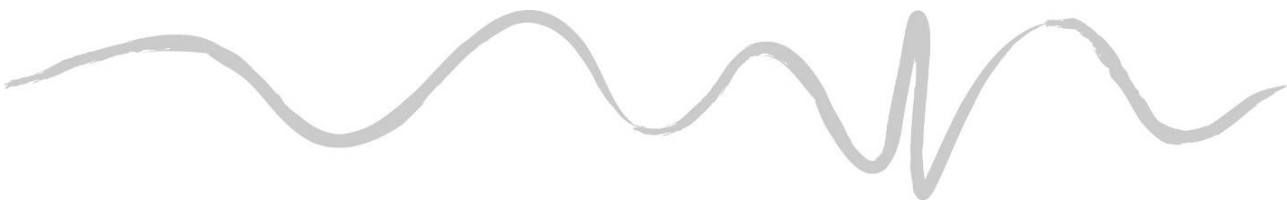


Preliminary Landscape  
Character and Visual  
Impact Assessment  
Pacific Highway to Connells Creek  
Upgrade of the Waterfall Way



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# Introduction

NSW Roads and Maritime Services (RMS) have prepared a Route Options Development Report (RODR) for the proposed upgrade of Waterfall Way, from the Pacific Highway to Connell's Creek. This preliminary Landscape Character and Visual Impact Assessment forms part of the RODR and assesses the proposed route options: Option A and Option B. This assessment has been undertaken and prepared in accordance with RMS guidelines: *EIA-N04 Guidelines for landscape character and visual impact assessment*.

The site is located within the Bellingen Shire Council (BSC) Local Government Area (LGA). The site locality is shown in **Illustration 1.1**.

## 1.1 Purpose of Landscape Character and Visual Impact Assessment

The main purpose of this preliminary landscape character and visual impact assessment is to inform the development of the preferred route and concept design so that the proposal can avoid and minimise impacts.

## 1.2 Landscape Character and Visual Assessment Criteria

This assessment considers any potential impacts that the proposed upgrade of Waterfall Way between the Pacific Highway and Connells Creek may have on the localities amenity, in terms of landscape character and specific visual or viewpoint impacts. Visual assessment refers to the impact on views whereas landscape character assessment refers to the impact on the aggregate of an area's built, natural and cultural character or sense of place. Character and visual assessment are equally important. Visual impact assessment helps define the day to day visual effects of a project on people's views and landscape character assessment helps determine the overall impact of a project on an area's character and sense of place. The measure of visual and landscape character impacts is based on the combination of *sensitivity* of an area or a view and the *magnitude* (scale, character, distance) of the proposal.

The landscape character and visual impact of the Proposal (Options A and B) was assessed by considering the extent to which visual modification of the environment would occur as a result of the Proposal (magnitude) and the visual sensitivity of the surrounding environment, broader landscape and the views of local residents and road users.

The proposal's magnitude refers to the visual effect the Proposal would have on the existing environment and its proximity to visual receptors. It is based on the visual contrast of pre and post development and accounts for the visual appearance of the development and the distance at which the development is viewed. The level to which the development may impose contrasting colours and textures within the existing environment can also influence the level of magnitude.

Visual sensitivity takes into account the sensitivity of the landscape or view and its capacity to absorb change. The extent of sensitivity is also influenced by vegetation, such as tree height and density, which may screen or filter views of a development. Topography such as elevations, intervening ridgelines or undulation can also limit the extent to which a development is exposed to surrounding viewpoints. Sensitivity can also relate to the perception or acceptance of the potential level of change to the landscape or view.

This Landscape Character and Visual Assessment was carried out in accordance with the RMS Guidelines for Landscape Character and Visual Impact Assessment (the Guidelines).

## 1.3 Assessment Methodology

This assessment considered both landscape character and visual impacts. For this size and scale of project the RMS Guidelines generally only require a visual impact assessment to be prepared. However, an assessment of landscape character has been included in this report because of the importance of Waterfall Way as a tourist route and the high level of visual amenity of the study area. The method applied to assessing the landscape character and visual impact of the Proposal was in accordance with the RMS guidelines for landscape character and visual impact assessment and involved the systematic evaluation of the visual environment and applying value judgements. The assessment undertaken includes:

- an in-depth site investigation;
- description of the existing landscape and visual environment;
- preparation of a Visual Envelop Map (VEM);
- a viewpoint analysis using a photographic survey and aerial imagery to provide a graphic appreciation of the landscape and visual amenity;
- an assessment of the landscape character / visual impacts; and
- the development of recommended mitigation measures and visual safeguards to ensure character and visual impacts to the locality, broader environment and nearby residents are minimised and appropriately ameliorated.

## 1.4 Terminology

The following provides a brief explanation of the terms and abbreviations commonly used in Visual Impact Assessment reports and which appear in this report:

- **Landscape Character:** The aggregate of built, natural and cultural aspects that make up an area and provide its unique sense of place. Landscape in this context is taken to include all aspects of a tract of land - the built, planted and natural topographical and ecological features;
- **Landscape Character Zone:** An area of the landscape with similar properties or strongly defined spatial qualities;
- **View:** the sight or prospect of some landscape or scene;
- **Visual Receptors:** the public or community at large who would have views of the subject site either by virtue of where they live and/or work or from transport routes, paths, lookouts and the like;
- **Visual Accessibility:** the number of people that would regularly view the site. High visual accessibility would include locations from which large numbers of people would view a subject site, such as from a major highway or dense urban area;
- **Visual Impact:** the impacts on the views from residences and other public places;
- **Visual Envelope:** the extent of the area that the proposal will be visible from;
- **Sensitivity:** the sensitivity of a Landscape Character Zone or view and its capacity to absorb change. Combined with magnitude provides a measurement of impact;
- **Magnitude:** the scale, form and character of a development proposal. In the case of visual assessment also how far the proposal is from the receptor. Combined with sensitivity provides a measurement of impact;
- **Plates:** photograph with caption;
- **View Point Location:** the location or area from which a view is experienced.

## 1.5 Landscape Character and Visual Impact Rating

The assessment of landscape character and visual impacts was guided by the Visual Impact Rating Matrix shown below. This matrix is shown in **Table 1.1** and was derived from the RMS's guideline for landscape character and visual impact assessment. It provides impact ratings based on cross referencing the level of sensitivity and magnitude.



The definitions of High, Moderate and Low visual impact are defined below and should be used for reference when considering the development of mitigation requirements:

- High: the visual impact on these receptors/viewers will require amelioration at the site planning stage to allow viewers to continue to enjoy the existing visual amenity;
- Moderate: the visual impact on these receptors/viewers is at a localised scale and can be mitigated at Detail Design Phase OR already has some existing screening or setback that minimises impact; and
- Low: the visual impact on these receptors/viewers is considered low and little or no amelioration is needed.

Table 1.1 Landscape Character and Visual Impact Rating Matrix (*RMS Guideline*)

	<i>Modification Magnitude</i>					
<i>Sensitivity</i>	High	High to Moderate	Moderate	Moderate to Low	Low	Negligible
High	High Impact	High Impact	Moderate – High	Moderate – High	Moderate	Negligible
High to Moderate	High Impact	Moderate – High	Moderate – High	Moderate	Moderate	Negligible
Moderate	Moderate – High	Moderate – High	Moderate	Moderate	Moderate – Low	Negligible
Moderate to Low	Moderate	Moderate	Moderate	Moderate – Low	Moderate – Low	Negligible
Low	Moderate	Moderate	Moderate – Low	Moderate – Low	Low	Negligible
Negligible	Negligible	Negligible	Negligible	Negligible	Negligible	Negligible

## 1.6 Existing Landscape Character and Visual Environment

The study area on Waterfall Way (Main Road 76) consists of a 3.1 km length of road between the Pacific Highway Raleigh Interchange and Connells Creek within the Bellingen Shire Council local government area, on the Mid North Coast of NSW.

The site lies to the south of the Bellinger River, 170 m to 890 m in distance. Elevation of the 1.1 kilometres that comprises the western extent of the site ranges from 5 m to 12 m Australian Height Datum (AHD) and lies within the Bellinger River Floodplain. Elevation of the 2 kilometres that comprises the eastern extent of the site ranges from 12 m to 29 m AHD.

The 'Proposal footprint' is defined as the area encompassing the existing road and related infrastructure, and the area of the proposed realigned road, including all areas impacted by the construction of shoulders, batters and drainage structures, as well as the proposed site of the compound, site office and stockpile site. It should be noted that not all of the footprint will be affected by the upgrade.

The surrounding environment is predominantly of a rural setting with rural residential dwellings located in proximity to Waterfall Way. Two types of Endangered Ecological Community (EEC) occur in the western portion of the study area: These are two Freshwater Wetland EECs and one Swamp Sclerophyll Forest EEC.

One of the Freshwater Wetland EECs occurs on the northern side of Waterfall Way approximately 400 m east of Connells Creek. The other section of Freshwater Wetland EEC and an extensive strand of Swamp Sclerophyll Forest EEC occur on the southern side of Waterfall Way approximately 900 m east of Connells Creek.

Vegetation throughout the existing road corridor generally comprises a narrow band of regrowth native vegetation, open grassland/paddocks and maintained garden roadside verge. Two areas of forested vegetation also occur in close proximity to the Proposal footprint. One is located on the southern side of Waterfall Way at the eastern end of the site and the other at the western end, generally northwest of the Shortcut Road intersection.

Typically, residents of rural areas place high value on the scenic amenity offered by such places and this would be true for the Bellinger Valley and subject study area. Residents of the Bellinger Valley generally enjoy a picturesque rural landscape. The landscape consists of undulating hills and river plains. These areas are generally pastoral agricultural land with heavily vegetated undulating ranges in the distance. Various agricultural activities, particularly dairy farming, occur on the floodplains and low lying undulations within the greater valley. Dwellings within the study area and users of Waterfall Way also experience views of built environment features, notably the existing road reserve and carriageway of Waterfall Way and other nearby dwellings and minor associated infrastructure (powerlines, fences etc). Raleigh Dam is also a large built feature within the study area; however it is not necessarily obvious to all users of Waterfall Way due to its surface being slightly below that of the carriageway and due to shrub like vegetation being present around its edges and along the roadside.

Waterfall Way occurs within an iconic landscape and forms the beginning and important segment of a popular tourist drive. This route provides for the 'gateway' to the Bellinger Valley and Dorrigo / New England tablelands. From the start of Waterfall Way, leading west from the Pacific Highway, the area introduces its users to vistas of the Bellinger Valley's varying and organic landscapes.

Key visual features experienced along the study area include the open rural flood plains adjacent to the Bellinger River, low lying hills leading to greater, heavily forested ranges in the distance. Numerous trees line the 'gateway' of Waterfall Way and lead into open grazing and flood plain environments. Wetlands adjacent to Cameron's Corner support Endangered Ecological Communities and present another attractive feature within the broader landscape.

