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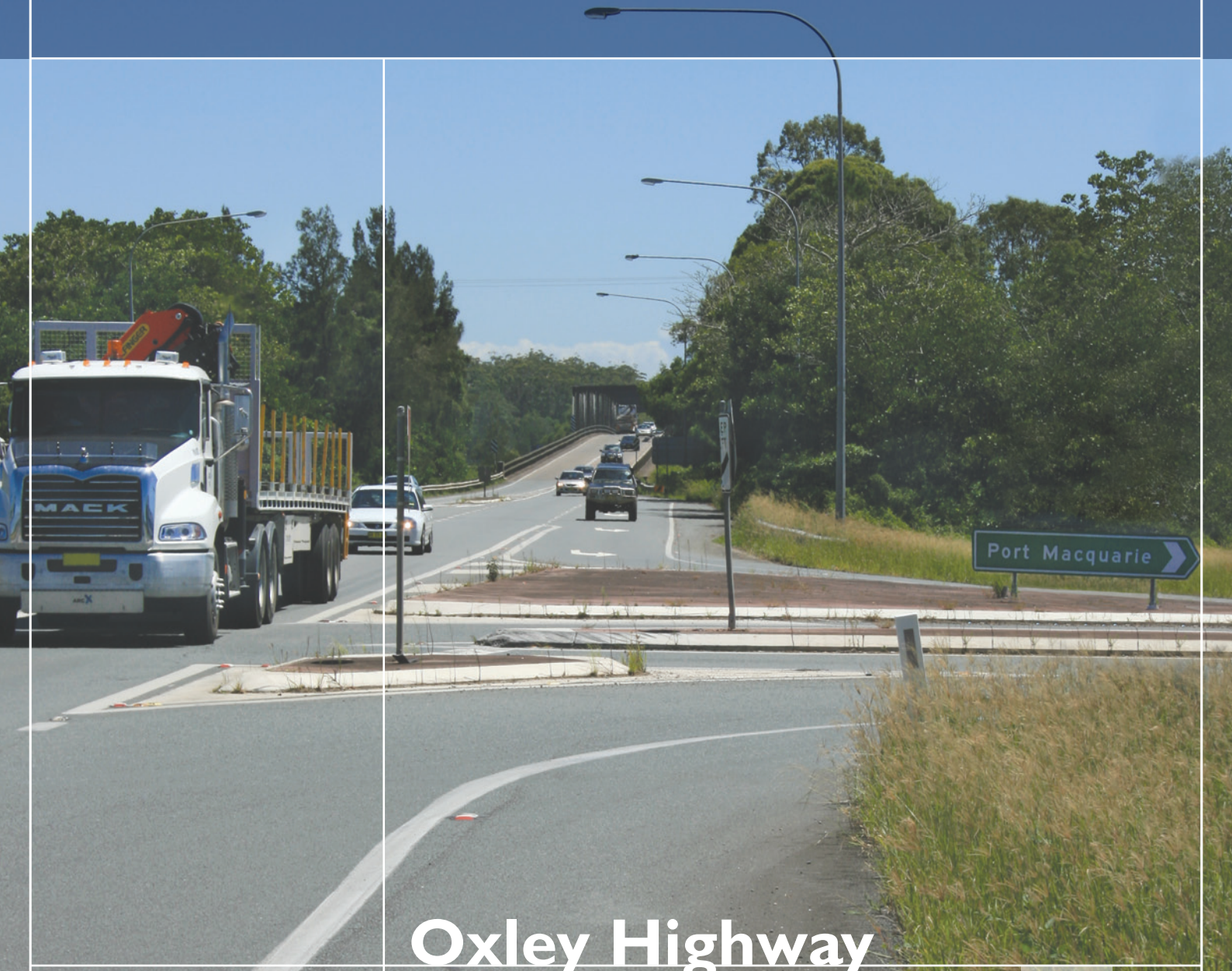

Oxley Highway to Kempsey

Upgrading the Pacific Highway

Environmental assessment submissions report

MARCH 2011

RTA/Pub. 11.124

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Roads and Traffic Authority

Pacific Highway Upgrade - Oxley Highway to Kempsey

Submissions Report

14 March 2011

Prepared by

RTA Pacific Highway Office
21 Prince Street
GRAFTON NSW 2460

RTA Publication Number: 11.124

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Prepared By	RTA Pacific Highway Office		
Project No.	D/00202		
Document Description	Oxley Highway to Kempsey Upgrading the Pacific Highway Submissions Report		
	Name	**Signed**	**Date**
Approving Manager	Irwin Perring		14 March 2011

Person(s) managing this document	**Person(s) writing this document**
Irwin Perring A/Project Development Manager Pacific Highway	Irwin Perring Shaun Lawer

Location	**File No.**
G:\Pac-Hwy\PACIFIC\Oxley Highway to Kempsey\Environmental Assessment – Submissions Report	2011Mar16-OH2K-EASubs Report-Final
ISBN	**Publication No.**
ISBN 978-1-921899-19-5	RTA/Pub. 11.124

Document Status	**Date**
Final	14 March 2011

Declaration	**Signed**
This Report was prepared under the supervision of: Roger Fenner Project Development Manager Pacific Highway NSW RTA Major Infrastructure Directorate Grafton, NSW	

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1 Introduction and background

1.1 The project

The Oxley Highway to Kempsey Pacific Highway upgrade, (the 'Proposal') is part of the Pacific Highway Upgrade Program being implemented by the NSW Roads and Traffic Authority (RTA).

The Proposal is 37 kilometres in length, commencing approximately 700 metres north of the Oxley Highway interchange, tying in with the existing dual carriageways to the south, and continues northwards to tie in at Stumpy Creek with the dual carriageways of the approved Kempsey to Eungai Pacific Highway upgrade currently under construction. At the northern end of the Proposal, the eastern service road would extend approximately 320 metres further to the north of Stumpy Creek to tie in with the southern interchange of the Kempsey bypass section of the approved Kempsey to Eungai upgrade. The majority of the Proposal (20 kilometres) would be a duplication of the existing Pacific Highway. Three sections of the Proposal would deviate from the alignment of the existing highway. These are in the vicinity of the Hastings River (four kilometre deviation), a bypass of Telegraph Point (eight kilometre deviation) and through the Maria River State Forest (five kilometre deviation). The existing highway would be retained wherever possible for use as a service road or local road connection.

A detailed description of the Oxley Highway to Kempsey Pacific Highway upgrade is found in the Oxley Highway to Kempsey Environmental Assessment prepared by RTA in September 2010.

1.2 Statutory context

The Minister for Planning has declared by Order published on 8 December 2006 in the NSW Government Gazette No. 175 2006 that the Oxley Highway to Kempsey Pacific Highway upgrade is a project to which Part 3A of the *Environmental Planning and Assessment Act 1979* (EP&A Act) applies. The Minister has also declared that the Oxley Highway to Kempsey Pacific Highway upgrade is a critical infrastructure project under section 75B of the EP&A Act.

In accordance with the requirements of the EP&A Act, an environmental assessment was prepared to assess the potential impacts of the project.

1.3 Environmental assessment exhibition

The environmental assessment was exhibited for 30 days from 15 September 2010 to 15 October 2010 at the following locations:

- NSW Department of Planning, Information Centre, 22-33 Bridge Street, Sydney.
- Kundabung Post Office, 100 Ravenswood Road, Kundabung.
- Telegraph Point Post Office, 21 Cooperabung Drive, Telegraph Point.
- Port Macquarie Library, Corner Gordon and Grant streets, Port Macquarie.
- Port Macquarie-Hastings Council, Corner Lord and Burrwan streets, Port Macquarie.
- Kempsey Council Chambers, 22 Tozer Street, West Kempsey.
- Kempsey Library, 15 Elbow Street, Kempsey.
- RTA Motor Registry, 55 Elbow Street, Kempsey.
- RTA Motor Registry, Corner Central Road and Barton Crescent, Port Macquarie.
- RTA Motor Registry, Corner Hastings and Young streets, Wauchope.
- RTA Pacific Highway Office, 21 Prince Street, Grafton.
- RTA Head Office, Level 9, 101 Miller Street, North Sydney.

All necessary reference material was made available for review at the nominated locations and the environmental assessment was also available on the NSW Department of Planning (DoP) and the NSW Roads and Traffic Authority (RTA) websites.

Property owners directly affected by the Proposal were sent a letter on 10 September 2010 inviting them to meet with representatives of the project team to discuss the potential impacts of the Proposal on their property. Also included with the letter was a community update and electronic copies of the environmental assessment. The project team endeavoured to telephone all directly affected landowners during the exhibition period.

Community updates were also sent to adjacent land owners and local residents.

The RTA hosted two staffed displays during the exhibition period at the Telegraph Point School of Arts. These displays were held between 16 and 18 September 2010 and 12 and 13 October 2010. The purpose of these sessions was to give local residents the opportunity to ask the project team any questions regarding the Proposal.

Approximately 144 community members attended the displays over the five days.

Representatives of the project team also held individual meetings with directly affected landowners or those close to the Proposal.

Representatives of the project team also met with the community liaison and ecology focus groups during the evening of 15 September 2010. This meeting was convened early on in the environmental assessment exhibition period to allow for input from these members with a specific interest in these topics. It also allowed the RTA to explain the methodology used in the environmental assessment for ecology and to discuss the key outcomes of those investigations.

Project team members also attended a meeting of the Telegraph Point Community Association on the evening of 12 October 2010 to present the environmental assessment and answer enquiries about the project.

1.4 Purpose of the document

During the exhibition of the environmental assessment, 147 submissions were made by individuals, organisations, local government and NSW Government agencies. The Director-General of the Department of Planning (DoP) provided copies of the submissions to the RTA.

In accordance with section 75H(6) of the *Environmental Planning and Assessment Act 1979*, the Director-General required the RTA to respond to the issues raised in these submissions. If there were any changes to the project to minimise environmental impacts, the Director-General required the preparation of a preferred project report and a revised Statement of Commitments (SoC).

This report identifies the issues raised during exhibition of the environmental assessment and provides the RTA's responses to those issues (section 2). It includes information regarding additional studies carried out since the exhibition of the environmental assessment (section 3), and a revised Statement of Commitments (section 4).

No project changes are proposed that would require the preparation of a preferred project report.

1.5 Respondents

The Department of Planning (DoP) received 147 submissions in response to the exhibition of the environmental assessment. The DoP continued to receive submissions after the closing date and provided the RTA with the final community submission on Thursday 4 November 2010. The last government agency submission was received on 25 November 2010. There were:

- 139 submissions from private individuals, of which 92 were form letters in support of the Proposal and 47 letters and e-mails. One individual requested that their details remain confidential.
- Eight submissions from government agencies including Transport NSW, Department of Environment, Climate Change and Water (DECCW), Industry and Investment NSW, Office of Water, Northern Rivers Catchment Management Authority, Kempsey Shire Council, Port Macquarie - Hastings Council and Forests NSW.

The issues raised in each submission were extracted and collated, and corresponding responses to the issues provided. Where similar issues have been raised in different submissions, only one response has been provided. The issues raised and the RTA's response to these issues forms the basis of Section 2 of this report.

Table 1.1 lists each submission by number and indicates which section of the report addresses the issues raised in the submission.

Table 1.1: List of respondents

Respondent	Submission No.	Section number where issues are addressed
Individual submission	1	2.5.3, 2.8.3
Individual submission	2	2.5.3.1, 2.8.3, 2.8.4, 2.12.1, 2.15.1
Individual submission	3	2.8.2, 2.9.1, 2.13.1, 2.14.1, 2.7.1
Individual submission	4	2.1, 2.4, 2.7, 2.9.1, 2.12.2, 2.13.3, 0, 2.16
Individual submission	5	2.6.1, 2.8.4, 2.9.1, 2.11, 2.13.1, 2.15.1, 2.15.2, 2.15.4
Individual submission	6	2.7.1, 2.8.4, 2.9.1, 2.12.1, 2.5.3.1
Individual submission	7	2.8.3
Individual submission	8	2.5.1, 2.7.1, 2.9.1, 2.5.3.1
Individual submission	9	2.7.2, 2.8.1, 2.8.2
Individual submission	10	2.4, 2.7.3, 2.8.2, 2.8.3, 2.13.1, 2.14.1, 2.5.3.1, 2.15.4
Individual submission	11	2.4, 2.9.1, 2.7.3, 2.11, 2.17
Individual submission	12	2.5.3.1
Individual submission	13	2.12.1, 2.5.3.1
Individual submission	14	2.8.2, 2.8.4, 2.5.3.1
Individual submission	15	2.7.1, 2.7.3, 2.8.3, 2.8.4, 2.13.3, 2.5.3.1
Individual submission	16	2.4, 2.5.1
Individual submission	17	2.8.3, 2.13.3
Individual submission	18	2.5.1, 2.5.2, 2.8.2, 2.15.4
Individual submission	19	2.4, 2.5.1, 2.5.3.1, 2.7.4
Individual submission	20	2.7.1, 2.8.3, 2.13.1, 2.15.1
Individual submission	21	2.5.1, 2.7.2, 2.13.1
Individual submission	22	2.4, 2.5.3.1, 2.6.2, 2.7.2, 2.7.3, 2.8.3, 2.8.4, 2.13.3, 2.14.1, 2.15.4
Individual submission	23	2.8.1, 2.8.2, 2.13.2
Individual submission	24	2.5.3.1, 2.7.4
Individual submission	25	2.5.3.1, 2.7.4, 2.8.2, 2.13.3, 2.17, 2.19
Individual submission	26	2.15.2
Individual submission	27	2.9.1, 2.15.4

Respondent	Submission No.	Section number where issues are addressed
Individual submission	28	2.3, 2.5.1, 2.7.2, 2.15.4
Individual submission	29	2.3, 2.4, 2.12.3, 2.12.4
Individual submission	30	2.1, 2.5.3.1, 2.7.1, 2.8.2, 2.8.4, 2.9.1, 2.13.2, 2.15.4
Individual submission	31	2.6.1, 2.8.3, 2.15.1
Individual submission	32	2.4, 2.7.3, 2.13.2, 2.14.1
Individual submission	33	2.5.1, 2.13.2
Individual submission	34	2.4, 2.12.3
Individual submission	35	2.5.1, 2.7.2, 2.9.1, 2.13.2, 2.14.1, 2.17
Individual submission	36	2.5.1, 2.5.3.1
Individual submission	37	2.5.1, 2.5.3.1
Individual submission	38	2.3, 2.7.1
Individual submission	39	2.3, 2.7.1, 2.8.2
Individual submission	40	2.3, 2.5.1, 2.5.3, 2.7.1, 2.8.2
Individual submission	41	2.1, 2.4, 2.5.1, 2.12.1, 2.12.2, 2.12.3, 2.12.4, 2.18
Individual submission	42	2.5.1, 2.7.2, 2.8.3, 2.9.1, 2.10, 2.12.2, 2.12.3, 2.13.1, 2.15.2
Individual submission	43	2.3, 2.7.2, 2.7.4, 2.8.2
Individual submission	44	2.3
Individual submission	45	2.3, 2.5.3.1, 2.13.3, 2.14.1
Individual submission	46- 134	2.3
Transport NSW	135	2.15.2
NSW Department of Environment, Climate change and Water	136	2.12.1, 2.12.2, 2.12.3, 2.12.4, 2.12.5, 2.13.1, 2.13.2, 2.13.3, 2.17, 2.18, 2.19, 2.20
Industry and Investment NSW	137	2.7.2, 2.8.1, 2.8.2, 2.12.2, 2.20
Kempsey Shire Council	138	2.5.1, 2.7.4, 2.8.2, 2.9.1, 2.12.1, 2.15.4
Northern Rivers Catchment Management Authority	139	2.10, 2.12.2, 2.12.4, 2.12.5
Port Macquarie - Hastings Council	140	1.6.3
NSW Office of Water	141	2.2, 2.10, 2.11, 2.15.2, 2.20
Individual submission	142	2.5.3.1, 2.8.2
Individual submission	143	2.4, 2.5.3.1, 2.8.3, 2.9.1, 2.13.3, 2.14.1, 2.16
Individual submission	144	2.3
Individual submission	145	2.3
Individual submission	146	2.3
Forests NSW	147	2.5.3.1, 2.7.1, 2.7.4

1.6 Overview of the issues raised

Of the 147 submissions, 101 community submissions (including 92 form letters) supported the Proposal, whilst three community submissions objected to the Proposal. 43 submissions raised concerns or questions about the Proposal.

Submissions received from the government agencies focussed predominantly on their particular area of statutory or advisory responsibility. Some of the agency submissions also made recommendations for conditions of approval and amendments to the statement of commitments.

A summary of the issues raised in business and community submissions and by each government agency is presented below.

1.6.1 Businesses and community submissions

Submissions from businesses and individual community members were predominantly concerned with property impacts: including acquisition, noise, land use, flooding, privacy and access arrangements.

1.6.2 Kempsey Shire Council

Kempsey Shire Council (KSC) raised a number of issues regarding, fauna movement, property and business access, impacts on businesses, flooding and transport impacts associated with the Proposal. KSC also asked for clarification of several design issues.

Table 1.2 provides details of the categories of issues raised by KSC and where these issues have been responded to in this report.

Table 1.2: Issues raised by KSC

Issue	Report section where issues are addressed
Design	2.5.1
Land use and property	2.7.4
Social and economic	2.8.2
Hydrology	2.9.1
Flora and fauna	2.12.1
Traffic and transport	2.5.3.1, 2.15.4

1.6.3 Port Macquarie - Hastings Council

Port Macquarie - Hastings Council did not identify any issues of concern or requirement for special conditions of approval.

