



Australian Government  
Nation Building Program



Transport  
Roads & Maritime  
Services

A photograph of a multi-lane highway stretching into the distance under a clear blue sky. A large truck is blurred in motion on the right side of the road. The foreground shows a grassy shoulder and a concrete guardrail.

# Woolgoolga to Ballina Upgrading the Pacific Highway

Project summary

DECEMBER 2012



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## Project summary

The Environmental Impact Statement (EIS) is on public display by the Department of Planning and Infrastructure.

Roads and Maritime Services (RMS) is seeking approval to upgrade the Woolgoolga to Ballina section of the Pacific Highway under the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act) and the Commonwealth *Environment Protection and Biodiversity Conservation Act* (EPBC Act).

Before major construction can start, the proposed upgrade must be assessed and considered for approval under these Acts.

The EIS describes the concept design and provides an assessment of potential environmental impacts and mitigation measures as a result of the construction and operation of the proposed upgrade. The EIS also includes a detailed description of the construction work needed to build the proposed upgrade and how the highway would function once it is built.

The potential environmental impacts and mitigation measures are captured in more detail in the Woolgoolga to Ballina Environmental Impact Statement and working papers. These documents are on display for community comment from **Wednesday 12 December 2012** until **Monday 4 February 2013** and are also available on the RMS project website [www.rms.nsw.gov.au/pacific](http://www.rms.nsw.gov.au/pacific).

Submissions on the EIS can be made to the Department of Planning and Infrastructure via the website: [www.majorprojects.planning.nsw.gov.au](http://www.majorprojects.planning.nsw.gov.au). Submissions should be made directly on the EIS and not this booklet, which provides a summary only.



# Completing the upgrade of the Pacific Highway

The Pacific Highway is part of the National Land Transport Network. The Australian and NSW governments have been jointly upgrading the Pacific Highway since 1996.

Both governments have a shared commitment to upgrade the 667 kilometre section of the Pacific Highway between Hexham (near Newcastle) and the Queensland border, as part of the Pacific Highway Upgrade Program to four-lane divided road.

Currently, 346 kilometres of the highway has been upgraded to a dual-lane divided road. A further 73 kilometres are being constructed and environmental assessments or concept designs are being prepared on the remaining kilometres.

## Proposed upgrade background

The proposed Woolgoolga to Ballina project would upgrade about 155 kilometres of the highway. The project starts approximately six kilometres north of Woolgoolga (north of Coffs Harbour) and ends approximately six kilometres south of Ballina.

Roads and Maritime Services (RMS) has formed an alliance with Sinclair Knight Merz and Aurecon to prepare a concept design and Environmental Impact Statement for the Woolgoolga to Ballina Pacific Highway upgrade.

The project includes the four Pacific Highway upgrade planning projects previously developed:

- Woolgoolga to Wells Crossing.
- Wells Crossing to Iluka Road.
- Iluka Road to Woodburn.
- Woodburn to Ballina.

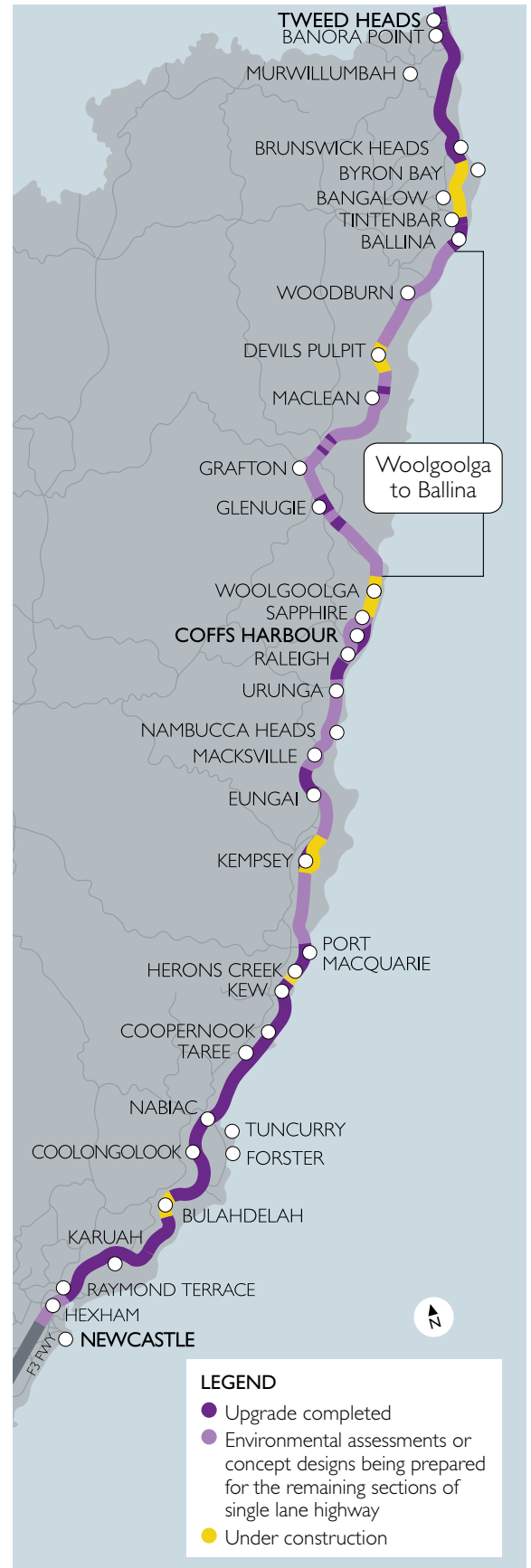
Over the last two years the project team has developed the concept design and investigated noise, heritage, flooding, urban design, agriculture, ecology impacts, traffic and access and constructability.

The proposed upgrade does not include the current construction work at Devils Pulpit and the completed Glenugie upgrade.

In parallel to the preparation of the concept design and EIS, detailed survey and geotechnical investigations are being carried out along the 155 kilometre length of the project.

RMS is also preparing the detailed design for the proposed upgrade of the Woolgoolga to Glenugie section of the highway.

Timing for construction of the Woolgoolga to Ballina upgrade is dependent on funding negotiations between the Australian and NSW governments.



# Benefits and upgrade features of the project

For the 155 kilometre section between Woolgoolga and Ballina the following benefits will be provided:

- The length would reduce from 180 kilometres to 167 kilometres which would be a saving of about 13 kilometres in travel distance.
- With the shorter length and a higher posted speed limit of 100/110 km/h, travel time would reduce from 130 minutes to 105 minutes, which is a saving of 25 minutes for all vehicles.
- With the provision of divided carriageways and separation of through and local traffic, crashes would be reduced by 27 per cent.
- Improved reliability of travel through improved flood immunity, fewer planned and unplanned incidents and more readily available alternative routes in the event of major incidents.

## Key features of the proposed upgrade include:

- Upgrading about 155 kilometres of the Pacific Highway to a motorway standard (Class M) or arterial road (Class A) highway with a four-lane dual carriageway (two lanes in each direction) that can be upgraded to three lanes each way if required in the future.
- 'Grade-separated' (or split-level) interchanges. These would be at Range Road, Glenugie, Tyndale, Maclean, Yamba / Harwood, Woombah (Iluka Road), Woodburn, Broadwater and Wardell.
- Bypasses of South Grafton, Ulmarra, Woodburn, Broadwater and Wardell.
- About 40 bridges over rivers, creeks and floodplains, including major bridges crossing the Clarence and Richmond rivers.
- Bridges over and under the highway to maintain access to local roads that cross the highway.
- Access roads to maintain connections to existing local roads and properties.
- Structures designed to encourage animals over and under the upgraded highway where it crosses key animal habitat or wildlife corridors.
- Rest areas located at about 50 kilometre intervals at Pine Brush (Tyndale), north of Mororo Road and north of the Richmond River.
- A heavy vehicle checking station near Halfway Creek and north of the Richmond River.

## Two upgrade standards: 'arterial' and 'motorway'

The design for this 155 kilometre section of highway is a combination of an arterial (called Class A) and a motorway (called Class M) standard highway.

Class A retains some local access to the highway. These accesses are proposed to be rationalised to meet safety requirements.

Class M access to the highway would only be available from an interchange. Sections of the highway that deviate from the existing highway would be Class M.

About 87 kilometres of the highway that would deviate from the existing highway alignment (eg: between Glenugie and Tyndale) would be built to motorway standard (Class M). The remaining 68 kilometres would be initially upgraded to arterial standard (Class A).

The design allows for the highway to be upgraded to a full motorway style highway in the future when warranted by increased traffic volumes.

The speed limit on arterial sections would be posted at 100km/h or 110km/h depending on final access arrangements.

## Service roads and access roads

The proposed upgrade uses the existing highway as a continuous 'service road' for local and regional traffic that would serve as an alternative road for drivers who elect not to use the upgraded highway.

In addition, the project includes access roads, which would be built to maintain access to local roads and properties that currently have direct access to the highway.



# Alternative route options considered

The route selection process for the Woolgoolga to Ballina upgrade was carried out as four separate development projects between 2004 and 2009.

The four separate development projects included:

- Woolgoolga to Wells Crossing.
- Wells Crossing to Iluka Road.
- Iluka Road to Woodburn.
- Woodburn to Ballina.

The four development projects identified feasible route options, identified potential environmental and social issues within a broad study area (investigation corridor), consulted extensively with the community and stakeholders and evaluated the route options to identify the preferred route.

The options were evaluated against criteria developed by the then RTA, the community and key stakeholders, taking into consideration the project objectives.

Community consultation, environmental and engineering investigations to identify route options, preferred routes (including alternative route assessments between Tyndale and Maclean) and concept designs for these sections have been undertaken.

The route development process aimed to avoid or minimise overall impacts on environmental and social constraints to arrive at the preferred option which is assessed in detail in the EIS.

As a result, this upgrade would also best meet the objectives of the Pacific Highway Upgrade Program, to:

- Reduce road crashes and incidents.
- Reduce travel times.
- Reduce freight transport costs.
- Develop a route that involves the community and considers their interests.
- Provide a route that supports economic development.
- Provide best value for money.
- Achieve a balance between environmental, social and economic impacts and benefits.

For further detail on the route options considered refer to Chapter 4 of the EIS report.



Woolgoolga shops

# Why the proposed upgrade is needed

The highway is being upgraded to benefit the local communities along the highway, the North Coast region, the State and Nation as a whole. These benefits are discussed below.

## A safer journey

The highway upgrade would improve road safety by replacing sections of two-lane undivided road with a four-lane dual carriageway. The proposed upgrade would improve the road alignment, provide safe overtaking opportunities, and control highway access via grade-separated (split-level) interchanges in the full motorway upgrade.

The proposed highway upgrade would separate local traffic from through traffic by providing a continuous alternative route to the highway for local traffic.

From 2006 until 2010, the highway between Woolgoolga and Ballina had an average crash rate of 20.7 crashes per 100 million vehicle kilometres travelled. This is above the Pacific Highway Upgrade Program target of 15 crashes per 100 million vehicle kilometres travelled.

If the proposed upgrade were not built, road safety would continue to decline, and there would be a likely increase in vehicle crash rates and fatalities.

## A faster journey for people and freight

The North Coast is one of the fastest-growing regions in Australia. It is estimated that by 2024 the Pacific Highway coastal corridor will serve a coastal population of almost one million.

This expanding population, as well as growing tourism and economic activity, will generate high levels of growth in local and regional passenger and freight movements.

Between Woolgoolga and Ballina, RMS data shows that highway traffic has increased by between 2.3 and 2.9 per cent per annum from 1982 to 2007.

The highway upgrade would reduce travel times by increasing vehicle capacity (through doubling the lanes from two to four), providing consistent travelling speeds, improved access and a reduction of delays during floods.

For suppliers and manufacturers transporting materials, the highway upgrade would result in decreased costs and more reliable scheduling of trips. The NSW Government estimates that the upgrade as a whole would bring freight travel time savings of over \$1.7 billion over 30 years in 2011 dollars. This would benefit both interstate and inter-regional freight companies.

Local residents and tourists to the area would also benefit from having faster, safer trips along the highway and better access to small towns, villages and properties.

If the highway upgrade were not built, congestion on the highway would increase, resulting in increased transport costs over time and slower journeys.

## Better driving conditions

Upgrading this section of the highway would help to provide consistent, uninterrupted driving conditions between Hexham and the Queensland border.

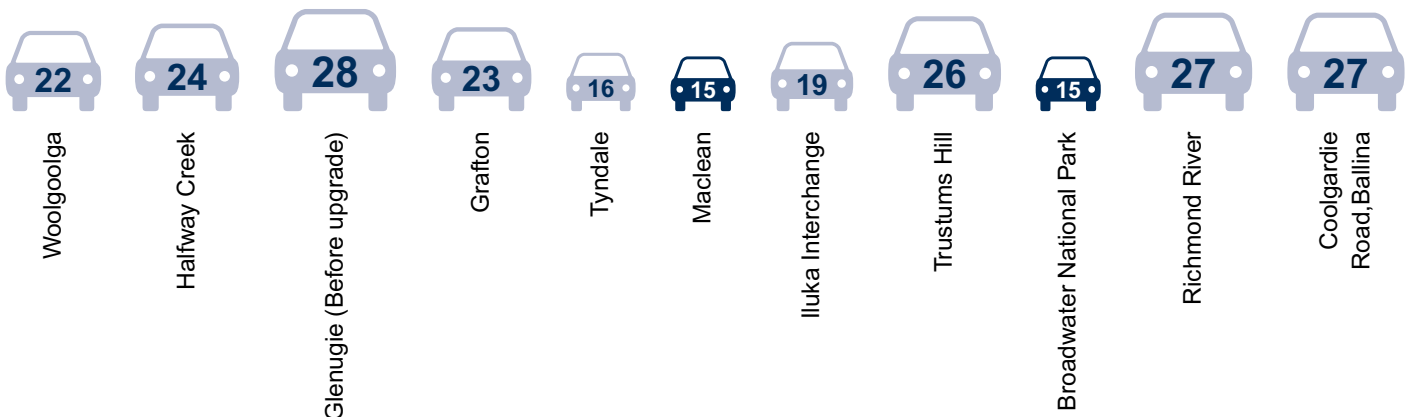
Currently between Woolgoolga and Ballina, the existing highway has inconsistent road conditions and speed limits.

The speed limits vary widely, from a maximum of 100 kilometres per hour to sections with fixed limits of 80, 60 and 50 kilometres per hour. There are also school zones, where the speed limit drops to 40 kilometres per hour during pick-up and drop-off times. These varying speed limits reduce travel efficiency.

As well as creating a consistent driving experience, the proposed upgrade would also meet or exceed the road requirements for B-double trucks.

If the upgrade were not built, road standards along the highway would continue to be inconsistent.

Figure 1 Average crash rates on the Pacific Highway between Woolgoolga and Ballina (per million vehicle kilometres travelled)



## Traffic counts on existing Pacific Highway

Project section	Location	Light vehicles (veh/day)	Heavy vehicles (veh/day)	Total daily volume (veh/day)	% Heavy vehicle
1	Woolgoolga to Halfway Creek upgrade	6538	2133	8671	25%
2	Halfway Creek upgrade to Glenugie upgrade	6111	2180	8291	26%
3	Glenugie upgrade to Tyndale	7377	2178	9555	23%
4	Tyndale to Maclean	7327	2151	9478	23%
5	Maclean to Iluka Road	9298	2413	11,711	21%
6	Iluka interchange to Devils Pulpit upgrade	5149	2008	7157	28%
7	Devils Pulpit upgrade to Trustums Hill	5149	2008	7157	28%
8	Trustums Hill to Broadwater National Park	6383	2226	8609	26%
9	Broadwater National Park to Richmond River	6797	2233	9030	25%
10	Richmond River to Coolgardie Road	7512	2223	9735	23%
11#	Coolgardie Road to Ballina	18,994	2758	21,752	13%

#Note: high vehicle count due to traffic measured north of Bruxner Highway interchange, which has been reconfigured as part of the Ballina bypass project and separated from the Pacific Highway.