**Plates 1.1 to 1.6** illustrate the landscape character of the area and also depict the views experienced along the subject section of Waterfall Way.



Plate 1.1 View West Along Waterfall Way - Approx 850m West of Pacific Highway



Plate 1.2 View North Over Valley from Waterfall Way - Approx 1.6km West of Pacific Highway



Plate 1.3 View Along Waterfall Way Adjacent to Raleigh Dam - Approx 1.5km West of Pacific Highway



Plate 1.4 Shortcut Road and Waterfall Way Intersection - Approx 1.8km West of Pacific Highway



Plate 1.5 View West Along Waterfall Way - Approx 2.2 km West of Pacific Highway



Plate 1.6 View West along Waterfall Way - Approx 2.8km West of Pacific Highway

## 1.7 Proposal Description

The study area on Waterfall Way (Main Road 76) consists of a 3.1 km length of road between Raleigh Interchange and Connells Creek. **Illustration 1.2** shows the extent of the Proposal. Works involve the upgrade of sections of Waterfall Way between Raleigh Interchange and Connells Creek that currently do not meet the RMS standards and may include:

- a minor realignment to improve horizontal and vertical alignment;

- improving flood immunity;
- road and shoulder widening;
- culvert extension including dewatering; and
- improvements to pavement.

Components of the proposed works that will potentially impact on the visual environmental include:

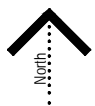
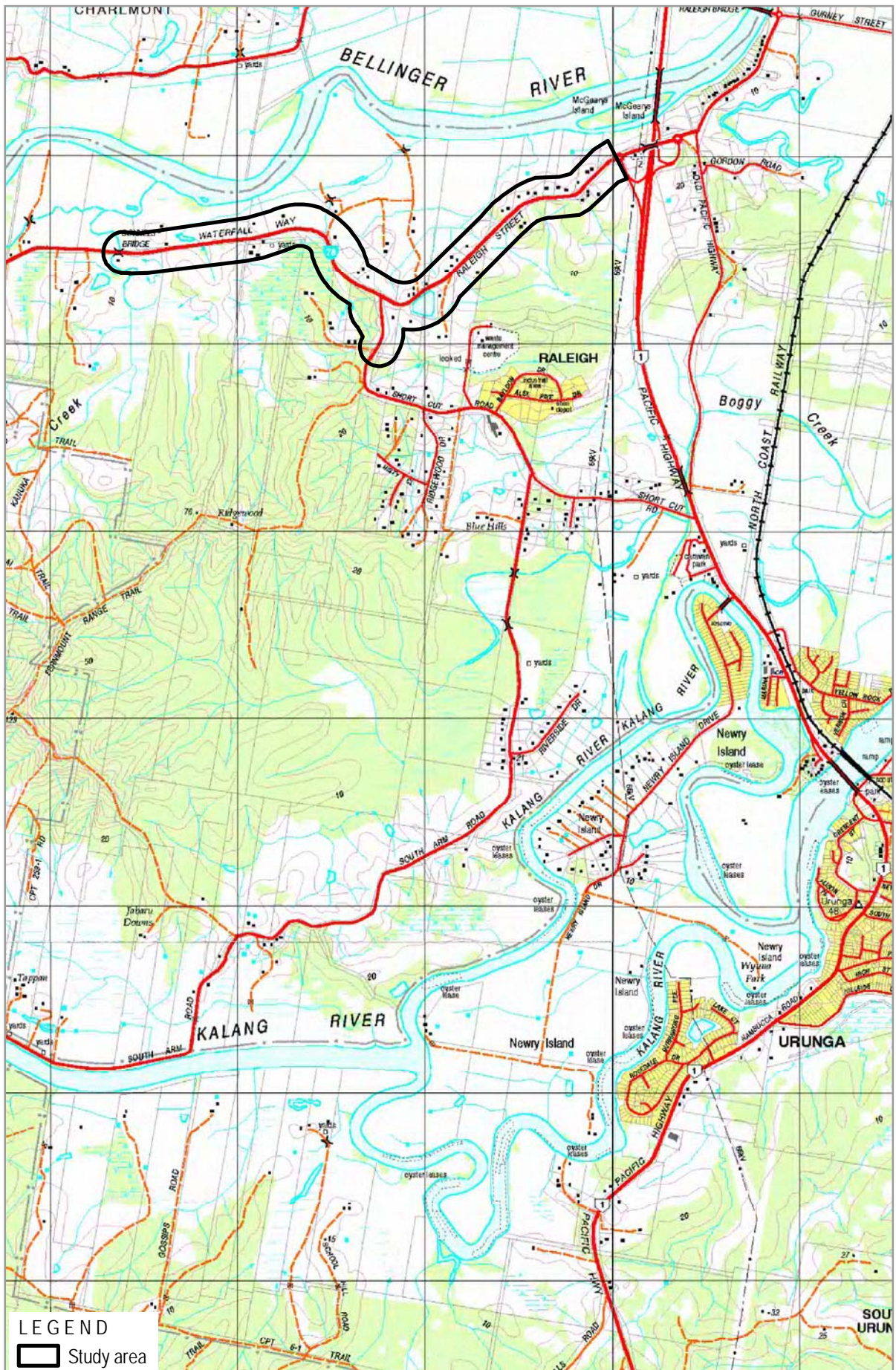
- road realignment;
- vegetation removal; and
- earth works, including cut and fill batters.

Currently two route options are proposed for the upgrade of Waterfall Way which have been identified as Option A and Option B. Both options have similarities and have been designed to follow and parallel the existing Waterfall Way carriageway. The main differences between the two routes occur at Raleigh Dam, the intersection of Waterfall Way and Shortcut Road and at Cameron's Corner (refer to **Illustration 1.2**).

Both Options A and B would have a sign posted speed limit of 80 km/h. Option A closely follows the existing carriageway of Waterfall Way, with minor realignments occurring primarily at Raleigh Dam and Cameron's Corner. Option A retains the position of the Shortcut Road intersection, however turning lanes and channelisation would be added to aid safer use of the intersection.

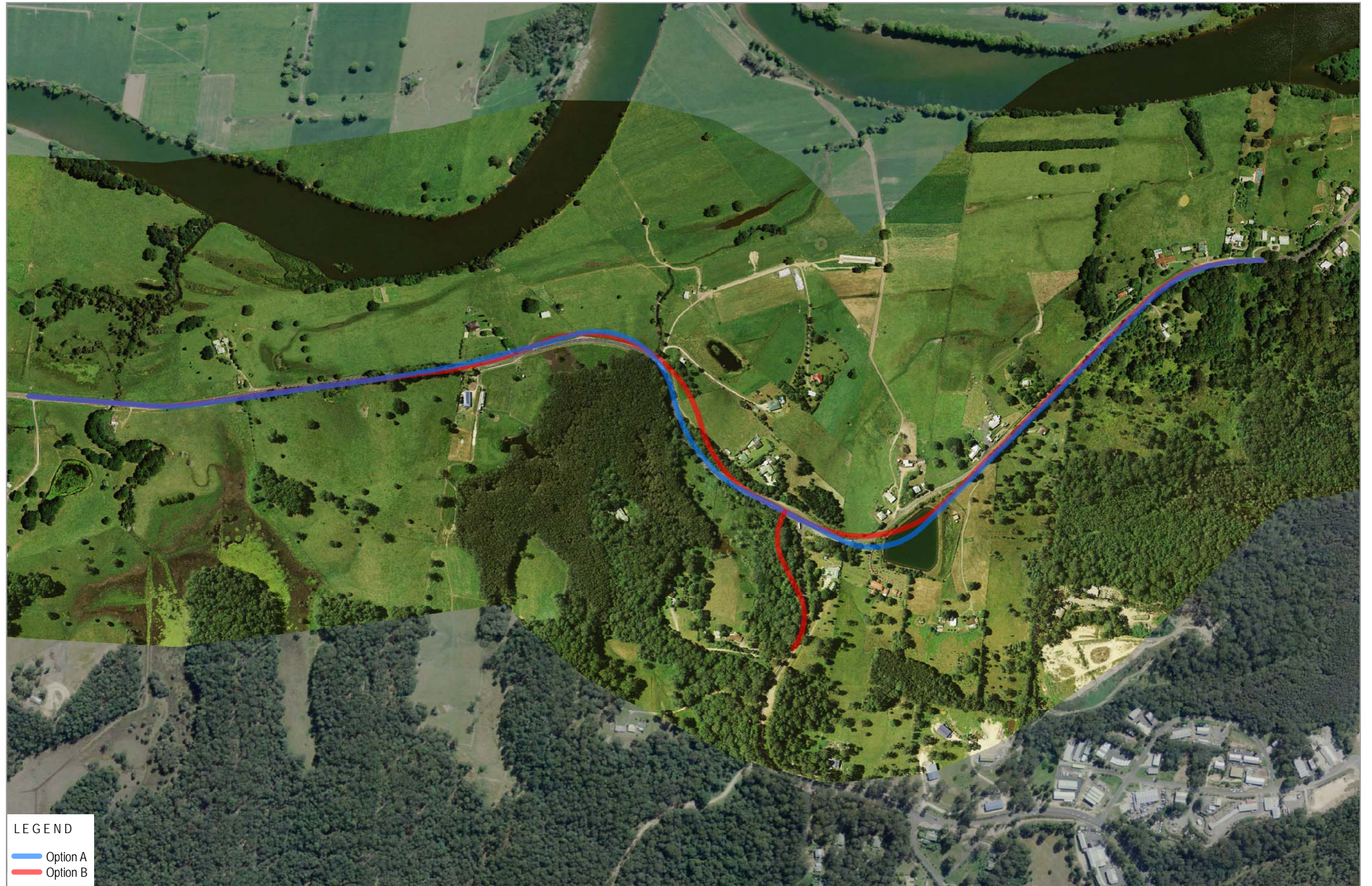
Along the relatively straight sections, Option B follows a similar alignment to that of Option A; however the design of Option B near Cameron's Corner diverges further away from the existing carriageway to form a broader corner. Under Option B, the Shortcut Road intersection is shifted to the northwest to achieve appropriate lines of sight.

Both Options can be viewed in **Illustration 1.2**.



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LEGEND

- Option A
- Option B

0 150

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## Landscape Character Assessment

This assessment identifies and provides a broad description of Landscape Character Zones found within the study area and that may be affected by the proposal in a landscape context. This assessment rates both the sensitivity and the magnitude of the proposal's impact in the context of each Landscape Character Zone.