1.6.4 Department of Environment, Climate Change and Water

The Department of Environment, Climate Change and Water's (DECCW) submission provided comments on key issues, including water, flora and fauna, noise and vibration and Aboriginal heritage. An important focus of the submission was the sizing and location of water quality controls, validation of noise modelling and proposed mitigation measures including flora and fauna connectivity.

Table 1.3 provides further details of the categories of issues raised and where they have been responded to within this report. Issues raised by the DECCW will be further discussed with the department. Where necessary any changes have been captured in the revised statement of commitments (section 4).

The DECCW expressed a preference for the majority of the issues raised in its submission to be addressed in a revised statement of commitments. This submissions report addresses the issues raised in the DECCW submission and the statement of commitments (section 4) has been revised to include appropriate changes.

Table 1.3: Issues raised by DECCW

Issue	Report section where issues are addressed
Project support	2.3
Water quality	2.10
Flora and fauna	2.12.1, 2.12.2, 2.12.3, 2.12.4, 2.12.5
Noise and vibration	2.13.1, 2.13.2, 2.13.3
Geology and soils	2.17
Clarifications to the environmental assessment	2.19
Statement of commitments	2.20

1.6.5 Industry and Investment NSW

The submission from Industry and Investment NSW (I&I NSW) focused on potential land use issues and impacts on aquatic habitats.

Table 1.4 provides details of the categories of issues raised by I&I NSW and where these issues have been responded to in this report.

Table 1.4: Issues raised by I&I NSW

Issue	Report section where issues are addressed
Land use and property	2.7.2
Social and economic	2.8.1,2.8.2
Flora and fauna	2.12.2
Statement of commitments	2.20

1.6.6 NSW Office of Water

NSW Office of Water's (NOW) submission focused on the licence and approval requirements during construction. Other issues raised include water quality and hydrology in relation to acid sulphate soil disturbance. A number of recommendations were also provided for the statement of commitments, which NOW advised should also be incorporated into the conditions of approval.

Table 1.5 provides details of the categories of issues raised by the NOW and where these issues have been responded to in this report.

Table 1.5: Issues raised by NOW

Issue	Report section where issues are addressed
Licensing	2.2
Water quality	2.10
Groundwater	2.11
Statement of commitments	2.20

1.6.7 Forests NSW

The submission from Forests NSW focused on acquisition, potential land use issues and traffic and transport.

Table 1.6 provides details of the categories of issues raised by Forests NSW and where these issues have been responded to in this report.

Table 1.6: Issues raised by Forests NSW

Issue	Report section where issues are addressed
Land use and property	2.7.1, 2.7.4
Traffic and transport	2.15.4

1.6.8 Transport NSW

Transport NSW requested that relevant public transport and school bus providers be consulted, that 2.5m wide shoulders along the Proposal are maintained on bridges and at pinch points to minimise conflict between cyclists and vehicles and that opportunities to provide cycle way connections to adjoining communities be investigated. A response to these issues is provided in section 2.15.2 of the submissions report.

1.6.9 Northern Rivers Catchment Management Authority

The issues raised by the Northern Rivers Catchment Management Authority (NRCMA) relate to water quality and flora and fauna. A response to these issues is provided in sections 2.10 and 2.12 of the submissions report.

2 Response to issues

2.1 Alternatives considered and route development

Submission numbers

4 – Individual
30 – Individual
41 – Individual

Issue description

Three community submissions raised concerns in relation to the alternatives considered in developing the Proposal.

1) One community submission raised concerns about the Proposal alignment at the Hastings River crossing and suggested the RTA decision on the route for the crossing was influenced by a proposed marina precinct adjacent to Hastings River.

2) One community submission suggested that environmental issues, in particular potential damage to Endangered Ecological Communities (EECs), were not given enough importance when assessing route options during the Value Management Workshop. The respondent also suggested that cost should not be the critical factor in determining the route and offsets should be the last choice.

3) One community submission stated that inadequate information has been provided to explain the decision to open Wyndell Close to traffic as part of the Proposal.

Response

1) The route selection process has been discussed in section 3.3 of the environmental assessment and additional information on this process can be found in *The Preferred Route Option Report (NSW Roads and Traffic Authority 2006)*. The preferred route was selected following extensive consultation with the community and evaluation of all route options using a range of environmental, engineering, social, safety and cost criteria. It was considered that the preferred route achieved the best balance between environmental, social, engineering and economic constraints and opportunities.

   Minimising potential impacts on private property and existing business operations was a key consideration during the route selection process. The proposed marina precinct adjacent to the Hastings River was not identified during the route selection process and the preferred route was not influenced by the proposed marina precinct.

   The cost of constructing the Hasting River bridges was considered as part of the route development process, along with other environmental, socio-economic and functional issues. On balance, the preferred route is considered to provide the best overall outcome.

2) The Value Management Workshop is one part of the route selection process. During the workshop several environmental, engineering, socio-economic, safety and cost issues were used to evaluate each of the options. The results of this workshop were used along with other investigations to assist the RTA in determining the preferred route. Minimising environmental impacts was a key consideration during the route selection process. As

outlined in section 3.3 of the environmental assessment, an environmental cost benefit analysis was also undertaken during the preferred route corridor selection process.

The specific environmental management measures required for the preferred route were refined following the identification of the successful route option. The need for offsets to minimise residual environmental impacts were identified following further refinement of the preferred route to reduce adverse environmental impacts.

3) The Proposal uses existing road reserves or publicly owned land where possible to minimise impacts on private property. The decision to open Wyndell Close to traffic was based on the need to develop a safe and efficient service road network linking the Proposal with the existing Pacific Highway and Cooperabung Drive.

The opening of Wyndell Close as part of the Proposal was included as part of the *Oxley Highway to Kempsey Access Strategy Report, October 2007*. This report was prepared following feedback from a number of consultation activities with the community throughout 2007. Those activities are detailed in section 1.5.1 of the strategy report and included a precinct committee meeting at Telegraph Point on 19 July 2007. The RTA also placed advertisements in the local newspapers between 12 and 16 October 2007 to advise the community that the strategy report had been placed on the project website.

2.2 Licensing

Submission numbers

136 - Department of Environment, Climate Change and Water (DECCW)
141 – NSW Office of Water (NOW)

Issue description

NOW and the DECCW made a number of comments regarding the environmental licences required for construction and operation of the Proposal.

1) NOW advised that licences would be required for:

- Dewatering activities (under the *Water Act 1912* and the *Water Management Act 2000*).
- Extraction of surface or groundwater for construction purposes.
- Installation of groundwater monitoring bores.
- Any works that intersect the water table.
- Permanently changing the course of a stream or river.

2) NOW advised that there is currently an embargo on any further applications for subsurface water licences for *"Coastal Floodplain Alluvial Groundwater Sources and Highly Connected Alluvial Groundwater Sources of Coastal Catchments - Regional NSW"*. However NOW also advise that exemptions may be applicable during construction for industrial purposes with a limit placed on volume extracted.

3) NOW noted that the Proposal includes the construction of sediment basins and advised that all sediment basins must be constructed above the watertable and lined with impermeable material. They must also be constructed in accordance with the Farm Dams Policy and the Maximum Harvestable rights order under section 54 of the *Water Management Act 2000*.

4) DECCW advised that an Environment Protection Licence (EPL) would be required for the construction of the Proposal.

Response

1) The requirement for the project to obtain these licences has been noted. The licences, permits and approvals required for construction would be identified through the construction environmental management plan. All necessary licences, permits and approvals would be obtained.

2) The RTA notes the embargo on any further applications for subsurface water licences for "*Coastal Floodplain Alluvial Groundwater Sources and Highly Connected Alluvial Groundwater Sources of Coastal Catchments - Regional NSW*". The RTA may make application for exemptions should subsurface water licences be required.

3) Sediment basins would be designed and installed in accordance with *Managing Urban Stormwater: Soils and Construction, Volume 1* (Landcom 2004) and *Managing Urban Stormwater: Soils and Construction, Volume 2D, Main Road Construction* (DECC 2008b). The advice from NOW is noted, however the RTA considers it is exempt from the Farm Dams Policy and the Maximum Harvestable rights order under section 54 of the *Water Management Act 2000* as sediment basins are considered to be special dams exempted from licensing and calculation of use of harvestable rights.

4) The requirement for the project to obtain an EPL has been noted. The licences, permits and approvals required for construction would be identified through the construction environmental management plan. All necessary licences, permits and approvals would be obtained.

2.3 Project support

Submission numbers

28 – Individual
29 – Individual
38 – Individual
39 – Individual
40 – Individual
43 – Individual
44 – Individual
45 – Individual
46 -134 – Form letters
136 – Department of Environment, Climate Change and Water (DECCW)
144 – 146 – Form letters

Issue description

1) 101 submissions community and government agency submissions expressed support for the Proposal. This included 92 form letters and one community submission that identified the current Sancrox Road and Pacific Highway intersection as being dangerous and hoped to see work commence very soon on the Proposal. Four business submissions also expressed support for the upgrade of the Sancrox Road area to improve access and safety. Three community submissions and the DECCW submission expressed conditional support for the Proposal.

2) One community submission commended the project team for the comprehensive environmental assessment and their attention to mitigating the environmental impacts of the upgrade of this section of the Pacific Highway Upgrade.

3) DECCW supported the Proposal, subject to proposed amendments to the draft statement of commitments being satisfactorily addressed and recommended conditions of approval being incorporated in the project approval.

Response

1) The support for the Proposal is acknowledged and appreciated.

2) The RTA is committed to providing comprehensive environmental assessments and appropriate mitigation measures to minimise any identified environmental impacts associated with the Proposal. The recognition of this effort is acknowledged and appreciated.

3) DECCW's support is noted. The recommendations have been considered and (where appropriate) incorporated in the revised statement of commitments (see Section 2.20 of this report). These recommendations will be further discussed with DECCW.

2.4 Community consultation

Submission numbers

4 – Individual
10 – Individual
11 – Individual
16 – Individual
19 – Individual
22 – Individual
29 – Individual
32 – Individual
34 – Individual
41 – Individual

Issue description

Ten community members made submissions regarding community consultation. Some submissions were concerned with the general consultation process, while others related specifically to consultation during the route selection, environmental assessment exhibition, and construction phases.

1) One community submission considered the time available to review the EA documentation prior to landowner meetings was inadequate.

2) Two community submissions raised concerns about the selection process for community representation on the Community Liaison Group.

3) One community submission raised concerns about the lack of consultation with the local Glen Ewan Road community.

4) Four community submissions acknowledged the professionalism, patience, transparency and commitment of the RTA project team including one community submission thanking the RTA for the opportunity to participate in the Community Liaison Group and Ecological Focus Group meetings.

5) One community submission requested another meeting with the RTA project team and another requested a copy of notes from the landowner meeting held during the staffed display.

6) One community submission advised that they were not told about a 2007 community meeting.

Response

1) The public exhibition period for the environmental assessment is set by the Department of Planning based on the statutory timeframe of at least 30 days as described under section 75H(3) of the EP&A Act. The actual exhibition period for the Project continued for 45 days (15 September to 29 October 2010), and submissions were accepted by the Department of Planning as late as 5 November 2010. The environmental assessment was made available to the community from the start of the display period via the project website and the Department of Planning website. Additionally an electronic copy of the environmental assessment was mailed to each of the directly impacted landowners along with a copy of the community update on 10 September 2010.

   The landowner meetings were held during the first and fifth weeks of the display period to discuss the impacts of the proposal on their respective properties. The staffed displays and the landowner meetings also provided landowners with an opportunity to ask project team members questions about the environmental assessment and the Proposal.

   The project team and display resources provided at the staffed display location during these meetings provided an opportunity for the landowners to view high quality mapping and design information.

2) The RTA requested nominations from the community to join a community liaison group for the Oxley Highway to Kempsey upgrade via invitations advertised in local newspapers and the community update in 2004. This community update was mailed to residents in, and adjacent to, the study area. An advertisement was also placed in local newspapers in November 2004 to inform the community of an information meeting and calling for nominations for the community liaison group. Approximately 12 representatives were selected. The RTA selected candidates that would allow for representation of a broad range of community groups and interests. The community liaison group was formed in December 2004 with representatives being selected from interested stakeholders at that time. The RTA has not discouraged additional representatives on this group throughout the development of the project.

3) Over the course of the project, a range of community and stakeholder involvement activities have been implemented. These are summarised in section 5 and table 5-2 of the environmental assessment. While not all stakeholders were consulted directly, community updates, website information and public exhibitions of the route options, preferred route and environmental assessment were made available to all members of the community and submissions invited.

   Several meetings were held with landowners in the Glen Ewan Road area during the development of the preferred route and the environmental assessment.

4) The RTA is committed to providing a transparent process to allow community participation during the development of the preferred route and environmental assessment process. The recognition of this commitment is acknowledged and appreciated.

5) The RTA will continue to meet with directly affected and adjacent landowners as necessary and meeting notes can be provided on request. The RTA will continue to consult with directly affected and adjacent landowners throughout the detailed design and construction phase to ensure that any concerns are addressed and the process explained.

6) The RTA placed advertisements in the *Kempsey – Macleay Argus*, *Port Macquarie News* and the *Port Macquarie Express* during February 2007 advising a public meeting would be held at the Kundabung Hall on 1 March 2007 to discuss access arrangements for the Kundabung area. The RTA also placed advertisements in the local newspapers in October 2007 to advise the community that the *Oxley Highway to Kempsey Access Strategy Report* had been placed on the project website.

2.5 The Proposal

2.5.1 Design

Submission numbers

8 – Individual
10 – Individual
16 – Individual
18 – Individual
21 – Individual
36 – Individual
38 – Individual
40 – Individual
41 – Individual
138 – Kempsey Shire Council (KSC)

Issue description

1) One community submission requested that appropriate navigation markers or lights be installed on new Hastings River bridge.

2) One community submission requested that the clearance under the bridge across Hacks Ferry Road is sufficient to allow the movement of cattle trucks and other tall vehicles.

3) One community submission expressed concerns that the Proposal will block the current drainage line near station 16200.

4) One community submission expressed the need for intersections and service roads in the vicinity of Cooperabung Close to be designed to allow turning movements for heavy vehicles.

5) One community submission advised that the proposed concept design for the Yarrabee Road traffic arrangement will impact the operation of major events at the Hillclimb track.

6) KSC asked why a left in / left out is required at Smiths Creek Road which is in close proximity to the Kundabung interchange.

7) The submission from KSC sought additional information to demonstrate the link between Kempsey bypass currently under construction and the Oxley Highway to Stumpy Creek alignment.

Response

1) The bridges included in the Proposal for the Hastings and Wilson river crossings would include the navigation clearance required by the NSW Maritime (section 6.4.6 of environmental assessment). The type of navigation markers that would be installed on the bridges would be determined during the detailed design following consultation with NSW Maritime.

2) The typical features of the proposed bridge across Hacks Ferry Road and the Wilson River are described in table 6-6 of the environmental assessment and include a minimum clearance of 4.6 metres over Hacks Ferry Road, sufficient for most vehicles. The design of the bridge will be further refined during the detailed design phase and provision would be made to ensure access for larger farm and delivery vehicles is maintained to local properties.

3) Drainage and surface water flow provisions included in the concept design of the Proposal are outlined in section 6.4.15 of the environmental assessment. The design of the Proposal generally allows for the natural drainage and flow paths to be maintained across the Proposal using a combination of culverts and bridges. The concept design for the Proposal includes drainage culverts and flood relief structures across the Wilson River floodplain near station 16200. The details of the drainage culverts and flood relief structures will be further refined during the detailed design phase following detailed ground survey.

4) The design criteria for the service and access roads is discussed in section 6.4.5 of the environmental assessment. The existing level of access to all privately owned properties would be maintained throughout the construction and operation of the Proposal. There may however be refinements to existing access arrangements, which would be decided in consultation with property owners during the detailed design phase. The service and access road system would be designed to allow normal heavy vehicle movements. However B-double vehicle movement would be restricted to only those roads with current B-double access approval.

5) The potential impacts on the Hillclimb track were considered during the preparation of the environmental assessment and the concept design. However, we note the advice from the respondent regarding the potential impacts on the operation of larger events at the Hillclimb track. The RTA would investigate the potential to adjust the alignment of Yarrabee Road during the detailed design phase. Further consideration would be given to the level of impact on the track and the most suitable adjustment options and if applicable, negotiations undertaken in accordance with the requirements of the *Land Acquisition (Just Terms and Compensation) Act 1991*.

6) The left in / left out access at Smiths Creek Road forms part of the Kundabung Road and Rodeo Drive traffic arrangement. This left in / left out access provides access to and from the traffic arrangement for northbound traffic. Section 6.4.4 of the environmental assessment provides details of this traffic arrangement and figure 6-7 of the environmental assessment shows the full traffic arrangement.

7) The features of the Proposal are described in section 6.3 of the environmental assessment with the layout of the Proposal between the Maria River and the Kempsey bypass shown in figure 6-2q. While the exact location and height of the Proposal would be refined

during the detailed design, the following additional information is provided to assist in clarifying aspects of the Proposal between the Maria River and the Kempsey bypass.

- The main carriageways of the Proposal will join the Kempsey bypass project on the northern side of two new bridges to be constructed across Stumpy Creek.
- The southbound carriageway of the Proposal would generally be in a similar location to the southbound carriageway of the existing Pacific Highway.
- A new northbound carriageway would be constructed approximately 35 metres east of the current northbound carriageway (centre line to centre line) and adjacent to the southbound carriageway.
- The northbound carriageway of the existing Pacific highway would be converted to a two way service road connecting the old Maria River bridge to the South Kempsey interchange. This would include the section of old highway between the Maria River and the Scrubby Creek Road intersection.
- The Proposal would generally be at a similar level as the existing Pacific Highway near the existing Kemps Road intersection.
- The Proposal would be constructed to meet the appropriate road safety standards to prevent the interaction between traffic using the main highway carriageways and the service road users.