## Improved living quality in regional towns

Currently, the highway passes through a number of towns and villages. This creates traffic-related impacts for local communities and reduces the quality of life and amenity.

The proposed upgrade would realign the highway so that it bypasses South Grafton, Ulmarra, Woodburn, Broadwater and Wardell. These bypasses would remove the bulk of through traffic from these town centres.

## Economic development

One of the objectives of the Pacific Highway Upgrade Program is to support state and regional economic development.

Construction is likely to have positive economic effects on communities between Woolgoolga and Ballina.

Many of the longer-term economic benefits of the overall upgrade program would be realised at national and state levels. These would result from improvements to transport travel times. In particular, the upgrade would provide a route that maintains or improves access to regional and interstate markets and maintains or improves access to existing towns, tourist centres, businesses and industries.



South Arm of Clarence River



# Community input

## How the community has been involved

Since 2004, RMS has consulted extensively with communities along the highway upgrade route as part of the four previous planning projects.

In October 2011, when the four previous planning projects were combined, a refined concept design was displayed for community comment. The project team has now prepared the EIS for the 155 kilometre Woolgoolga to Ballina upgrade for community comment.

## What happens next?

Following the display period, the Department of Planning and Infrastructure will provide RMS with a copy of all submissions and a summary of the issues raised by the community and government agencies.

RMS will then prepare a submissions report that will respond to these issues. This report will include any proposed changes to the Woolgoolga to Ballina upgrade in response to submissions received.



Wardell Bridge

## Have your say

Your comment on the proposed Woolgoolga to Ballina upgrade project is welcome and should be made based on the information contained in the EIS report and working papers.

### Submissions

Submissions on the Woolgoolga to Ballina Pacific Highway upgrade must reach the Department of Planning and Infrastructure by close of business on **Monday 4 February 2013**.

Your submission should include:

- Your name and address.
- The name of the application and the application number, which is SSI-4963.
- A statement on whether you support or object to the project.
- The reasons why you support or object to the project.

Your submission should be marked 'Attention: Director Infrastructure Projects' and be:

- Submitted online at <http://majorprojects.planning.nsw.gov.au>
- Emailed to [plan\\_comment@planning.nsw.gov.au](mailto:plan_comment@planning.nsw.gov.au) or via the entry for the project on the Department's website ([majorprojects.planning.nsw.gov.au](http://majorprojects.planning.nsw.gov.au))
- Posted to Major Projects Assessment, Department of Planning & Infrastructure, GPO Box 39, SYDNEY NSW 2001, or
- Faxed to **(02) 9228 6455**.

Persons lodging submissions are required to declare reportable political donations (including donations of \$1000 or more) made in the previous two years. For more details, including a disclosure form, go to [www.planning.nsw.gov.au/donations](http://www.planning.nsw.gov.au/donations).

Under section 75H of the *Environmental Planning and Assessment Act 1979*, the Director-General is required to provide copies of submissions received during the exhibition period, or a report of the issues raised in those submissions, to the Proponent and other interested public authorities. It is Departmental policy to also place a copy of your submission on the Department's website. If you do not want your name to be made available to the Proponent, these authorities, or on the Department's website, please clearly state this in your submission.

If you have any questions about the EIS or the project you can contact the RMS project manager, Garry McPherson on:

Roads and Maritime Services  
PO Box 164  
St Leonards NSW 1590  
Email: [w2balliance@globalskm.com](mailto:w2balliance@globalskm.com)  
Toll free line: 1800 778 900

## Want to know more?

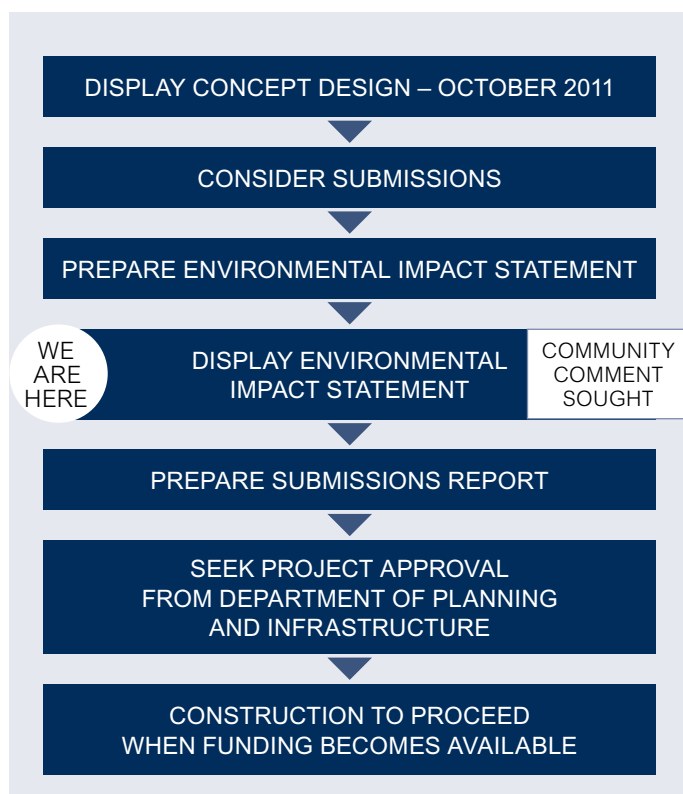
Electronic copies of the EIS and working papers are available on the RMS project website at [www.rms.nsw.gov.au/pacific](http://www.rms.nsw.gov.au/pacific) and the Department of Planning and Infrastructure website at <http://majorprojects.planning.nsw.gov.au>.

The project team will also be available to discuss the EIS at the following locations. Please note the times when the project team will also start the formal presentations.

Suburb	Location	Date and time	Formal presentation
Corindi	Corindi Community Hall Pacific Street	Wednesday 16 January 2013 12noon–3pm	1pm
Grafton	Grafton Community Hall 59 Duke Street	Friday 18 January 2013 5pm–8pm	6pm
Gulmarrad	Townsend Baptist Church Scullin Street	Thursday 17 January 2013 5pm–8pm	6pm
Harwood	Harwood Community Hall River Street	Tuesday 15 January 2013 5pm–8pm	6pm
Maclean	Maclean Civic Hall 50 River Street	Friday 18 January 2013 12noon–3pm	1pm
New Italy	New Italy Museum Complex 8275 Pacific Highway	Saturday 19 January 2013 10am–1pm	11am
Tyndale	Plantation Motel 2 Sheehys Lane	Wednesday 16 January 2013 5pm–8pm	6pm
Wardell	Wardell Memorial Hall Richmond Street	Tuesday 15 January 2013 12noon–3pm	1pm
Woodburn	Woodburn Memorial Hall River Street	Thursday 17 January 2013 12noon–3pm	1pm

More information including an online mapping tool and visualisation of the proposed Woolgoolga to Ballina upgrade can also be found on the project website [www.rms.nsw.gov.au/pacific](http://www.rms.nsw.gov.au/pacific) (see Woolgoolga to Ballina).

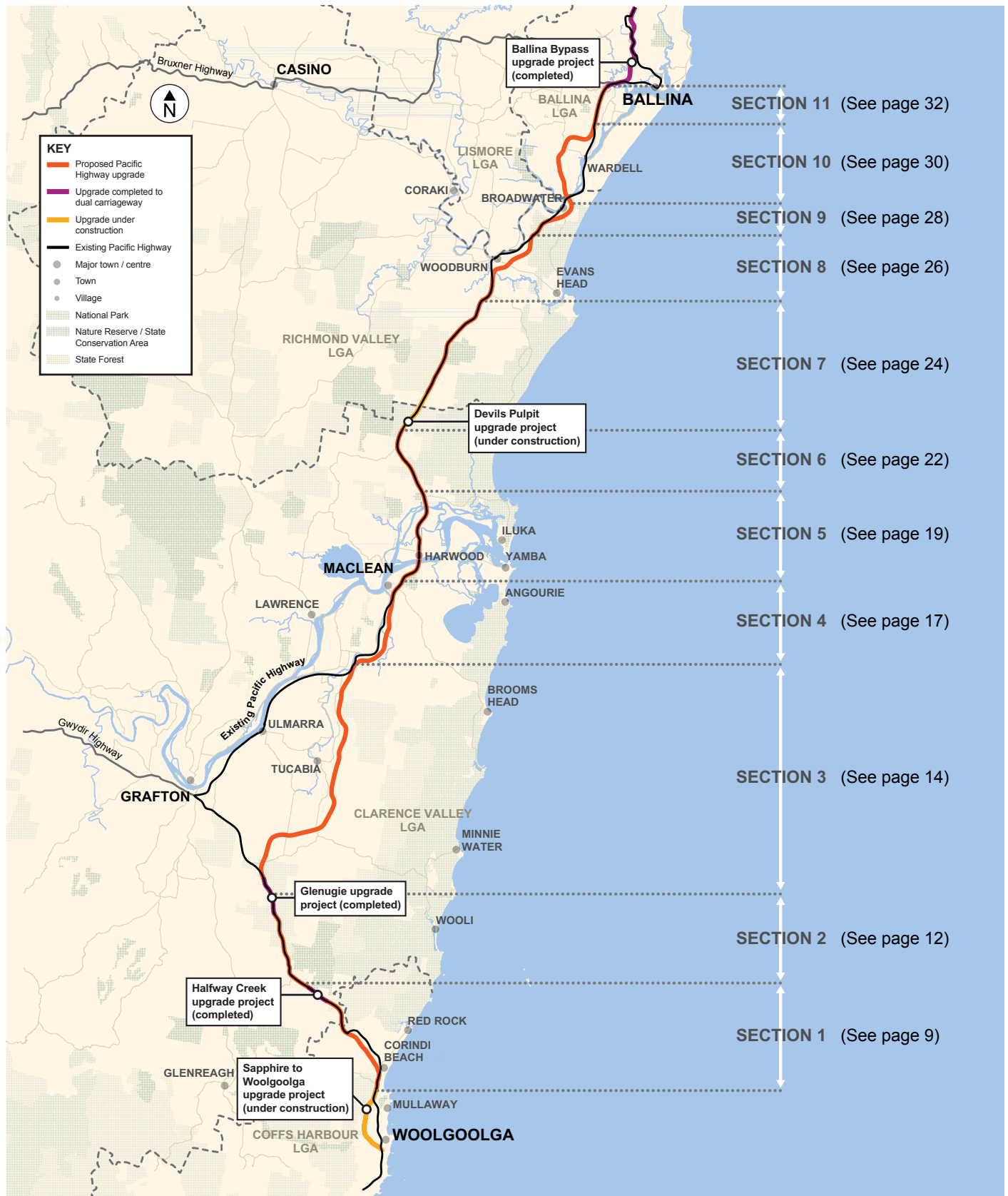
You can also contact the project team on 1800 778 900 (free call).



Richmond River, Woodburn

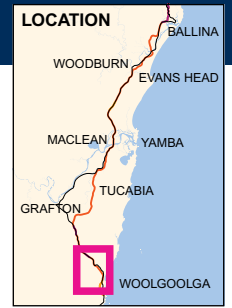
# The project

To help manage the project and plan for it to be built in stages, RMS refers to 11 sections as outlined in the Environmental Impact Statement report (refer to map). These sections are described in the following pages, from south to north, with more detail provided in Chapter 5 of the EIS report.





# Section 1: Woolgoolga to Halfway Creek



Section 1 starts about six kilometres north of Woolgoolga (at Arrawarra Beach Road) at the northern end of the Sapphire to Woolgoolga upgrade, which is currently under construction. It would continue for about 17 kilometres to Lemon Tree Road at Halfway Creek and include the completed upgrade at Halfway Creek.

The alignment would deviate about 600 metres to the west of the existing highway through the Corindi River floodplain, before rejoining the existing highway just before Range Road. This deviation would take the highway further away from Corindi and Corindi Beach.

Initially, most of this section would be upgraded to arterial standard (Class A). However, some parts would be upgraded to motorway standard (Class M), as shown on the map on page 10.

Motorists would be able to access and exit the highway at interchanges at Arrawarra Beach Road (which is being built as part of the Sapphire to Woolgoolga upgrade) and at Range Road, Corindi. The blueberry farms in this location would continue to have access to the highway by the service road.

Further flooding investigations will be undertaken as part of the detailed design process and local access arrangements will be refined.

Overpasses and an underpass would be provided to maintain access to local roads crossed by the highway.



Diagram 1: Interchange at Range Road



Blueberry farms, Corindi

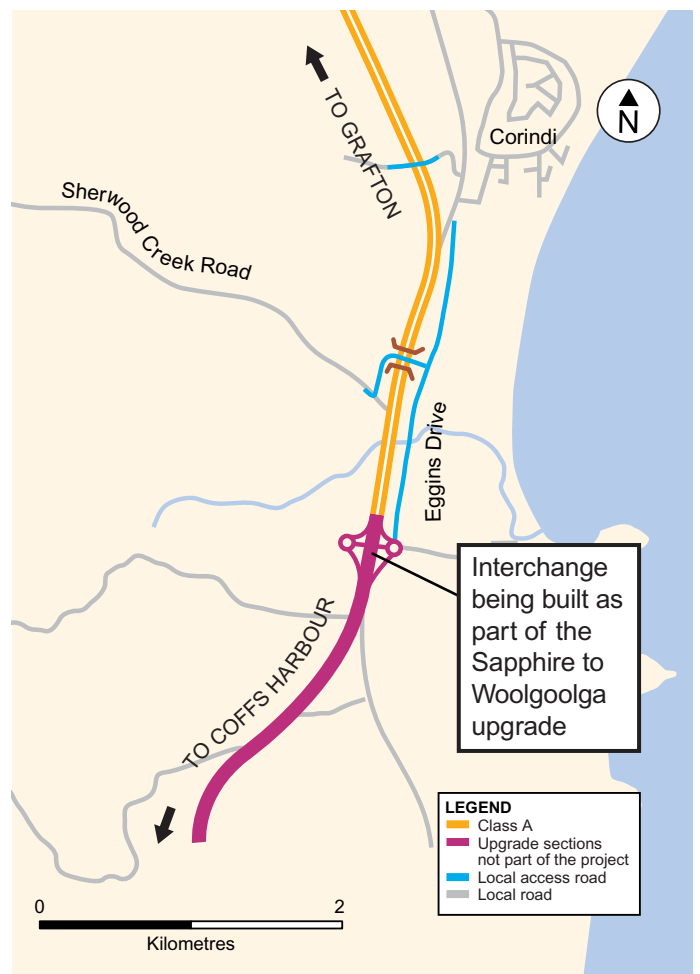
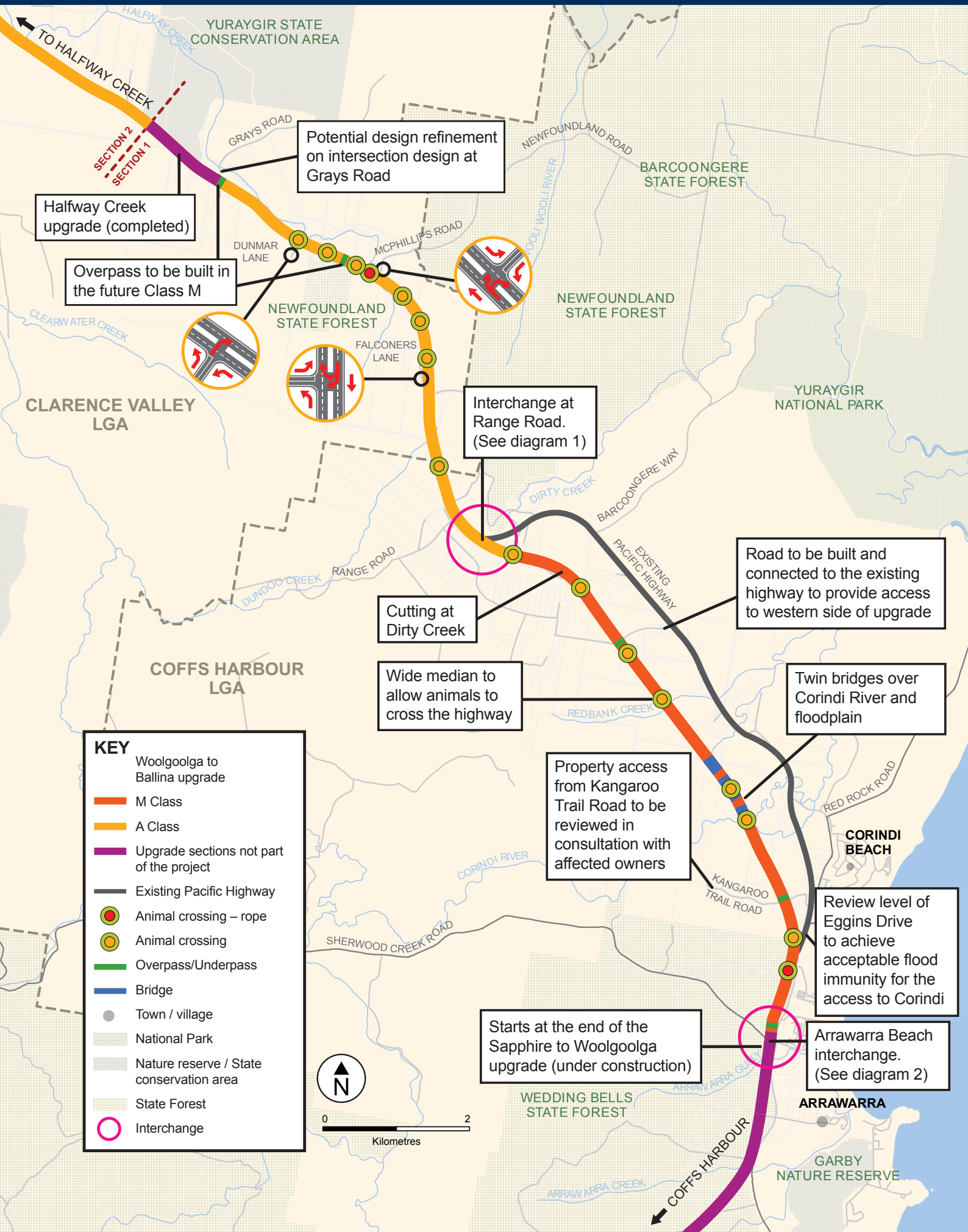