As the nature of the proposal is the upgrade of an existing single carriageway, the actual road infrastructure and nature of the development would not be overly dissimilar from what exists within the respective landscape at present. Distance from the receptor, as well as contrasting pre- and post-development scenarios has been used to determine magnitude.

Within the immediate locality of the proposed carriageway upgrade, there are two distinct Landscape Character Zones as shown in **Illustration 2.1**. Two additional Landscape Character Zones have been identified to occur within the broader environment, immediately surrounding the proposal footprint.

The primary Landscape Character Zones within the area of the proposed upgrade include:

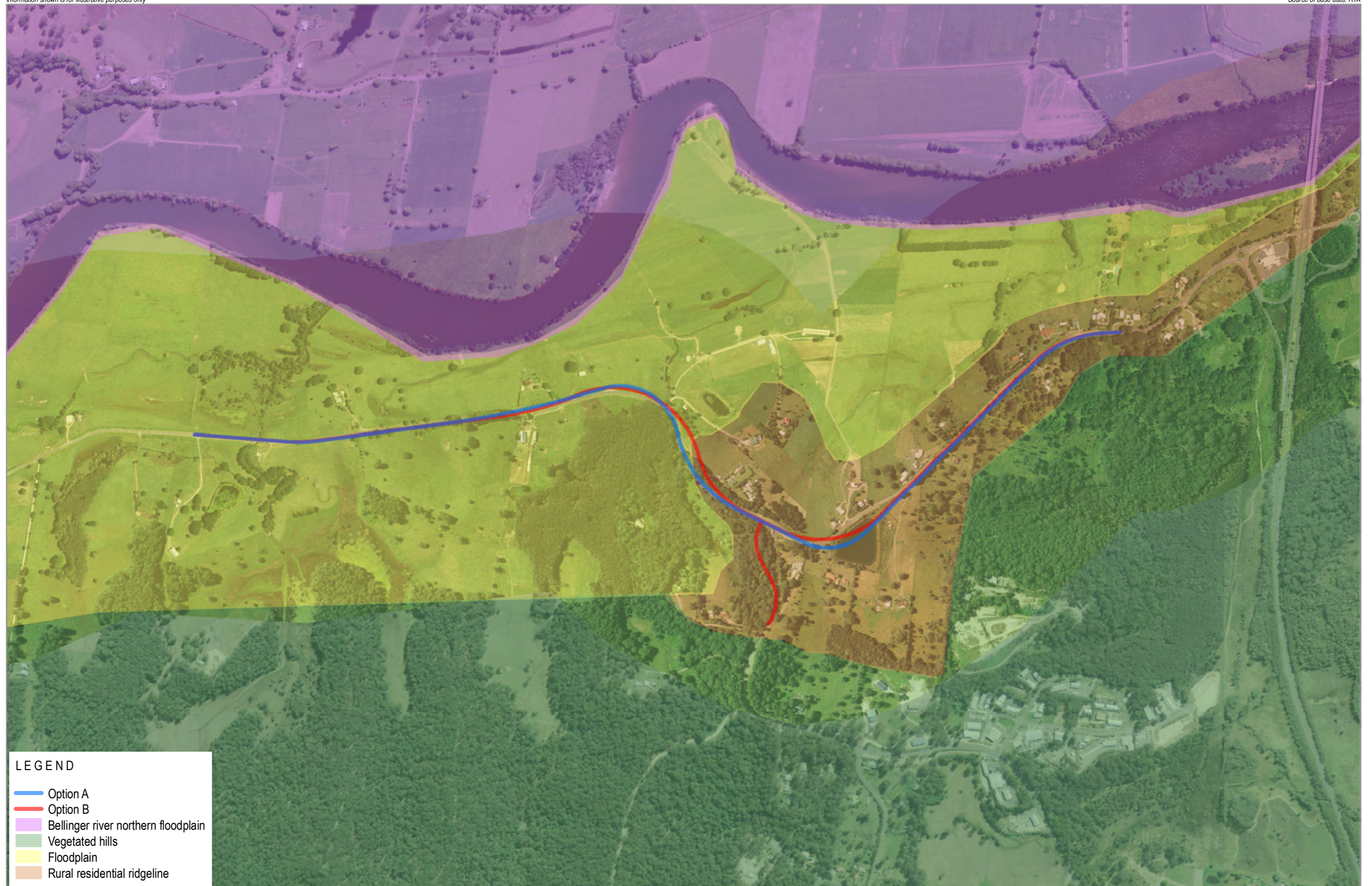
- Rural Residential Ridgeline; and
- Floodplain.

The Landscape Character Zones adjacent to the immediate primary Landscape Character Zones include:

- Vegetated Hills; and
- Bellinger River Northern Floodplain

**Illustration 2.1** identifies the Landscape Character Zones which occur within the area of the proposed upgrade and those of the surrounding environment. The type, location and extent of Landscape Character Zones have been identified during a field investigation, examining aerial images and applying interpretations of the natural and built environment.

Information shown is for illustrative purposes only



**LEGEND**

- Option A
- Option B
- Bellinger river northern floodplain
- Vegetated hills
- Floodplain
- Rural residential ridgeline

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## 2.1 Landscape Character Zone 1 – Rural Residential Ridgeline

This landscape character zone is located along the ridgeline / foothill that supports the existing Waterfall Way carriageway. Several rural residential houses and properties are located sporadically along this section of Waterfall Way. Typically, residential dwellings front the existing carriageway, with others being set back within the rural environment. The majority of this rural residential area immediately surrounds the existing carriageway and that of the proposed upgrade, generally being restricted to within 350m north or south of the carriageway's centreline. **Plate 2.1** and **2.2** provide typical images of this Landscape Character Zone. Another key feature of this area is roadside vegetation (as shown in **Plates 1.1 and 1.6**) and the role it plays in establishing the 'gateway' to the Bellinger Valley.



Plate 2.1 Rural Residential Dwellings Located Along Carriageway – Approx 750m From Pacific Highway



Plate 2.2 View From Rural Dwelling Toward Waterfall Way – Approx 1.4km From Pacific Highway

Table 2.1 Landscape Character Elements

Landscape Character Element	Description
Topography	This area generally consists of undulating to rolling low hills to hills.
Hydrology	Raleigh Dam is the main hydrological feature (built) within this zone. The Bellinger River and wetlands are located in adjacent character zones.
Geology	This zone is located on the edge of a foothill to the Bellinger River flood plain. The landform has been classed as erosional and the underlying geology is the Nambucca Beds metasediments.
Ecology/Vegetation	Open pasture on undulating low hills with some vegetated areas.
Land Use	Rural residential and grazing.
Built Form / Infrastructure	Several rural residential dwellings, sheds, existing carriageway, Raleigh Dam, fences and power poles / lines.
Spatial	Generally open in character, with areas along the existing road corridor forming a 'gateway' to the Bellinger Valley.

The landscape character elements have been outlined in **Table 2.1**. Given the natural character of the zone is combined with elements of built forms and infrastructure, particularly the existing Waterfall Way carriageway, it can be initially suggested that this zone would not be substantially vulnerable to the changes proposed.

Yet, Waterfall Way is a key transit route between the Mid-north Coast, Bellinger, Dorrigo and the New England Tablelands. Waterfall Way is often described as the 'gateway' to the Bellinger Valley, an area of intrinsic rural and natural scenery and high visual appeal. For these reasons, Waterfall Way is a popular tourist drive and also valued by local residents. Impacts to existing roadside vegetation that helps form this 'gateway' could influence the area's character. It is therefore important to ensure that the Proposal would not significantly alter or degrade the route's visual appeal and character; whether experienced from local viewpoints or from a road user's perspective.

Generally the proposed realignment of Waterfall Way is not considered to be significant and both of the proposed route options generally parallel the majority of existing carriageway, limiting the potential for high impacts. However, existing bands of vegetation located along the Waterfall Way carriageway, particularly within this area, would require removal. As mentioned, it is considered that this vegetation supports the 'gateway' function of Waterfall Way to the Bellinger Valley. However removal of such vegetation would not significantly affect the appeal of the Waterfall Way in a significant negative manner. The reason for this is because the removal of such vegetation has the potential to enhance the experience of travelling through the surrounding rural lands and undulating ranges in the distance rather than exposing undesirable viewpoints. Further, landscape and replacement planting would effectively maintain the 'gateway' atmosphere in the medium to long term. Consequently this zone's sensitivity to the proposal is likely to be moderate.

Although the proposed upgrade and areas of carriageway realignment run through the centre of this landscape zone and would be in close proximity to local dwellings and views, the magnitude of the proposal is considered to be low to moderate due to the presence of the existing carriage and marginal upgrade realignment within this zone. Changes to the existing landscape imposed by the upgraded carriageway are unlikely to be discernable from distant landscape features or viewpoints.

The overall impact rating to landscape character in this zone would be moderate. The main landscape character impacts that would be experienced are a result of roadside vegetation removal, cut and fill batters and changes at Raleigh Dam and the Short Cut Road intersection. Most of the impacts can be ameliorated and with the effective implementation of mitigation measures recommended in **Chapter 4**, only minor to moderate changes to the overall landscape character in this zone would be experienced as a result of the proposal. Despite this overall rating, localised impacts in the immediate vicinity of Raleigh Dam (particularly experienced by the dwelling which looks over the dam) would be greater than moderate due to a substantial change in character which would endure after completion of the works, even with the application of mitigation measures. Yet this localised impact would not significantly influence the overall character of this zone when considered collectively.

More discussion in regard to roadside vegetation removal and the visual impacts it may impose is included in **Section 3.2.9**. A detailed assessment of the visual impact experienced by the house overlooking Raleigh Dam is also Provide in **Chapter 3**.

## 2.2 Landscape Character Zone 2 –Floodplain

This area is located on a low lying floodplain. A wetland and agricultural uses are key features of this floodplain. A number of dwellings are located in this area, predominantly in conjunction with farming properties located off Waterfall Way. This area encompasses three visual character types: the overall floodplain, agricultural uses and wetland. This landscape zone encompasses the area of Cameron's Corner and westward. It also forms around the periphery of the Rural Residential Ridgeline Landscape Character Zone as shown in **Illustration 2.1**. **Plate 2.3** provides a typical image of the Floodplain zone.



Plate 2.3 Open Floodplain and Agricultural Land and Wetlands (near Cameron’s Corner) – Approx 2.5km west of Pacific Highway

Table 2.2 Landscape Character Elements

Landscape Character Element	Description
Topography	This area generally consists of low lying land and floodplain with areas of low gentle undulation.
Hydrology	The wetland and Bellinger River floodplain are the main hydrological features within this zone.
Geology	The landform is considered alluvial and swamp landscape. No other prominent geological features are present.
Ecology/Vegetation	Predominantly open pasture with some heavily vegetated wetland area.
Land Use	Rural agricultural and grazing. Plus environmental protection of wetland.
Built Form / Infrastructure	Several rural dwellings, sheds, existing carriageway, fences and power poles / lines.
Spatial	Open and flat in character.