2.5.2 Handover

Submission numbers

18 - Individual
138 - Kempsey Shire Council (KSC)

Issue description

One community submission and the KSC submission asked about the ownership of the service roads and access roads described as part of the proposal. While KSC also asked for additional details about the handover package for the service and access roads.

Response

As a key element of the Proposal, new service and access roads would be constructed to connect with the existing local road network and private properties. Sections of the existing Pacific Highway left as a result of deviations would be retained for use as part of the service road network. Some of the existing local roads that would form part of the service road network may require upgrading, the extent of which would be determined during detailed design.

The RTA would negotiate the handover of any newly constructed service / access roads and bypassed sections of the existing highway with Port Macquarie Hastings Council and KSC during the detailed design and construction phases of the project. These negotiations would deal with issues such as the status of the roads to be handed over to council, any future funding issues associated with the handover and any works required as part of the handover process.

2.5.3 Interchanges and traffic arrangements

Submission numbers

1 – Individual
2 – Individual

Issue description

Two community submissions identified issues in relation to the proposed interchanges and traffic arrangements.

1) One community submission expressed concern over the proposed traffic arrangement at Sancrox Road / Fernbank Creek Road due to complexity and suggested that the overbridge be relocated so that it is in line with Sancrox / Fernbank Creek Roads.

2) One community submission suggested moving Blackmans Point interchange to a new location at Bill Hill Road and construct bridges for the Proposal to cross both the existing Pacific Highway and Blackmans Point Road.

Response

1) The design and location of the Sancrox Road / Fernbank Creek Road traffic arrangement was investigated during the development of the concept design for the Proposal following extensive consultation with the local community. Preliminary geotechnical, environmental, traffic, heritage and engineering investigations, identified three access options in the Sancrox area. Due to the level of impact of an overbridge at the location of the existing intersection, these options all consisted of an overbridge south of the Sancrox Road / Fernbank Creek road intersections, connecting the east and west sides of the highway via service roads. The current option was adopted as part of the *Oxley Highway to Kempsey Highway Access Strategy* published in 2007 following community feedback and further assessment of the environmental constraints and engineering requirements. The proposed traffic arrangement facilitates the proposed Sancrox Employment Precinct, as well as the residential development to the south-west known as Sovereign Hills. It also has the benefit of being suitable for early staged construction.

   The relocation of the overbridge to align it with the existing Sancrox Road would significantly impact local landowners and businesses. Greater areas of land would be needed to construct the embankments required for the overbridge and associated on / off ramps on both sides of the Proposal, along with the other traffic management measures to ensure the safe movement of vehicles using the interchange. This would add significant cost to the construction of the Proposal through additional acquisition and impact management measures.

2) Several options for the Blackmans Point Road interchange were investigated during the development of the concept design for the Proposal. These options were reduced to three potential designs and locations for the interchange. The design, as displayed in the environmental assessment, was included as part of the concept design following preliminary geotechnical, environmental, traffic, heritage and engineering investigations and represents the best balance of environmental, engineering and social factors when compared with the alternatives. The concept design will be further refined during the detailed design phase following consideration of issues raised in submissions to the environmental assessment and detailed ground survey.

The relocation of the interchange to the Bill Hill Road overpass location would result in greater impacts on the Cairncross State Forest due to the need for the inclusion of on / off ramps and other traffic management measures to ensure the safe movement of vehicles at the interchange. The current location of the interchange is considered to best service the needs of the local population centres of Telegraph Point and Port Macquarie.

2.5.3.1 Service road access

Submission numbers

2 – Individual
6 – Individual
8 – Individual
10 – Individual
12 – Individual
13 – Individual
14 – Individual
15 – Individual
19 – Individual
21 – Individual
22 – Individual
24 – Individual
25 – Individual
27 – Individual
30 – Individual
36 – Individual
37 – Individual
45 – Individual
138 – Kempsey Shire Council (KSC)
142 – Individual
143 – Individual (Confidential)

Issue description

1) One community submission requested that the service road be an all weather sealed road and be constructed to provide for the turning of heavy vehicles.

2) Confirmation was sought from one community submission as to whether the proposed overbridges would be constructed to accommodate heavy vehicles (B-double trucks).

3) One community submission requested that a "no through road" sign be placed at the entrance to Wharf Road to prevent illegal dumping of rubbish in Cairncross State Forest, deterioration of Wharf Road and trespassing on private property.

4) One community submission questioned why Bill Hill Road is to be upgraded and suggested that Hatch Road be upgraded instead as it would be a cheaper option.

5) One community submission expressed concerns that Hacks Ferry Road needs to remain open and be maintained during the construction period to allow access to properties.

6) Concern was raised by one community submission over the use of the existing highway by heavy vehicles through Telegraph Point to access Cairncross Waste Management Facility and suggested that an interchange be constructed at Bill Hill Road to allow direct access to the facility for waste vehicles from the north of Telegraph Point.

7) Two community submissions objected to the opening Wyndell Close to traffic due to increased traffic noise and impacts on amenity, property access, safety, stormwater drainage, air quality, recreation activities and business operations.

8) One community submission is concerned about the cost of the construction and maintenance of the proposed Mingaletta Road overbridge and service road and provided an alternative intersection arrangement.

9) Two community submissions objected to the construction of the Kundabung Road overbridge due to potential property and lifestyle impacts.

10) Concern was raised by a community submission about the increase in traffic along the proposed service road along Rodeo Drive.

11) Two community submissions suggested that the traffic volumes contained in the environmental assessment for Rodeo Drive / Ravenswood Road area and Wharf Road (near Hastings River) are under estimated.

12) Thirteen community submissions raised concerns over the opening of Rodeo Drive as a service road and requested relocating the service road to the eastern side of the main highway.

13) Claims were made by two community submissions that they were told by RTA that Rodeo Drive would remain a no through road.

14) One community submission questioned whether the service road on the western side of Property 83 will be a sealed road.

15) One community submission questioned if the existing access to Scrubby Creek Road to the Proposal would be retained.

Response

1) The general description of the proposed new service roads and access roads is provided in section 6.4.5 of the environmental assessment with design criteria for these roads provided in table 6-4 service road and access road design criteria. It is generally expected that all new service and access roads would be sealed roads, which would be designed and constructed to meet the requirements of the local council for the existing local traffic usage.

2) All existing B-double truck accesses would be maintained as part of the Proposal. The overbridges included in the Proposal would be designed to accommodate B-double truck movements.

3) The signposting of local roads would continue to be the responsibility of the relevant local council. Any decision to erect a "no through road" sign at Wharf Road would be a decision for Port Macquarie Hastings Council.

4) The decision to upgrade Bill Hill Road was based on a number of environmental, social and engineering issues. Bill Hill Road re-instates access to Cairncross State Forest as well as adjacent private properties to the existing Pacific Highway and the Proposal. The upgrade of Hatch Road falls outside the scope of the Proposal and any decision to upgrade this road would rest with Port Macquarie Hastings Council.

5) The RTA would ensure that access is maintained along Hacks Ferry Road during construction.

6) As discussed in section 6.3.2 of the environmental assessment, the Proposal involves a bypass of Telegraph Point with the existing Pacific Highway retained as a service road between the Blackmans Point Road interchange and the Haydons Wharf Road half interchange. The amenity of the Telegraph Point village and other landowners in close proximity to the existing highway in this area would be significantly improved due to the reduced traffic volumes. The vehicles accessing the Cairncross Waste Management Facility from the north would have the option of using either the main carriageways of the Proposal for as long as possible and accessing the facility via the Blackmans Point interchange, or utilising the service road through Telegraph Point via the Haydons Wharf half interchange. Given the better alignment and proposed speed zoning of the Proposal, it would be expected that most heavy vehicles wanting to access this facility would take advantage of the more direct highway option rather than exiting onto an indirect local road option. Further to that, the RTA considers the upgrading of the Bill Hill Road overbridge to an interchange is not feasible due to the additional ecological impacts on the Cairncross State Forest and the additional cost.

7) The Proposal has been developed to improve the safety of road users through the separation of highway and local traffic. To help achieve this improved safety it is necessary to rationalise and restrict the at grade access to the upgraded highway through the proposed service and access road network linked to the interchanges and traffic arrangements. One of the changes required to the local road network to maintain the functionality of the service road network is the opening of Wyndell Close. This allows residents in the area around the northern end of Cooperabung Close access to the Haydons Wharf Road half interchange as well as the existing Pacific Highway which is to be retained as a service road to access Port Macquarie.

   While the RTA acknowledges that the proposed opening of Wyndell Close would result in some changes for property owners along Wyndell Close it considers it necessary that Wyndell Close be opened to maintain local connectivity and safe access to the Proposal for local residents.

8) The Proposal objectives are stated in section 3.2 of the environmental assessment while the design objectives for the Proposal are summarised in table 6-2. These objectives are consistent with the objectives of the Pacific Highway Upgrade Program and other Pacific Highway projects and have been developed to ensure the Proposal improves safety for road users and improves the efficiency of the highway. A key Proposal and design objective is to restrict direct highway access to only interchanges and traffic arrangements and reduce the chances for highway traffic to interact with lower speed local traffic. The proposed overbridge at Mingaletta Road is considered to be a cost effective solution to meet the Proposal and design objectives. The suggested at grade intersection for Mingaletta Road does not meet the objectives of the Proposal.

   As discussed in section 6.3.3 of the environmental assessment the Mingaletta Road overbridge would not be constructed as part of the arterial standard stage. During this stage the existing at grade intersection would be altered to improve the safety of the intersection.

   The maintenance of the overbridges included as part of the Proposal would be carried out by the RTA while the maintenance of the service roads and local roads would be carried out by the local council. The RTA would negotiate the handover to local councils of any new service and access roads, as well as the existing highway where it becomes part of the proposed service road network. Service roads would generally be constructed to an all

weather standard.

9) The Kundabung Road overbridge forms an integral part of the Kundabung Road and Rodeo Drive traffic arrangement and it is not proposed to remove the overbridge from the Proposal. The overbridge provides a safer connection for local Kundabung residents currently separated from local services such as the post office and service station by the existing Pacific Highway. The traffic arrangement provides controlled access to and from the Proposal for both north and south bound motorists. The property and lifestyle impacts of the overbridge have been considered in chapters 10, 11, 16 and 17 of the environmental assessment. Mitigation measures have been identified to minimise property and lifestyle impacts and would include property acquisition, landscaping and architectural treatment.

10) The RTA acknowledges that the proposed opening of Rodeo Drive would result in some changes for property owners and an increase in traffic volumes. However it is necessary that Rodeo Drive be opened to maintain local connectivity and safe access to the Proposal for local residents.

The predicted traffic volumes presented in section 18.3.3 of the environmental assessment are based on observed traffic counts at intersections including Smiths Creek Road, Mingaletta Road and Kundabung Road. The traffic volumes were then adjusted taking into account existing and proposed land use and the proposed changes to the service road network. This included additional local heavy vehicles that could use the service roads such as logging trucks and buses.

The Proposal has been developed to improve the safety of local road and highway users through the separation of highway and local traffic. To help achieve this improved safety it is necessary to rationalise and restrict direct access to the upgraded highway through the proposed service and access road network linked to the interchanges and traffic arrangements.

Under the arterial standard stage of the Proposal sections of Rodeo Drive and Ravenswood Road would be linked to provide residents in the Kundabung area with safer access to local facilities as well as the upgraded highway. The extension of the connection of Rodeo Drive with the remainder of the service road network south of Smiths Creek would occur as part of the final motorway standard.

11) The predicted traffic volumes presented in section 18.3.3 of the environmental assessment are based on observed traffic counts at intersections including Smiths Creek Road, Mingaletta Road and Kundabung Road. The traffic volumes were then adjusted taking into account existing and proposed land use and the proposed changes to the service road network. This included additional local heavy vehicles that could use the service roads such as logging trucks and buses.

Where traffic counts were not available, the traffic volumes were estimated from first principles utilising the RTA's *Guide to Traffic Generating Developments* to estimate the traffic data from a traffic catchment.

12) The Proposal as described in chapter 6 of the environmental assessment includes a network of service and access roads. This network has been developed to help meet the Proposal objectives outlined in section 3.2 of the environmental assessment. As part of the development of the service and access road network for the Proposal, the RTA also considered the needs for local community members to maintain access to local facilities as well as the need to access the main highway for travel to major centres north and south of the Proposal.

The Project team considered several options for providing a continuous alternative service road network during the development of the Proposal. In the Rodeo Drive area both eastern and western service road options were considered. However the eastern option was considered not to be feasible as the service road would not fit within the existing road corridor and would result in additional property acquisition and agricultural impacts. The connections required to overbridges and traffic arrangements to maintain the functionality and connectivity of the eastern option were complex. Using the existing sections of Rodeo Drive and Ravenswood Road in the Kundabung area takes advantage of existing public road corridors, improves connectivity between Rodeo Drive and Ravenswood Road, minimises property acquisition and provides best value for money for the Proposal.

Rodeo Drive was identified as a proposed service road in the *Preferred Route Option Report* announced on 28 August 2006 and displayed until 13 October 2006. The use of Rodeo Drive as a service road was also described in more detail in the *Oxley Highway to Kempsey Highway Access Strategy* published by the RTA in October 2007.

The RTA acknowledges that there would be an increase in local traffic using this section of Rodeo Drive when it is opened as part of the proposed service road network. However, the Proposal has been developed to improve the overall safety of both local road and highway users through the separation of highway and local traffic. The concept design for the Proposal includes facilities to minimise the need to divert highway traffic onto the service roads following accidents. Should one carriageway of the upgrade be closed due to an accident, emergency crossover facilities would enable vehicles to be diverted onto the adjacent carriageway.

13) The deviation of the existing highway to the east of Rodeo Drive in 1986 created several remnant sections of unused "old" highway that became local roads to ensure access was maintained to the Pacific Highway for properties that previously fronted the "old" highway. This included a no-through road at the southern end of Rodeo Drive. Since this time the need for an upgraded highway between Port Macquarie and Kempsey has been identified. The RTA identified that a re-opened Rodeo Drive would form part of the Proposal as a service road in the *Preferred Route Option Report* in 2006. Using Rodeo Drive as a service road takes advantage of existing public road corridor, improves connectivity between Rodeo Drive and Ravenswood Road, minimises property acquisition and provides best value for money for the Proposal. The RTA is unable to verify the statement made regarding Rodeo Drive remaining a no through road.

14) It is envisaged that the new access road proposed along the western side of Property number 83 would be a sealed road built to meet the criteria identified in section 6.4.5 of the environmental assessment, but this would be determined in consultation with Council.

15) The northern access to Scrubby Creek Road falls within the Kempsey bypass project and will not be impacted by the Proposal. The southern access to Scrubby Creek Road would intersect with the western service road just to the north of the Maria River. Access from Scrubby Creek Road to the service road would be reinstated at this location. Access to and from the upgraded highway from Scrubby Creek Road would be available via the western service road and the South Kempsey interchange.

2.6 Construction of the Proposal

2.6.1 Staging

Submission numbers

5 – Individual
31 – Individual

Issue description

Three community submissions raised issues with regard to the construction of the Proposal.

1) Two community submissions identified that the M class (motorway standard) would be safer than the A class (arterial standard) option.

2) One community submission sought advice on the timing for the construction of the Proposal.

Response

1) The observations regarding the safety of the options are noted. The RTA is required to ensure the best use of available funds on any given project and considers that the proposed arterial standard staging option for Sections C and D of the Proposal would improve road safety and reduce accidents for these sections when compared to the existing highway. The proposed staging option would also provide the capability for these sections to be upgraded to the motorway standard when the need arises. The proposed arterial standard includes the rationalisation of accesses to the highway and separation of carriageways. The ultimate motorway standard dual carriageway upgrade is expected to further improve road safety and reduce accidents when compared to the existing highway and the arterial standard option due to the separation of local and through traffic and grade separated access to the highway.

2) The expected timing for the start of construction of the Proposal would depend upon several factors including approval of the Proposal by the Minister for Planning (DoP), the availability of funding and the priority for upgrading as part of the Pacific Highway Upgrade Program.

   As discussed in section 7.4.1 of the environmental assessment, the period of construction could range from three to five years, however this would be dependent on funding, staging options and construction delivery methods adopted. A recent announcement was made by the Australian Government of $35 million to prepare the project for construction. This includes property acquisition, detailed geotechnical investigations and detailed survey in preparation for construction of the Proposal should project approval be granted by DoP.

2.6.2 Construction management

Submission numbers

16 – Individual
22 – Individual

Issue description

Two community submissions raised issues regarding construction management.

1) One community submission expressed concern about noise from construction compounds and does not wish to have a compound located near their property.

2) One community submission expressed concern about the safety of road users and residents interacting with construction traffic entering and exiting Glen Ewan Road.

Response

1) The location of ancillary facilities, such as construction compounds, is discussed in section 7.6.7 of the environmental assessment. The specific location of these facilities would be confirmed during the detailed design phase in consultation with the construction contractor and would be dependant upon the selected delivery method and construction staging option adopted. The site selection criteria for potential ancillary facilities are outlined in table 7-6 of the environmental assessment. The minimum preferred distance to a construction site compound from a residence would be 200 metres. Also the management of noise generated by such facilities would be subject to the relevant construction noise conditions of approval, the Environmental Protection Licence for construction, and would be addressed in the construction noise management plan as part of the Contractor's Construction Environmental Management Plan.

2) Construction phase traffic impacts on local roads, including Glen Ewan Road, would be managed through a Construction Traffic Management Plan, which would be prepared in consultation with the community and local councils. This plan would be implemented by the construction contractor to ensure the safe and efficient movement of construction traffic while minimising impacts on local traffic and inconvenience to local residents. Local residents and council officers would be consulted and advised of any temporary traffic diversions or changes to existing access routes needed during the construction period. These traffic diversions would also be advertised in local media prior to the changes being made and identified on site by the use of clear sign posting.