Diagram 2: Interchange at Arrawarra Beach

# Section 1: Woolgoolga to Halfway Creek



# Section 1: Woolgoolga to Halfway Creek (continued)

## Key features

- Highway upgraded to motorway standard (Class M) from Arrawarra to Range Road.
- An interchange and access to local roads at Range Road.
- Bridges over the highway alignment at Sherwood Creek Road and Kangaroo Trail Road.
- At-grade access at Falconers Lane, McPhillips Road and Dunmar Lane within arterial section (Class A).
- A twin bridge 300 metres long over the Corindi floodplain to allow floodwaters to pass under the highway during a flood.
- A realignment of Sherwood Creek Road.
- Access road to west of Corindi and north of McPhillips Road.
- Major cutting at Dirty Creek, south of Range Road.
- Wide median retaining existing trees to aid animals crossing at Corindi.
- Review level of Eggins Drive to achieve acceptable flood immunity for access to Corindi.
- Potential design refinement and associated community consultation on intersection design at Grays Road.
- Potential low noise pavement locations to be further developed in the detail design.
- Property access from Kangaroo Trail Road to be reviewed in consultation with affected land owners.

More information on potential impacts and mitigation measures can be found in the following sections of the EIS report and working papers.

Your comment on the proposed Woolgoolga to Ballina upgrade project is welcome and should be made based on the information contained in the EIS report and working papers.

Issue	Chapter
Aboriginal and non-Aboriginal heritage	Ch 12, Ch 13
Flooding	Ch 8
Soils, sediments and water quality	Ch 9
Ecology and biodiversity	Ch 10
Noise	Ch 15
Land use and property impacts	Ch 16
Social and economic effects	Ch 17
Traffic and access	Ch 14
Visual impact	Ch 11

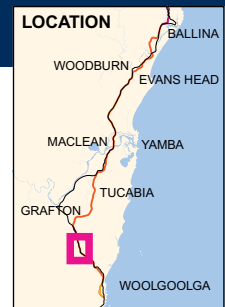


Halfway Creek, looking north



Benefields Rose Farm, just north of Kungala Road





## Section 2: Halfway Creek to Glenugie upgrade

Section 2 is about 11.7 kilometres long. It would start at the northern end of the existing four-lane section of highway at Halfway Creek and continue to the southern end of the recently completed Glenugie.

The seven-kilometre Glenugie upgrade was opened in February 2012. It extends from Franklins Road to Eight Mile Lane, about 15 kilometres south of Grafton.

The southern half would be a duplication of the existing Pacific Highway alignment and the northern half deviates to the east of up to 200 metres from the existing highway.

From Newfoundland State Forest to Franklins Road, the alignment would be on the eastern side of the existing highway, where it would be within Wells Crossing Flora Reserve and the Glenugie State Forest.

This section would be built to (Class A) upgrade and access to and from the highway would be by a number of intersections. These would be at Lemon Tree Road, Kungala Road, Luthers Road, Parker Road, Bald Knob Tick Gate Road and Franklins Drive.

When the highway is upgraded to motorway standard (Class M), all intersections with the highway would be closed and access would be via a local road to the interchange at Glenugie or at Corindi (Sherwood Creek Road), including refinement of access at Lemon Tree Road.

### Key features

- Upgraded to arterial standard (Class A) adjacent to existing highway from Lemon Tree Road to the southern end of Glenugie upgrade.
- Review relocation of the northbound access to the local service road and Lemon Tree Road and associated community consultation.
- Tie-in to existing dual carriageway at Halfway Creek at the southern end and the existing dual carriageway at Glenugie at the northern end.
- Access to new upgrade at Lemon Tree Road, Kungala Road, Luthers Road, Parker Road, Bald Knob Tick Gate Road and Franklins Road.
- Twin bridges over Halfway Creek and Wells Crossing Creek.
- Realignment of Bald Knob Tick Gate Road and Franklins Road.
- Access roads north of Lemon Tree Road and from Wells Crossing to Glenugie to use the existing Pacific Highway.
- A wide median to assist animals to cross at Newfoundland State Forest.
- Heavy vehicle checking station for southbound traffic south of Halfway Creek (to replace the one further north).

More information on potential impacts and mitigation measures can be found in the following sections of the EIS report and working papers.

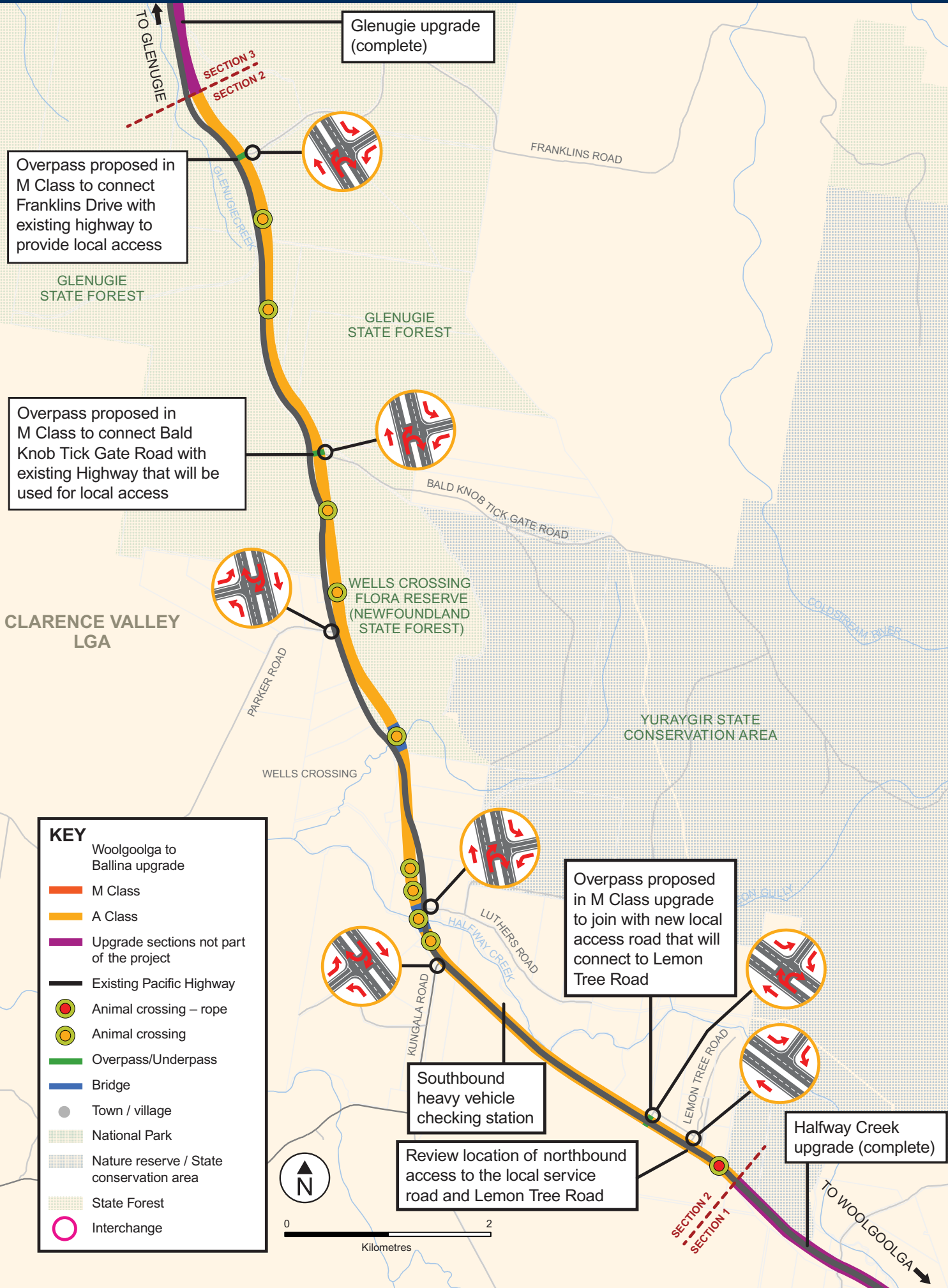
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Visual impact	Ch 11



Lemon Tree Road, service station

## Section 2: Halfway Creek to Glenugie upgrade



# Section 3: Glenugie upgrade to Tyndale

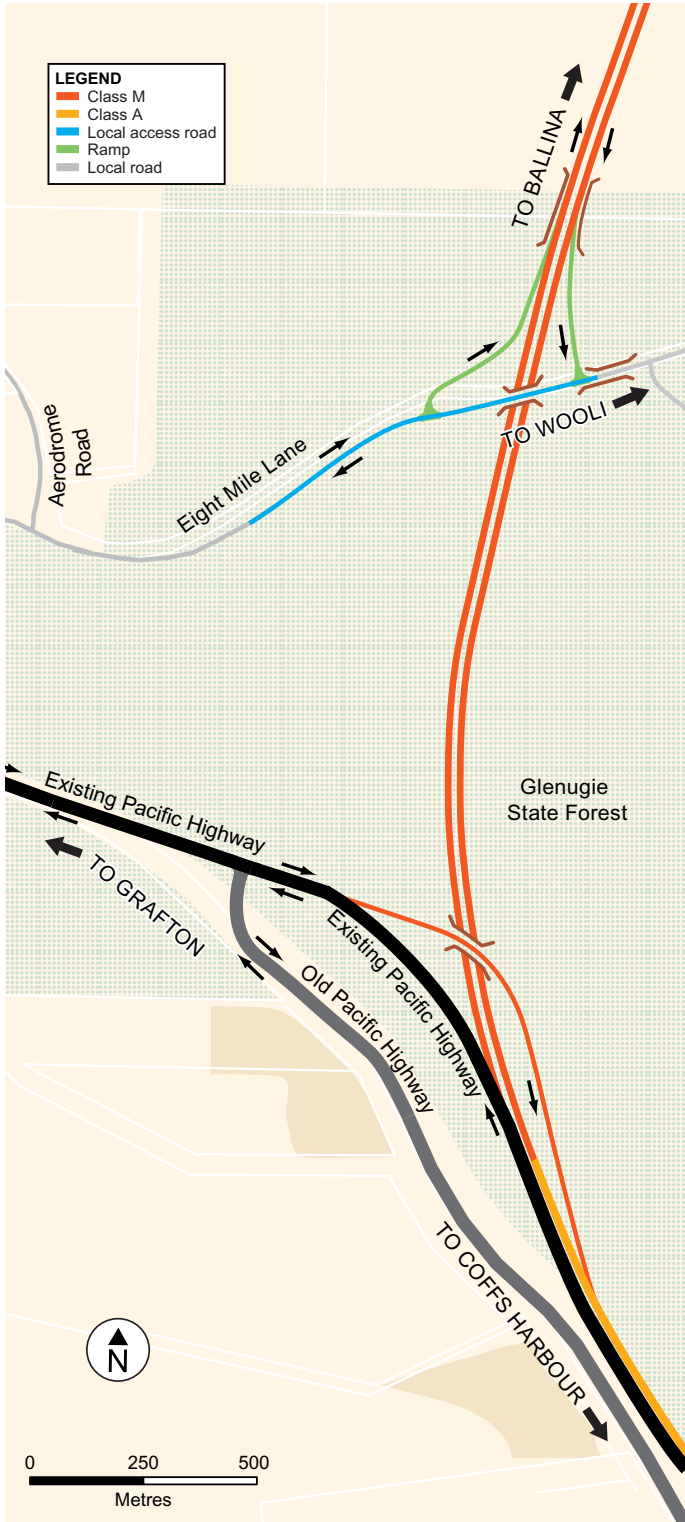
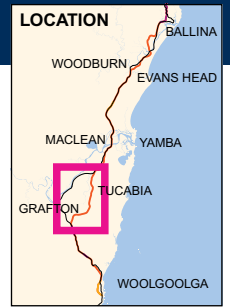


Diagram 3: Interchange at Glenugie

Section 3 is about 35 kilometres long. It would start from the interchange at Glenugie and continue to the new interchange at Tyndale. This section would be built to a full motorway standard (Class M).

Access to and from the upgraded highway would be by interchanges at Glenugie (Eight Mile Lane) and Tyndale (north of Sheehys Lane).

Access to Glenugie State Forest and investigation into flooding and mitigation would be refined as part of the detailed design. Overpasses and an underpass would be provided to maintain access along local roads crossed by the proposed upgrade.