The landscape character elements have been outlined in **Table 2.2**. Given the natural character of the zone is combined with elements of built forms and infrastructure, particularly the existing Waterfall Way carriageway, it can be considered that this zone’s sensitivity to the proposal would be low to moderate.

Although the proposed upgrade and areas of carriageway realignment run directly through this Landscape Character Zone and would be in close proximity to some local dwellings and views, the magnitude of the proposal is considered to be low to moderate. This is influenced by the presence of the existing carriageway and the marginal upgrade realignment that would occur. It is noted that changes to the existing landscape imposed by the upgraded carriageway are unlikely to be seen from distant landscape features or viewpoints.

The main landscape character impacts that would be experienced are a result of roadside vegetation removal and cut and fill batters. These impacts can be effectively ameliorated. With the effective implementation of mitigation measures recommended in **Chapter 4**, it is considered that only modest changes to the overall landscape character would be experienced as a result of the proposal. Accordingly the overall impact rating would be low to moderate.

## 2.3 Landscape Character Zone 3 – Vegetated Hills

This area comprises rolling low hills to hills which are in most cases densely vegetated. This zone occurs to the south of the proposal and associated footprint. A number of dwellings and the presence of some low density industrial uses are located in the easterly portion of this zone. This Landscape Character Zone is not directly affected by the proposal and viewpoints from this zone toward the proposal (or vice versa) are restricted due to vegetation and topography. The approximate area and nature of the Vegetated Hills Landscape Character Zone is shown in **Illustration 2.1**. **Plate 2.4** presents typical images experienced when looking toward this Landscape Character Zone.



Plate 2.4 Typical Outlooks Experienced When Looking Toward Vegetated Hills

Table 2.3 Landscape Character Elements

Landscape Character Element	Description
Topography	Rolling low hills to hills.
Hydrology	Natural gullies draining into farm land and wetland area.
Geology	The landform has been predominantly classed as an erosional landscape.
Ecology/Vegetation	Varying density of vegetation, majority is dense.
Land Use	Some farmland, rural dwellings, light industrial and native forest/vegetation.
Built Form / Infrastructure	Rural dwellings, some industrial buildings, fences and power poles / lines, local roads.
Spatial	Dense tree cover and enclosing landform, with some areas opening toward the floodplain.

This zone has a predominant natural and heavily vegetated character combined with some localised elements of built forms and infrastructure (refer to **Table 2.3**). Due to the nature of the proposal, the presence of the existing carriageway and as the proposal would not impose any direct or notable indirect visual impacts to this zone; it is considered that this zone's sensitivity to the proposal would be negligible.

Due to the factors mentioned above and the lack of landscape character change that would be experienced, the magnitude of the proposal from the perspective of this zone would also be negligible.

It is unlikely that the proposal or visual changes imposed by the proposal would affect the character of this landscape zone or even be notably visible from this zone. The overall impact rating would be negligible.

## 2.4 Landscape Character Zone 4 – Bellinger River Northern Floodplain

This area is generally clear of vegetation and occurs on long and narrow curved fluvial levees and scrolls on the meander plain of the Bellinger River. This zone occurs north of the proposal site, on the northern floodplain of the Bellinger River (and includes the River). In the area included for landscape character assessment (**Illustration 2.1**), no dwellings are known to occur. The area comprises agricultural uses, particularly dairy farming. This Landscape Character Zone is not directly affected by the proposal and viewpoints from this zone toward the proposal (or vice versa) are restricted due to distance, riparian vegetation and topography. The approximate area and nature of the Bellinger River Northern Floodplain Landscape Character Zone is shown in **Illustration 2.1**. **Plate 2.5** provides a typical image of this Landscape Character Zone.



**Plate 2.5 Agricultural Uses Along Bellinger River North Floodplain Looking Toward Waterfall Way**

**Table 2.4 Landscape Character Elements**

Landscape Character Element	Description
Topography	Long and narrow curved fluvial levees and scrolls on the meander plain.
Hydrology	The Bellinger River.
Geology	The landform has been predominantly classed as an associated landscape with no prominent geological features.
Ecology/Vegetation	Mostly cleared grazing land.
Land Use	Agricultural and some rural infrastructure.
Built Form / Infrastructure	Rural infrastructure.
Spatial	Open flat landscape.

The landscape character elements described in **Table 2.4** indicate that this zone has a predominant agricultural and floodplain character, with minimal elements of built forms and infrastructure. Due to the nature of the proposal, the presence of the existing carriageway, limited views toward the proposed upgrade site and as the proposal would not impose any direct or notable indirect visual impacts to this zone; it is considered that this zone's sensitivity to the proposal would be negligible.

Due to the factors mentioned above, the magnitude of the proposal from the perspective of this zone would also be negligible.

It is unlikely that the proposal or visual changes imposed by the proposal would affect the character of this landscape zone or even be notably visible from this zone. The overall impact rating would be negligible.

## 2.5 Summary

This landscape character assessment considered the impact the proposed upgrade of Waterfall Way would have on the area's landscape character. As the landscape character assessment focuses on the broader landscape, the assessment made no differentiation between proposed route Option A or B as both Options follow the similar road corridors / alignments and would have similar impacts in a broad context. As such, the difference between Options A or B would be negligible in terms of landscape character Impacts.

Regular users of Waterfall Way would clearly notice changes to the area's landscape character during and upon completion of works. However, it is unlikely that tourists and infrequent users of the route would be able to clearly differentiate between pre and post work landscape character after the works are complete and established.

Overall, the area has a unique and picturesque character consisting of vegetated rolling hills, cleared floodplains, wetland, agricultural uses and some built environment features and existing infrastructure. Due to the presence of the existing Waterfall Way carriageway, the modest extent of realignment and that nature of the general road widening and associated works, the proposal would not result in significant adverse landscape character impacts. The proposal would directly affect the Rural Residential Ridgeline and Floodplain Landscape Character Zones, however the overall impact for both of these zones is considered to be low to moderate.

The Landscape Character Zones identified as Vegetated Hills and Bellinger River Northern Floodplain occur outside of the proposal's footprint and would not be directly affected. Views to and from these zones, within the context of the proposal, are limited. It is unlikely that the proposal or visual changes imposed by the proposal (either route option) would influence or adversely affect the surrounding landscape and therefore these zones have received an impact rating of negligible with regards to landscape character.

The mitigation measures included in **Chapter 4** would help to ameliorate impacts, particularly those relating to vegetation removal and cut and fill batters. Specific viewpoint impacts have been assessed in **Chapter 3**.

## Visual Impact Assessment

### 3.1 Visibility of the Proposal

Generally the scale and visibility of the Proposal (under either option) is moderate in magnitude due to the majority of the upgrade constituting a relatively minor realignment which would generally parallel the existing carriageway. However the proximity to local receptors is high.

The overall visibility of the Proposal would be localised as minimal opportunities for distant viewpoints exist due to topography and vegetation. Realignment and vegetation removal would have the greatest influence upon the Proposal's level of visibility and the impacts experienced. **Illustration 3.1** presents a Visual Envelope Map (VEM) which graphically demonstrates the estimated likely visual envelope / visual exposures relevant to the Proposal. The creation of the VEM has not been based on computer based geographical analysis, but rather visual assumptions and sightings made during the onsite investigations – its accuracy is not guaranteed and its purpose is to act as a visual guide only. The VEM indicates the locations of the viewpoints likely to be affected and consequently assessed.

Option B is likely to have areas of increased visibility from surrounding viewpoints compared to Option A. This would occur primarily in areas where the realignment increasingly diverges away from the existing carriageway footprint and results in higher levels of vegetation removal. Such areas would include Cameron's Corner and potentially the Shortcut Road intersection.

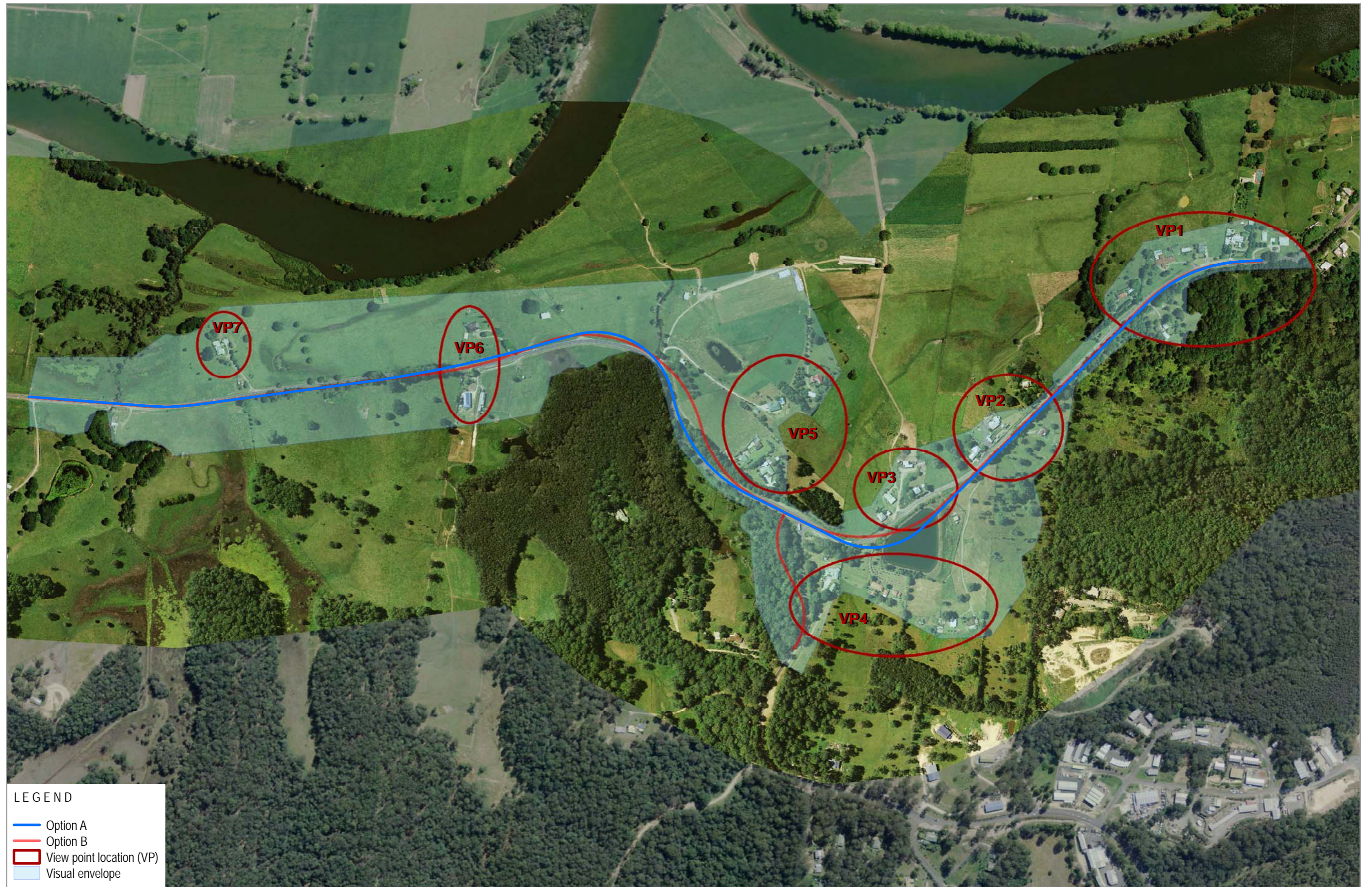
Overall, although the Proposal (either option) would be visible from many of the existing dwellings and local viewpoints, the level of visual modification in most cases would be low to moderate as many visual receptors currently have viewpoints toward the existing carriageway. However a number of dwellings in the area do not currently experience views of Waterfall Way and depending on the route option, may experience an increase in the level of visual exposure to the Waterfall Way carriageway.