2.7 Land use and property

2.7.1 Property acquisition and compensation

Submission numbers

3 – Individual
6 – Individual
8 – Individual
10 – Individual
11 – Individual
15 – Individual
20 – Individual
22 – Individual
30 – Individual
38 – Individual
39 – Individual
40 – Individual
146 – Forests NSW

Issue description

Submissions from twelve community members raised issues in relation to property acquisition.

1) Seven community submissions expressed concerns about the amount of compensation that will be made by the RTA. Specific concerns included:

- The need to consider improvements to the land and cropping potential when determining the level of compensation for the acquisition of agricultural properties.
- The need to consider the loss of value of property and home, as well as any loss of land and vegetation when determining the level of compensation for the acquisition of properties.
- Advice that the Proposal will affect two separate titles on a property.
- Several requests for the RTA to totally acquire several properties instead of part of the properties.

2) One community submission requested written assurances that the RTA would repair damages resulting from flooding through viaducts at no cost to the owner and purchase the property should the groundwater table be changed.

3) One community submission wished to discuss alternative compensation for impacts on the Hillclimb Track.

4) Two community submissions and one business owner expressed concerns about the amount of land to be acquired from their respective properties.

5) The submission from Forests NSW raised the need for compensatory land via a land exchange to mitigate against the impact on state forests from the Proposal.

Response

1) Property acquisition and negotiations would be undertaken in accordance with the *Land Acquisition (Just Terms Compensation) Act 1991*. The aims of the Act include '*to guarantee that, when land affected by a Proposal for acquisition by an authority of the State is eventually acquired, the amount of compensation would be not less than the market value of the land (unaffected by the Proposal) at the date of acquisition*'. Factors such as existing land use, building assets and other improvements are taken into consideration in the valuation process.

   While the preference of a total acquisition from some property owners is noted, the RTA would only acquire land required for the proposed roadworks. All total acquisitions must be justified. In some cases, the RTA may only seek to purchase part of the property. All land acquisitions would be subject to discussions and negotiation with the individual landowner.

2) As outlined in section 12.3.3 of the environmental assessment, changes in the flooding behaviour of the Wilson River as a result of the Proposal are predicted to include a small increase in flood levels upstream of the upgraded highway. The RTA is committed to implementing those management measures identified in the environmental assessment and does not believe there would be any detrimental impact on the subject property as a result of flooding. No written assurances are provided by the RTA. Civil action is available to the landowner in the event of an issue arising.

   Potential impacts on groundwater have been discussed in section 14.3 of the environmental assessment. Further investigations and groundwater modelling of the Wilson River floodplain is proposed during the detailed design phase to define the impacts of the Proposal on groundwater in the area. Should impacts be identified, nearby landowners would be consulted and suitable management measures considered at that time. Any adverse impacts identified which can not be mitigated would be considered when assessing compensation under the RTA Land Acquisition Policy and the *Land Acquisition (Just Terms Compensation) Act 1991*.

3) The RTA confirms that the most suitable property adjustment options would be considered following the preparation of the detailed design, and if applicable, negotiations undertaken in accordance with the requirements of the *Land Acquisition (Just Terms and Compensation) Act 1991*.

4) The Proposal has been designed to minimise the acquisition of private property. In most cases the RTA has attempted to acquire land with no known property improvements. Those landowners affected by land acquisition would be consulted to discuss appropriate compensation in accordance with the *Land Acquisition (Just Terms Compensation) Act 1991* and the RTA Land Acquisition Policy.

5) As outlined in section 10.2 of the environmental assessment, approximately 114 hectares of state forest would be acquired for the Proposal. Acquisition of state forest land would occur following an Act of Parliament, resolution of Parliament, or notice in the Government Gazette. However, an option available to the RTA and Forests NSW could include a land exchange. A land exchange could be appropriate where suitable land is available from other RTA projects in the case where land holdings exceed requirements. The RTA would undertake negotiations with Forests NSW to determine the suitability of a land exchange.

2.7.2 Property infrastructure

Submission numbers

4 – Individual
9 – Individual
21 – Individual
22 – Individual
28 – Individual
35 – Individual
42 – Individual
43 – Individual
137 – Industry and Investment NSW (I&I NSW)

Issue description

Seventeen community submissions, as well as a submission from I&I NSW, raised issues in relation to property infrastructure.

1) Seven submissions, including six community submissions and a submission from I&I NSW, expressed concerns over the impact of the Proposal on water supply and fencing infrastructure and the need for either compensation or to make alternative arrangements.

2) Four submissions, including three community submissions and a submission from I&I NSW, expressed concern about stock movement and access to flood protection facilities (mounds, high ground).

3) Three community submissions expressed concern over access to and within properties during construction and following the completion of the Proposal, requesting property access be re-instated.

4) Two community submissions questioned whether powerlines would need relocating and whether notice and assistance would be given to maintain power supply.

5) One community submission expressed concern over the proposed location of the revised access for the property as it would result in the need to create a right of carriageway through a busy work area adjacent to new workshop and suggested an alternative access.

Response

1) The replacement of existing property infrastructure, including fencing and water supply infrastructure (including both licensed water supplies as well as water supplies not requiring licenses), directly affected by the Proposal would be subject to negotiation with individual landowners as part of the property acquisition process during the detailed design phase of the project. Existing fencing impacted by the Proposal would be replaced with suitable fencing as part of the project at the RTA's cost. However, the replacement of fencing in other areas of a property not affected by the Proposal would normally not be considered.

2) As outlined in section 12.3 of the environmental assessment, changes in the flooding behaviour of the Hastings and Wilson rivers as a result of the Proposal are predicted to be minor due to the incorporation of mitigation measures in the concept design. It is anticipated that there would be minor increases in flood levels upstream of the Proposal on both floodplains and increases of less than two hours in the duration of flooding for a 1in 100 year event.

   The RTA is committed to reinstating emergency and stock evacuation routes to high ground or refuge areas affected by the Proposal and predicted changes to flood characteristics. The type of flood mitigation measures for individual properties impacted by the Proposal would be determined, designed and implemented in close consultation with landowners. All affected landowners would continue to be consulted during the detailed design and construction phases of the project.

3) As discussed in section 10.3 of the environmental assessment, the RTA is committed to maintaining access to, and within, properties during the construction of the Proposal. The construction contractor would consult with individual landowners should temporary changes to property access be required. All affected landowners would continue to be consulted during the detailed design and construction phases of the project to identify impacts on property access and management. The final package of management measures to reduce the operational impacts on the properties would be developed in consultation with the individual landowners.

4) The construction of the Proposal would require the relocation of some electricity and telecommunications cables as well as some water mains. The relocation of these utilities may result in interruption to services for some property owners. The adjustments to these utilities would be carried out by the relevant utility authority. These authorities would give property owners adequate notice prior to interruptions to power, telecommunications and water supplies.

5) The RTA notes the advice from the business operator regarding the potential to impact the operation of the existing business as result of the proposed property access. The location of the proposed property access for the property would be reviewed during the detailed design phase in consultation with the landowner.

2.7.3 Property values

Submission numbers

15 – Individual
20 – Individual
22 – Individual
32 – Individual

Issue description

Five community submissions raised the issue of property value impacts as a result of the Proposal.

1) Four community submissions raised concerns about property values as a result of the Proposal.

2) One community submission raised concerns about the inability to sell a property adjacent to the Proposal since the announcement of the preferred route.

Response

1) The Proposal is considered to achieve the best balance between environmental, social, engineering and economic constraints and opportunities when compared with the alternatives. The views of the respondents in relation to the effects on property values are noted, however there are many influences on property value and it is not agreed that the proposed works in themselves would necessarily devalue private property. The impacts on land use and planning, social and economic effects have been considered in chapters 10 and 11 of the environmental assessment.

   Those landowners affected by land acquisition would be consulted and appropriate compensation negotiated in accordance with the *Land Acquisition (Just Terms Compensation) Act 1991* and the RTA Land Acquisition Policy.

2) The RTA acknowledges that properties affected by the Proposal may have been difficult to market throughout the preferred route and environmental assessment phases of the project due to uncertainty of likely environmental impacts. However the environmental assessment clarifies the likely environmental impacts of the Proposal providing greater certainty for potential purchasers.

2.7.4 Land use

Submission numbers

4 – Individual
24 – Individual
43 – Individual
138 – Kempsey Shire Council (KSC)

Issue description

1) Three community submissions expressed concerns that property acquisition will impact future development plans.

2) One business operator provided additional information on operations and traffic movements for the business.

3) The submission from KSC noted that the Mid North Coast Regional Strategy identifies the area between Port Macquarie and Kempsey as having potential to support employment lands, however KSC consider this issue is not adequately addressed in the documentation in relation to Kempsey.

Response

1) The Proposal is considered to achieve the best balance between environmental, social, engineering and economic constraints and opportunities when compared with the alternatives. This issue would be addressed as part of the property acquisition process carried out in accordance with the *Land Acquisition (Just Terms Compensation) Act 1991*.

2) The information provided on the operations and traffic movements for the business has been noted and would be used as background information during the construction phase of the project.

3) Section 10.2 of the environmental assessment considered the provisions of the Mid North Coast Regional Strategy. The only employment land identified within the Proposal area is located at Sancrox Road in the Port Macquarie-Hastings local government area. The employment land identified at South Kempsey is located outside of the Proposal area. However each of these areas would benefit from the Proposal and local road improvements. The Proposal would therefore facilitate the implementation of the strategy and would promote greater transport efficiency and safety for both intra and inter regional movements.

2.8 Social and economic

2.8.1 Agricultural impacts

Submission numbers

4 – Individual
9 – Individual
23 – Individual
137 – Industry and Investment NSW (I&I NSW)

Issue description

1) Three community submissions expressed concerns about the loss of income as a result of reduced stock carrying capability and subsequent reduction in the viability of the property.

2) The submission from I&I NSW noted that property and agricultural issues were considered during the development of the preferred route and the environmental assessment.

3) The submission from I&I NSW noted that the environmental assessment identifies a poultry farm adjacent to the northern end of the Proposal but does not provide details of the location of the farm or the potential impacts on the farm.

Response

1) The potential impacts on agricultural land use are outlined in section 11.2.2 of the environmental assessment. While a quantitative survey of agricultural properties was not undertaken, affected landowners were consulted during the route selection and concept design phases to determine the impacts on agricultural operations.

   While the Proposal impacts several large agricultural operations, the overall viability and operational capacity of agricultural businesses would generally not be detrimentally affected.

   The alignment has been established to minimise land take wherever possible. Where parcels of land are created with no access, in most cases these would be disposed of by either public auction or public tender, allowing them to be absorbed into adjoining agricultural land uses.

   As discussed in section 11.3 of the environmental assessment, property owners would be compensated for land acquired from their properties. Any loss of productive land would be taken into account during property acquisition negotiations between the landholder and the RTA which would be carried out in accordance with the RTA's *Land Acquisitions Policy Statement* and the *Land Acquisition (Just Terms Compensation) Act 1991*.

   During negotiations with property owners, consideration would also be given to compensation for the impacts on the facilities on properties (such as fencing, houses and buildings) and the acquisition of any severed or isolated sections of land where access cannot be reasonably reinstated to that section. Property adjustments would be negotiated with landowners to mitigate against the impacts on the operation of businesses/ enterprises.

2) The advice from I&I NSW is noted.

3) Enquiries by the RTA following the display of the environmental assessment have revealed that the poultry farm identified in the environmental assessment is no longer operating.

2.8.2 Business impacts

Submission numbers

3 – Individual
9 – Individual
10 – Individual
14 – Individual
18 – Individual
23 – Individual
30 – Individual
39 – Individual
40 – Individual
43 – Individual
137 – Industry and Investment NSW (I&I NSW)
138 – Kempsey Shire Council (KSC)
142 – Individual

Issue description

1) Seven submissions, including six from business owners and one from KSC, expressed concerns about maintaining access to businesses during the construction phase.

2) Four submissions, including three community submissions and a submission from KSC, have sought additional information in relation to signage.

3) Four business owner submissions raised concerns about the potential for the Proposal to impact upon their business operations and loss of earning capacity with one business operator requesting compensation for loss of direct access to the highway.

4) Two landowners advised that existing advertising signage and the associated power supply would need to be relocated.

5) One community submission questioned whether a low level bridge on the access road over Pipers Creek will limit access to the business.

6) I&I NSW advised that the environmental assessment adequately addresses issues of interest to the Mineral Resources Division.

Response

1) As stated in section 10.3.2 of the environmental assessment, the RTA would ensure that where any legal property access is temporarily or permanently affected by the Proposal, alternative access to an equivalent standard would be provided where feasible or other alternative arrangements agreed in consultation with the business owner.

2) The RTA would consult with Port Macquarie Hastings and Kempsey Shire councils regarding the provision of appropriate signage on the highway and local roads. Signage would focus on key destinations or localities and signposting arrangements would be consistent with the RTA's signposting policy and signposting along the Pacific Highway generally. Members of the community would be able to provide input to the design and location of highway signage through a community information group which would be established during the construction phase.

   The entry statement for Kempsey has been addressed previously as part of the Kempsey to Eungai Pacific Highway upgrade project to the north of the Proposal.

3) The potential impacts on local businesses have been discussed in section 11.2.4 of the environmental assessment with the measures proposed to mitigate those impacts discussed in section 11.3 of the environmental assessment. Directly affected business owners would be consulted throughout the detailed design and construction phases to ensure the Proposal minimises impacts on business operations. Negotiations will be undertaken with those business owners in regards to alternative access arrangements. Where part of the property is to be acquired, the acquisition of land will be in accordance with the provisions of the *Land Acquisition (Just Terms Compensation) Act 1991*.

4) The RTA notes the advice from the landowners regarding the impacts on the signage and associated power supply. Negotiations will be undertaken with the relevant landowners in regard to compensation for infrastructure impacted by the Proposal.

5) The bridges crossing creeks on the proposed service and access roads, including the Pipers Creek crossing, are designed for a 1 in 100 year flood immunity. As discussed in the section 11.3 of the environmental assessment, should the access to the business be affected by the Proposal the RTA would consult with the owner to ensure an equivalent alternative legal access is provided.

The hydraulic modelling of Pipers Creek discussed in section 12.3.6 of the environmental assessment indicates that there would be no change in the flooding levels downstream of the bridges where the business is located.

6) The advice from I&I NSW is noted.

2.8.3 Local community impacts

Submission numbers

1 – Individual
2 – Individual
7 – Individual
10 – Individual
15 – Individual
17 – Individual
19 – Individual
22 – Individual
30 – Individual
31 – Individual
42 – Individual
143 – Individual (Confidential)

Issue description

1) Eleven community submissions raised concerns about impacts on amenity and privacy as a result of the Proposal during construction and once operational.

2) Three community submissions expressed concerns the Proposal will increase stress and adversely impact their health and well-being.

3) One community submission expressed concerns that the number of interchanges in the Proposal would result in the Proposal forming a barrier between the eastern and western sides of the highway and reduce the potential for development in this area.

4) One community submission sought advice regarding consideration of the location of the Hastings State Emergency Services (SWS) Community Driver Reviver Centre in relation to the Proposal.

5) One community submission questioned whether the increased litter from the upgrade, already a concern, will be screened and prevented from entering private property and Barrys Creek.

Response

1) The RTA acknowledges that the construction and operation of the Proposal could impact the local amenity of some properties in terms of visual, noise and air quality. Impacts on residential amenity have been addressed in the relevant sections of the environmental assessment and in other sections of this submissions report. Mitigation measures would be implemented during the construction of the Proposal to address identified visual, noise and air quality impacts. These measures or processes would be detailed in the Construction Environmental Management Plan (CEMP) prepared by the contractor prior to construction commencing. The environmental assessment incorporates management measures to address visual and noise impacts that may occur during the operation of the Proposal.

2) The RTA acknowledges the Proposal may increase the stress for some directly affected and adjacent landowners. The environmental assessment discusses the potential impacts on communities and individual properties. Section 11 of the environmental assessment provides an assessment of the potential socio-economic impacts of the Proposal and identifies appropriate management measures to minimise impacts on landowners. The RTA will continue to consult with directly affected and adjacent landowners throughout the detailed design and construction phase to ensure that any concerns are addressed and the process explained.

3) The preferred route, including sub-options, for the Oxley Highway to Kempsey Pacific Highway upgrade was announced in August 2006. The Preferred Route Option Report (NSW Roads and Traffic Authority, 2006) outlined potential locations of interchanges and traffic arrangements along the alignment. The locations of the interchanges and traffic arrangements were confirmed in the *Oxley Highway to Kempsey Highway Access Strategy* published by the RTA in October 2007. They have been located to improve connectivity in accordance with Proposal objectives, regional traffic needs and provide efficient access to the local road network and major regional centres in the study area. The interchanges and traffic arrangements connect with an enhanced service and access road network that uses sections of the existing highway, existing local roads and new service and access roads. This road network would provide a safe and efficient road system for the future development of the area.

   As discussed in section 22.1 of the environmental assessment, the Proposal is likely to have economic benefits for the local and regional economy due to improved safety, travel efficiencies and removal of highway traffic from urban areas. These improvements to the broader community could help to stimulate the local economy in the longer term and therefore offer positive benefits to local landowners.

4) The Hastings SES Community Driver Reviver Centre was considered during the development of the concept design for the project. Highway travellers (both north and southbound) would be able to access the driver reviver centre via the Sancrox Road and Fernbank Creek Road traffic arrangement. Access for southbound highway travellers would be basically the same as the existing situation. The access to the centre for northbound highway travellers would be less direct, but much safer than the existing access arrangements as the right turn movements across southbound highway traffic will no longer occur.

