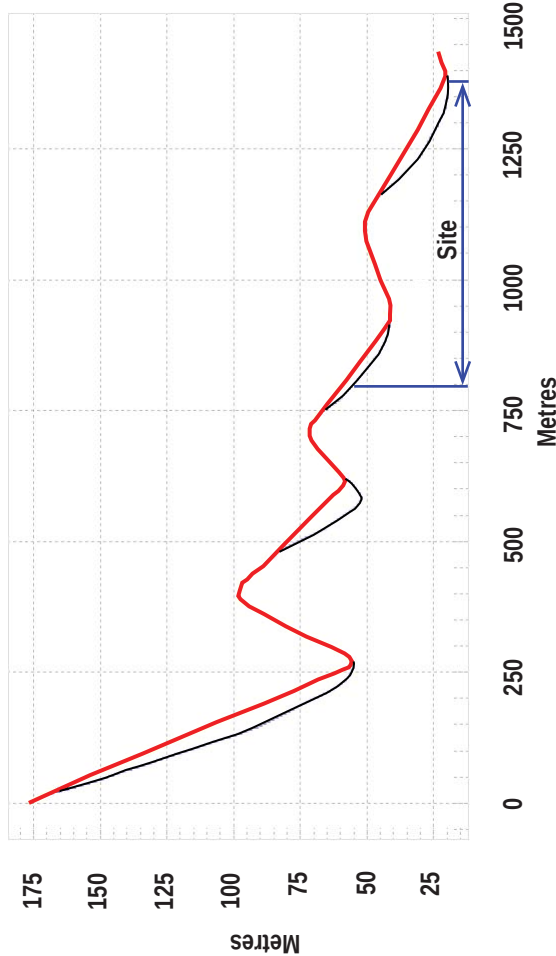


Map 1 - Kincumber Mountain (Colin Watters Lookout)
Central ridgeline is visible however it is obscured by vegetation up to 20m high.

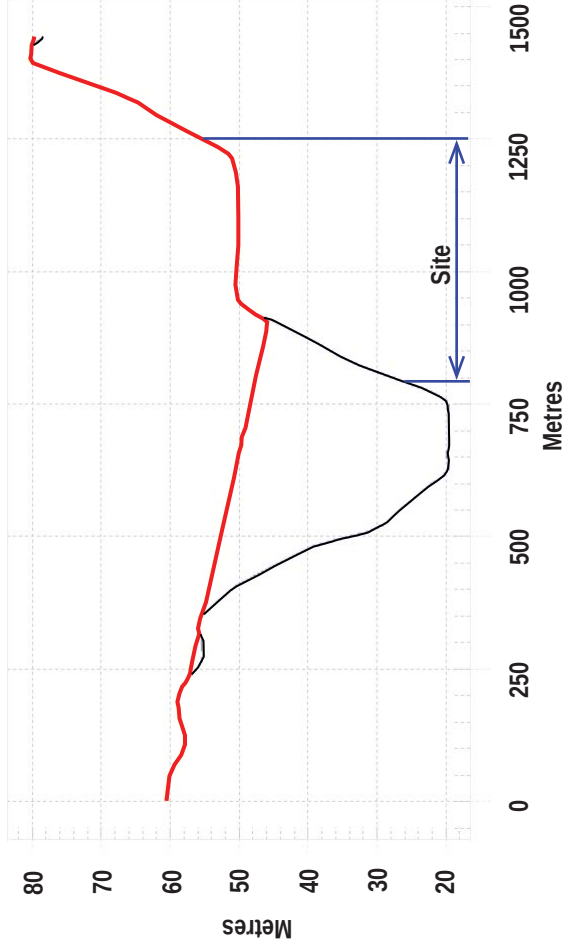


Map 2 - Serpentine Road
Central canopy vegetation is visible from selected points on Serpentine Road. Vegetation is approximately 20m high.

POINT TO POINT VISIBILITY



Cross Section 1 - Kincumber Mountain (Colin Watters Lookout)
Vertical Exaggeration = 4.5



Cross Section 2 - Serpentine Road
Vertical Exaggeration = 10.2



6. Appendix 'B'

VIEWSHED ANALYSIS & POINT TO POINT VISIBILITY

Viewshed Analysis maps were prepared with Vertical Mapper which creates viewsheds. A viewshed is a sight map which is used to make inferences about the relationships of intervisibility between an origin point and other locations within a landscape. The viewshed analyses have been created by obtaining the heights of cells within a numeric grid (created from elevation data) in order to determine whether or not the cells are visible from a specified origin location. An additional value has been added to the origin location to account for the human eye above the ground (in this case, 1.5 metres). The result of each of these calculations is either a positive solution meaning that the cell is visible from the origin location (represented by the colour red), or a negative solution meaning that the cell is not visible from the origin location (represented by the colour grey).