Under Option A, most dwellings that are not visually exposed to Waterfall Way, would retain the majority of their visual outlooks and the project would not intrude into them. Under option B however, the realignment of areas near Cameron's Corner has the potential to expose the carriageway to nearby dwellings which otherwise did not experience direct views of the carriageway previously.

The Proposal (both options) would also result in a slight decrease in visual exposure to Waterfall Way for some dwellings as the realignment would shift the carriageway further away. It is considered however that this decrease in visual exposure would be minimal.

Dwellings and viewpoints located south of Waterfall Way which overlook Raleigh Dam and are located close to the Proposal's footprint, are elevated and are likely to experience the greatest visual impacts and exposure from the Proposal.

Regular road users would clearly notice the changes to Waterfall Way as the majority of change affects the roadway and road reserve. However, it is unlikely that tourists and infrequent users of the route would be able to clearly differentiate between pre and post work visual features after the works are complete and established.



**LEGEND**

- Option A
- Option B
- View point location (VP)
- Visual envelope

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environmental management and design



## 3.2 Viewpoint Analysis and Visual Impact Assessment

### 3.2.1 Viewpoint 1 (VP1)

Plate 3.1 depicts the typical views experienced by dwellings located north of Waterfall Way within Viewpoint 1 (VP1) as identified in the VEM (Illustration 3.1). The area's primary views consist of the Bellinger Valley and open rural agricultural land to the north. Views toward the Proposal in the south consist of the existing Waterfall Way carriageway and vegetation. The approximate area likely to be affected by the Proposal is shown in red (see Plate 3.1). The Proposal footprint mainly affects the existing carriageway, therefore the scale, form and character of the proposal is considered to be low in magnitude. Whilst, the viewing distance from the dwellings is only 15 to 20 m. As a road already exists in this area, the magnitude would be moderate to low.

Under either Option A or B, the sensitivity of the Proposal is considered to be low as the Proposal is to upgrade the existing carriageway and in this section only marginal, if any, realignment is proposed. As a result, the visual impact experienced by these receptors would be low as the existing carriageway would only experience minor alteration resulting in minimal change to the existing visual environment surrounding these dwellings.

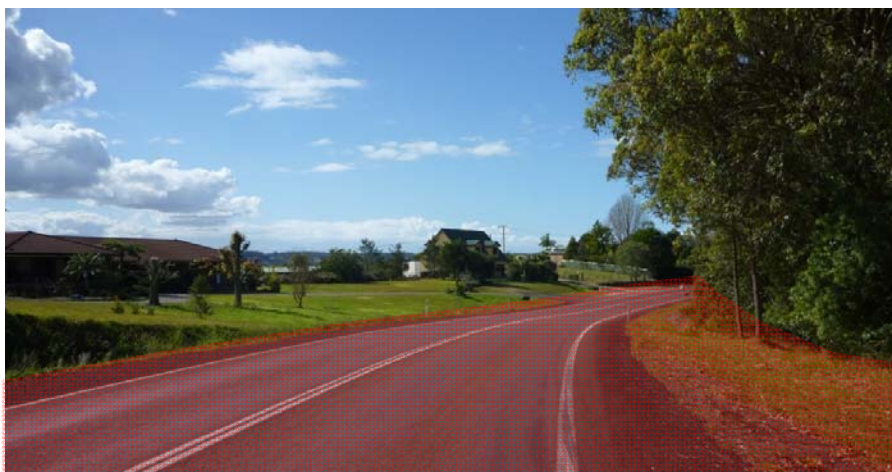


Plate 3.1 Viewpoint 1 – Dwellings North of Waterfall Way

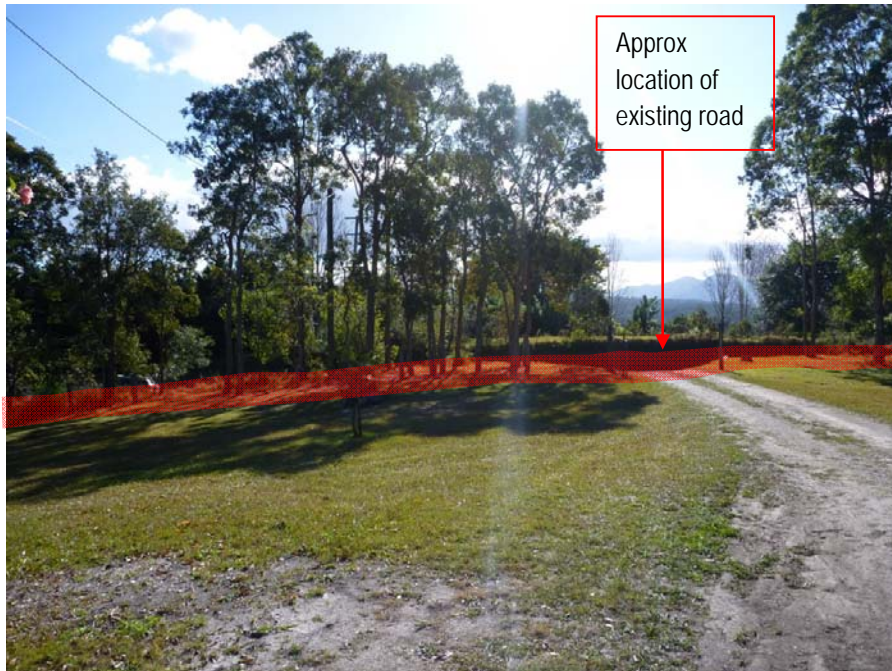
Table 3.1 provides a breakdown of the visual impact rating.

Table 3.1 Viewpoint 1 Visual Impact Rating – Dwellings North of Waterfall Way

<i>THEME</i>	<i>CRITERIA</i>	<i>DETAILS</i>	<i>RATING</i>
Sensitivity	Context of Viewpoint and sensitivity to the proposed change	Existing carriageway and vegetation.	L
	Visual Receptor Type	Some local dwellings	L
	Importance of View or Visual Accessibility	Low level to medium visual importance in this direction, with few receptors.	L
	Overall Sensitivity		L
Magnitude	Scale and form of development	Single carriageway upgrade, modestly altering the existing carriageway.	L
	Distance	15 to 20m, however carriageway already exists in this area.	M-L
	Overall Magnitude		L
<b>Overall Impact Rating</b>			<b>L</b>

**Plate 3.2** depicts the view experienced by the dwelling south of Waterfall Way located within Viewpoint 1 (VP1) as identified in the VEM (**Illustration 3.1**). The existing view consists of sparse to moderate vegetation, with some distant views of forested hills. The existing Waterfall Way carriageway is located at the northern end of the driveway within a minor cutting. The approximate area likely to be affected by the Proposal is shown in red (see **Plate 3.2**). The Proposal would upgrade the existing carriageway by marginally realigning it to the south (approximately 5 to 10 m). This has the potential to remove the trees shown in the foreground of **Plate 3.2**.

Both route options are similar and are unlikely to vary the level of impact at this viewpoint location. Magnitude of the Proposal in terms of scale, form and character would be low to moderate, yet proximity is high. Sensitivity to the change would be low to moderate as the Proposal constitutes a minor realignment of an existing road and would include the removal of foreground vegetation, yet this can be readily mitigated. The overall visual impact would be moderate.



**Plate 3.2** Viewpoint 1 – Dwelling South of Waterfall Way

Table 3.2 provides a breakdown of the visual impact rating.

**Table 3.2** Viewpoint 1 Visual Impact Rating – Dwelling South of Waterfall Way

<i>THEME</i>	<i>CRITERIA</i>	<i>DETAILS</i>	<i>RATING</i>
Sensitivity	Context of Viewpoint and sensitivity to the proposed change	Existing carriageway, forested hills and foreground vegetation.	L
	Visual Receptor Type	Local dwelling	M
	Importance of View or Visual Accessibility	Single receptor with level rural outlook.	M
	Overall Sensitivity		L-M
Magnitude	Scale and form of development	Single carriageway upgrade, marginally altering the existing carriageway.	L-M
	Distance	45m, however carriageway already exists in this area.	H
	Overall Magnitude		M
<b>Overall Impact Rating</b>			<b>M</b>

### 3.2.2 Viewpoint 2 (VP2)

The left image in **Plate 3.3** shows the view looking south toward the dwelling from Waterfall Way, whereas the right image depicts the view experienced by the dwelling looking north over Waterfall Way. This dwelling is located within Viewpoint 2 (VP2) as identified in the VEM (**Illustration 3.1**). The view consists of a narrow band of vegetation along the property boundary adjoining the Waterfall Way carriageway, with some views out toward greater Bellinger Valley and distant forested hills. In this section, the Proposal would shift the carriageway south (varying between approximately 5 and 15 m), resulting in the removal of the depicted vegetation and encroachment of the carriageway toward the dwelling. The approximate area likely to be affected by the proposal is shown in red in **Plate 3.3**.

Both route options are similar and unlikely to vary the level of impact at this location. Under either option, proximity to the Proposal would be rated high, yet the scale and form of development would be moderate. Despite close proximity to the Proposal, due to the existing carriageway's location and the nature of the work proposed, the sensitivity is considered to be low-moderate resulting in an overall moderate impact. The detailed design would need to consider if replanting of suitable vegetation to help to ameliorate impacts is appropriate at this location due to shoulder width, clear zones and site distance requirements.



**Plate 3.3** Viewpoint 2 – Dwelling South of Waterfall Way

Table 3.3 provides a breakdown of the visual impact rating.