5) Waste, including roadside litter, as a result of the operation of the Proposal has been addressed in section 20.5.1 of the environmental assessment. It is recognised that road users would generate litter along the highway and at rest areas. Containers for litter and other wastes would be provided at the rest areas, with contents to be disposed of at a suitable waste disposal station on a regular basis. The operational management of the Proposal, including waste management, would be administered via an operational environmental management plan. The Proposal would also offer less random stopping situations and therefore fewer opportunities for the dumping of rubbish.

2.8.4 Safety

Submission numbers

2 – Individual
5 – Individual
6 – Individual
14 – Individual
15 – Individual
22 – Individual
30 – Individual

Issue description

1) One community submissions suggests that the Blackmans Point Road interchange provides no efficiencies in personal safety.

2) One community submission was concerned that opening Wyndell Close would reduce safety for road users.

3) The safety of exiting Cooperabung Close under the Class A (arterial standard) option was raised by one community submission.

4) Four community submissions expressed concern about the safety of pets and children along Rodeo Drive as a result of the Proposal.

Response

1) The Blackmans Point Road interchange includes measures to improve the safety for both local and highway traffic. The interchange includes deceleration and acceleration lanes to allow traffic to enter and exit the Proposal safely as well as traffic calming devices (eg: round-a-bouts) in areas where traffic movements occur. The arrangement also removes the need for right turn movements across high speed highway traffic currently required when leaving and entering the existing Pacific Highway to access Port Macquarie, Blackmans Point, the waste facility and other local roads.

2) As discussed in section 6.3.2 and 6.4.3 of the environmental assessment, Wyndell Close is an integral part of the service road network in the Telegraph Point and the Haydons Wharf Road half interchange areas. The RTA acknowledges that the proposed opening of Wyndell Close would result in an increase in traffic. However Wyndell Close would be upgraded to meet the design criteria discussed in section 6.4.5 of the environmental assessment. The criteria are considered appropriate to provide a safe environment for all road users including vehicle operators, local residents, cyclists and pedestrians. The local community and the relevant local council would be consulted prior to adopting a speed limit for the service roads.

3) The RTA acknowledges that the motorway standard option provides a safer option for accessing the upgraded highway by Cooperabung Close residents than the arterial standard option. However the arterial standard staging option would provide safer access to the upgraded highway than the existing highway. The arterial standard option includes measures to ensure the safety of vehicles entering and exiting the upgraded highway from Cooperabung Close such as deceleration and acceleration lanes into and out of Cooperabung Close along with a half interchange at Haydons Wharf Road and full interchange at Yarrabee Road.

4) Section 18.3.3 of the environmental assessment examines traffic and transport impacts of the Proposal on the service road network. It is acknowledged that there would be an increase in traffic using some of the service roads. This includes the Rodeo Drive and Ravenswood Road sections of the western service road. However these new service roads would be constructed to meet the objectives and design criteria discussed in section 6.4.5 of the environmental assessment. The criteria adopted are considered appropriate to provide a safe environment for all road users including vehicle operators, local residents, cyclists and pedestrians. The local community and the relevant local council would be consulted prior to adopting a speed limit for the service roads.

The concept design for the main carriageways of the Proposal includes measures to allow the switching of traffic should an incident occur on the highway that results in the closure of one carriageway. This will reduce the likelihood of increased traffic on the service roads when incidents occur.

2.9 Hydrology

2.9.1 Changes to existing flooding regime

Submission numbers

3 – Individual
4 – Individual
5 – Individual
6 – Individual
8 – Individual
11 – Individual
16 – Individual
27 – Individual
30 – Individual
35 – Individual
42 – Individual
138 – Kempsey Shire Council (KSC)
143 – Individual (Confidential)

Issue description

1) One community submission identified that portion of property number 70 in the environmental assessment for acquisition is affected by flooding from a pond on adjacent land.

2) Three community submissions expressed concerns about the potential changes to the existing flooding regime and drainage flows on the Hastings River floodplain as a result of the Proposal.

3) One community submission raised concerns that potential changes to the flooding regime may result in increased erosion and debris from floodwaters with subsequent impacts on tea tree plantations and machinery.

4) Two community submissions were concerned the Proposal would change the drainage in the area of Haydons Wharf Road and Wyndell Close and increase road runoff to properties in those areas.

5) Two community submissions expressed concerns about the potential changes to the existing flooding regime in the area of Cooperabung Close as a result of the Proposal.

6) One community submission expressed concern about the potential for damage to Barrys Creek and property boundary fence as a result of increased surface water runoff from the Proposal.

7) One community submission expressed concern over the potential flooding impacts on the property near Pipers Creek.

8) One community submission expressed concern over the potential increased surface water flow onto the property near the proposed Kundabung Road overpass.

9) The submission from KSC sought details regarding flooding information and how / if the new alignment will affect the current flooding within the shire including Hastings River, Maria River and Connection Creek.

Response

1) The advice is noted. Section 12.3.5 of the environmental assessment considers flooding impacts associated with the Proposal in the vicinity of Smiths Creek. The Proposal would not result in the worsening of flooding at this location. Further consideration would be given to flooding impacts during the detailed design phase.

2) As stated in section 6.4.15 of the environmental assessment, the design of the Proposal would generally allow the natural flow regimes to be maintained by incorporating transverse drainage structures such as bridges and culverts. The surface water flows and the potential flooding impacts associated with the Proposal were considered during the development of the concept design and measures to reduce the potential impacts have been incorporated into the design of the Proposal. The width of the opening for the bridges across the Hastings River and Fernbank Creek as well as several other proposed flood openings, on the floodplain on the northern and southern side of the river, have been designed to ensure the impacts are minimised. This includes minimising increases to water levels upstream of the structures, reducing the disruption to the natural hydrological regime and avoiding changes to the existing flow paths where possible. The location and size of the drainage culverts proposed for the floodplain will be refined in consultation with the relevant agencies following further flood modelling during the detailed design phase.

   The potential flooding impacts on the Hastings River Floodplain, including the Fernbank Creek area, are discussed in section 12.3.2 of the environmental assessment. Details of potential changes in flood levels at several locations on the floodplain are presented in table 12-12 and the changes in flood behaviour for the 1 in 5 year, 1 in 20 year, 1 in 50 year, 1 in 100 year and extreme flood events on the Hastings River floodplain are presented in figures 12-2 to 12-12 of the environmental assessment.

3) As stated in section 6.4.15 of the environmental assessment, the design of the Proposal would generally allow the natural flow regimes to be maintained by incorporating transverse drainage structures such as bridges and culverts. The surface water flows and the potential flooding impacts associated with the Proposal were considered during the development of the concept design and measures to reduce the potential impacts have been incorporated into the design of the Proposal. Over 1,000 metres of bridge and culvert openings have been incorporated into the design of the Proposal across the Wilson River floodplain, including a 525 metre bridge across the river. The final number, location and width of the openings will be refined following further flood modelling during the detailed design phase. For flooding events larger than 1 in 20 years, the water will also flow over a large length of the road embankment in a similar manner to the current sheet flow situation on the floodplain. It would therefore be expected to have impacts similar to the existing situation for these flood events.

Section 12.3.3 of the environmental assessment discusses the potential flooding impacts of the Proposal on the Wilson River floodplain. The assessment identified a small increase in flood levels upstream of the Proposal with minor, localised increases in velocities near the outlets of the proposed flood relief structures. The velocity of the floodwaters at the flood relief structures is only expected to increase by 0.3 metres per second when compared to the existing flood velocities. The Proposal is not expected to increase erosion or the generation of debris during flood events. The Proposal is therefore unlikely to increase the amount of debris entering the existing tea tree plantation or generate erosion on the property. The need for scour protection measures near the flood relief structures would be further assessed during the detailed design phase.

Details of potential changes in flood levels at several locations on the floodplain are presented in table 12-19 of the environmental assessment and the changes in flood behaviour for the 1 in 5 year, 1 in 20 year, 1 in 50 year, 1 in 100 year and extreme flood events on the Hastings River floodplain are presented in figures 12-14 to 12-24.

4) As stated in section 6.4.15 of the environmental assessment, the design of the Proposal would generally allow the natural flow regimes to be maintained by incorporating transverse drainage structures such as bridges and culverts. The Proposal also includes longitudinal drainage systems designed to collect runoff from the road and direct it to existing local drainage lines. Measures to reduce the potential impacts on flow paths and patterns have also been incorporated into the design of the Proposal. Any adjustments required to the surface water drainage system in the area of Haydons Wharf Road and Wyndell Close would be designed to prevent additional impacts on properties from the potential increase in road runoff in those areas.

5) As stated in section 6.4.15 of the environmental assessment, the design of the Proposal would generally allow the natural flow regimes to be maintained by incorporating transverse drainage structures such as bridges and culverts. The surface water flows and the potential flooding impacts associated with the Proposal were considered during the development of the concept design. Measures to reduce the potential impacts on flow paths and patterns have been incorporated into the design of the Proposal.

   The potential flooding impacts on Cooperabung Creek are discussed in section 12.3.4 of the environmental assessment. The assessment indicates that while there would be a minor increase in water levels upstream of the Proposal there would be no change in the flood levels or flood velocities downstream of the Proposal near Cooperabung Close. The service road bridge would also be designed with a 1 in 100 year flood level immunity.

6) The potential changes to surface water flows were considered during the development of the Proposal. Measures to reduce the potential impacts on flow paths and patterns have been incorporated into the design of the Proposal. As stated in section 6.4.15 of the environmental assessment, the design of the Proposal would generally allow the natural flow regimes to be maintained by incorporating transverse drainage structures such as bridges and culverts. The Proposal also includes a longitudinal drainage system designed to collect runoff from the road and direct it to existing local drainage lines such as Barrys Creek. The RTA acknowledges that there would be minor increases in runoff from the new road surface and into adjacent watercourses such as Barrys Creek. However the RTA considers that the management measures incorporated into the design of the Proposal would be sufficient to prevent additional scouring of the existing water courses. The management measures would be further refined during the detailed design phase following detailed ground survey.

7) As stated in section 6.4.15 of the environmental assessment, the design of the Proposal would generally allow the natural flow regimes to be maintained by incorporating transverse drainage structures such as bridges and culverts. The surface water flows and the potential flooding impacts associated with the Proposal were considered during the development of the Proposal and measures to reduce the potential impacts on flow paths and patterns have been incorporated into the Proposal.

   The potential flooding impacts surrounding Pipers Creek are discussed in section 12.3.6 of the environmental assessment and the changes in flood height for three design events are presented in table 12-24. The assessment indicates that there would be an increase in water levels of up to 40 centimetres immediately upstream of the Proposal. However this increase would be reduced to zero approximately 200 metres upstream of the bridges. The increase in flooding levels would not impact dwellings upstream of the bridge. The flood modelling would be further refined during the detailed design stage.

8) As stated in section 6.4.15 of the environmental assessment, the design of the Proposal would generally allow the natural flow regimes to be maintained by incorporating transverse drainage structures such as bridges and culverts. The Proposal also includes longitudinal drainage system designed to collect runoff from the road and direct it to existing local drainage lines. The surface water flows and the potential flooding impacts associated with the Proposal were considered during the development of the concept design. Measures to reduce the potential impacts on flow paths and patterns have been incorporated into the design of the Proposal. The proposed Kundabung Road overpass is therefore not expected to result in increased surface water flow onto surrounding private property.

9) The hydrologic model used to assess the potential flooding impacts of the Proposal described in section 12.3 of the environmental assessment extends to include the entire catchment of the Hastings River, Forbes River, Pappinbarra River, Doyles River, Ellenborough River, Thone River, Mortons Creek, Wilson River and Maria River. The hydraulic model, which is in the vicinity of the Proposal indicates the impacts of the Proposal on flooding are minor and confined to the immediate proximity of the road embankment. The Proposal would not interfere with the Maria River floodway and it is not anticipated that there would be impacts on bank stability or any increase in erosion of the Maria River or Connection Creek.

2.10 Water quality

Submission numbers

5 – Individual
42 – Individual
136 – Department of Environment, Climate Change and Water (DECCW)
139 – Northern Rivers Catchment Management Authority (NRCMA)
141 – NSW Office of Water (NOW)

Issue description

1) One community submission expressed concern about increased surface water flows into Barrys Creek and the potential for impacts on water quality in the creek during construction.

2) Two community submissions raised concern over increased water runoff from the Proposal and the potential for a subsequent reduction in downstream water quality.

3) The DECCW submission advised that should flocculating agents be used during construction they must comply with strict toxicity ratings determined by NATA registered laboratory. Alum will not be suitable and uncontrolled placement of flocculating agents will not be allowed.

4) The NOW submission noted that the Proposal involves construction of bridges across major and minor watercourses and acknowledges the environmental assessment identifies the potential impacts and mitigation measures proposed to address the impacts. While the Proposal will not require a Controlled Activity Approval under the *Water Management Act 2000*, NOW requests that any works within 40 metres of a watercourse would be consistent with the State policy and guidelines.

5) The NRCMA submission suggested that the Proposal has the potential to conflict with the intent and achievement of some water and biodiversity targets contained in the Northern Rivers Catchment Action Plan (NRCAP).

Response

1) As discussed in section 6.4.15 of the environmental assessment, the RTA would avoid making changes to the existing flow paths where possible. Where changes to existing flow paths are identified, suitable mitigation measures would be developed during detailed design phase in consultation with the relevant agencies. The potential impacts on water quality of Barrys Creek during the construction of the Proposal are discussed in section 13.3.1 of the environmental assessment and the water quality management measures proposed during the detailed design and construction phases are discussed in section 13.4.1 of the environmental assessment. The construction management measures would be further refined during the detailed design phase.

2) The RTA acknowledges that there would be some increase in surface water run off from the Proposal. However as stated previously in this submissions report the Proposal incorporates drainage structures to manage surface water flow. The RTA would implement erosion and sediment controls to reduce the generation of pollutants and minimise impacts on adjacent receiving environments including rivers and creeks. The RTA would also maintain a water quality monitoring program to assess the effects of construction until all affected areas have been fully stabilised and revegetation work has resulted in the establishment of sustainable vegetation cover. Proposed management measures for the operational phase are detailed in section 13.4.2 of the environmental assessment. These include permanent water quality basins and vegetated swales which would be designed to meet the water quality objectives and to protect sensitive waterways.

   Permanent water quality basins would be placed at locations where alternative treatment measures such as vegetated swales cannot achieve the water quality treatment objective and where spill containment measures would be required. The provision of permanent basins would be subject to specific site constraints.

3) The advice regarding flocculating agents is noted. The type of flocculating agents and their use would be reinforced in the Construction Environmental Management Plan to be developed prior to construction of the Proposal. They would comply with toxicity ratings, and their use would be strictly controlled.

4) The RTA would ensure that any bridge and road works undertaken within 40 metres of a watercourse would be consistent with the relevant State policy and guidelines to manage impacts.

5) The RTA considers that the management and mitigation measures incorporated into the Proposal would not impede the achievement of the water and biodiversity targets contained in the NRCAP.

2.11 Groundwater

Submission numbers

5 – Individual
11 – Individual
136 – Department of Environment, Climate Change and Water (DECCW)
141 – NSW Office of Water (NOW)

Issue description

Four submissions raised the issue of groundwater impacts as a result of the Proposal.

1) One community submission is concerned that the Proposal may impact the spring fed dam on their property at Cooperabung Close.

2) One community submission is concerned that the ground water level on the Wilsons River floodplain near the tea tree plantation could be lowered and expose acid sulfate soils.

3) The DECCW and NOW submissions acknowledged the commitment to carry out further groundwater modelling during the detailed design stage and advised that modelling must be undertaken by a suitably qualified groundwater consultant.

4) The DECCW and NOW submissions noted that the environmental assessment has outlined the main groundwater impacts associated with the Proposal and that these impacts are likely to be localised.

Response

1) The potential impacts on groundwater are discussed in section 14.3 of the environmental assessment. The Proposal consists of a low fill in the area adjacent to the Cooperabung Close property. While there may be some minor impacts on groundwater levels adjacent to the cut to the south of Cooperabung Creek the assessment indicates that the alluvial aquifer in the area near Cooperabung Close is unlikely to be impacted by the Proposal. The RTA will be undertaking additional groundwater modelling during the detailed design phase of the project to refine the measures to manage the potential impacts on groundwater.

2) The potential for acid sulfate soils to impact water quality is discussed in section 13.3 of the environmental assessment, with the acid sulfate soil management measures discussed in section 13.4. The potential groundwater impacts of the Proposal are discussed in section 14.3 and 14.4 of the environmental assessment and the measures to manage those impacts are discussed in section 14.6. The Proposal is on fill embankment in the area adjacent to the tea tree plantation and it is unlikely that exposure of acid sulfate soils (in addition to what occurs under natural seasonal variation) would occur as a result of groundwater drawdown. However, the RTA has committed to carry out further groundwater investigations prior to commencing construction to assess the potential for changes in the groundwater table from construction activities (refer SoC SGW6). Where a potential impact is identified, the significance of the change and any resultant impacts would be determined. Where necessary, measures to manage the changes would be

designed and implemented in consultation with relevant government agencies during the detailed design phase.

The RTA is also committed to confirming the presence of, and managing, acid sulfate soils on the Proposal site in accordance with standard management measures (ref SoC SGW7).

3) All further groundwater modelling during the detailed design stage would be undertaken by a suitably qualified groundwater consultant.

4) The RTA acknowledges the comments made by DECCW and NOW in relation to localised impacts on groundwater as a result of the Proposal.