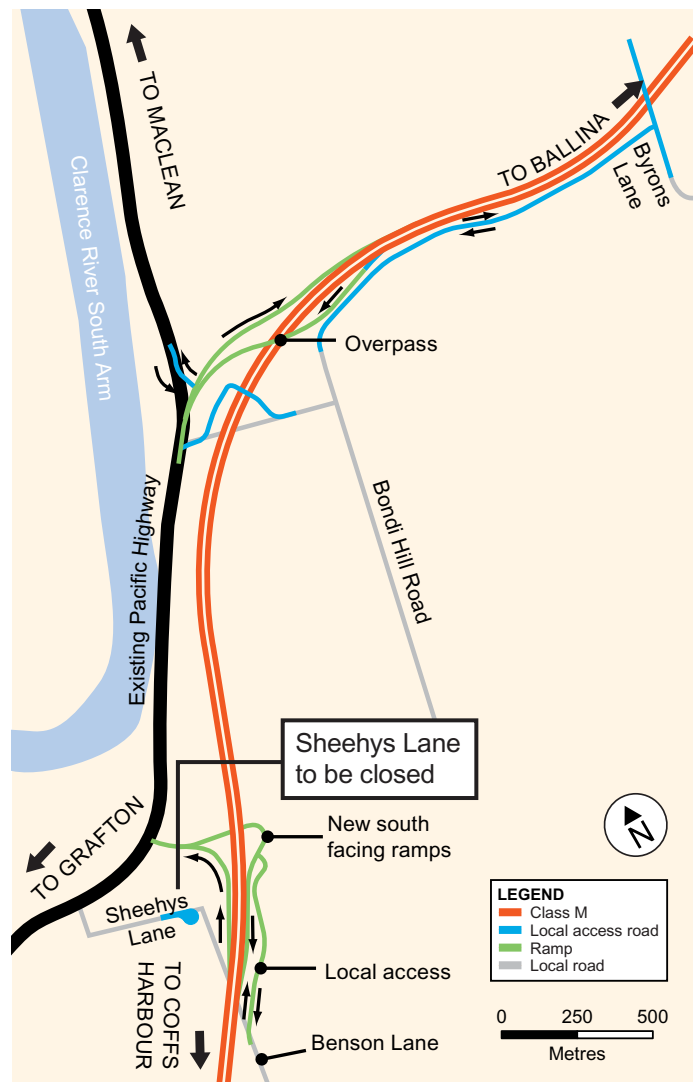
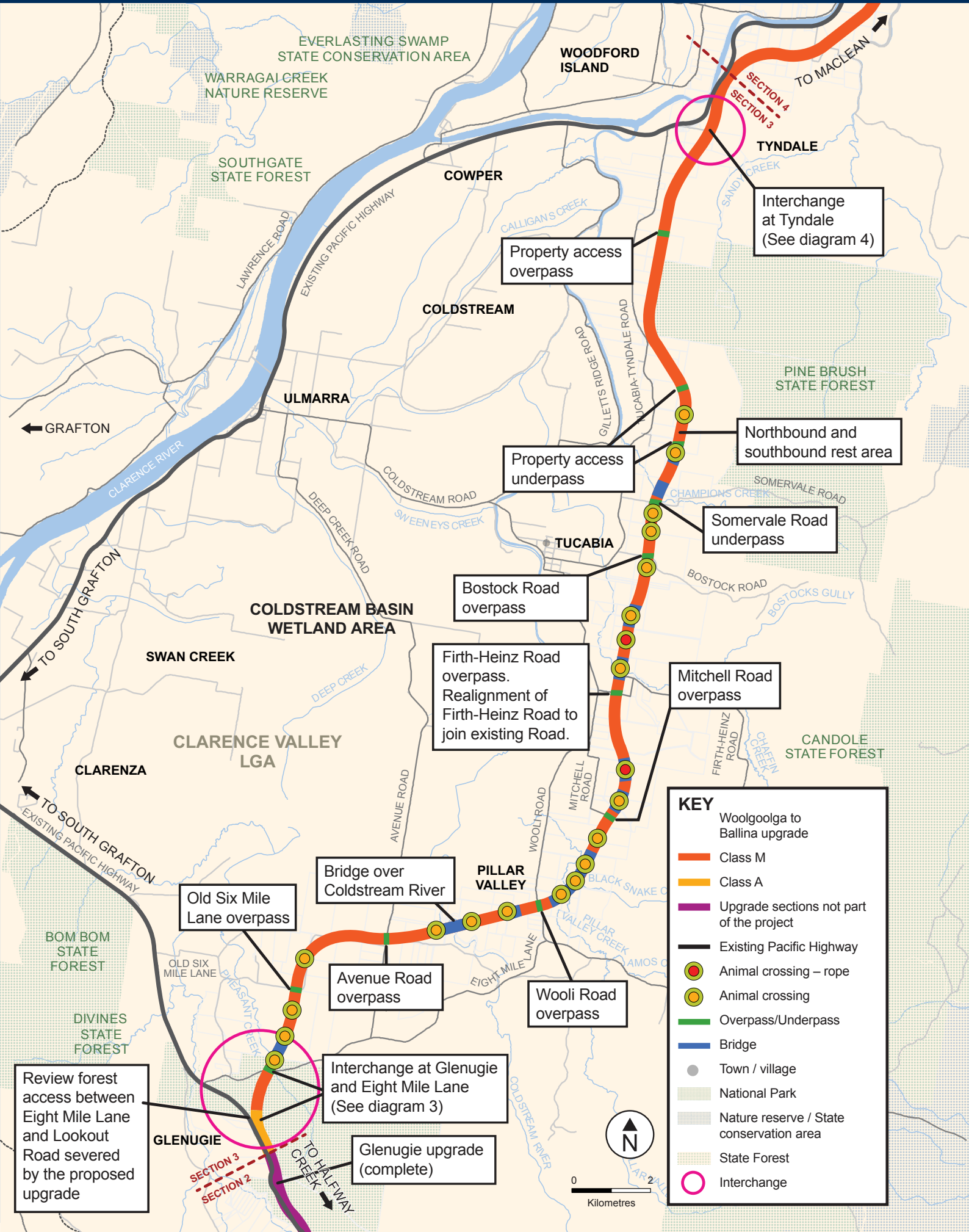


Diagram 4: Interchange at Tyndale



# Section 3: Glenugie upgrade to Tyndale



# Section 3: Glenugie upgrade to Tyndale (continued)

## Key features

- Bypasses of South Grafton and Ulmarra.
- Interchange at Glenugie to enable access to and from Grafton and from the south.
- Interchange at Tyndale to allow access to and from the north and south.
- Northbound and southbound rest area at Pine Brush State Forest near Tucabia.
- Major crossings of the Upper Coldstream River, long span bridges over Pillar Valley Creek, Chaffin Creek and Champions Creek, and twin bridges over Pheasant Creek.
- About 14 combined drainage and animal connectivity structures including the bridge crossings of the Coldstream River, Pillar Valley Creek, north of Pillar Valley, Chaffin Creek and Champions Creek.
- Realignment of Eight Mile Lane, Old Six Mile Lane, Wants Lane, Mitchell Road, Firth Heinz Road and Bensons Lane.
- Local access will be maintained across the section.
- Major cuttings south of Bostock Road and north and south Benson Lane, Tyndale.
- The realignment of about 500 metres of Picaninny Creek to allow for the passage of Pheasants and Picaninny creek at the interchange at Eight Mile Lane.
- Review property access arrangements in consultation with private owners to improve flood immunity and flood refuge.
- Review alignment at old landfill site at Tucabia.
- Review forest access between Eight Mile Lane and Lookout Road severed by the proposed upgrade.

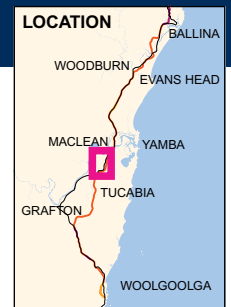
More information on potential impacts and mitigation measures can be found in the following sections of the EIS report and working papers.

Your comment on the proposed Woolgoolga to Ballina upgrade project is welcome and should be made based on the information contained in the EIS report and working papers.

Issue	Chapter
Aboriginal and non-Aboriginal heritage	Ch 12, Ch 13
Flooding	Ch 8
Soils, sediments and water quality	Ch 9
Ecology and biodiversity	Ch 10
Noise	Ch 15
Land use and property impacts	Ch 16
Social and economic effects	Ch 17
Traffic and access	Ch 14
Visual impact	Ch 11



Tyndale



## Section 4: Tyndale to Maclean

Section 4 is about 13.2 kilometres long. This section would involve a deviation about 800 metres to the east of the existing highway, which would be built to full motorway standard (Class M).

The section would start at the Tyndale interchange and continue north to join the existing highway at the Maclean interchange.

The existing highway would be maintained as a service road. Access arrangements between Bondi Hill, Byrons Lane and Gallaghers Lane will be reviewed in consultation with property owners and the Harvesters Co-op.

Refinements to access arrangements to Jubilee Street would be completed as part of the detailed design process. Overpasses or underpasses (including a review at McIntyres Lane) would be provided to maintain access along local roads crossed by the proposed upgrade.

### Key features

- Upgraded to motorway standard (Class M) with the existing highway to be maintained as a service road.
- Deviation of the highway up to 800 metres east of the existing highway.
- Interchange at Maclean to provide access to and from the south and north.
- Major bridge across Shark Creek for flood mitigation and twin bridges over Edwards Creek.
- Pedestrian underpass at Jubilee Street.
- Realignment of Bondi Hill Road, Gallaghers Lane, McIntyres Lane, Cameron Street and Jubilee Street.
- Flood-free access (up to the one in 20-year flood) between Townsend and Maclean by the Maclean interchange (Jubilee Street to be closed to vehicles).
- Access road from Maclean interchange to McIntyres Lane.
- Major cutting over Green Hill.
- Potential review and consultation of local access arrangements at McIntyres Lane.
- Investigate alternative connection to Brooms Head Road with a review of the geometry for the southbound off-ramp to the Maclean interchange.
- Review local access arrangements between Bondi Hill, Byron Lane and Gallaghers Lane with affected property owners and the cane industry.
- Review opportunities within the road reserve to dispose of surplus material for possible visual noise attenuation.

More information on potential impacts and mitigation measures can be found in the following sections of the EIS report and working papers.

Your comment on the proposed Woolgoolga to Ballina upgrade project is welcome and should be made based on the information contained in the EIS report and working papers.

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Visual impact	Ch 11



# Section 4: Tyndale to Maclean

Diagram 5: Interchange at Maclean



Jubilee Street, Maclean closed to vehicles either side of upgrade. Pedestrian and cyclist underpass to be provided

Investigate alternate connection to Brooms Head Road and review geometry of the southbound offramp to the Maclean interchange

Review opportunities within road reserve to dispose of surplus material for possible visual noise attenuation

Further investigation required at McIntyres Lane

Bridge over Edwards Creek

Review local access arrangements between Bondi Hill, Byrons Lane and Gallaghers Lane with affected property owners and the cane industry

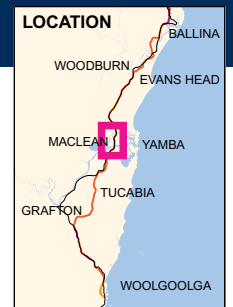
Byrons Lane overpass

Tyndale interchanges (See diagram 4)

**KEY**

- Woolgoolga to Ballina upgrade
- Class M (Orange line)
- Class A (Yellow line)
- Upgrade sections not part of the project (Purple line)
- Existing Pacific Highway (Black line)
- Animal crossing – rope (Red circle)
- Animal crossing (Green circle)
- Overpass/Underpass (Green line)
- Bridge (Blue line)
- Town / village (Grey dot)
- National Park (Green hatched area)
- Nature reserve / State conservation area (Blue hatched area)
- State Forest (Brown hatched area)
- Interchange (Pink circle)





# Section 5: Maclean to Iluka Road, Woombah

Section 5 is about 14.4 kilometres long. It would start at the Maclean interchange and continue to the Iluka Road interchange at Woombah.

The entire length of this section would be a duplication of the existing Pacific Highway alignment, with most of the highway upgraded to motorway standard (Class M).

A section of the highway, from Watts Lane to the Iluka Road interchange, would initially be upgraded to arterial standard (Class A). In this section, intersections would initially be provided to allow access to the highway, but would be closed as part of the later upgrade to motorway standard (Class M).

When this section is built, the existing highway, including the current bridge crossing of the Clarence River at Harwood, would serve as part of the local service road network.

Access at Yamba Road, Watts Lane, Chatsworth Road and Carrols Lane interchanges (overbridges) including land acquisitions would be reviewed and refined as part of the detailed design phase of the project. Drainage structures on the floodplain would also undergo further detailed design.