**Table 3.3** Viewpoint 2 Visual Impact Rating – Dwelling South of Waterfall Way

<i>THEME</i>	<i>CRITERIA</i>	<i>DETAILS</i>	<i>RATING</i>
Sensitivity	Context of Viewpoint and sensitivity to the proposed change	Close presence of existing carriageway, foreground vegetation and distant forested hills.	L-M
	Visual Receptor Type	Local dwelling	M
	Importance of View or Visual Accessibility	Single receptor with restricted views of typical rural character.	L-M
	Overall Sensitivity		L-M
Magnitude	Scale and form of development	Single carriageway upgrade, marginally altering the existing carriageway.	M
	Distance	Within 25 to 30m, although a carriageway already exists in this area.	H
	Overall Magnitude		M-H
<b>Overall Impact Rating</b>			<b>M</b>

**Plate 3.4** depicts the view experienced by the dwelling and buildings north of Waterfall Way located within Viewpoint 2 (VP2) as identified in the VEM (**Illustration 3.1**). The existing views in the direction of the Proposal consist of the existing carriageway, a narrow band of vegetation located along the road reserve and some views of open rural land opposite and marginal views of Raleigh Dam. In this section, the Proposal

would shift the carriageway south (varying between approximately 5 and 15m), resulting in the removal of the depicted vegetation and the Waterfall Way moving further away from the subject viewpoint. **Plate 3.4** shows the approximate area likely to be affected by the proposal overlaid in red.

Both route options are similar and would result in similar impacts at this location. Generally the magnitude of the proposal would be moderate, primarily due to proximity, yet due to the immediacy of the existing carriageway and its proposed realignment slightly further away from the subject buildings, sensitivity to the Proposal (either option) would be low to moderate. This results in a moderate visual impact. Any tree removal could be effectively replaced.



**Plate 3.4** Viewpoint 2 – Dwelling and Buildings North of Waterfall Way

Table 3.4 provides a breakdown of the visual impact rating.

**Table 3.4 Viewpoint 2 Visual Impact Rating – Dwelling / Buildings North of Waterfall Way**

<i>THEME</i>	<i>CRITERIA</i>	<i>DETAILS</i>	<i>RATING</i>
Sensitivity	Context of Viewpoint and sensitivity to the proposed change	Nearby existing carriageway, foreground vegetation and some open rural land.	L-M
	Visual Receptor Type	Local dwelling / buildings	M
	Importance of View or Visual Accessibility	Few receptors with restricted views.	L-M
	Overall Sensitivity		L-M
Magnitude	Scale and form of development	Single carriageway upgrade, minor alteration of existing carriageway.	L-M
	Distance	Within 10 to 15m, however the existing carriageway is to be moved slightly further away from the receptor.	M-H
	Overall Magnitude		M
<b>Overall Impact Rating</b>			<b>M</b>

### 3.2.3 Viewpoint 3 (VP3)

**Plate 3.5** depicts the view experienced from the dwellings located north of Waterfall Way within Viewpoint 3 (VP3) as identified in VEM (**Illustration 3.1**). The primary existing views in the direction of the Proposal consist of the existing carriageway, a narrow band of sparse vegetation located along the road reserve and the Raleigh Dam boundary fence. Views also include sights of Raleigh Dam and distant rural land and dwellings opposite. In this section, the Proposal would shift the carriageway south (varying between approximately 50 m for Option A and 40 m for Option B), resulting in possible vegetation removal and the dewatering and removal of Raleigh Dam as both options would intersect it. The approximate area likely to be affected by the Proposal (either option) is roughly portrayed in **Plate 3.5** overlaid in red.

Route Option B would be located slightly further south than route Option A, providing marginally greater separation from the dwellings. Generally the magnitude of the Proposal would be moderate to high due to the proximity and nature of the works. Raleigh Dam however, offers limited visual amenity values to this viewpoint area due to: the restricted views offered as a result of the dam being sunken behind a small embankment, high boundary fence and exposed dam liner. The area is likely to have low to moderate sensitivity to the Proposal, influenced by the proximity of the existing carriageway and the proposed realignment that would shift the road further away from subject buildings. This results in a moderate visual impact for both route options as they are similar. Landscaping and tree planting would effectively reduce impacts.



Plate 3.5 Viewpoint 3 – Dwellings North of Waterfall Way

Table 3.5 provides a breakdown of the visual impact rating.

Table 3.5 Viewpoint 3 Visual Impact Rating – Dwellings North of Waterfall Way

<i>THEME</i>	<i>CRITERIA</i>	<i>DETAILS</i>	<i>RATING</i>
Sensitivity	Context of Viewpoint and sensitivity to the proposed change	Nearby existing carriageway to be moved further away from receptors, minimal foreground vegetation, some sights of Raleigh Dam and some distant open rural land.	L-M
	Visual Receptor Type	Local dwellings	M
	Importance of View or Visual Accessibility	Few receptors with low to medium quality views in this direction.	L-M
	Overall Sensitivity		L-M
Magnitude	Scale and form of development	Single carriageway upgrade, realignment of carriageway away from dwellings, removal of dam.	M
	Distance	Within 40 to 50m, although a carriageway already exists in this area.	M-H
	Overall Magnitude		M-H
<b>Overall Impact Rating</b>			<b>M</b>

### 3.2.4 Viewpoint 4 (VP4)

Viewpoint 4 (VP4) as identified in the VEM (Illustration 3.1) contains 3 dwellings located south of Waterfall Way and the Proposal. Each experiences varied views over the Bellinger Valley, Raleigh Dam and Waterfall Way. A visual analysis and impact assessment has been prepared for each dwelling below.

Plate 3.6 depicts the view experienced by the eastern dwelling located within Viewpoint 4 (VP4) (see Illustration 3.1). The existing views in the direction of the Proposal consist primarily of rural pastoral land and sporadic vegetation with marginal views of the existing carriageway. Some limited views of Raleigh Dam area are also possible as are views toward distant forested hills in the north.

The Proposal would shift the carriageway centreline south of its existing location (varying between approximately 50 m for Option A and 40 m for Option B). This would increase the visibility of Waterfall Way and associated traffic to the subject dwelling. The approximate area likely to be affected by the Proposal is shown in red (refer to Plate 3.6) and affects Raleigh Dam, requiring its removal and considerable fill. The magnitude of the proposal would be moderate due to viewing distance and the nature of the Proposal. Sensitivity would also be moderate under either route option as the visual change would be evident, however the main distant views would remain unchanged. This would result in a moderate visual impact overall. Landscaping and vegetative planting along fill batters would effectively reduce impacts; however vegetation species selection and positioning should be sensitive to the existing distant views (i.e. shrubs and or low lying vegetation would be preferred).



Plate 3.6 Viewpoint 4 – View From Eastern Dwelling

Table 3.6 provides a breakdown of the visual impact rating.

Table 3.6 Viewpoint 4 Visual Impact Rating – Eastern Dwelling

THEME	CRITERIA	DETAILS	RATING
Sensitivity	Context of Viewpoint and sensitivity to the proposed change	Existing carriageway in the distance, open rural landscape with some foreground and distant vegetation, sights of Raleigh Dam and distant forested hills. Change would be noticeable, yet main distant view would be unaffected.	M
	Visual Receptor Type	Local dwelling	M
	Importance of View or Visual Accessibility	Single receptor with medium to high quality views in this direction.	M
	Overall Sensitivity		M
Magnitude	Scale and form of development	Single carriageway upgrade, realignment of carriageway toward dwelling resulting in the removal of Raleigh Dam.	M
	Distance	Approx 200m.	M
	Overall Magnitude		M
Overall Impact Rating			M

Plate 3.7 depicts the view experienced by the centre dwelling located within Viewpoint 4 (VP4) (see Illustration 3.1). The approximate area likely to be affected by the proposal is shown in red and affects Raleigh Dam, requiring it to be drained and filled in the areas affected by the Proposal. The existing view in

the direction of the Proposal constitutes a predominantly natural outlook, overlooking Raleigh Dam, the Waterfall Way, and forested hills in the distance.

As mentioned above, the Proposal would shift the carriageway centreline south of its existing location (varying between approximately 50m for Option A and 40m for Option B). This would significantly increase the visibility of the Waterfall Way and associated traffic to the subject viewpoint.

Under either option, the magnitude of the proposal would be high due to proximity and the nature of the Proposal. Sensitivity would also be high as the visual change would be clearly evident and substantial. Either route option would result in a high visual impact. Landscaping and tree planting along fill batters would help to soften the impacts; however the outlook from this area would remain substantially altered post works, even with mitigation measures.



Plate 3.7 Viewpoint 4 – View From Centre Dwelling

Table 3.7 provides a breakdown of the visual impact rating.

Table 3.7 Viewpoint 4 Visual Impact Rating – Centre Dwelling

<i>THEME</i>	<i>CRITERIA</i>	<i>DETAILS</i>	<i>RATING</i>
Sensitivity	Context of Viewpoint and sensitivity to the proposed change	View is predominantly made up of natural features such as distant hills, foreground and distant vegetation, and aspects of the Bellinger Valley which will remain. Views also include sights of the existing carriageway and Raleigh Dam in the immediate foreground where change would be clearly evident and pronounced.	H
	Visual Receptor Type	Local dwelling / residential property	M
	Importance of View or Visual Accessibility	Single receptor with generally uninterrupted views.	H
	Overall Sensitivity		H
Magnitude	Scale and form of development	Single carriageway upgrade, realignment of carriageway directly through part of the quality visual outlook.	M-H
	Distance	Within 100m.	H
	Overall Magnitude		H
<b>Overall Impact Rating</b>			<b>H</b>

Plate 3.8 depicts the view experienced by the western dwelling located within Viewpoint 4 (VP4) (see Illustration 3.1). The approximate area likely to be affected by the Proposal is shown in red. The existing views in the direction of the Proposal consist of some sights toward Raleigh Dam, Waterfall Way, and forested undulating topography in the distance.

Both route options would realign the carriageway centreline south of its existing location. This would moderately alter the visibility of Waterfall Way and associated traffic from the subject viewpoint. The magnitude of the Proposal (both options) would be moderate to high due to proximity and the nature of the development. Sensitivity would be low to moderate as the visual change would be influenced by existing screening/filtering vegetation. Either option would result in a moderate visual impact.



Plate 3.8 Viewpoint 4 – View From Western Dwelling

Table 3.8 provides a breakdown of the visual impact rating.