The software does not accommodate vegetation or built form unless these values are manually inserted. The comments below the maps discuss the impact of vegetation & built form.

Cross sections are a graphical representation between locations on the earth's surface to illustrate how the elevation changes over distance. The horizontal axis represents distance, and the vertical axis represents the elevation along a specified line.

When graphing distances relative to heights on a graph, it is necessary to report the 'Vertical Exaggeration' of the cross-section. Vertical exaggeration is used to show how much the vertical scale has been exaggerated by to show the details of changes in elevation, creating a readable cross section. For example, a vertical exaggeration of 20 means that the vertical scale is 20 times more exaggerated than the horizontal scale in order to show the required detail of the landscape. Without vertical exaggeration, the profile of the cross section may be so shallow that only the highest peaks stand out.

A line-of-sight calculation between the locations is also provided where the relative elevation (indicated by the red line) represents the surface topography along the line of sight, and the relative viewable elevation (indicated by the Black line) represents the line of visibility from the origin location (at 1.5 metres above ground level). Where the two lines are coincident, that section of topography is visible from the origin point. Where the two lines are separated, the landscape is not visible from the origin location.

LEGEND

Point to Point Visibility

- Visible
- Not Visible
- Site location

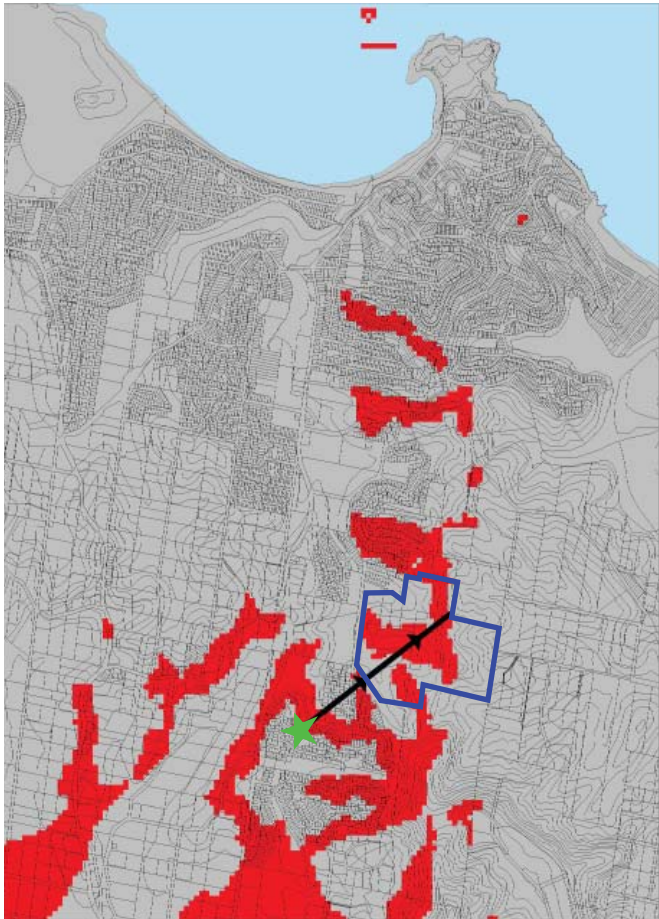
Viewshed Analysis

- Visible
- Not Visible
- Viewpoint
- Direction of Visibility
- Site Location



Appendix 'B'