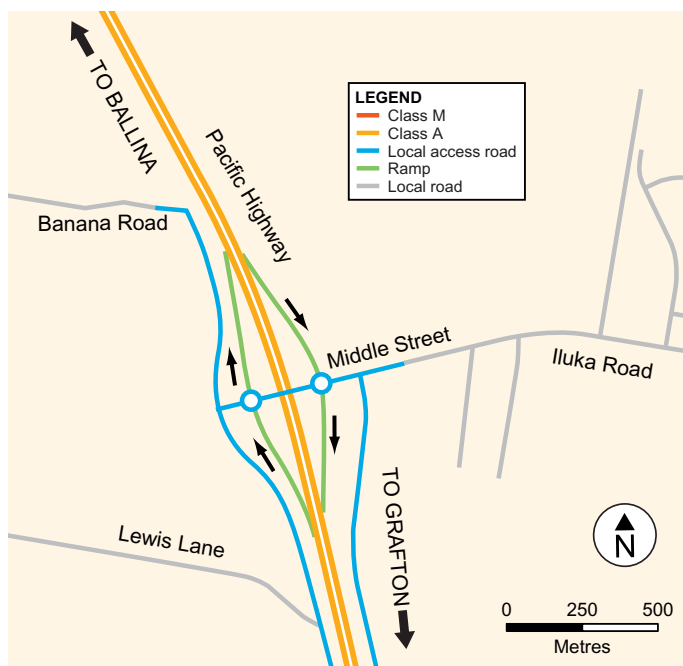


Diagram 6: Interchange at Iluka Road

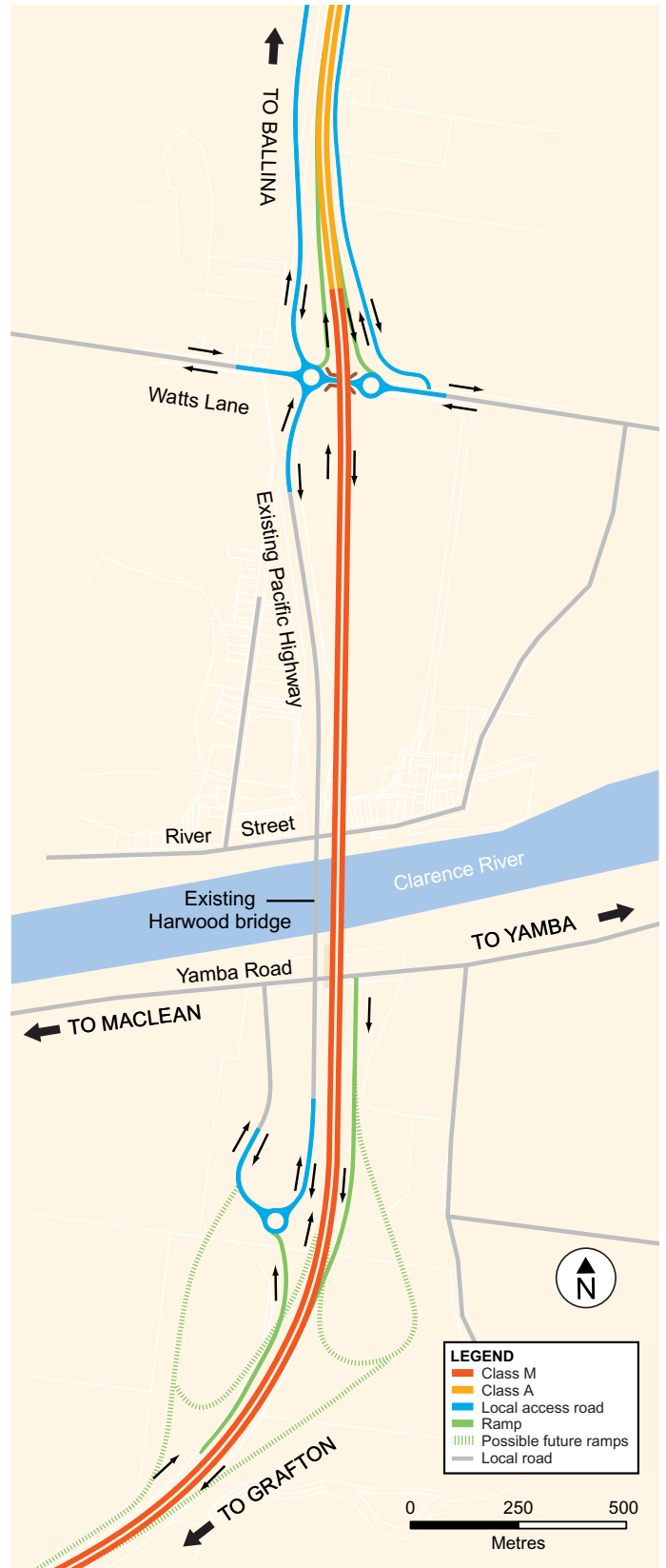
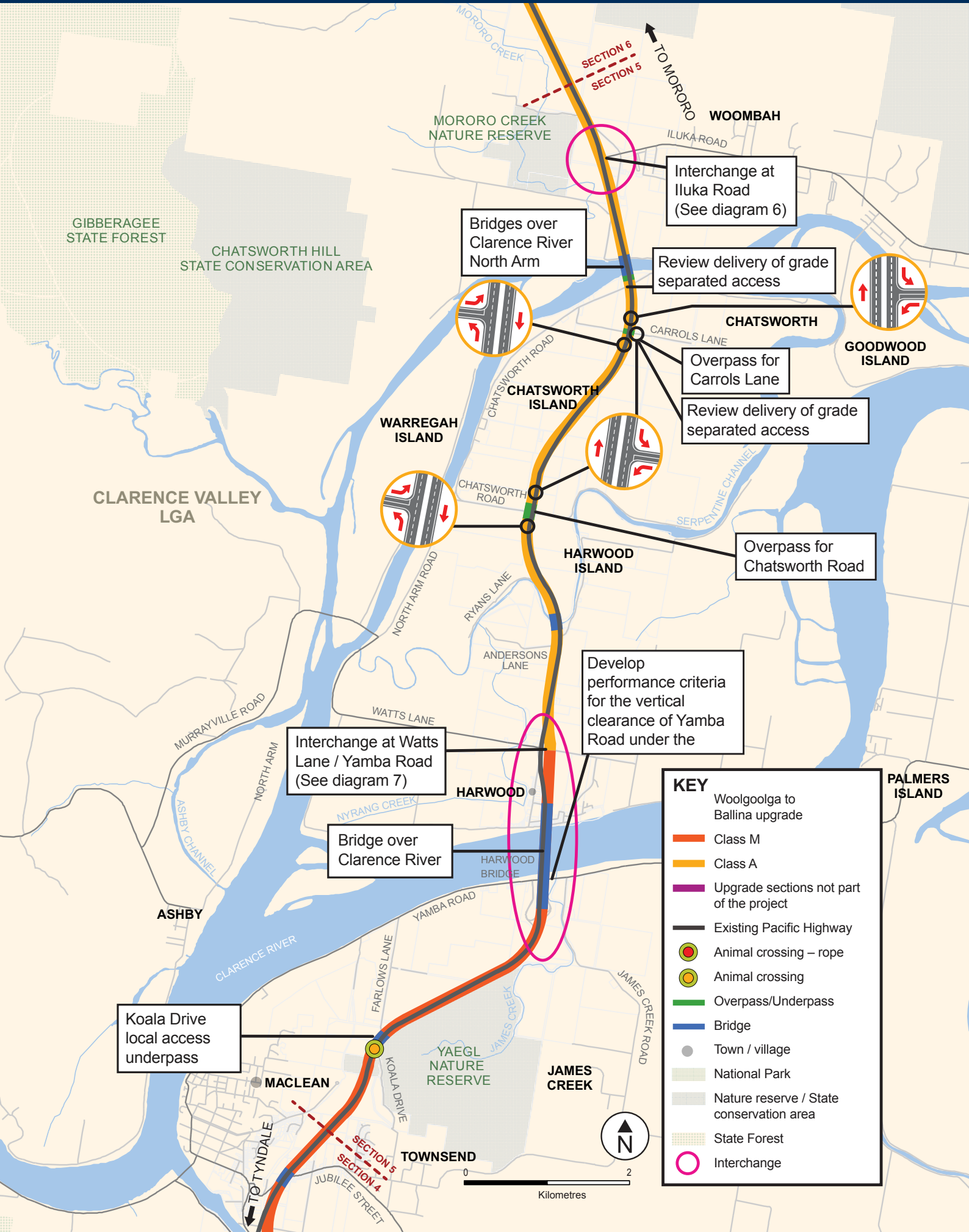


Diagram 7: Interchange at Yamba Road and Watts Lane

Section 5: Maclean to Iluka Road, Woombah





# Section 5: Maclean to Iluka Road, Woombah (continued)

## Key features

- A bridge across the Clarence River to the east of the existing Harwood bridge. The proposed bridge would be about 1.3 kilometres long (including approaches), 22 metres wide and have a vertical clearance 30 metres above the Clarence River. (The final design of the bridge will be further developed as part of detailed design).
- Twin bridges about 215 metres long across the North Arm of the Clarence River, on the eastern side of the existing Mororo bridge.
- A twin bridge over Serpentine Channel.
- Interchanges south of Yamba Road at Watts Lane, Harwood and at Iluka Road.
- Increased flood protection during 1 in 20 year flood events.
- Access to highway at Carrols Lane will be upgraded with the potential for further investigation on a grade separated access.
- Direct access to the highway at Chatsworth Road.
- Deviations of Andersons Lane, Ryans Lane, Fischers Road, Chatsworth Road and Garretts Lane and Banana Road.
- Potential investigation and community consultation on grade separated access at Chatsworth Road and Carrols Lane.
- Potential review of drainage structures as part of the detail design.
- Develop performance criteria for the vertical clearance of Yamba road under the existing highway.
- Full connection under Class A stage to satisfy cane farm movements east and north of Watts Lane.

More information on potential impacts and mitigation measures can be found in the following sections of the EIS report and working papers.

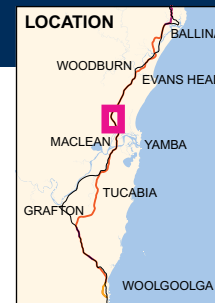
Your comment on the proposed Woolgoolga to Ballina upgrade project is welcome and should be made based on the information contained in the EIS report and working papers.

Issue	Chapter
Aboriginal and non-Aboriginal heritage	Ch 12, Ch 13
Flooding	Ch 8
Soils, sediments and water quality	Ch 9
Ecology and biodiversity	Ch 10
Noise	Ch 15
Land use and property impacts	Ch 16
Social and economic effects	Ch 17
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Visual impact	Ch 11



Harwood Bridge

# Section 6: Iluka Road to Devils Pulpit



Section 6 is about 9.2 kilometres long. It would start at Iluka Road, Woombah and continue to the southern end of the Devils Pulpit upgrade, which is currently under construction.

The entire section would be a duplication of the existing Pacific Highway alignment either on the western or eastern side.

Initially, the whole section would be built to arterial standard (Class A). A number of intersections and access roads would provide access to the upgraded highway. These would include intersections at Mororo Road, the existing Pacific Highway at Tullymorgan/Jacky Bulbin Road.

When the highway is upgraded to a motorway standard (Class M), all intersections with the highway would be closed and access would be by the Iluka Road interchange (see Section 5) and the interchange at Woodburn (see Section 7).

## Key features

- Duplication of the existing highway.
- Initially built to arterial standard (Class A).
- Southbound rest area north of Mororo Road.
- Bridges over Tabbimoble Creek.
- Direct access to the upgraded highway at Mororo Road and Jacky Bulbin Road.
- Provision of u-turn facilities.

More information on potential impacts and mitigation measures can be found in the following sections of the EIS report and working papers.

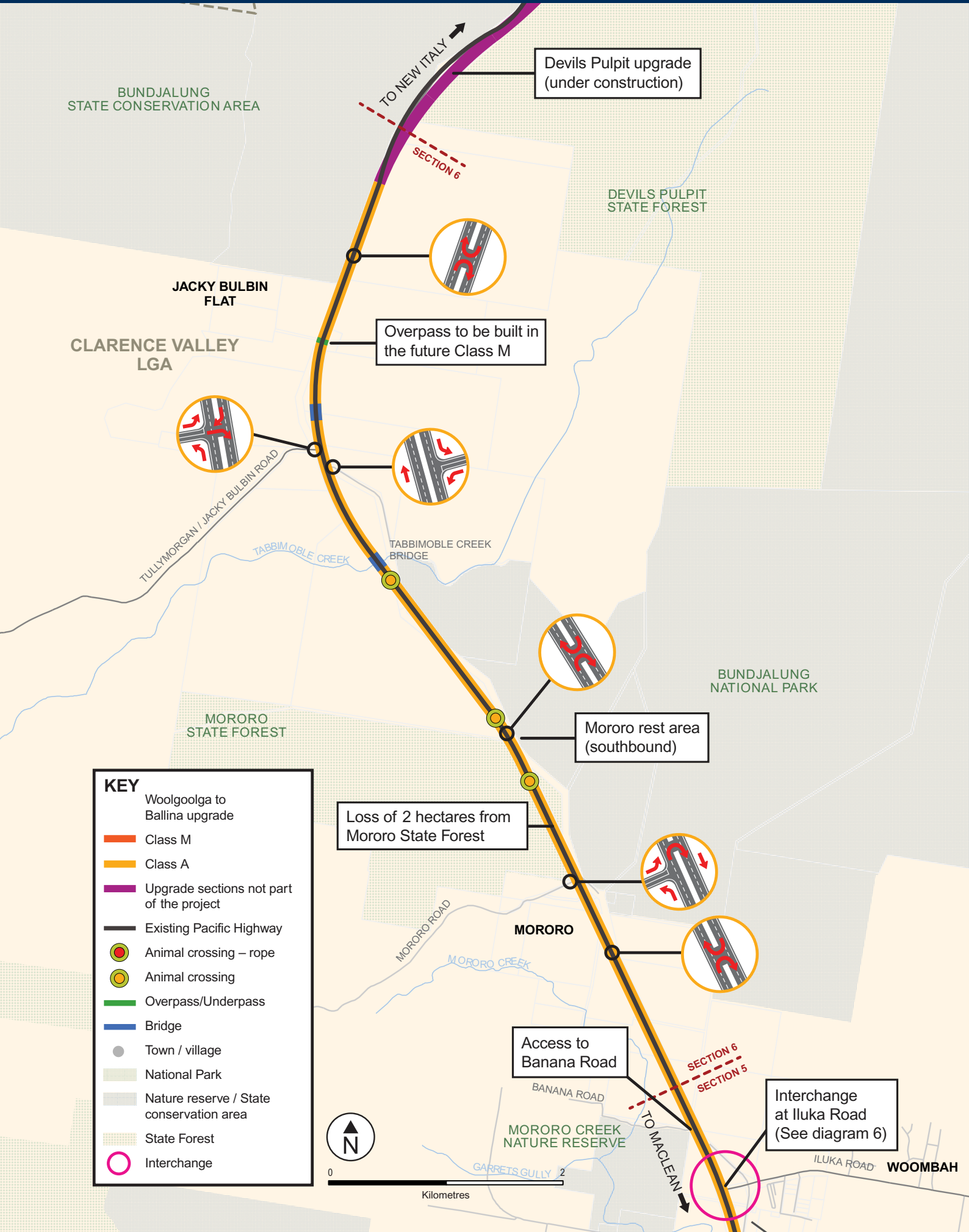
Your comment on the proposed Woolgoolga to Ballina upgrade project is welcome and should be made based on the information contained in the EIS report and working papers.

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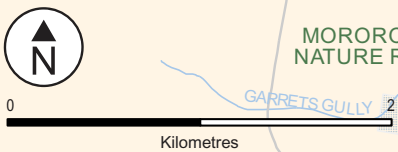


Cane farm along existing Pacific Highway north of Mororo

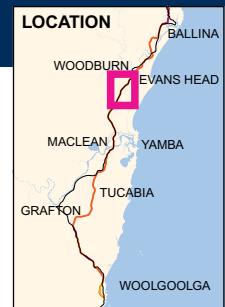
# Section 6: Iluka Road to Devils Pulpit



KEY	
	Woolgoolga to Ballina upgrade
	Class M
	Class A
	Upgrade sections not part of the project
	Existing Pacific Highway
	Animal crossing – rope
	Animal crossing
	Overpass/Underpass
	Bridge
	Town / village
	National Park
	Nature reserve / State conservation area
	State Forest
	Interchange







# Section 7: Devils Pulpit upgrade to Trustums Hill

Section 7 is about 15.3 kilometres long. It would begin at the northern end of the Devils Pulpit upgrade at Tabbimoble State Forest and continue to just south of Gap Road, Trustums Hill.

The entire section would be a duplication of the existing Pacific Highway.

Initially, the whole section would be built to arterial standard (Class A). A number of intersections would be provided including at Serendipity Road, Glencoe Road, Minyumai Road, New Italy, Swan Bay Road, Whites Road, Cypress Road, Redgates Road, Turners Road and Nortons Road. These intersections would give private properties access to the upgrade.

When the highway is upgraded to motorway standard (Class M), these intersections would be closed. Local access across the proposed upgrade would be maintained by underpasses, overpasses and service roads and reviewed and refined as part of the detailed design process.

## Key features

- Duplication of the existing highway, with minor deviations at Cypress Road and Whites Lane.
- Upgraded to arterial standard (Class A).
- Land bridge crossings for animals within Doubleduke State Forest, near Tabbimoble Swamp Nature Reserve and Minyumai Road.
- Realignment of Serendipity Road, Minyumai Road and Whites Road.
- Existing highway will become the service road near Cypress Road and Redgates Road.
- Wide median to retain existing high canopy trees to aid animals to cross.
- Potential investigation and community consultation to improve the intersection layout at Swan Bay New Italy Road.
- Potential low noise pavement locations to be further developed in the detail design.
- Provision of u-turn facilities.

More information on potential impacts and mitigation measures can be found in the following sections of the EIS report and working papers.

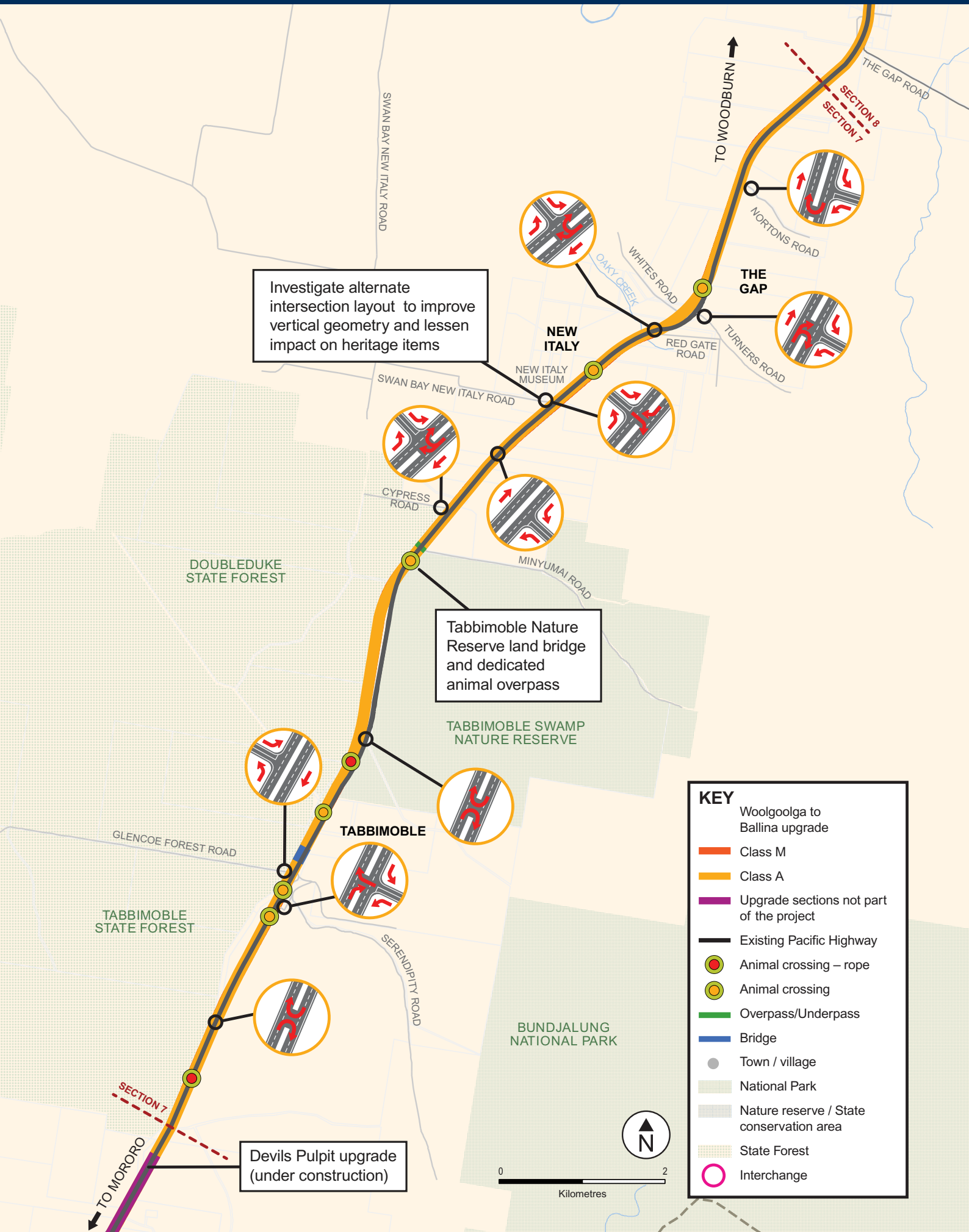
Your comment on the proposed Woolgoolga to Ballina upgrade project is welcome and should be made based on the information contained in the EIS report and working papers.