Table 3.8 Viewpoint 4 Visual Impact Rating – Western Dwelling

<i>THEME</i>	<i>CRITERIA</i>	<i>DETAILS</i>	<i>RATING</i>
Sensitivity	Context of Viewpoint and sensitivity to the proposed change	Natural and built environment features. Undulating forested topography, foreground and distant vegetation. Sights of the existing carriageway and Raleigh Dam. Some vegetation provides a screening / filter affect.	L-M
	Visual Receptor Type	Local dwelling	M
	Importance of View or Visual Accessibility	Single receptor with varying view qualities and screening / filtering vegetation in foreground.	L-M
	Overall Sensitivity		L-M
Magnitude	Scale and form of development	Single carriageway upgrade, moderate alteration of existing carriageway.	M
	Distance	Approx 80 to 100m.	M-H
	Overall Magnitude		M-H
<b>Overall Impact Rating</b>			<b>M</b>

This dwelling is also located adjacent to the area of Shortcut Road / Waterfall Way intersection, however no impacts greater than negligible to low affects would be anticipated in this direction under either route option due to appropriate filtering vegetation and the minor visual change the proposed works would impose.



### 3.2.5 Viewpoint 5 (VP5)

Plate 3.9 provides an aerial of the area comprising Viewpoint 5 (VP5) as identified in the VEM (Illustration 3.1). Plate 3.9 also provides an image representing a typical view experienced from a nearby dwelling.

The existing outlook in this area generally has limited views of the existing carriageway and is rural and pastoral in nature with sporadic vegetation, increasing to dense vegetation in the distance.

The Proposal would realign the carriageway centreline east of its existing location (varying between approximately 10 to 15 m for Option A and 45 to 50 m for Option B). This would increase the visibility of the Waterfall Way to the subject dwellings located within Viewpoint 5. The approximate area likely to be affected by the Proposal is shown in the image below. Vegetation removal and cut and fill would be required in this area.

The magnitude of the Proposal differs between Option A and B. The magnitude of Option A is considered to be low to moderate due to minimal realignment and extended viewing distance from local dwellings. In contrast, the magnitude of Option B is considered to be moderate to high due to the more substantial realignment, bringing the carriageway closer to local dwellings.

Sensitivity to Option A is considered to be low to moderate due to local topography and vegetation helping to absorb change. Sensitivity to Option B is considered to be moderate to high due to the increased visual exposure of the carriageway caused by a reduction in the topography's and vegetation's ability to screen the carriageway compared to the existing situation and that of Option A.

Overall Option A would result in a low-moderate visual impact and Option B would result in a moderate-high visual impact. Careful consideration in the detailed design stage with respect to provision of landscaping and tree planting would be required to ameliorate impacts.



Plate 3.9 Viewpoint 5 – Aerial (Option A = Blue; Option B = Red) and a Typical View Experienced Near Dwelling

Table 3.9 provides a breakdown of the visual impact ratings for Option A and Option B.

**Table 3.9 Viewpoint 5 Visual Impact Rating – Option A and B**

<i>Option A</i>			
<i>THEME</i>	<i>CRITERIA</i>	<i>DETAILS</i>	<i>RATING</i>
Sensitivity	Context of Viewpoint and sensitivity to the proposed change	Natural and built environment features. Undulating topography, foreground and distant vegetation of varying density. Some vegetation and topography would screen / filter the proposal.	L-M
	Visual Receptor Type	A few local dwellings.	M
	Importance of View or Visual Accessibility	Typical rural views with few local receptors.	L-M
	Overall Sensitivity		L-M
Magnitude	Scale and form of development	Single carriageway upgrade, minor realignment of existing carriageway.	L-M
	Distance	Approx 140 to 200m.	L-M
	Overall Magnitude		L-M
<b>Overall Impact Rating</b>			<b>L-M</b>
<i>Option B</i>			
<i>THEME</i>	<i>CRITERIA</i>	<i>DETAILS</i>	<i>RATING</i>
Sensitivity	Context of Viewpoint and sensitivity to the proposed change	Natural and built environment features. Undulating topography, foreground and distant vegetation of varying density. Minimal screening / filtering of proposal.	M-H
	Visual Receptor Type	A few local dwellings.	M
	Importance of View or Visual Accessibility	Typical rural views with few local receptors	M
	Overall Sensitivity		M-H
Magnitude	Scale and form of development	Single carriageway upgrade, moderate realignment of existing carriageway.	M
	Distance	Approx 70 to 120m.	M-H
	Overall Magnitude		M-H
<b>Overall Impact Rating</b>			<b>M-H</b>

### 3.2.6 Viewpoint 6 (VP6)

**Plate 3.10** represents the views experienced by the two dwellings located within Viewpoint 6 (VP6) (refer to **Illustration 3.1**). As shown, one dwelling is located south of Waterfall Way and the other is located north of Waterfall Way. Existing views in the direction of the Proposal consist primarily of rural land, sporadic vegetation and various views of the existing carriageway. In addition, the southern dwelling's outlook tends to focus on views to the east and west, rather than toward the carriageway located in the north.

The approximate area likely to be affected by the Proposal (approximate areas of both route options as they are similar) is shown in **Plate 3.10** overlaid in red. The Proposal would shift the carriageway's centreline north of its existing location (varying between approximately 10m for Option A and 5m for Option B). Both options are relatively similar and would modestly increase the visual exposure of the Waterfall Way and associated traffic to the northern dwelling and modestly alter the visual environment experienced by the southern dwelling.

Both options are generally similar in character and scale and only differ in location by approximately 5m to 10 m, resulting in a negligible difference between the two options for this area. Hence the general area affected by both routes has been assessed as one impact area.

The magnitude of the Proposal to these dwellings would be low to moderate due to proximity and the nature of development.

Sensitivity would be low to moderate as the visual change would be evident but not significant. This would result in an overall low to moderate visual impact. Landscape tree planting would aid in reducing impacts.



Plate 3.10 Viewpoint 6 – Dwellings South and North of Waterfall Way

Table 3.10 provides a breakdown of the visual impact rating.

Table 3.10 Viewpoint 6 Visual Impact Rating

THEME	CRITERIA	DETAILS	RATING
Sensitivity	Context of Viewpoint and sensitivity to the proposed change	Natural and built environment features. Foreground and distant vegetation of varying density. Close presence of existing carriageway proposed to be marginally realigned.	L-M
	Visual Receptor Type	Local dwellings.	M
	Importance of View or Visual Accessibility	Typical rural views with only two local receptors. Clear presence of existing carriageway.	L
	Overall Sensitivity		L-M
Magnitude	Scale and form of development	Single carriageway upgrade, minor realignment of existing carriageway.	L
	Distance	Approx 60m.	M-H
	Overall Magnitude		L-M
<b>Overall Impact Rating</b>			<b>L-M</b>

### 3.2.7 Viewpoint 7 (VP7)

Plate 3.11 provides an aerial of Viewpoint 7 (VP7) and the relevant dwelling identified in the VEM (Illustration 3.1). As shown, the dwelling is set back and located north of Waterfall Way and has some screening / filtering vegetation located on its southern side. Existing views in the direction of the Proposal consist primarily of vegetation, some rural pastoral land, distant sporadic vegetation and limited views of the existing carriageway.

The approximate area likely to be affected by the Proposal (approx areas of both route options) is shown in Plate 3.11 overlaid in red. The Proposal (each option) would shift the carriageway's centreline south of its existing location by approximately 5 m to 10 m. Both options are very similar and would generally follow similar footprints, modestly altering the visual environment around the Waterfall Way and the subject dwelling. The largest change would be the removal of the narrow band of mature vegetation located on the southern side of the Waterfall Way road reserve.

The magnitude of the proposal would be moderate due to proximity and the character of the Proposal.

Sensitivity would be low as the visual change would be modest and vegetation near the dwelling would screen/filter potential changes that may occur along the Proposal's footprint. This would result in a moderate-low visual impact rating for either option.

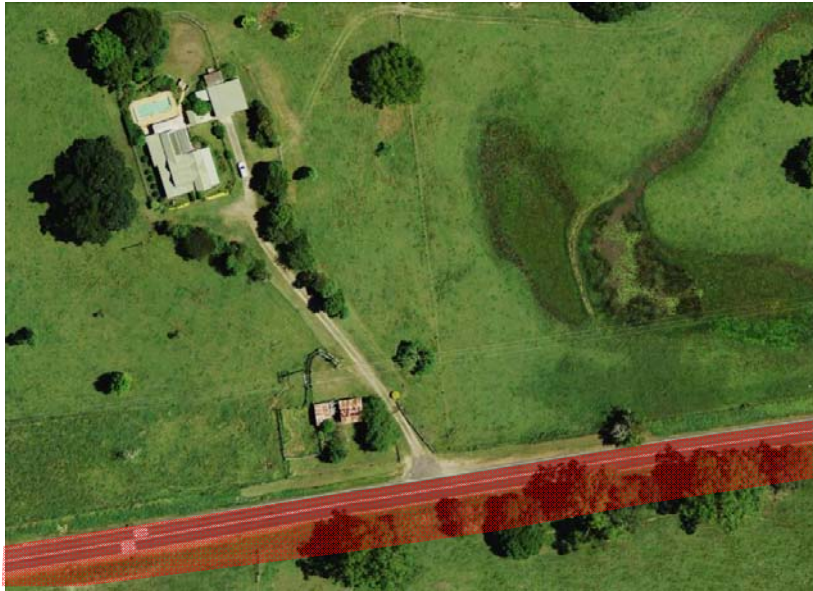


Plate 3.11 Viewpoint 7 - Aerial of Dwelling

Table 3.11 provides a breakdown of the visual impact rating.

Table 3.11 Viewpoint 7 Visual Impact Rating

<i>THEME</i>	<i>CRITERIA</i>	<i>DETAILS</i>	<i>RATING</i>
Sensitivity	Context of Viewpoint and sensitivity to the proposed change	Predominantly rural environment, with foreground and distant vegetation of varying density, limited view of existing carriageway. Screening vegetation around dwelling.	L
	Visual Receptor Type	Local dwelling.	M
	Importance of View or Visual Accessibility	Single receptor – typical rural views.	L
	Overall Sensitivity		L
Magnitude	Scale and form of development	Single carriageway upgrade, minor realignment of existing carriageway.	L-M
	Distance	Approx 90m, yet views are screened by vegetation.	M
	Overall Magnitude		L-M
<b>Overall Impact Rating</b>			<b>L-M</b>

### 3.2.8 Shortcut Road Intersection



Plate 3.12 Shortcut Road Option A



Plate 3.13 Shortcut Road Option B

Plates 3.12 and 3.13 provide aerials of the two Shortcut Road intersection options. This area has been identified as Viewpoint 8 (VP8) in the VEM (Illustration 3.1). There is a considerable difference between the two route options. Existing views in the area are localised and primarily comprise of vegetation and the existing carriageway. Due to the density of surrounding vegetation only one dwelling has the potential to view the Shortcut Road intersection.