2.12 Flora and fauna

2.12.1 Terrestrial flora and fauna

Submission numbers

2 – Individual
6 – Individual
13 – Individual
22 – Individual
25 – Individual
41 – Individual
136 – Department of Environment, Climate Change and Water (DECCW)
138 – Kempsey Shire Council (KSC)

Issue description

1) Four community submissions raised concerns about the potential impacts on local vegetation, habitat and animals as a result of the Proposal. Specific issues raised included:

- Potential for disturbance to the vulnerable species, Comb-crested jacanas who breed in ponds near the Proposal.
- The opening of Rodeo Drive as a service road would increase chances of local wildlife being killed by vehicles.
- Blackmans Point Road interchange provides no environmental benefit for wildlife management.

2) One community submission advised that Brush-tailed phascogales have been sighted on 3 separate occasions adjacent to the Cairncross State Forest near Wharf Road.

3) The DECCW submission notes that the SEPP 14 wetland mapping was found to be inconsistent with the ground observations during field validation and seeks further explanation and clarification of the nature or extent of these inconsistencies prior to the detailed design phase.

4) The DECCW submission recommended developing protocols to prevent the introduction or spread of *Phytophthora cinnamomi*, including establishing an initial sampling and testing regime.

5) The KSC submission advised that a Draft Koala Plan of Management has been prepared by Council which needs to be considered in the assessment of koalas within the alignment.

6) One community submission noted that the stand of *Acronychia littoralis* identified in previous studies was not identified on the figures in the environmental assessment and

questions whether or not further field survey was undertaken to confirm the presence of the species.

7) The NRCMA submission suggested that the Proposal has the potential to conflict with the intent and achievement of targets contained in the Northern Rivers Catchment Action Plan (NRCAP) in relation to biodiversity.

Response

1) The assessment of the potential impacts on threatened flora and fauna is presented in section 15.3 of the environmental assessment with the proposed management measures discussed in section 15.4. Additional information is also available in the Flora and Fauna Working Paper in Volume 2 of the environmental assessment.

   The potential habitat for the Comb-crested jacana (*Irediparra gallinacea*) was identified within the Proposal boundary but limited to a small wetland around Fernbank Creek. However the species was not observed during the field surveys undertaken during the development of the environmental assessment. While the Comb-crested jacana may have been sighted in the area of the dam it is considered unlikely that the dam forms part of it's habitat due to the open environment. The assessment of significance prepared as part of the Flora and Fauna Working Paper found that the removal of some of the wetland habitat was unlikely to displace the local population of this species.

   The RTA acknowledges that the opening of Rodeo Drive has the potential to increase fauna mortality of species that forage near the road. However it is considered that the increase would be minor due to the low speed environment and the low volumes of traffic using the service road along with the mitigation measures included in the Proposal.

   The proposed Blackmans Point interchange represents the best balance of environmental, engineering and social factors when compared with the alternatives investigated during the development of the Proposal. The Proposal includes the provision of a combined and incidental fauna crossings as well as aerial crossings in the vicinity of the interchange to minimise any potential impacts on wildlife.

2) The RTA notes the advice. The environmental assessment noted that there have been several recorded sightings of the Brush-tailed phascogale within 2 kilometres of the northern end of the Proposal. However, the species was not recorded within the study area during field survey work. Surveying for this species is difficult and it is considered that it is likely to occur in the larger tracts of bushland within the study area, including the Rawdon Creek Nature Reserve and Cairncross State Forest adjacent to Wharf Road. The maintenance and rehabilitation of fauna movement corridors are important to this species. The Proposal includes incidental and combined fauna crossings and rope crossings adjacent to Wharf Road to facilitate the movement of this species.

3) A ground survey of the published SEPP 14 wetland boundaries by Hunter Wetlands Research (HWR) in 2006 revealed that the extent of the wetland vegetation is not as extensive as suggested in the published maps. Some additional wetland areas were identified during the ground surveys that were not included in the published maps. These inconsistencies were identified using criteria developed by Adam *et al* (1985).

   The boundary of the SEPP 14 wetlands would be surveyed during the detailed design phase to clarify the locations and permit appropriate management measures to be implemented during the construction phase.

4) The measures proposed to mitigate and manage weed infestation are discussed in section

15.4.2 of the environmental assessment and includes a commitment to develop protocols to prevent the introduction or spread of *Phytophthora cinnamomi* prior to construction in consultation with DECCW. This protocol would be part of the weed management strategy that would be developed as part of the construction environmental management plan in consultation with agencies prior to commencement of construction.

5) The Draft Koala Plan of Management prepared by KSC has been considered during the preparation of the environmental assessment (refer section 3.8.1 of Flora and Fauna Working Paper in Volume 2 of the environmental assessment). The Supplementary Ecology Assessment (see section 3.1 of this submissions report) prepared to address the proposed service road network as part of the Proposal has also considered the Draft Koala Plan of Management prepared by KSC.

6) Figure 6 of the Flora and Fauna Working Paper in Volume 2 of the environmental assessment reported two unconfirmed records of *Acronychia littoralis.* The first near Fernbank Creek and the second north of Cairncross State Forest. Field surveys at these locations (Section 3.6 of the Flora and Fauna Working Paper) did not find *Acronychia littoralis* but identified *Acronychia oblongifolia* (Common acronychia). There is no indication that the records were forwarded to the Australian National Herbarium for verification. The RTA's consultant ecologists concluded that the unconfirmed records were likely to be a misidentification of the species. The Proposal is therefore unlikely to remove, fragment, displace or disturb any local population of this species and there would be no risk of extinction of this species. Should pre clearing surveys indicate the presence of *Acronychia littoralis* the RTA would consult with relevant agencies to ensure any impact on the species is minimised.

7) Every effort would be made to minimise the extent of vegetation clearing necessary for construction of the Proposal, through planning the road footprint to minimise clearing and through various environmental management measures to be implemented during construction. The location of depots, worksites and ancillary areas required for construction would be planned to be located within existing cleared land near the Proposal where feasible.

   The RTA notes the comments regarding the targets of the Northern River Catchment Action Plan (NRCAP). The RTA considers that the management and mitigation measures incorporated into the Proposal, including the development of a proposed offset strategy in accordance with Statement of Commitment F18, would not impede the achievement of targets contained in the NRCAP.

2.12.2 Aquatic flora and fauna

Submission numbers

4 – Individual
42 – Individual
137 – Industry and Investment NSW (I&I NSW)

Issue description

1) The I&I NSW submission advised that the environmental assessment generally addresses the issues of interest to the I&I NSW Fisheries Ecosystems Unit.

2) Two community submissions raised concerns about potential impacts on aquatic flora and fauna. Specifically the potential impacts on mangroves and wetlands adjacent to Fernbank Creek and the potential impacts on Barrys Creek during construction.

Response

1) The advice from I&I NSW is noted and appreciated.

2) The location of mangroves, seagrasses and wetlands are identified in figure 15-5 of the environmental assessment. Mangroves are located along the edges of the Hastings and Wilson rivers. There are no mangroves present at, or near, the location where the Proposal crosses Fernbank Creek.

   The potential impacts on mangroves and wetlands are discussed in section 15.3.2 of the environmental assessment, including the impacts associated with the construction of the bridges and culverts incorporated into the Proposal. Table 15-13 of the environmental assessment provides a "worse case" estimate of the area of mangroves and seagrasses that could be impacted by the Proposal based on a six and ten metre buffer from the edge of the structures across the Hastings and Wilson rivers.

   Swamp forest / wetland communities are identified on the alignment of the Proposal near Fernbank Creek. No SEPP 14 wetlands exist in this location. The potential impacts on those communities are discussed in section 15.3.2 of the environmental assessment and the management of those impacts are discussed in section 15.4.

   The Proposal includes an extension on the downstream end of the existing multi-cell box culvert at Barrys Creek. The design of the extension would be refined following further hydraulic modelling during the detailed design phase. This would include measures to reduce the potential for erosion of the stream downstream of the culvert should it be necessary.

   The Proposal includes measures to offset residual impacts on protected aquatic vegetation as discussed in section 15.4.7 of the environmental assessment. These measures would be discussed and agreed with DECCW and I&I NSW during the detailed design phase.

2.12.3 Habitat corridors/ fauna crossings

Submission numbers

29 – Individual
34 – Individual
41 – Individual
42 – Individual
136 – Department of Environment, Climate Change and Water (DECCW)
138 – Kempsey Shire Council (KSC)

Issue description

1) One community submission provided additional information about accidents involving koalas between Oxley Highway and Kempsey to assist the project team during the further development of the fauna management measures during the detailed design phase.

2) KSC recommends that all fauna corridors and proposed crossings be in accordance with DECCW guidelines.

3) One community submission noted that the existing Pacific Highway is a current barrier to fauna movement through regional and sub-regional wildlife corridors and suggests that the upgrading of this section of the highway "will provide fauna with safer options for their natural movements across the highway".

4) Two community submissions suggested that the Proposal will result in the division of habitat which will effectively isolate populations of threatened species and sought advice on measures that will be provided in the Proposal to reduce the current high road kill in wildlife corridors for existing migrating animals.

5) One community submission suggested that there is limited proof that underpasses and rope ladders are effective for fauna passage and requests that a fauna bridge be included in the Proposal in the Cairncross State Forest area.

6) One community submission supported the concept of a fauna overpass on Cooperabung Hill to support small trees and/or apparatus to assist in fauna movement.

7) One community submission requested that the Maria River bridge be upgraded to a combined fauna crossing with 'furniture' fitted to ensure safe movement of fauna.

8) The submission from DECCW raised a number of issues regarding the design of proposed fauna crossings as follows:

- DECCW sought changes to, or clarification of, some fauna crossing structures identified in the Proposal.
- DECCW recommended the location of dedicated Koala structures is refined using recent surveys and habitat mapping found in the KSC Comprehensive Koala Plan of Management.

Response

1) The information provided about accidents involving koalas between Oxley Highway and Kempsey will be used by the project team during the refinement of the fauna management measures during the detailed design phase.

2) The RTA would continue to consult with DECCW regarding the design of proposed fauna crossing structures during the detailed design phase.

3) The RTA acknowledges that the existing Pacific Highway offers limited opportunities for fauna movement through regional and sub-regional wildlife corridors. The RTA also acknowledges that the upgrading of this section of the highway would provide fauna with safer options for their natural movements across the highway. The Proposal has been developed to include fauna crossing opportunities in the form of incidental, combined and dedicated fauna crossings as well as glider poles and rope crossings. The RTA is also investigating opportunities to adjust the Proposal to incorporate median widening. A copy of the *Median Widening Assessment – Preliminary Scoping Investigation* is attached as Appendix C.

4) The RTA acknowledges that the existing highway divides habitat and is a barrier to fauna movement. However the Proposal includes measures to reduce the barrier effect and assist fauna movement between sections of severed habitat. Section 15.4.3 of the environmental assessment, discusses the measures incorporated into the Proposal to reduce the potential for adverse impacts on native wildlife as a result of habitat fragmentation, barrier effects and road mortality. These measures include dedicated fauna underpasses, combined drainage/ fauna movement culverts and aerial fauna crossings located at key points along the Proposal to increase habitat connectivity. Wildlife exclusion fencing used in conjunction with crossings help to prevent fauna entering the highway. The proposed locations of the dedicated, combined and incidental fauna crossings are shown on figures 15a to 15c and described in section 6.4.16 of the environmental assessment.

5) Fauna underpasses are used extensively on road infrastructure projects as they offer opportunities for fauna to move between areas of habitat without the threat of vehicle collision. RTA monitoring over the past 10 years reveals that fauna crossings as small as 1.2 metres high provide fauna movement for a range of fauna species. Similarly rope crossings have been utilised by a range of target species. The RTA acknowledges that the success of fauna underpasses relies on their placement within local, regional and sub-regional wildlife corridors as well as within areas with known fauna populations. Data gathered from habitat assessments and detailed fauna surveys conducted in the study area between 2005 and 2010 was used to identify the proposed locations of the fauna underpasses incorporated into the Proposal.

   The construction of a fauna bridge within the Cairncross State Forest is not feasible due to design restrictions resulting from topographical and vegetation constraints. The topography in this location does not facilitate the construction of a fauna bridge and would require further property acquisition, vegetation clearing and fill placement in order to achieve reasonable grades across the fauna bridge. Such a fauna bridge would be cost prohibitive. Lowering the Proposal would also compromise the 3.0 x 3.0 metre fauna underpasses included in the Proposal in this area. However the RTA is investigating opportunities to adjust the Proposal in this area to incorporate median widening. A copy of the *Median Widening Assessment – Preliminary Scoping Investigation* is attached as Appendix C.

6) The RTA acknowledges that the existing Cooperabung Hill cutting is a barrier for fauna movement in the area of the cutting. The RTA also acknowledges the cutting is located on the edge of a regional movement corridor and the Cooperabung Creek Nature Reserve. The options for providing opportunities for fauna to cross the Proposal in this area were carefully assessed and the construction of a fauna bridge structure across the cutting was considered neither feasible nor reasonable due to the width and depth of the cutting. A fauna bridge would therefore be cost prohibitive in this area. However the Proposal includes several crossing structures within the movement corridor including a dedicated fauna underpass immediately south and north of the cutting as well as another dedicated crossing approximately two kilometres further north within the movement corridor. The Proposal also includes four combined crossings and a further five incidental crossings within the movement corridor north of Cooperabung Hill. Three locations within the movement corridor have also been identified as potential locations for the placement of rope crossings or glider poles to assist in arboreal fauna crossings. The RTA considers that the proposed crossings would provide for fauna movement in this location in a cost effective manner.

7) Consideration would be given to the installation of 'furniture' under the Maria River bridge during the detailed design phase.

8) The RTA has considered the issues regarding the design of fauna crossings raised by DECCW and responses to those issues are provided in table 2.1 below. The RTA confirms its commitment in section 15 of the environmental assessment that it would further consult with DECCW and other relevant agencies, during the detailed design of the Proposal. This includes a commitment to further consultation regarding the design of the fauna crossing structures incorporated into the Proposal.

Table 2.1: Responses to DECCW issues relating to the design of fauna crossings

Item	Issue	Response
a	DECCW suggested retained vegetation in the median and on road verges in the areas of glider habitat should be considered a priority over rope ladders and glider poles as it would not require the same level of maintenance. Potential locations for a widened median should be investigated.	The RTA commissioned a Median Widening Assessment – Preliminary Scoping Investigation in July 2010 to investigate the feasibility of widening the median at locations currently proposed for aerial fauna crossings (glider poles). The preliminary scoping investigation identified that the following locations be further investigated as part of a Stage 1 assessment: • Cairncross SF (Ch: 10000 to 11160). • Ballengarra SF (Ch: 23200 to 23940). • Maria River SF (Ch: 33760 to 34380). A copy of the Median Widening Assessment - Preliminary Scoping Investigation is provided in Appendix C. The Stage 1 detailed assessment into the feasibility of widening the median at these three locations would be undertaken during the detailed design phase should project approval be granted by the Department of Planning.
b	DECCW supported the process reported in the EA of determining the location for fauna crossing structures however skylights are not needed. Alternatively consideration could be given to use of split median combined with fauna fencing.	The RTA notes the advice regarding skylights in fauna crossing structures and would consider incorporating split medians, combined with fauna fencing during the detailed design, where feasible to do so.
c	DECCW recommended bridges are designed with no less than 3m split between carriageways. Bridge abutments should be constructed at 90 degree angles where fauna passage is 4m or less.	The design of bridges to be constructed as part of the Proposal would be finalised during the detailed design phase. The design of the bridge abutments would be influenced by several factors including the type and size of creek / watercourse crossed, potential flow through the structure, quality of the foundations for the abutment and the area available to construct the abutment. Where practicable, the abutments for bridges would be constructed vertically if the distance between the creek bank and the abutment is less than four metres for fauna passage. The provision of a three metre split between carriageways is not feasible as it would increase the footprint of the Proposal.
d	DECCW considered that the proposed fauna crossing structures will provide limited connectivity across the highway barrier. DECCW considers the use of combined structures unacceptable and the identification of "as few as 9 dedicated fauna crossings and several bridges" as insufficient. DECCW recommends placement of 3.0 metres x 3.0 metres box culverts every 500m	The Proposal incorporates 67 fauna crossing locations in the form of bridges, dedicated, combined and incidental fauna crossings as well as drainage culverts. The RTA considers the combined structures incorporated into the Proposal serve a useful purpose of offering fauna passage as well as drainage for the Proposal. Every effort has been made to maximise the size of the culverts to assist fauna movement within the constraints of the topography and engineering design requirements for the Proposal. As a result the 26 combined crossings identified in the Proposal include 15 box culvert structures sized 3.0 metres x 3.0 metres. The RTA confirms that the Proposal incorporates fauna crossings on average every 500m where it bisects regional corridors.