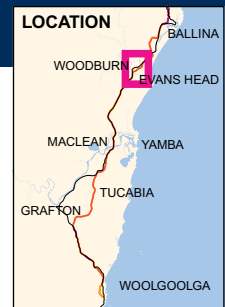
Issue	Chapter
Aboriginal and non-Aboriginal heritage	Ch 12, Ch 13
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Traffic and access	Ch 14
Visual impact	Ch 11



New Italy rest area along existing Pacific Highway

# Section 7: Devils Pulpit upgrade to Trustums Hill





# Section 8: Trustums Hill to Broadwater National Park

Section 8 is about 11 kilometres long. It would start just south of Gap Road and continue to just north of McDonalds Creek.

This section would be built to motorway standard (Class M).

The existing highway would be duplicated for about 2.8 kilometres north from Gap Road and the new northbound and southbound carriageways would be built to the east of Woodburn.

Excavations around Lang Hill would be reviewed and completed in consultation with Aboriginal stakeholders.

This section would bypass the township of Woodburn and rejoin the existing highway at the southern end of Broadwater National Park.

## Key features

- An interchange at Woodburn.
- Upgraded to motorway standard (Class M) forming a bypass of Woodburn about 1.5 kilometres east of the existing highway.
- Major bridge across Tuckombil Canal and other bridge structures for flood mitigation within the floodplain.
- Realignment of Wandawee Road.
- The realignment of Woodburn–Evans Head Road, which would pass over the upgraded highway.
- Service road to be built through Broadwater National Park.
- Major cuttings at Tuckombil Road and Lang Hill (subject to further consultation with Aboriginal stakeholders).
- Major wetland and drainage channel near Broadwater National Park.
- Existing highway to become a local service road.
- Potential low noise pavement locations to be further developed in the detail design.
- Review options for material source at Lang Hill.
- Review drainage structures in consultation with DPI Fisheries considering the needs of Oxleyan Pygmy Perch habitat.

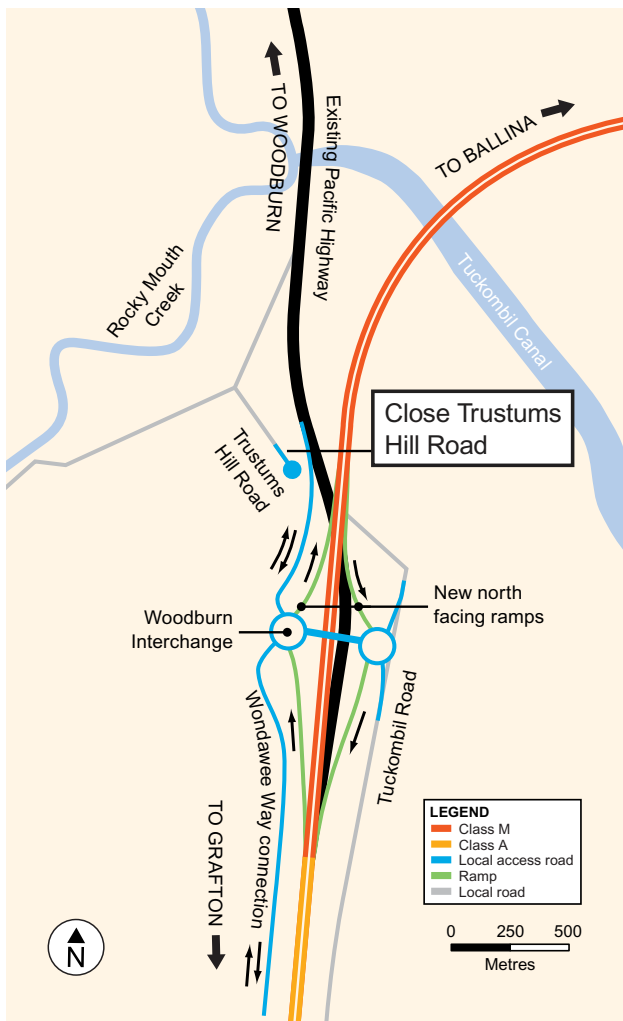


Diagram 8: Interchange at Woodburn

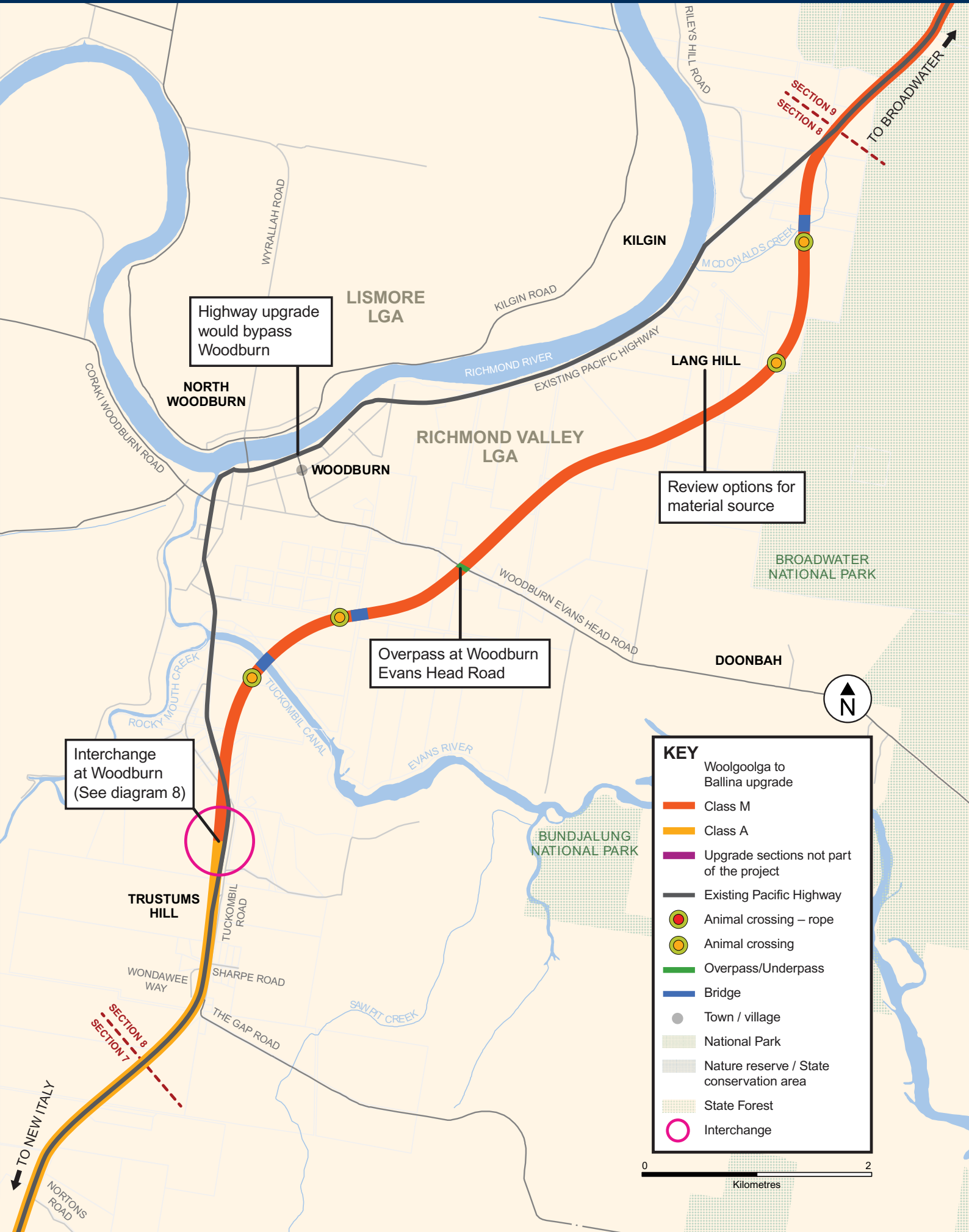
More information on potential impacts and mitigation measures can be found in the following sections of the EIS report and working papers.

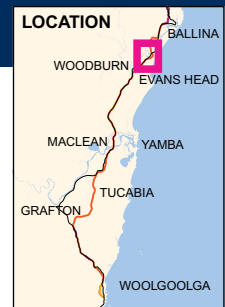
Your comment on the proposed Woolgoolga to Ballina upgrade project is welcome and should be made based on the information contained in the EIS report and working papers.

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Traffic and access	Ch 14
Visual impact	Ch 11



Section 8: Trustums Hill to Broadwater National Park





# Section 9: Broadwater National Park to Richmond River

Section 9 is about 7.5 kilometres long and would be built to full motorway standard (Class M).

The existing highway would be duplicated for about three kilometres through Broadwater National Park and would form the southbound carriageway. A new northbound carriageway would be built on the western side of the existing highway. A new service road would be built on the western side of the upgrade to facilitate utility relocations.

Between the northern end of Broadwater National Park and the Richmond River (about 4.5 kilometres), the alignment would deviate east of the existing highway, bypassing the town of Broadwater.

Motorists would be able to access the highway by a full interchange at Woodburn (part of Section 8) and north-facing ramps at Broadwater (at Evans Head–Broadwater Road). Access to Broadwater Mill, and land acquisition requirements along the Richmond River will be reviewed as part of the detailed design process.

Detailed design of drainage and culvert structures at Broadwater will be completed in consultation with NSW Department of Primary Industries (DPI) Fisheries.

## Key features

- Motorway standard upgrade (Class M).
- Bypass of Broadwater, about one kilometre east of the existing highway.
- Interchange at Evans Head–Broadwater Road for traffic to and from the north (Ballina).
- Realignment of Broadwater quarry access road.
- Existing Pacific Highway to form the service road.
- Wildlife overpasses connecting both sides of Broadwater National Park. These overpasses would also provide emergency vehicle access.
- Potential review of drainage structures in consultation with Fisheries considering needs of the threatened fish species the Oxleyan Pygmy Perch habitat.
- Potential investigation and review into access to Broadwater National Park east of Cooks Hill within the proposed road reserve (including Everson Lane as an option).
- Investigate truck turning allowance on road outside of project, due to the closure of access of the existing route to the mill storage areas at McDonald Street, Broadwater.

More information on potential impacts and mitigation measures can be found in the following sections of the EIS report and working papers.

Your comment on the proposed Woolgoolga to Ballina upgrade project is welcome and should be made based on the information contained in the EIS report and working papers.

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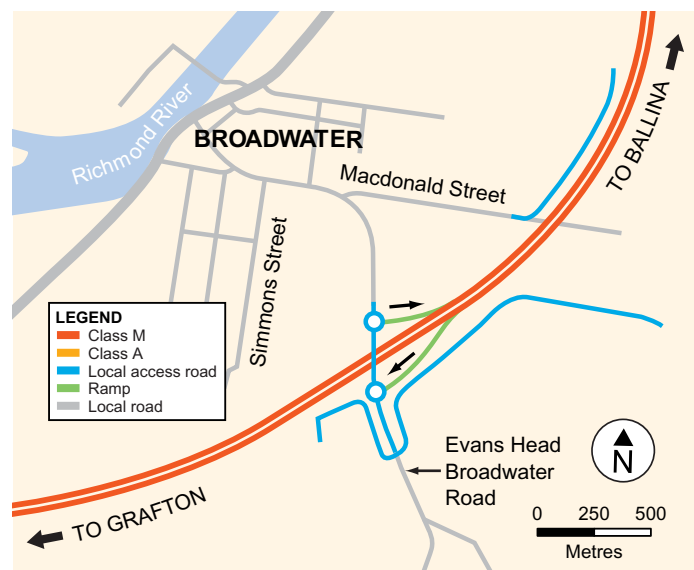
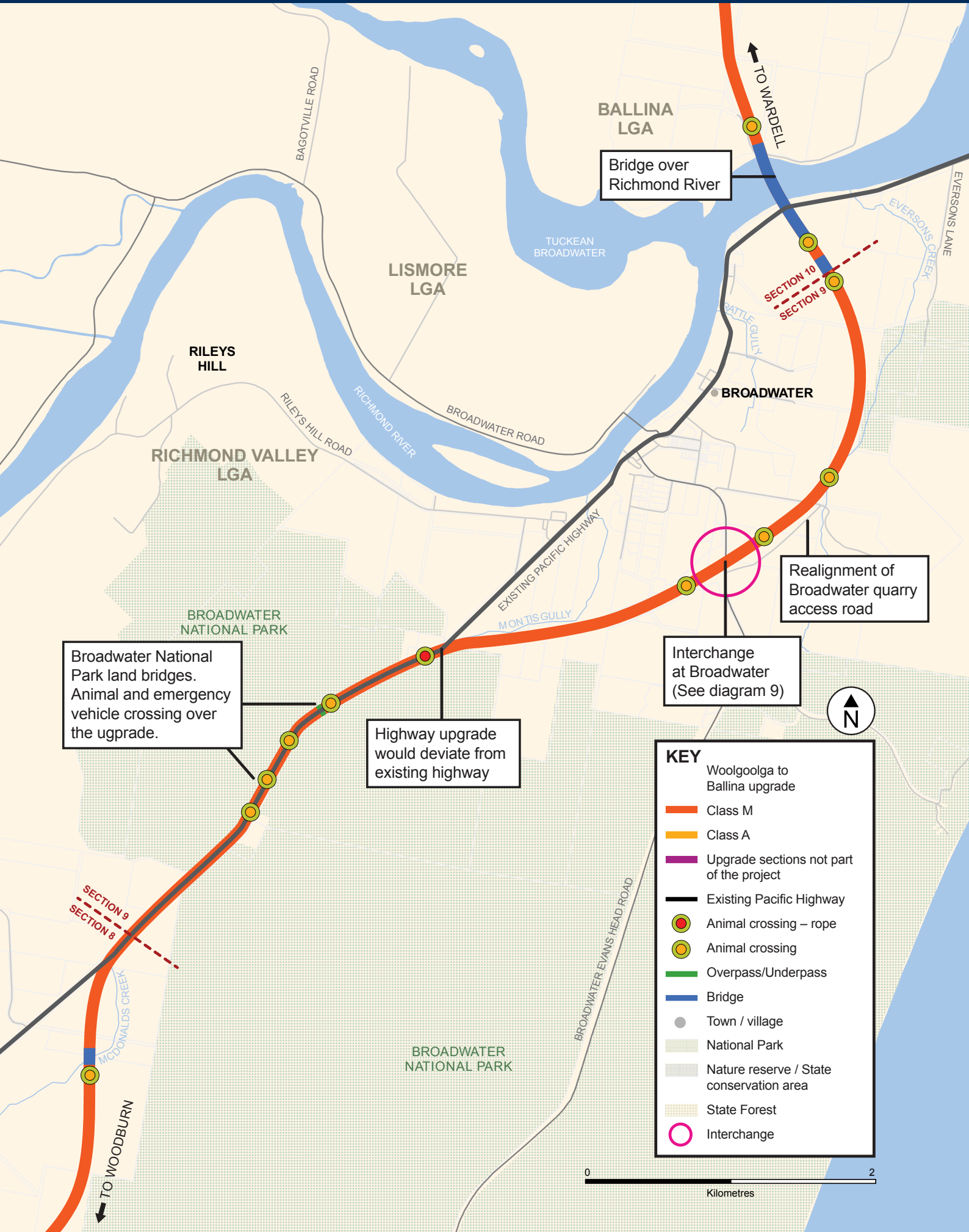
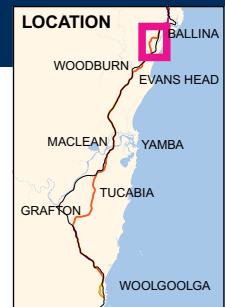


Diagram 9: Interchange at Broadwater

Section 9: Broadwater National Park to Richmond River







# Section 10: Richmond River to Coolgardie Road, Wardell

Section 10 is about 13.5 kilometres long. It would start from the southern side of the Richmond River just east of Broadwater and continues just north of the new interchange at Coolgardie Road, Wardell.