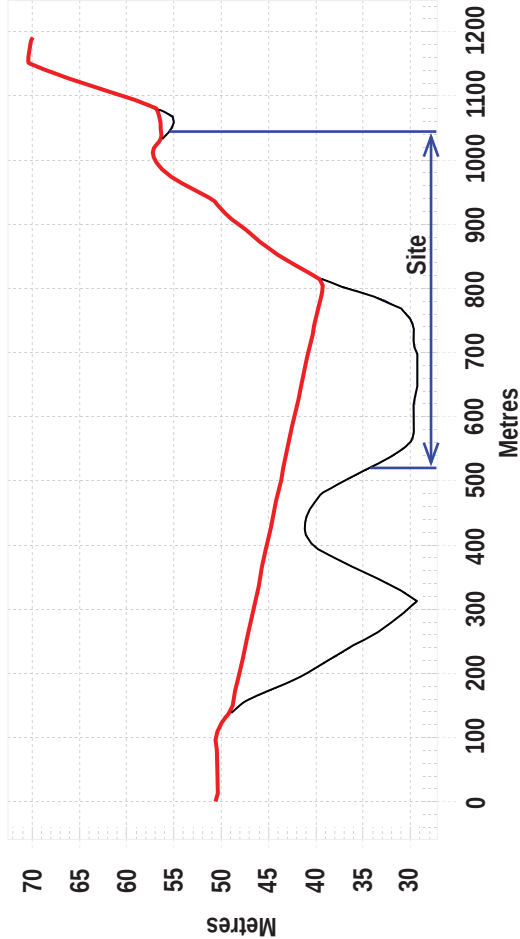
VIEWSHED ANALYSIS



Map 3 - Mobbs Road

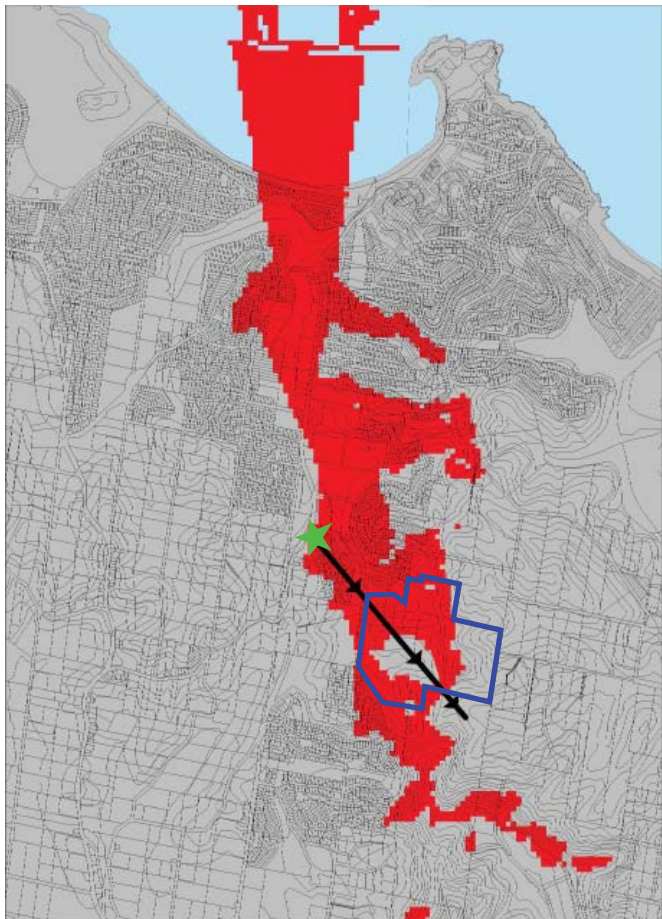
Vegetated central ridgeline is visible.

POINT TO POINT VISIBILITY



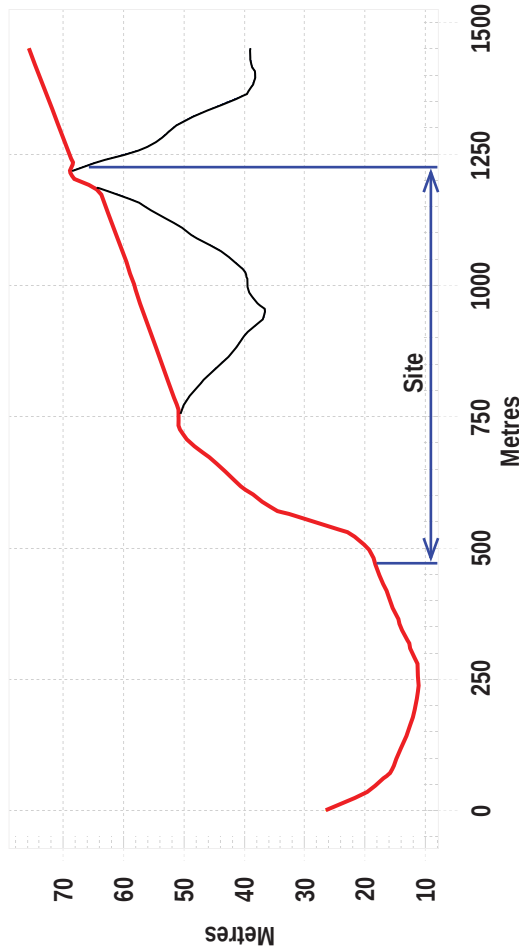
Cross Section 3 - Mobbs Road

Vertical Exaggeration = 12.5



Map 4 - The Terrigal United Church

The cleared eastern slopes are visible.