Option A would marginally alter the existing visual environment as there would be minor changes to the existing carriageway. Under Option B, Shortcut Road would be moved northwest by approximately 40 to 45 m. This would involve substantial vegetation removal and result in a considerable visual change locally for road users.

No significant viewpoints or dwellings are likely to experience any visual changes as a result of either option. This is due to the retention of vegetation on both sides of Shortcut Road under Option B and the minor works proposed under Option A.

The magnitude of Option A would be negligible as would be the sensitivity, resulting in negligible visual impact.

The magnitude of Option B would be moderate to high due to the scale, form and proximity of the Proposal. Sensitivity however, would be low. This results in a moderate impact as the visual change would be limited due to the capacity of the environment and retained vegetation to absorb the change and screen the new carriageway from potential surrounding views.

Road users would notice changes to the visual environment surrounding the Shortcut Road intersection (primarily under Option B), however they are not expected to experience negative impacts as a result of either option due to the overall character of the existing road being maintained.

### 3.2.9 Road Users of Waterfall Way

As mentioned in Chapter 1, **Plates 1.1 to 1.6** illustrate the landscape character surrounding Waterfall Way and depict the views experienced along the subject section of carriageway from a road user perspective.

The route options shown in **Illustration 2.1** and **3.1** demonstrate that areas along Waterfall Way will experience varying levels of realignment and associated vegetation removal and cut and fill. The extent of realignment, vegetation removal and earth works does not only have the potential to affect viewpoints of local dwellings but also change the perspective and visual environment experienced by road users.

Generally the proposed realignment of Waterfall Way is not considered to be significant and both of the proposed route options generally parallel the majority of existing carriageway, limiting the potential for high impacts. The main areas likely to experience the most visual change from a road user perspective include:

- the relatively straight sections of carriageway between (and including the areas within) VP1 to VP2 and VP6 to VP7;
- the area of Raleigh Dam; and
- the area of Cameron's Corner (refer to **Illustration 3.1**).

**Plates 3.14** and **3.15** below, relate to the relatively straight sections of carriageway described above. These images portray the likely approximate areas that would be affected by the Proposal in red. It can be determined that the bands of vegetation located along these areas would generally require removal. The removal of this vegetation would change the visual outlook experienced when driving along Waterfall Way. However, the removal of such vegetation would not necessarily expose undesirable viewpoints to road users, but actually has the potential to enhance views of the surrounding rural lands and undulating ranges in the distance. Landscape and replacement planting would effectively maintain visual outlooks / viewpoints in the medium to long term.



**Plate 3.14** Road User Perspective Between VP1 and VP2



**Plate 3.15** Road User Perspective Between VP6 and VP7

As demonstrated in **Plate 1.5**, Raleigh Dam does not exhibit high levels of aesthetic appeal from a road user's perspective and generally its overall visual quality is limited. Only a few nearby dwellings, most of which have limited viewpoints, experience a quality visual outlook over Raleigh Dam. The removal of Raleigh Dam, and the realignment of the carriageway through it, would not significantly impact upon the character or visual appeal of Waterfall Way, assuming that fill batters are appropriately designed and mitigation measures are effectively implemented.

The vegetation in area of Cameron's Corner (generally on the western side of the existing carriageway), shown in the aerial of **Plate 3.9** and partly in **Plate 1.3**, has a considerable ecological value due to the presence of Endangered Ecological Communities (ECCs). Thus, this area also exhibits visual appeal and both route options have been designed to avoid the ECCs and minimise indirect impacts. Any future Review

of Environmental Factors would incorporate measures to ensure impacts are avoid or minimised including potential impacts during construction.

Overall, although Option B would have a higher impact than that of Option A, this would be primarily in terms of vegetation removal and on the whole both Option A and B are similar, with neither option likely to result in significant visual amenity impacts from a road user perspective.

**Table 3.12** provides a breakdown of the visual impact rating for the Proposal based on road user perspectives of Waterfall Way. This assessment relates to both options as the overall difference in impact would be minimal.

**Table 3.12 Road User Perspective Visual Impact Rating**

<i>THEME</i>	<i>CRITERIA</i>	<i>DETAILS</i>	<i>RATING</i>
Sensitivity	Context of Viewpoint and sensitivity to the proposed change	Naturally and rurally aesthetic drive for locals and tourists. Open flood plains and undulating hills. Varying densities of vegetation. Limited built environment features. Environment and existing character has ability to absorb change.	M
	Visual Receptor Type	Local drivers and tourists	M
	Importance of View	Elevated and level views across landscape on main arrival from Pacific Highway. 'Gateway to Bellinger Valley'.	M-H
	Overall Sensitivity		M
Magnitude	Scale and form of development	Single carriageway upgrade, generally paralleling existing carriageway's location.	L-M
	Distance	Road user perspective	M-H
	Overall Magnitude		M
<b>Overall Impact Rating</b>			<b>M</b>

### 3.2.10 Summary of Visual Impacts

**Table 3.13** below, summaries the overall visual impact ratings (combination of magnitude and sensitivity) for each viewpoint identified along the Proposal's footprint. Generally both route options are similar in design and the only notable difference in visual impacts would occur within the area of VP 5, Cameron's Corner and the Shortcut Road intersection. Although the proposed alignments of Option A and B are different at Raleigh Dam, each would intersect the Dam, requiring it to be drained and considerable fill used to construct the carriageway. As a result both options would similarly impact upon the visual characteristics around Raleigh Dam, even though their alignments may be markedly different.

Overall, Option B would result in slightly higher, yet localised, visual impacts compared to Option A.

Table 3.13 Visual Impact Rating Summary

VIEWPOINT	OPTION A	OPTION B
VP1 –North of Waterfall Way	Low	Low
VP1 – South of Waterfall Way	Moderate	Moderate
VP2 – South of Waterfall Way	Moderate	Moderate
VP2 – North of Waterfall Way	Moderate	Moderate
VP3 – North of Waterfall Way	Moderate	Moderate
VP4 – Eastern Dwelling	Moderate	Moderate
VP4 – Centre Dwelling	High Impact	High Impact
VP4 – Western Dwelling	Moderate	Moderate
VP5 – North of Waterfall Way	Moderate – Low	Moderate – High
VP6 – North and South of Waterfall Way	Moderate – Low	Moderate – Low
VP7 North of Proposal	Moderate – Low	Moderate – Low
Shortcut Road Intersection	Negligible	Moderate
Road User Perspective	Moderate	Moderate



## Recommended Mitigation Measures

The most effective mitigation measures for potential impacts are those that avoid impacts in the first place through appropriate site selection and design. However where avoidance is difficult a series of measures to mitigate visual impacts such as screen planting can help to integrate the proposal into its setting and soften any potential impacts. These mitigation measures would need to comply with the relevant section/s of the RMS's *Beyond the Pavement* guideline (2009) and the RMS's *Landscape guideline: Landscape design and maintenance guidelines to improve the quality, safety and cost effectiveness of road corridor planting and seeding* (2008).

The location and need for the upgrade of Waterfall Way has been subject to significant analysis. Due to the existing position of Waterfall Way and associated site constraints, there are limited opportunities available for positioning and designing the upgrade and avoidance of visual impacts altogether is impractical.

Both route options require various levels of cut and fill and associated vegetation removal. Selecting the appropriate design option, which also minimises and balances cut and fill, would be an effective means of reducing potential impacts.

Where it may be difficult to avoid or reduce impacts, impacts should be mitigated as part of the project's detailed design.

Potential mitigation measures to be considered as part of the detailed design for the Waterfall Way upgrade include:

- considered approach to cut and fill batters. Where possible the design should minimise visible cut faces; maintaining smooth transitions to cut and fill where possible and include appropriately grouped vegetation plantings;
- appropriate soft landscape elements could be used to blend the Proposal with the area's rural character, particularly native tree plantings and native grasses that reflect the surrounding landscape;
- considered approach to the design of the carriageway intersecting Raleigh Dam. Fill batters and landscape plantings may require particular attention in this area as it is subject to the greatest visual impact;
- where practical, cut and fill batters to be appropriately vegetated with local native species to ensure that they blend with the surrounding landscape;
- use of carefully sited and selected tree planting to breakdown the visual impact whilst not creating a visibly artificial planting screen;
- bands of vegetation that would be removed along the edges of Waterfall Way should be replaced with appropriate local native species along the edge of the new road reserve, in similar positions unless impractical;
- vegetation removal and soil disturbance within the boundaries of the Proposal should be kept to the minimum required for the project and associated works; and
- the selection and siting of plantings should ameliorate impacts from the proposal, whilst not hindering distant views once matured.

## Conclusion

The visual landscape of the site comprises a typical rural setting with densely vegetated undulating hills and low lying pastoral lands. This landscape would generally be sensitive to visual and or landscape character modification. However, the nature, character and visual elements of the area are influenced by the presence of Waterfall Way as an existing single carriageway road. Thus the Proposal (upgrading of the existing road, consisting of minor realignment, widening and associated vegetation removal and earth works) would not significantly alter the current visual environment or landscape character.

The current visual envelope surrounding the Proposal's footprint and the existing Waterfall Way carriageway tends to be limited to the locality. The subject road is unlikely to be viewable from any prominent, distant or elevated viewpoints and the main potential receptors in the area include local residents located on the road itself and the road users of Waterfall Way.

The Proposal would not impose a significant change in the landscape or character of the area, but would simply shift an existing road to a new, proximal alignment.

The potential to generate different route and design options is restricted in this particular area, due to the location of the existing carriageway, topography, ecological values and private property. As a result the two route options are ultimately similar and affect comparable footprints. Consequently visual and landscape character impacts are unlikely to substantially differ between the two options. Yet, it is evident that Option B would lead to slightly higher visual impacts in the area of Viewpoint 5 and the Shortcut Road intersection (Viewpoint 8) compared to Option A.

Both options would lead to only one area of high impact. This level of impact is limited to the centre dwelling located in Viewpoint 4. The successful design and implementation of mitigation measures in the area of Raleigh Dam is critical for surrounding receptors.

The majority of visual impacts stemming from both Options range from moderate-low to moderate ratings. Landscape character impacts range from negligible to low-moderate. The majority of visual impacts that would eventuate would be localised in scale and can be readily mitigated at the detailed design phase, or already include some existing screening that minimises potential impacts. Potential mitigation measures and safeguards have been identified as part of this assessment for consideration as part of the detailed design.



# Project Team

The project team members included:

**Jacob Sickinger**  
Urban and Environmental Planner

**Simon Waterworth**  
Senior Planner / Principal

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# References

Milford, H. (1996), *Soil Landscapes of the Dorrigo 1:100 000 Sheet*, NSW Department of Land and Water Conservation.

Roads and Traffic Authority NSW (2009), *Guidelines for landscape character and visual impact assessment*, NSW Government.

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