This section would be located about 2.5 kilometres to the west of the existing highway and built to motorway standard (Class M).

A heavy vehicle checking station will be included south of Old Bagotville Road at the north and south rest areas and will be reviewed as part of the detailed design process. Excavation at Lumley's Hill will also require further investigation as part of the detailed design phase.

## Key features

- Motorway standard upgrade (Class M).
- The upgrade to deviate to the west of the existing highway, bypassing the town of Wardell.
- An 800-metre long bridge over Richmond River with a vertical clearance above the river of about 15 metres.
- An interchange at Coolgardie Road north of Wardell.
- An animal overpass to connect the Blackwall Range and Wardell Heath. It would be about 12 metres wide and 60 metres long and planted with native vegetation to provide cover for animals.
- Overpass of the upgrade for Old Bagotville Road and Wardell Road.
- Review options for material source near Wardell Road.
- Major cuttings at Old Bagotville Road and Hillside Lane.
- Construction material source to be reviewed in consultation with key stakeholders.
- Potential review of alternative access for haulage routes for bulk earthworks (strategy to be developed in consultation with Wardell community).

More information on potential impacts and mitigation measures can be found in the following sections of the EIS report and working papers.

Your comment on the proposed Woolgoolga to Ballina upgrade project is welcome and should be made based on the information contained in the EIS report and working papers.

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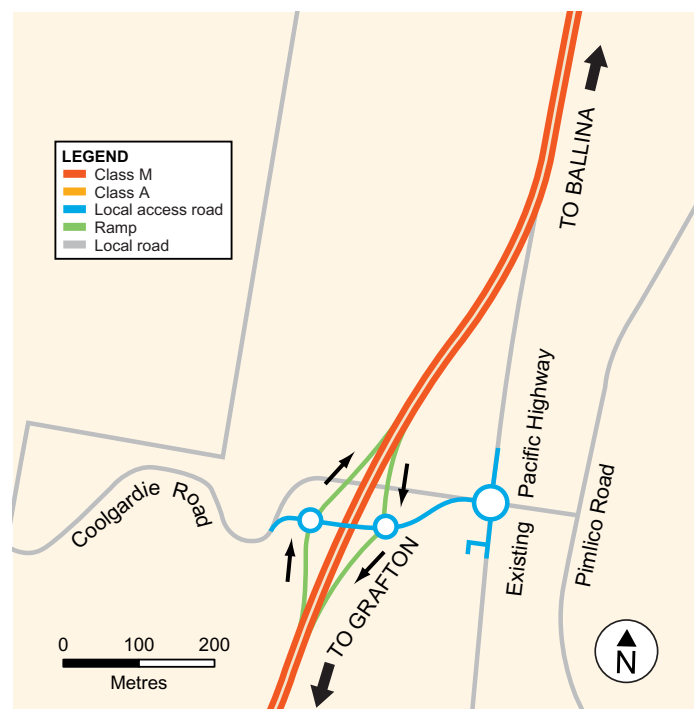
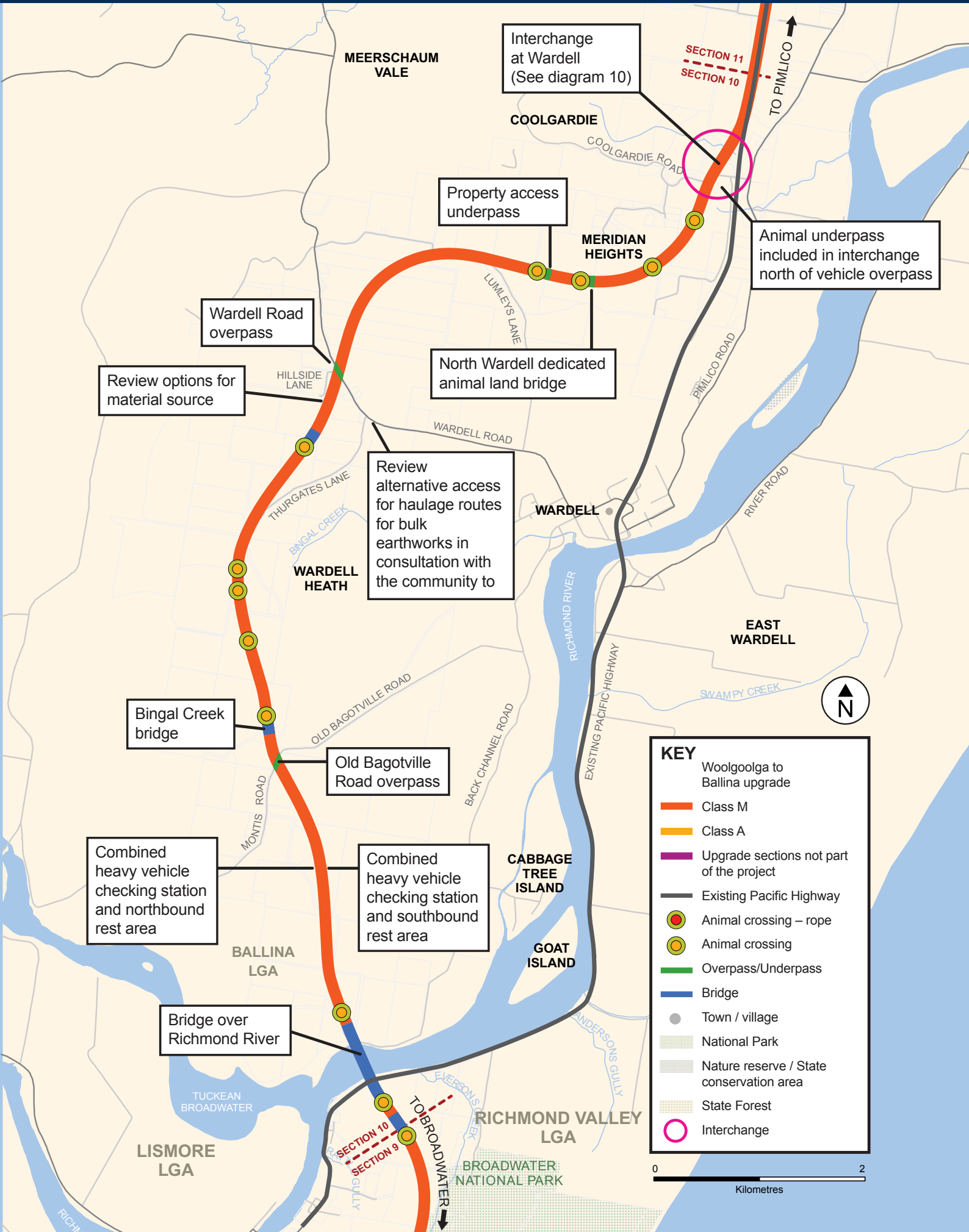
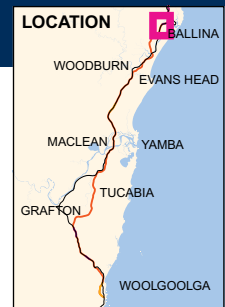


Diagram 10: Interchange at Wardell

Section 10: Richmond River to Coolgardie Road, Wardell





# Section 11: Coolgardie Road to Ballina bypass

Section 11 is about 5.4 kilometres long. It would start just north of Coolgardie Road and continue to the Ballina bypass.

This section would involve duplicating the existing highway, which would be built to motorway standard (Class M).

Between Coolgardie Road and about 150 metres north of Whytes Lane, the northbound and southbound carriageways would be built adjacent to the existing highway on the western side. The existing highway would become a local service road.

A northbound carriageway would be built to the west of the existing highway from about 150 metres north of Whytes Lane to the connection with the Ballina bypass. The design would be refined as part of the detailed design process. The existing highway would then become the southbound carriageway. North of Whytes Lane, the alternative local access road would be by Pimlico Road and a new bridge over Emigrant Creek will connect to Smith Drive.

Access to the highway would be provided from the Coolgardie Road interchange (Section 10) and the Bruxner Highway interchange (this would be built as part of the ultimate arrangements for Ballina bypass upgrade, which is a separate proposed upgrade).

## Key features

- A 220-metre single carriageway bridge over Emigrant Creek to connect Pimlico Road to Smiths Drive (this would form part of the service road for the proposed upgrade between Teven Road and the Bruxner Highway interchange).
- An overpass at McAndrews Lane/Whytes Lane over the upgraded highway.
- Review and consultation of road boundary and cane drain as well as access arrangements.

More information on potential impacts and mitigation measures can be found in the following sections of the EIS report and working papers.

Your comment on the proposed Woolgoolga to Ballina upgrade project is welcome and should be made based on the information contained in the EIS report and working papers.

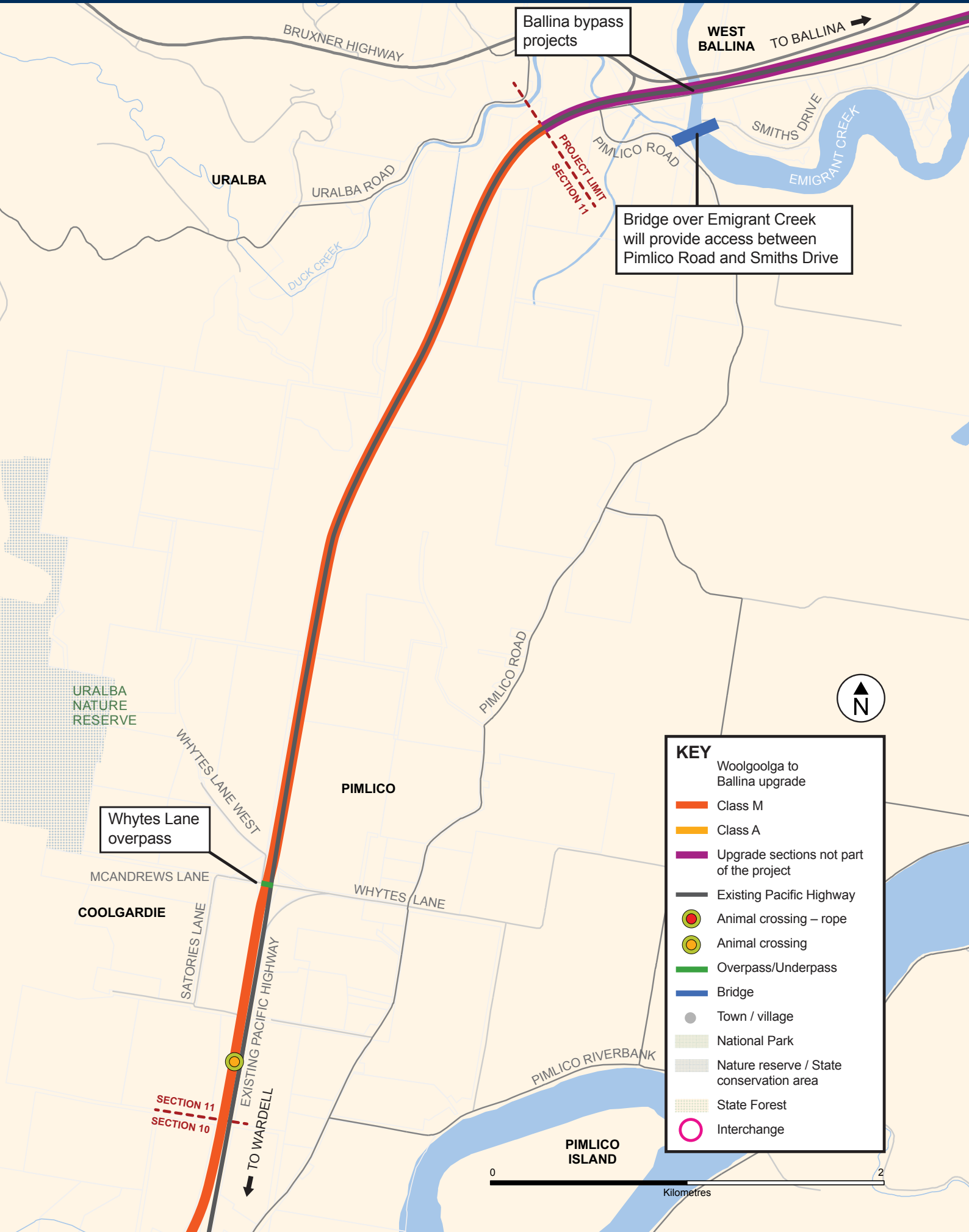
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Cane farm adjacent to Pacific Highway



Section 11: Coolgardie Road to Ballina bypass



# Ongoing design refinements

The design that the EIS has been prepared on is the Refined Concept design that was displayed for community comment in October 2011.

The EIS design also incorporates further changes following the display, in the following locations:

- Tyndale interchange.
- Woodburn interchange.
- Widened medians in three locations.
- Local access provided at Six Mile Lane.

- Minor realignment at Halfway Creek.
- Southbound heavy vehicle checking station at Halfway Creek.

Further consultation has also identified a number of further design refinements (refer to table below).

RMS will continue to consult with the community about these potential design refinements during the display of the EIS.

Further refinements to the design could occur following the EIS display and during further development of the detailed design.

## Potential design refinements

Location	Description
Eggins Drive	Review level of Eggins Drive to achieve acceptable flood immunity for the access to Corindi.
Property access	Property access from Kangaroo Trail Road to be reviewed in consultation with affected owners.
Lemon Tree Road	Review location of northbound access to the local service road and Lemon Tree Road.
Range Road	Reviewing alternative interchange arrangement.
Glenugie State Forest	Review forest access between Eight Mile Lane and Lookout Road severed by the proposed upgrade.
Tyndale – Shark Creek	Review local access arrangements between Bondi Hill, Byron Lane and Gallaghers Lane with affected property owners and the cane industry.
McIntyres Lane	Investigate provision of McIntyres Lane overbridge and review local access arrangements.
Maclean interchange	Investigate alternate connection to Brooms Head Road and review geometry of the southbound offramp to the Maclean interchange.
Gulmarrad	Review opportunities within road reserve to dispose of surplus material for possible visual noise attenuation.
Yamba interchange	Develop performance criteria for the vertical clearance of Yamba Road under the existing highway.
Access east and north of Watts lane	Full connection under Class A stage to satisfy cane farm movements.
Chatsworth Road overbridge	Review delivery of grade separated access.
Carrols Lane overbridge	Review delivery of grade separated access.
Swan Bay New Italy Road intersection	Investigate alternate intersection layout to improve vertical geometry and lessen impact on heritage items.
Lang Hill	Review options for material source.
North Broadwater National Park	Review drainage structures in consultation with DPI Fisheries considering needs of Oxleyan Pygmy Perch habitat.
Everson Lane Broadwater	Reviewing options to provide access to Broadwater National Park by Eversons Lane. Commitment to investigate opportunities to provide access to Broadwater National Park east of Cooks Hill within the proposed road reserve as part of the construction of the project Everson Lane should be part of the Options assessment.