Cross Section 4 - The Terrigal Anglican Church

Vertical Exaggeration = 9.2

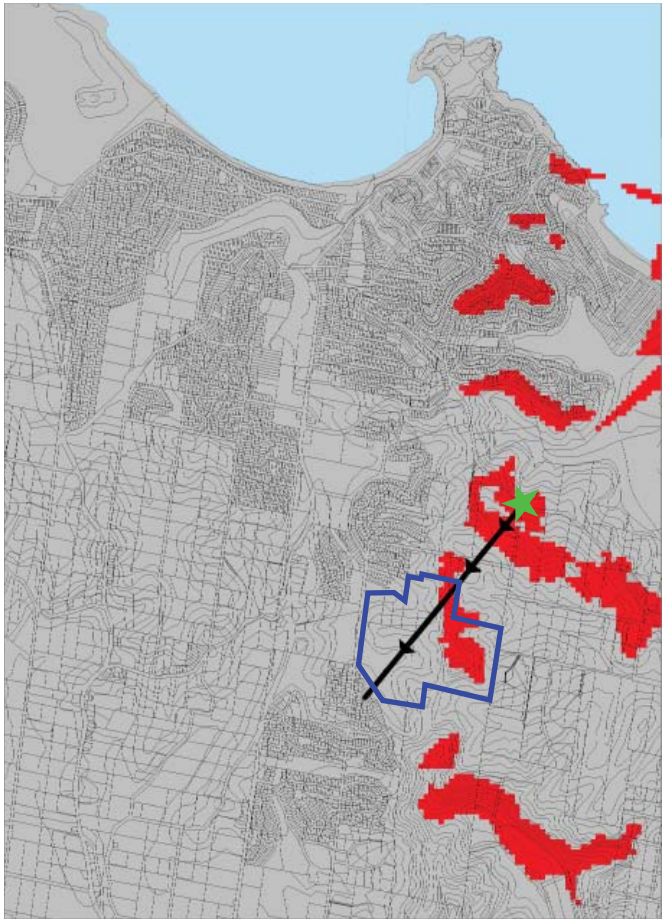


- LEGEND**
- Point to Point Visibility**
- Visible (Red line)
 - Not Visible (Black line)
 - Site location (Blue line)
- Viewshed Analysis**
- Visible (Red area)
 - Not Visible (Grey area)
 - Viewpoint (Green star)
 - Direction of Visibility (Black arrow)
 - Site Location (Blue line)



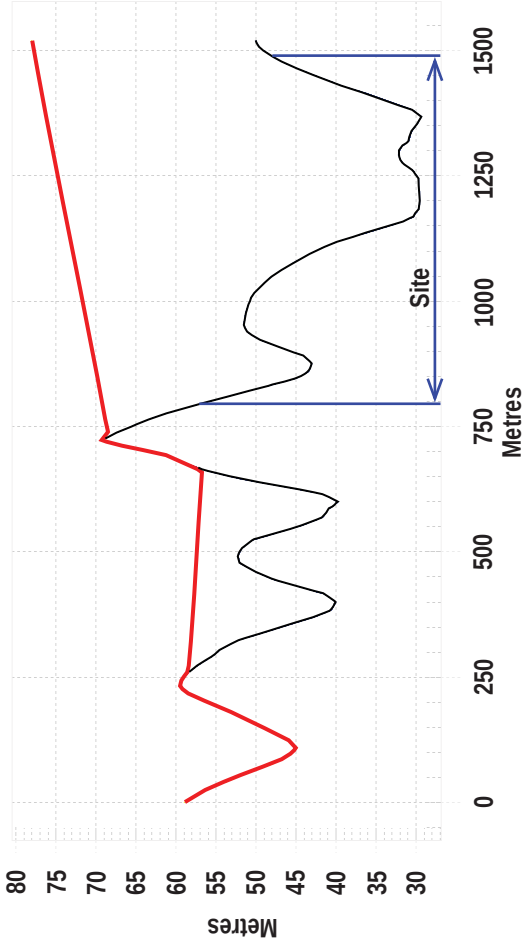
Appendix 'B'

VIEWSHED ANALYSIS



Map 5 - Avoca Beach, Fruit Barn (Scenic Highway)
Site is not visible from this frequent stopping point as it is obscured by another ridge line.