Item	Issue	Response
	where the highway bisects regional corridors.	The RTA advises that the conversion of all drainage structures to the recommended minimum 3.0 metres in height would result in a larger footprint for the Proposal and significant additional costs to the project. For example, the highway embankment across the Hastings River floodplain currently incorporates 2.1 metre high flood relief structures. Increasing these to 3.0 metre high structures would increase the footprint by around 5 metres in width and also potentially generate greater flooding impacts.
e	DECCW considered that the combined fauna / drainage structures to be too small and states that these structures should be no less than 3.0 metres x 3.0 metres in regional corridors and 2.4 metres x 2.4 metres outside regional corridors.	The proposed fauna crossings incorporated in the Proposal have been designed to maximise the opportunities for fauna movement whilst limiting the Proposal's footprint and ultimately the area of vegetation required to be cleared. The culverts have been designed to the maximum height possible. To amend all culvert designs to be either a minimum 3.0 metres x 3.0 metres in regional corridors and 2.4 metres x 2.4 metres outside regional corridors, will result in a wider footprint, greater area of land impacted, more vegetation clearing, increased property acquisition, potentially greater heritage impacts, higher embankment levels, higher cost, and higher traffic noise and amenity impacts. It should be noted that of the 38 fauna crossings identified outside mapped regional corridors in the Proposal 22 meet or exceed the 2.4 metres x 2.4 metres requirement. The RTA will further review the size of the crossing structures during the detailed design phase, however it is not considered feasible or reasonable to change the size of all the culverts to the size requested by the DECCW.
f	DECCW recommended that box culverts 3.0 metres x 3.0 metres or smaller are restricted to 50 metres in length to facilitate fauna movement and should longer culverts be required it is suggested to split the culvert in an area of fenced, low density vegetation.	The RTA notes the DECCW recommendation, however restricting the length of culverts to 50 metres is not feasible as the width of the Proposal varies between approximately 30 metres and approximately 105 metres. The RTA would consider incorporating split medians, combined with fauna fencing during the detailed design, where feasible to do so.
g	DECCW made several observations and recommendations regarding the design and construction of single and multiple cell culverts.	The final design of single and multiple cell culverts would be determined during the detailed design phase in consultation with DECCW.
h	DECCW recommend "all new bridges shall provide no less than 4 metres fauna passage on each bank".	The RTA notes the advice from DECCW and confirms that the bridges for the Proposal would be designed to provide as much area as possible for fauna movement. Where possible the design would aim to provide 4 metre passage, however the final area is subject to meeting a balance between the environmental and engineering constraints at each bridge location. The RTA would continue to consult with DECCW and other relevant agencies during the detailed design phase.

Item	Issue	Response
i	DECCW recommend dedicated fauna crossing structures "should be no less than 3.0 metres x 3.0 metres to be effective and designed and located so that they do not receive surface water runoff".	The RTA notes the recommendations from DECCW. The culverts incorporated into the Proposal for fauna crossing structures have been designed to the maximum height possible. To amend all dedicated fauna crossings to a minimum 3.0 metres x 3.0 metres will result in a wider footprint, greater area of land impacted, more vegetation clearing, increased property acquisition, potentially greater heritage impacts, higher embankment levels, higher cost and higher traffic noise and amenity impacts. The RTA will further review the size of the dedicated crossing structures during the detailed design phase, however it is not considered feasible or reasonable to change the size of all the dedicated crossing culverts to the size requested by the DECCW. The RTA will also ensure the surface water drainage near the dedicated fauna crossing culverts is designed to reduce the potential for run off to enter the crossing culverts.

The RTA provided responses to recommended changes and questions relating to fauna crossings in table 2.2 below.

Table 2.2: Responses to DECCW recommended changes and questions relating to fauna crossings

Station	Recommended changes and queries relating to fauna crossings	Response
1620	DECCW recommends a reinforced concrete box culvert (RCBC) of at least 3.0 metres x 3.0 metres is provided to facilitate the identified target species. The skylight should be removed from the Proposal and replaced with a split in the median if the culvert is greater than 50 metres in length. This is a dedicated fauna crossing designed to facilitate potential koala movement. The culvert should therefore be of sufficient height to incorporate post and rail fauna furniture of 2.0 metre height which will provide refuge from wild dog predation.	The RTA notes the DECCW recommendation and advise that table 6-2 of the Flora and Fauna Working Paper contains a typographical error and the dedicated fauna crossing at this location would be a 3.0 metres x 3.0 metres box culvert. The RTA has reviewed the Proposal and confirms that median cannot be split at this location due to alignment and property constraints.
2625	DECCW recommends a RCBC of at least 3.0 metres x 3.0 metres is provided to facilitate the target species. Additionally, there appears to be no vegetation on the west of the highway at this point. Fauna crossings are shown to be viable only if they link patches of vegetation.	The RTA notes the DECCW recommendation. However a review of the Proposal reveals that the maximum culvert size that can be installed at this location would be 3.0 metres x 2.7 metres due to the terrain and engineering constraints. The RTA also confirms that isolated vegetation does exist in close proximity to this crossing.
3605	The vegetation to the east of this culvert does not appear to be connected to larger remnants. DECCW does not recommend changing this structure but requires further understanding of its inclusion. If research has revealed potential koala movement at this site then DECCW recommends the structure is increased in size to 3.0 metres x 3.0 metres.	The RTA confirms that the crossing structure is not located within a movement corridor. However an opportunity to include the structure has been taken to enhance the opportunities for fauna movement in the area adjacent to a high traffic area and reduce the potential for fauna conflicts with highway and service road traffic.

Station	Recommended changes and queries relating to fauna crossings	Response
		A review of the Proposal reveals that the maximum culvert size at this location would be 3.0 metres x 2.1 metres. This crossing spans both carriageways and the service road and any changes to the culvert would result in a substantial change to the Proposal design.
10680, 11151 and 11692	The crossing structures at these points are located within a regional corridor and within an area of proposed glider crossing. Currently, there are no dedicated structures or bridges in this section of the upgrade. DECCW recommends these structures are combined with a median and upgrade to 3.0 metres x 3.0 metres to reflect the importance of maintaining connectivity within this regionally significant wildlife corridor.	The RTA acknowledges the importance of maintaining connectivity within the regional corridor and the wider state forest area and has taken every opportunity to incorporate crossing opportunities in these areas, including fauna crossings, rope crossings and glider poles. The RTA confirms that the incidental crossings located at stations 10,680 and 11,151 are located within the state forest adjacent to the mapped regional corridor and that the incidental crossing located at station 11,692 is located within the mapped regional corridor. The RTA has reviewed the Proposal and confirms that the culverts proposed at these locations are the maximum size possible due to terrain and engineering constraints.
28295	It is unclear to DECCW why the proponent proposed 2 x 3.0 metre x 3.0 metre dedicated fauna crossings adjacent to a bridge at this location. Bridge structures provide superior opportunities for fauna passage if designed appropriately and would presumably negate the need for the adjacent RCBC's. DECCW recommends that further justification for the current Proposal is provided or preferably the table is amended to consolidate fauna passage at the bridge and confirm that the bridge will be designed in a manner to facilitate effective fauna crossing.	The dedicated crossings have been incorporated into the Proposal at this location to provide continuous dry passage for fauna during high rainfall events in this area.
33390-37790	Given the high number of glider and koala records in this regional wildlife corridor, this section of the upgrade should be considered a priority area for incorporation of a retained vegetated median. Terrestrial fauna would also benefit from an opportunity to split box culverts in the median thereby reducing the overall perceived 'tunnel effect'.	The Median Widening Assessment – Preliminary Scoping Investigation contained in Appendix C recommended the area adjacent to the Maria River State Forest between Station 33760 to 34380 be further investigated for the potential for median widening during Stage 1 of the assessment. The Stage 1 assessment into the feasibility of widening the median at three locations would be undertaken during the detailed design phase should project approval be granted by the Department of Planning. The RTA acknowledges the importance of fauna movement through this area as reflected in the Proposal. The Proposal

Station	Recommended changes and queries relating to fauna crossings	Response
		currently incorporates the following structures to facilitate fauna movement in this area: • One 3.0 metre x 3.0 metre dedicated crossing. • Two 3.0 metre x 3.0 metre combined crossings. • One 3.0 metre x 2.4 metre combined crossing. • One 3.0 metre x 1.8 metre combined crossing. • Stumpy Creek bridge consisting of 3 spans of 36 metres long. This section also includes the existing bridge crossing of the Maria River. The RTA has committed in section 2.12.3 of this report to considering the opportunities for placement of furniture under the Maria River bridge to facilitate fauna movement.
34086	DECCW recommends a RCBC of at least 3.0 metres x 3.0 metres is provided to facilitate the target species.	The RTA has reviewed the Proposal and confirms that the culvert proposed at this location is the maximum size possible due to terrain and engineering constraints. Any changes would result in an increased footprint and further impact on flora and fauna.
347146	DECCW recommends a RCBC of at least 3.0 metres x 3.0 metres is provided to facilitate the target species.	The RTA understands that this location is a typographical error and the DECCW are referring to the proposed 3.0 metres x 3.0 metres combined crossing at station 34714. The RTA has reviewed the Proposal and confirms that the culvert proposed at this location is the maximum size possible due to terrain and engineering constraints.

2.12.4 Compensatory habitats and offsets

Submission numbers

29 – Individual
41 – Individual
136 – Department of Environment, Climate Change and Water (DECCW)
139 – Northern Rivers Catchment Management Authority (NRCMA)

Issue description

1) One community submission urged the RTA to liaise with DECCW and the Port Macquarie Koala Hospital should koala relocation be necessary.

2) One community submission and submissions from DECCW and NRCMA, raised the issue of offsetting and the need for an appropriate offsetting strategy.

3) Two community submissions raised concerns that koala habitat in the Kempsey area would be lost if the offsets for the Proposal involved purchasing habitat in areas such as Coffs Harbour or Port Macquarie. These submissions identified the Goolawah Estate as a suitable and local offset site due to its high conservation value.

4) One community submission suggested that there is no 'like for like' or 'maintain or gain' outcome for threatened species once the Proposal is constructed.

Response

1) The RTA will liaise with DECCW and other relevant stakeholders should koala relocation be necessary during the construction of the Proposal. Fauna management would generally be in accordance with the construction environmental management plan.

2) The proposed offset strategy is discussed in section 15.4.7 of the environmental assessment. A commitment to developing and implementing an offset strategy is contained in revised SoC F20.

The actual land exchange ratio agreed with the DECCW and I&I NSW for the biodiversity offset strategy has varied from project to project over the last 14 years. However, the general land exchange ratio adopted is about 2:1 for native vegetation, and about 4:1 for endangered ecological communities, on a like-for-like basis. The offset strategy would also consider any agreement between the RTA and Forests NSW regarding offsetting impacts on state forest.

Further to this, the RTA's biodiversity offset strategy also includes revegetation in strategic locations and investment in management research related to the rehabilitation and protection of threatened species. To date, the area of compensatory habitat provided for the Pacific Highway upgrade program is about 1200 hectares. The RTA is continuing to negotiate offset packages for projects that are under construction or in the project planning stage.

All biodiversity offsets would be located within the NSW North Coast Bioregion with the aim of offsetting on a like for like basis based on broad vegetation type. The offset areas will be assessed to ensure that habitat for impacted threatened species is included in offset areas. Where it is not feasible to offset on a like for like basis other vegetation types of a similar conservation value that contain habitat suitable for the impacted threatened species will be considered in consultation with DECCW.

It is recognised that the availability and suitability of land for inclusion in the offset package will be uncertain until the detailed investigation of suitable sites and finalisation of negotiations with landholders occurs. As a result it is necessary to have a staged approach to determining the suitability of sites for inclusion in the package.

Priority 1

The first phase of the offset strategy would be to identify land that could be included in the package that meets the following criteria:

- Properties located within 30km radius of the project extending to 100km with the agreement of the Department of Planning and DECCW where it can be demonstrated that a suitable offset could not be found.
- Offset land would contain vegetation communities impacted by the proposal.
- Land would be assessed as to its suitability as habitat for the threatened species impacted by the project (including patch sizes) based on DECCW threatened

species profiles databases.

- Offset land would comprise vegetation of at least moderate to good condition (according to DECCW native vegetation benchmarks database).
- Offset land would comprise land that enables connectivity between adjacent areas of vegetation.
- Offset land must be suitable for ongoing management for conservation through an appropriate legal instrument.

Priority 2

The second phase, if required, would be to identify other land that either comprise properties located within the broader North Coast Bioregion or consists of similar vegetation communities within the broad vegetation types impacted by the proposal. The other criteria included in Priority 1 would still apply to lands considered under Priority 2.

The second phase would only be undertaken if the offset requirements could not be met from Priority 1 criteria and after consultation with DECCW and Department of Planning, The package would clearly identify the outcomes of the assessment of properties under Priority 1 criteria and identify if any Priority 2 properties were required to be included in the package to meet the objectives of the Strategy.

Notwithstanding the above the offset package may also be part of a larger offset package where other Pacific Highway projects may be included. The scope of this larger offset package would be determined using the same methodology as described in this report and would potentially allow larger more continuous areas of land to be acquired leading to improved conservation outcomes and economies of scale. Conservation organisations have shown interest in this approach and are interested in working with RTA to identify and manage such lands.

Tools used to identify potential offset land include, but are not limited to RTA property databases and possibly through advertisements for expression of interest for the provision of land for conservation purposes.

To deliver the biodiversity offset the RTA may engage the services of an appropriate organisation to act as a third party offset agent to negotiate with landholders to secure conservation management of the land and negotiate appropriate covenants or agreements. Third party offset agents may include conservation organisations established for this purpose. There are also a number of private companies that offer specialist services in finding biodiversity offset lands. If suitable, the RTA would also consult with DECCW to pursue opportunities to purchase land that may be suitable for reserve estate with DECCW.

Condition and habitat assessment of the proposed offset lands would be undertaken to ensure the potential offset land(s) consist of appropriate vegetation type(s) and of adequate condition that meet the decision-making framework outlined above. This assessment would be undertaken by suitable qualified ecologists and the report prepared would be included in the Biodiversity Offset Package.

3) The measures that could be included in the proposed offset strategy are discussed in section 15.4.7 of the environmental assessment. One of the measures proposed in the strategy is for the RTA to purchase land as compensatory habitat for ongoing conservation. Any decision to purchase the Goolawah Estate or any other land would be made in line with the approved biodiversity offset strategy and following further consultation with the DECCW.

4) The RTA acknowledges that the construction of Pacific Highway projects has an impact on the local environment. The Proposal however includes a commitment by the RTA to develop and implement an offset strategy in consultation with DECCW and I&I NSW (refer revised SoC F20). The details of the offset strategy would be developed in consultation with DECCW and I&I NSW during the detailed design phase and include measures described in section 15.4.7 of the environmental assessment.

It is envisaged the offset strategy would offset impacts to endangered ecological communities and broad vegetation types on a 'like for like' basis. In addition to providing land offsets, the offset strategy may include, in consultation with DECCW, additional revegetation in strategic locations and/or investment in management research related to the rehabilitation and protection of relevant threatened species.

2.12.5 Mitigation measures

Submission numbers

29 – Individual
136 – Department of Environment, Climate Change and Water (DECCW)
139 – Northern Rivers Catchment Management Authority (NRCMA)

Issue description

1) The DECCW submission recommends using frog fencing and Brush-tailed phascogale fencing where these species are highly likely to occur.

2) The DECCW submission sought a firm commitment to provide artificial breeding ponds in locations of known or potential Green-thighed frog habitat during the detailed design.

3) The DECCW submission supported targeted surveys of the Green-thighed and Giant barred frog prior to construction and specific mitigation measures such as frog fencing and artificial habitat creation at targeted areas.

4) The DECCW submission stressed the importance of a final 'impact audit' to identify additional or unforseen changes to impacts to biodiversity from those identified in the environmental assessment.

5) One community submission suggests installation of wildlife exclusion fencing along the entire length of the Proposal.

6) NRCMA notes that the Proposal passes through several regional corridors and advises that proposed revegetation / regeneration activities should take local provenance into account.

7) NRCMA advises that the Proposal corridor is 'excluded land' under the NSW *Native Vegetation Act 2003* and a licence for clearing would not be required.

8) NRCMA requests that the principle of 'maintain and improve' is applied to the Proposal.

Response

1) The RTA notes the recommendation by DECCW and confirms its commitments to erect fauna exclusion fencing at appropriate locations to direct fauna to crossing structures (refer SoC F18). The fauna fencing strategy will be developed in consultation with DECCW and the RTA considers that this would include consideration of the appropriate style of fence and its location.

2) As outlined in section 15.3.1 of the environmental assessment, consideration would be given to the location, size and design of any artificial habitat breeding ponds during the detailed design and construction stages in consultation with DECCW.

3) As outlined in section 15.4.1 of the environmental assessment, targeted surveys of the Green-thighed and Giant barred frog would be undertaken prior to construction and specific mitigation measures such as frog fencing would be implemented in areas identified during the assessment. Artificial frog ponds would be considered in accordance with SoC F11.

4) The final impact audit requested by DECCW would be a considered as part of the monitoring program to be developed to assess the effectiveness of mitigation and offset measures (refer revised SoC F20). The program will be for a minimum of 12 months after construction completion.

5) Wildlife exclusion fencing has been incorporated into the Proposal design to reduce the potential for adverse impacts on native wildlife as a result of habitat fragmentation barrier effects and road mortality. The installation of fauna exclusion fencing for entire length of the Proposal is not considered necessary to manage these impacts.

6) The RTA is committed to taking local provenance into account for revegetation/ regeneration activities (refer SoC F5).

7) The advice from the NRCMA is noted.

8) The offset strategy developed by the RTA in consultation with the DECCW and I&I NSW would include the purchase of land to offset vegetation loss due to the construction of the Proposal. This approach is consistent with recent Pacific Highway Upgrade Program projects. This offset strategy for the Pacific Highway Upgrade Program would contribute to the long term conservation of biodiversity. The general land exchange is on a 'like for like' basis. This approach is considered to be consistent with the 'maintain and improve' principle under the NSW *Native Vegetation Act 2003*.

2.13 Noise and vibration

2.13.1 Construction noise

Submission numbers

3 – Individual
5 – Individual
10 – Individual
20 – Individual
42 – Individual
136 – Department of Environment, Climate Change and Water (DECCW)

Issue description

1) Five community submissions expressed concerns about noise from construction activities.

2) Two community submissions expressed concerns about noise from blasting.

3) The DECCW submission noted that the proposed construction hours are in excess of those recommended in the DECCW's *Interim Construction Noise Guidelines* (ICNG).

DECCW suggests that construction hours be restricted and project approval conditions include a post approval requirement to seek out of hours works in accordance with the process prescribed in ICNG.