Location	Description
McDonald Street Broadwater	Review truck turning allowance on road outside of project due to the closure of existing access route to the mill storage areas.
Cut source near Wardell (Lumleys Hill)	Review options for material source.
Wardell Road	Review alternative access for haulage routes for bulk earthworks in consultation with the community to minimise impacts.
Whytes Lane to Pimlico Road	Review cane drain, access arrangements tie into Ballina bypass and review road boundary.
Various locations	Need to provide an earthmound to assist mitigating increased flood inundation.
Various locations	Further refinement of the fauna crossings and property accesses along the alignment.
Various locations	Review alignment near existing landfill sites.



Junction of Shark Creek Road and Pacific Highway



# Construction methods and impact timeframes

## Working hours

RMS is seeking approval from the Department of Planning and Infrastructure as part of the EIS to extend the standard construction hours.

The proposed extended construction hours would reduce disruption to motorists, reduce construction timeframes and make the most of natural light in the spring / summer months.

Standard construction hours for projects on the Pacific Highway are:

- Monday to Friday, between 7am to 6pm.
- Saturday, between 8am to 1pm.

The proposed extended construction hours would extend construction noise impacts for an additional two hours on week days and four hours on Saturdays.

The proposed hours are:

- Monday to Friday, between 6am to 7pm.
- Saturday, between 8am to 5pm.

Mitigation measures would include noisy work being scheduled outside the extended period where there are residents, schools and businesses. Noise screens, sound enclosures and noise control methods will be used where possible.

## Ancillary sites

Potential ancillary sites have been identified for use during construction of the proposed highway upgrade.

Ancillary sites would be used for a number of activities, including storage of building materials, material processing, site compounds and/or temporary workshops. Before ancillary sites are confirmed, investigations into plants, animals and heritage would be carried out (with the consent of property owners).

## Possible construction staging

RMS is considering a range of different packaging and procurement options for the 155 kilometres of proposed highway upgrade, ranging from one single 155 kilometre project to up to 11 individual projects.

Construction of each section of the upgrade would be prioritised and would depend on which section delivers the best outcomes in terms of safety, traffic improvements, improved amenity and value for money. Engineering issues will also influence delivery strategies such as areas where ground improvements because of soft soils are required are likely to start first.

For the purposes of this EIS the upgrade is assumed to be open to traffic by the end of 2016.



Tyndale

# Potential impacts and environmental management

The EIS report and working papers describe the project, the potential impacts and how RMS proposes to manage these impacts.

The key issues and proposed management measures covered in the EIS are as follows:

## Aboriginal heritage

Detailed studies were undertaken to understand the Aboriginal cultural heritage values within and near the upgrade to assess the potential impacts of the proposed upgrade. The studies involved field surveys and extensive input from the community.

The majority of impacts on Aboriginal cultural places and archaeological sites are likely to occur during the construction period.

Aboriginal stakeholders have been involved throughout the development and assessment of the proposed upgrade. RMS will continue to consult with Aboriginal stakeholders during the detailed design and construction phases.

## Non-Aboriginal heritage

The project contains 26 sites or places that are considered to have local heritage significance and three sites are considered to have state heritage significance. The proposed highway upgrade would have impacts on some of these sites, mostly during construction.

During construction, heritage items to be retained would be protected by barrier fencing and appropriate signage. If it were not possible to avoid impacting on a heritage item, an archaeologist would undertake a salvage excavation.

The aim of the salvage excavation would be to obtain as much information as possible from the historical heritage materials, features and/or deposits. This work would be undertaken prior to the start of construction.

## Flooding and hydrology

The proposed highway upgrade is located in the Northern Rivers catchment area. It would cross the Clarence River and the Richmond River and their floodplains. These are both large coastal rivers with major tributaries and substantial floodplains. The proposed highway upgrade would also cross several smaller watercourses and their floodplains.

The proposed highway upgrade incorporates numerous waterway openings and crossing structures (such as bridges and culverts) to convey flows safely under the road embankment while minimising flooding impacts on the surrounding environment. The locations and dimensions of these structures have been designed to manage flooding impacts and also animal movements. The highway upgrade would result in improvements to the flood immunity of the Pacific Highway.

The project includes a number of measures to address potential flooding and hydrology impacts.



Richmond River

# Potential impacts and environmental management (continued)

## Soils, sediments and water quality

The proposed upgrade would cross and drain a large number of waterways, including the Clarence and Richmond river systems. These waterways have the potential to be impacted by construction and operation of the proposed upgrade through the disturbance to soils and sediments.

Runoff from the proposed highway upgrade has the potential to adversely affect these water resources, as well as the plant and animal life that lives in them. Impacts could occur during both construction and once the proposed upgraded highway is operational.

During construction, erosion and the consequent runoff of sediments and pollutants would be managed with a combination of at-source controls and management procedures, such as covering exposed areas and by designing runoff discharge points with erosion controls that slow the velocity of the flow.

When the proposed highway upgrade is operational, there would be permanent measures in place to protect the water quality of waterways from pollutants.

In addition, water quality in nearby waterways would be monitored before and during construction and once the highway is operational, to assess the effectiveness of the water quality protection measures and whether extra measures are needed.

## Ecology and biodiversity

### What do we mean by ecology and biodiversity?

**Ecology** refers to the relationships between plants and animals and their environments.

**Biodiversity** refers to the number and variety of organisms found within a specific geographic region.

RMS has sought to minimise impacts on ecology and biodiversity by reducing, avoiding or minimising habitat loss and fragmentation where possible.

Early work involved examining a number of possible route options and assessing their potential impacts on the environment. There was particular focus on reducing the loss of habitat. The selection of the preferred route and the subsequent concept design that is assessed in the EIS, considered these ecological investigations.

The study area also features substantial natural vegetation, which is contained in national parks, state forests and nature reserves as well as on private landholdings. The waterways and bushland contain a range of plant species and communities that provide habitat for native animal species, many of which are listed as threatened and/or endangered under Commonwealth and State laws. This habitat provides food resources, shelter and refuge areas for these animals.

The proximity of the proposed upgrade to natural areas and waterways means that any potential upgrade of the highway would have an impact on ecology and biodiversity.

These impacts would be minimised through a range of design and management measures. In addition, the proposed upgrade includes a range of guaranteed offsets that would involve providing new habitat to compensate for the habitat that would be removed.



Richmond River at Woodburn



# Potential impacts and environmental management (continued)

## Coastal emus

A portion of the coastal emu population uses habitat between Pillar Valley and Shark Creek (refer to sections 3 and 4) in the project area.

As part of the Woolgoolga to Ballina project, an animal connectivity strategy has been developed:

- To reduce and minimise roadkill.
- Avoid and minimise habitat loss and fragmentation.
- Maintain and improve movement pathways for all animal groups.
- Maintain and improve population viability and gene flow.
- Identify monitoring needs.

A fact sheet has been developed providing more detail on the measures. The fact sheet is available on the project website [www.rms.nsw.gov.au/pacific](http://www.rms.nsw.gov.au/pacific) or at the display locations outlined at the back of this project update.

## Noise and vibration

RMS recognises that noise is a sensitive issue to the community. A noise and vibration study has assessed the direct and indirect impacts of the project during construction and operation of the proposed upgraded highway.

Where possible, noise-reducing materials and practices would be used when building the proposed highway upgrade.

Management measures for both the construction and operation phases of the project would be documented in a management and construction plan.

## Land use and property effects

The proposed highway upgrade runs through the Coffs Harbour City, Clarence Valley, Richmond Valley and Ballina Shire council areas. The area features forest contained within national parks, nature reserves, State conservation areas and State Forests. These include Yuraygir State Conservation Area and Yuraygir National Park, Yaegl Nature Reserve, Mororo Creek Nature Reserve, Bundjalung National Park, Wells Crossing Flora Reserve and Broadwater National Park.

There are also large rural and semi-rural landholdings supporting a range of agricultural industries which include sugarcane, cattle rearing, fruit and vegetable production. In addition, the Clarence River and Lake Wooloweyah form part of the Clarence River estuary for prawn trawlers.

Freehold land required for the proposed upgrade would be acquired in accordance with the provisions of the *Land Acquisition (Just Terms Compensation) Act 1991*.

Negotiations between RMS and property owners are ongoing as part of the property acquisition program.

## Social and economic effects

During construction the local and regional construction industry is expected to benefit directly from greater employment and spending in the region. There would be up to about 4300 direct full-time equivalent workers required to construct the project (at peak times), depending on the project delivery staging.

RMS would continue consultation with affected property owners, businesses and communities, and promote community participation during the planning and construction of the upgrade.



Clarence River



Cane field



# Display locations

The EIS display and documents are available between **5 December 2012** and **4 February 2013** during office hours.

A copy of the full EIS report will be available at the following locations:

## Ballina

- Ballina Shire Council, Cherry Street (Mon–Fri, 8.15am – 4.30pm).
- Ballina Library, River Street (Mon–Fri, 9.30am – 6pm).

## Canberra

- Department of Sustainability, Environment, Water, Population and Communities, John Gorton building (environment entrance), King Edward Terrace, Parkes (Mon–Fri 8.30 – 5pm)

## Casino

- Richmond Valley Council, Graham Place, Cnr Walker Street (Mon–Fri, 8.30am – 5pm).

## Coffs Harbour

- Coffs Harbour City Council, 2 Castle Street (Mon–Fri, 8am – 5pm).

## Evans Head

- Richmond Valley Council, Woodburn Street, Cnr School Lane (Mon–Thu, 9am – 12noon and 1pm – 4pm).
- Evans Head Library, Woodburn Street (Mon, Tues, Wed and Fri 2.30 – 5pm, Thu and Sat 9.30 – 12 noon)

## Grafton

- Clarence Valley Council, 2 Prince Street (Mon–Fri, 8.30am – 4.30pm).
- Grafton Library, 2 Prince Street (Mon–Fri 10am – 5.30pm, Sat 9.30am – 12noon).
- RMS Pacific Highway Office, 21 Prince Street (Mon–Fri, 8.30am – 4.30pm).

## Maclean

- Clarence Valley Council, 50 River Street (Mon–Fri, 8.30am – 4.30pm).
- Maclean Library, Stanley Street (Mon, Tue, Thu and Fri 10am – 12.30pm and 1.30pm – 5.30pm, Sat 10am – 12noon).

## Woolgoolga

- Woolgoolga Library, Ganderton Street (Mon–Fri, 9.30am – 5pm, Sat 9.30am – 12noon).

## Sydney

- RMS Head Office, Level 9, 101 Miller Street North Sydney (Mon–Fri, 9am – 5pm).
- Department of Planning and Infrastructure, Information Centre 23–33 Bridge Street (Mon–Fri, 9am – 5pm).
- Nature Conservation Council, Level 2, 5 Wilson Street Newtown (Mon–Fri, 9am – 5pm).

The EIS summary booklet may also be viewed at the following locations:

## Ballina

- RMS Motor Registry Ballina, Ballina West Shopping Centre, 12–13 Pacific Highway (Mon–Fri, 9am – 5pm).

## Broadwater

- Broadwater Sunrise Caravan Park, 74–92 Pacific Highway (Mon–Fri, 8am – 6pm).
- Broadwater BP Service Station, 171 Pacific Highway (7 days, 24hrs).

## Chatsworth

- Chatsworth General Store, 9 Chatsworth Road (Mon–Fri, 7am – 6pm).

## Coffs Harbour

- Coffs Harbour Library, Duke Street (Mon–Fri 9.30am – 6pm, Sat 9.30am – 2pm).
- RMS Motor Registry, 32–34 Gordon Street (Mon–Fri 8.30am – 5pm, Sat 8.30am – 12noon).
- Coffs Harbour Caravan Holiday Park, 210 Eggins Drive, Arrawarra (7 days, 8am – 5pm).
- Bailey Centre Service Station, 150–156 Pacific Highway (7 days, 24hrs).

## Corindi/Red Rock

- Corindi Beach Post Office, 89 Pacific Street (Mon–Fri, 9am – 1pm and 2pm – 5pm).
- Red Rock Post Office, 1 Rudder Street (Mon–Fri, 8.30am – 5pm).

## Evans Head

- Evans Head Motor Inn, 38 Woodburn Street (Mon–Fri, 8am – 5pm).

## Grafton

- Clarence River Visitor Information Centre, Cnr Spring Street & Pacific Highway (7 days, 9am – 5pm).
- RMS Motor Registry Grafton, 3 King Street (Mon–Fri 8.30am – 5pm, Sat 8.30am – 12noon).

## Halfway Creek

- The Creek Restaurant, 4974 Pacific Highway (7 days, 24hrs).

## Harwood

- Harwood Hotel, 2 Morpeth Street (7 days, 8.30am – 12noon).

## Iluka

- Iluka Community Hall, 54 Spencer Street (Mon–Fri, 9am – 5pm).

## Lismore

- Lismore City Council, 43 Oliver Avenue (Mon–Fri, 8.30am – 4.30pm).

## Maclean

- RMS Motor Registry Maclean, 50 River Street (Mon–Fri, 9am – 4pm).
- CWA Hall Maclean, 40 River Street (Mon–Fri, 9.30am – 5pm).

## New Italy

- New Italy Museum Complex, 8275 Pacific Highway (Mon–Fri, 9am – 4pm).

## Tucabia

- Tucabia Village Store, Cordini Street (Mon–Sat 6.30am – 7pm, Sun 6.30am – 6pm).
- Tucabia Community Hall, Clarence Street (7 days, 10am – 7pm).

## Tyndale

- Plantation Motel, 2 Sheehys Lane (7 days, 8am – 9pm).
- Tyndale Caravan Park, 2848 Pacific Highway (7 days, 6am – 6pm).

## Wardell

- Wardell Community Hall, 59 Richmond Street (7 days, 9am – 9pm).
- Wardell Post Office/General Store, 40 Richmond Street (Mon–Fri, 9am – 5pm).

## Woodburn

- Woodburn Memorial Hall, River Street (7 days, 9am – 9pm).
- Woodburn Bowling Centre, Richmond Street (Wed 9am – 9.30pm, Thu 8am – 1pm and 3.30pm – 9pm, Fri 12noon – 9pm, Sat 12noon – 9pm, Sun 4pm – 8pm).

## Yamba

- Yamba Library, River Street (Mon, Tue and Fri, 9.30am – 12noon and 1.30pm – 5pm, Wed 9.30am – 12.30pm, Sat 9am – 12noon).
- Yamba Community Centre, Treelands Drive (Mon–Fri, 8.30am – 5pm).

## More documents available

The EIS is also available online as an eReport and can be downloaded from the RMS project website [www.rms.nsw.gov.au/pacific](http://www.rms.nsw.gov.au/pacific) (click on Woolgoolga to Ballina).

### For more information

For more information about the Woolgoolga to Ballina project contact us on:

**T 1800 778 900** (free-call) information line

**E [w2balliance@globalskm.com](mailto:w2balliance@globalskm.com)**

**P Woolgoolga to Ballina Planning Alliance**  
c/- PO Box 164, St Leonards NSW 1590

### For more information:

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T Project information line 1800 778 900 (free call)  
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More information is available at [www.rms.nsw.gov.au/pacific](http://www.rms.nsw.gov.au/pacific) (click on Woolgoolga to Ballina)

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