POINT TO POINT VISIBILITY



Cross Section 5 - Avoca Beach, Fruit Barn (Scenic Highway)
Vertical Exaggeration = 6.8



Map 6 - The Skillion, Terrigal
The site is not visible however Kincumber Mountain is.



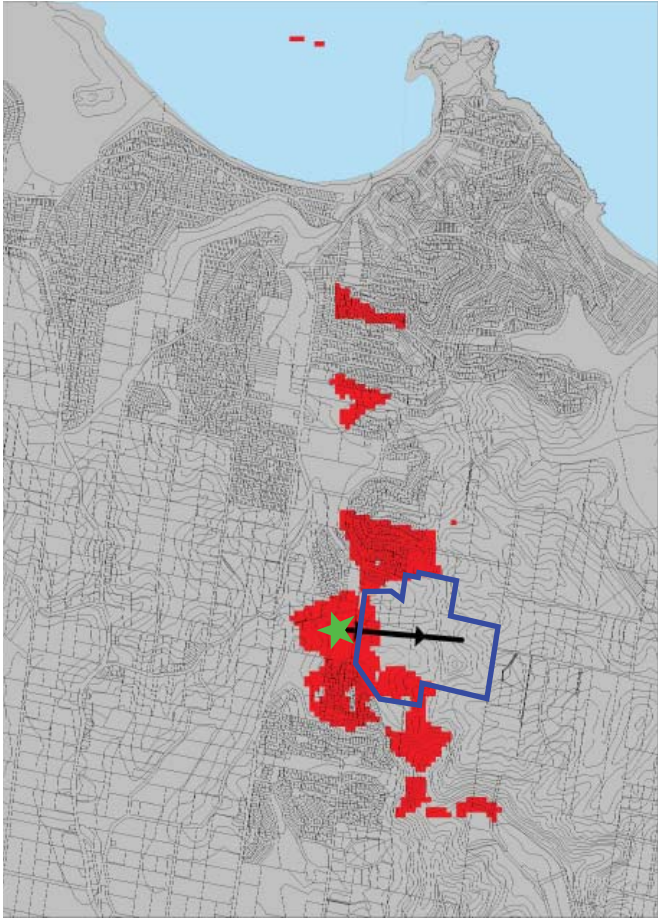
Cross Section 6 - The Skillion, Terrigal
Vertical Exaggeration = 32



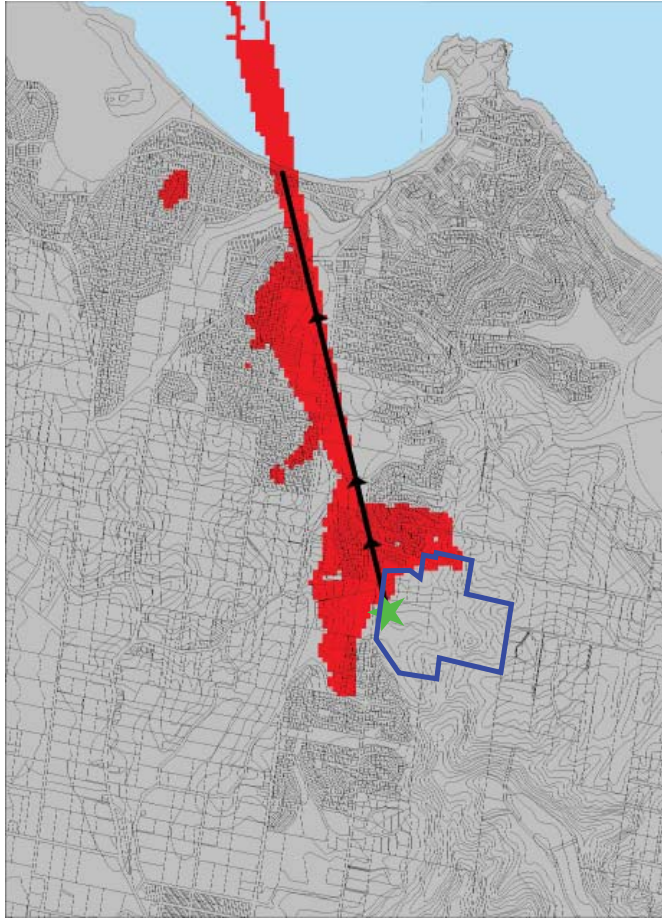
- LEGEND**
- Point to Point Visibility**
- Visible
 - Not Visible
 - Site location
- Viewshed Analysis**
- Visible
 - Not Visible
 - Viewpoint
 - Direction of Visibility
 - Site Location



VIEWSHED ANALYSIS

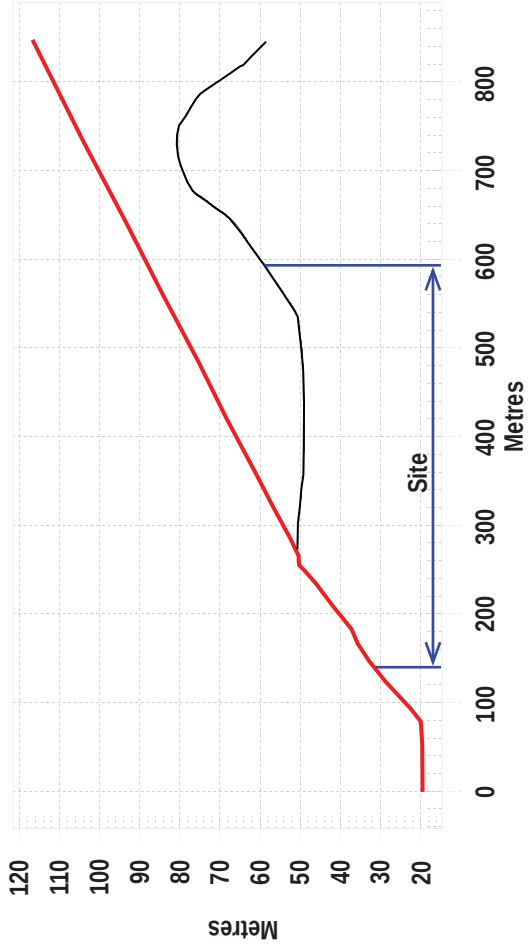


Map 7 - In front of site looking south
Site is visible from opposite housing estate. Although the view is limited by topography.

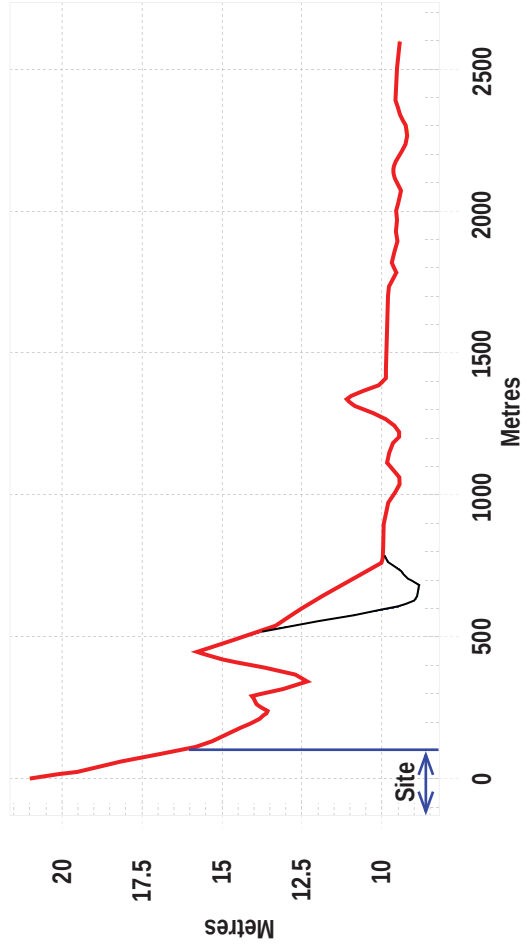


Map 8 - Lower Part of Site looking North east
Demonstrates the limited visual catchment formed by Mobbs Rd, Port Jackson & Terrigal Drive ridgelines.

POINT TO POINT VISIBILITY



Cross Section 7 - In front of site looking south
Vertical Exaggeration = 2.6



Cross Section 8 - Lower Part of Site looking North east
Vertical Exaggeration = 71.4



- LEGEND**
- Point to Point Visibility**
- Visible
 - Not Visible
 - Site location
- Viewshed Analysis**
- Visible
 - Not Visible
 - Viewpoint
 - Direction of Visibility
 - Site Location