Response

1) The assessment of construction noise impacts was undertaken in accordance with the DECCW ICNG, which specifies noise limits and working hours, amongst other requirements, for construction activities. The assessment identified potential noise generating activities and their approximate noise level impact at distances from the construction corridor. Where these impacts are predicted to exceed the guideline noise levels, specific mitigation measures would be implemented.

   Where feasible, the implementation of operational noise mitigation measures may be considered prior to the commencement of construction to minimise noise impacts.

   The construction activities specific to the Proposal would be assessed in greater detail during the detailed design phase when more information on the specific construction requirements are known. The construction contractor would also continue to consult with adjacent landowners and relevant agencies during the development of the Construction Noise and Vibration Management Sub Plan for the project. This Plan will contain appropriate measures to deal with potential noise impacts during the construction phase.

   Where there are unacceptable noise impacts at residences or other sensitive receivers, affected parties would have the ability to register a complaint. Any complaints on the Proposal would be recorded and a process implemented to address and mitigate these issues.

2) The assessment of potential impacts from blasting activities has been prepared in accordance with the relevant environmental criteria and is provided in section 16.4.3 of the environmental assessment. The potential impacts of the blasting activities provided in the environmental assessment is an estimate based on the proximity of residences to major cutting along the Proposal. However, as detailed in the environmental assessment, the geotechnical subsurface profiles, blasting and seismic details would be determined during the detailed design phase. The overpressure and vibration predictions from blasting activities at residences would be further refined following these geotechnical investigations.

   The buffer zone associated with the blast site would be identified and appropriate measures implemented to limit overpressure and vibration to acceptable levels. Blast charge and configurations would need to be selected to ensure that the Australian and New Zealand Environment and Conservation Council (ANZECC) guidelines (1990) adopted by the DECCW are not exceeded.

   Blasting would be monitored to confirm predicted overpressure and vibration levels. Blast design and buffer zones would be modified, if required.

3) The RTA notes the comments from the DECCW and acknowledges that the proposed construction hours are outside the standard hours recommended in the ICNG. However, as discussed in section 16.6.1 of the environmental assessment the proposed construction hours provide considerable benefit to the community and the project by reducing the length of the construction period and therefore reducing the duration of exposure to construction activities. The identification of the proposed longer working hours in the environmental assessment has allowed for consultation with the community and it should be acknowledged that no individual submissions have been received in relation to this

issue. The RTA is committed to including provisions (refer SoC CN3) to review the proposed construction hours as part of the Noise and Vibration Management Plan that would be prepared for the project prior to construction.

Where feasible, the implementation of operational noise mitigation measures may be considered prior to the commencement of construction to minimise noise impacts.

2.13.2 Operational noise

Submission numbers

3 – Individual
4 – Individual
10 – Individual
15 – Individual
17 – Individual
19 – Individual
20 – Individual
23 – Individual
30 – Individual
32 – Individual
33 – Individual
35 – Individual
136 – Department of Environment, Climate Change and Water (DECCW)

Issue description

1) The DECCW submission noted the procedure used to model the traffic noise is appropriate.

2) Eleven community submissions expressed concerns over the increase in noise pollution as a result of the Proposal due to an increase in traffic noise.

3) One community submission stated that road noise has increased with B-doubles going over existing bridge.

Response

1) The advice from DECCW is noted.

2) The traffic noise assessment included in section 16 of the environmental assessment was prepared in accordance with the requirements of the DECCW guideline *Environmental Criteria for Road Traffic Noise* (ECRTN) and the RTA's *Environmental Noise Management Manual* (ENMM). The traffic noise assessment identified sensitive noise receivers where the traffic noise levels are likely to exceed the ECRTN goals. The assessment also identified receivers already affected by road traffic noise as well as newly affected receivers.

   The RTA acknowledges that as result of the Proposal some residents will experience traffic noise at higher levels than previously experienced and some residents will experience traffic noise from a different direction. However there are also a large number of residents who will experience a reduction in traffic noise levels as a result of the Proposal.

   The RTA is committed to implementing reasonable and feasible noise mitigation measures to manage the impacts of traffic noise as discussed in section 16.6.4 of the environmental assessment. These measures would be further discussed with DECCW and relevant landowners during the detailed design phase.

Further information regarding potential noise levels at individual receiver locations and detailed results of the noise modelling can be found in Noise and Vibration Working Paper in Volume 3 of the environmental assessment.

3) The RTA notes the advice and acknowledges that the number of vehicles using the existing Pacific Highway and the Dennis Bridge has increased over time and as a result, there would have been some increase in traffic noise levels. Following construction of the Proposal, heavy vehicle traffic on the existing highway is expected to decrease as the existing Pacific Highway becomes part of the service road network. A corresponding decrease in traffic noise is expected.

2.13.3 Noise mitigation

Submission numbers

15 – Individual
17 – Individual
22 – Individual
25– Individual
45 – Individual
136 – Department of Environment, Climate Change and Water (DECCW)
143 – Individual (Confidential)

Issue description

1) The DECCW submission noted that SoC ON1 and SoC ON2 commit to further consideration of operational noise mitigation measures during detailed design and post construction compliance assessment measures.

2) The DECCW submission requests further information to support the decision for the preferred receiver based mitigation options through the qualitative process outlined in the RTA ENMM.

3) Three community submissions requested that specific noise mitigation measures be adopted at private properties.

4) Two community submissions expressed concerns that the proposed noise mitigation measures are not satisfactory due to cost of running air conditioning and impact on outdoor lifestyle.

5) The DECCW submission recommended several adjusted conditions of approval from the Kempsey to Eungai Pacific Highway Upgrade, be imposed by the Department of Planning.

Response

1) SoC ON1 and ON2 confirms the RTA's commitment to further refinement of operational noise mitigation measures during the detailed design phase and review of the post construction compliance of the mitigation measures.

2) The decision to proceed with receiver based mitigation was based on the isolated nature of residences along the Proposal. The affected residences (92) are dispersed over the 37 kilometre length of the Proposal, being essentially a rural and rural-residential environment. Typically the residences are isolated, or in close groups of two or three only. All properties were assessed for noise barrier options based on the prediction of benefits that could be achieved at the most affected residence. In the case of residences that are clumped together a greater benefit is achievable, however the minimum performance criteria still apply. Where the minimum performance criteria for a noise barrier cannot be achieved, architectural or at property treatments have been recommended.

   In accordance with Practice Note IV of the RTA's ENMM, architectural treatments are offered as they are very likely to be more cost effective. Noise walls were considered as an option for the Moorside Drive rural residential subdivision, south of Telegraph Point. Barriers would not be reasonable or feasible at this location due to significant adverse impacts on flooding, as well as the associated cost and engineering issues of construction of the barrier on a flood affected embankment. The highway embankment is on the Wilson River floodplain, with a road height set at the 20 year flood level. Implementation of a noise barrier that effectively reduced noise impacts on adjoining receivers would create a significant barrier to flood flows, thereby increasing flood levels upstream of the Proposal and creating erosion potential.

3) The RTA would consult with each landowner where the predicted traffic noise level would exceed the ECRTN criteria prior to determining the type of noise mitigation measures adopted properties (Refer ON1). All affected landowners would continue to be consulted during the detailed design and construction phases of the project.

4) There are a range of architectural treatments that would be considered by the RTA and discussed with landowners to improve the amenity at each affected residence. The measures adopted for each property would vary and would include some of the following options:

   - Fresh air ventilation systems that meet Building Code of Australia requirements with the windows and doors shut.
   - Upgraded windows and glazing and solid core doors on the exposed facades of masonry structures.
   - Upgrading window and door seals.
   - The sealing of wall vents, eaves and roofs.
   - The installation of external courtyard screen walls.

5) The RTA notes the request to adopt the adjusted Kempsey to Eungai conditions of approval for the Oxley Highway to Kempsey Project. Table 2.3 provides comments on the changes recommended by DECCW to the conditions.

Table 2.3: Responses to DECCW changes to conditions

K2E Condition	DECCW recommended revisions	Response
2.12	It is recommended that standard construction hours are reflected in the project approval as conditions 2.13 & 2.14 allows for consideration of out of standard hour work.	The RTA acknowledges that the environmental assessment is seeking approval for undertaking work outside of the standard hours prescribed by the ICNG. Additional mitigation measures have been included to address any complaints received by the community/individuals including reverting to standard construction hours in any construction area where complaints cannot be resolved to the satisfaction of all parties. The environmental assessment process is seen as an open and transparent process in which community can be informed of the intended construction hours and that a progression of works can occur without causing serious impact to the community. It should be acknowledged that no individual submissions have been received in relation to this issue. Construction hours can be reviewed as part of the Noise and Vibration Management Plan to be prepared for the Proposal.
2.14	Amend Condition 2.14(d) to reflect following text: "*accompanied with a noise impact assessment consistent with the requirements of the Interim Construction Noise Guideline (DECCW, 2009)*".	The RTA acknowledges the advice from DECCW in relation to Condition 2.14(d). The management measures identified in section 16.6.2 of the environmental assessment and SoC CN1 are considered to encompass this requirement in accordance with the ICNG.
2.17	Recommended to DoP that the following text replace this condition: *"Construction Noise Management levels (CNML) shall be established using the Interim Construction Noise Guideline (DECCW, 2009). Any construction activities identified as exceeding the CNML shall be managed in accordance with the Construction Noise and Vibration Management Plan (CNVMP) specified in Condition 6.5c of this approval*".	The RTA acknowledges the advice from DECCW in relation to Condition 2.17. The management measures identified in section 16.6.2 of the environmental assessment and SoC CN1 are considered to encompass this requirement in accordance with the ICNG.
6.5c	Inclusion of additional point: "*vi) The CNVMP shall be generally consistent with the guidelines contained in the Interim Construction Noise Guidelines (DECCW, 2009)*".	The RTA acknowledges the advice from DECCW in relation to this condition. The management measures identified in section 16.6.2 of the environmental assessment and SoC CN1 are considered to encompass this requirement in accordance with the ICNG.

2.14 Visual amenity and urban design

2.14.1 View loss

Submission numbers

2 – Individual
3 – Individual
4 – Individual
10 – Individual
22 – Individual
32 – Individual
35 – Individual
45 – Individual
143 – Individual

Issue description

1) Five community submissions expressed concerns about the impact of the Proposal on the views from properties.

2) One community submission rejected the conclusions of the environmental assessment regarding the visual impact of the Kundabung Road overbridge when viewed from property is not considered negligible.

3) Two community submissions requested that landscaping and a wall or earthmound be installed to reduce the visual impact on properties.

4) One community submission suggested moving Blackmans Point interchange to a new location (Bill Hill Road) and replace with two bridges to reduce visual impact.

5) One community submission objected to Kundabung Road overbridge due to the visual impact caused from the loss of vegetation.

Response

1) Section 17.3 of the environmental assessment acknowledges that there would be temporary visual impacts during the construction of the Proposal for some residents as well as some permanent changes to the visual character following the completion of the Proposal. The Proposal includes measures designed to minimise the visual impact by adopting urban design principles that help create an interesting but unobtrusive road design. These measures are discussed in section 17.4 of the environmental assessment and include the development and implementation of a detailed urban and landscape design plan. The urban and landscape plan would include screen planting along the side of the Proposal in appropriate locations to minimise the view of the highway. This could involve shrub plantings to break up the view of the highway from residences but not restricting the views from the residences.

   The RTA's commitment to delivering a project with minimal visual and amenity impacts is confirmed in the statement of commitments included in Appendix B of the environmental assessment (refer SoC VAD1, VAD3 & VAD5).

2) The RTA notes the advice from the respondent. Section 17.3 of the environmental assessment acknowledges that there would be temporary visual impacts during the construction of the Proposal for some residents as well as some permanent changes to the visual character following the completion of the Proposal. The new structures included in the Proposal, such as the Kundabung overbridge, have the potential for a greater impact

than other features of the Proposal. The Proposal includes measures designed to minimise the visual impact by adopting urban design principles that help create an interesting but unobtrusive road design. These measures are discussed in section 17.4 of the environmental assessment and include the design of the structures and the implementation of landscaping around the structures.

3) The Proposal includes measures designed to minimise the visual impact by adopting urban design principles that help create an interesting but unobtrusive road design. These measures are discussed in section 17.4 of the environmental assessment and include the development and implementation of a detailed urban and landscape design plan. The urban and landscape plan would be developed to reduce visual impacts of the Proposal through design and landscape treatments focusing on revegetation and integration with the existing landscape. The urban and landscape plan would include screen planting along the side of the Proposal in appropriate locations to minimise the view of the highway. The use of screen mounds and walls would be further considered during the detailed design.

4) The RTA notes the suggestion. However, as discussed in section 17.3.2 of the environmental assessment, the Blackmans Point Road interchange would be visually enclosed within the heavily vegetated Cairncross State Forest. The RTA does not propose to relocate the interchange.

5) The RTA notes the objection to the location of the Kundabung Road overbridge. The RTA acknowledges that the Kundabung Road overbridge would require the removal of some vegetation. However, the removal of the vegetation is not expected to result in a visual impact from the subject property as the vegetation which exists between the proposed overbridge and the residence on the subject property would not be impacted.

2.15 Traffic and transport

2.15.1 Travel times

Submission numbers

2 – Individual
5 – Individual
20 – Individual
31 – Individual

Issue description

1) One community submission expressed concern about increased travel times to local destinations due to the loss of existing direct highway access.

2) One submission from a resident in Cooperabung Close expressed concern that the arterial standard option would result in increased travel distance compared to the motorway standard.

3) One community submission expressed concern over the proposed traffic arrangement at Sancrox Road/ Fernbank Creek Road due to increased travel distance.

4) One community submission raised concerns about the extra travel distance required for northbound vehicles to access Hastings SES Community Driver Reviver Centre.

5) One community submission expressed concern over the Blackmans Point Road interchange as it provides no efficiencies in energy savings or cost savings.

Response

1) The RTA acknowledges that some residents will have longer travel distances which could result in slightly longer travel times following the removal of direct accesses to the highway. However the change in access also improves the safety for residents accessing the highway via service and access roads and interchanges and removes the need for the residents to make right turn movements across high speed highway traffic. It should also be noted that the Proposal would be designed for vehicles to travel at up to 110 kilometres per hour and would be a superior design to that currently offered by the existing highway. The RTA considers that the increase in travel time resulting from the loss of direct highway access would be outweighed by the improved safety and standard of the highway.

2) The RTA notes the concern of the Cooperabung Close resident and confirms that the arterial standard staging option for the Proposal would result in an increase in travel times compared to those offered by the final motorway standard. However the adjusted access to Cooperabung Close would remove the need for residents to make right turn movements across high speed highway traffic and would improve the safety for residents accessing the highway.

   As noted in the environmental assessment, the decision on the staging option to be adopted for the construction of the Proposal would be subject to the availability of funding and priorities within the Pacific Highway Upgrade program.

3) The RTA acknowledges that the proposed Sancrox Road and Fernbank Creek Road traffic arrangement would add approximately 1.5 kilometres to the trip for people on the western side of the Proposal wishing to travel south from Sancrox Road as well as those people travelling north from Fernbank Creek Road. There would be no change to the remainder of manoeuvres from this location. However the proposed traffic arrangement would remove the need for residents to make a right turn movements across high speed highway traffic and provide a safer access across to the upgraded highway.

4) Data collected over 29 days between 17 December 2010 to 23 January 2011, reveals northbound visitors to the centre totalled 6,957 and southbound visitors totalled 7,990. Given the traffic generated by the centre, the RTA considers that the slightly longer travel times required to gain access to the centre would be offset by the safer access provided by the proposed traffic arrangement.

5) The proposed Blackmans Point interchange was designed taking into account environmental, social and economic considerations. The proposed interchange takes advantage of the existing topography in the area and minimises the impact on the environment. Its strategic location allows for efficient access to Telegraph Point and Blackmans Point Road whilst allowing for the deviation east of Telegraph Point. The utilisation of the existing terrain and the location closer to Port Macquarie would generate cost savings through using less construction resources, improved road grades and reduced travel times into the Port Macquarie.

2.15.2 Public transport and cycleways

Submission numbers

5 – Individual
20 – Individual
26 – Individual
135 – Transport NSW

Issue description

1) One business operator advised that the proposed service roads would be suitable for the company to operate local and school bus services and requested further consultation during the detailed design to ensure suitable facilities for bus stops are included along the service roads.

2) Concern was expressed by two community submissions over the safety of children using school buses for the arterial standard option due to the lack of stopping locations and need for the children to cross the highway.

3) Transport NSW requested that 2.5 metre wide shoulders along the Proposal be maintained on bridges and at pinch points to minimise conflict between cyclists and vehicles. Transport NSW also requested that opportunities to provide cycle way connections to adjoining communities should be investigated.

Response

1) The RTA acknowledges the support from the bus operator for the service road network. The RTA would continue to consult with public transport operators and the community regarding bus access and bus stop locations during the detailed design phase.

2) The RTA acknowledges the concerns of the residents. As discussed in section 18.3.2 of the environmental assessment there is no provision for bus stops along the upgraded highway in either the arterial standard staging option or the final motorway standard Proposal. The local bus services would use the upgraded local service road network in the final motorway standard option. The local bus services would use informal stops on local roads accessed by left in/ left out movements for setting down and picking up passengers. The concept design developed for the arterial standard staging option includes areas on local roads near intersections with widened verges to allow busses to stop. These locations are in areas of lower traffic volumes than either the existing or upgraded highway and, along with the prevention of right turn movements by buses across high speed highway traffic, would improve the safety for the bus operator and passengers when compared to the existing arrangements. As discussed in section 18.4 of the environmental assessment the RTA will continue to consult with public transport operators and the local community regarding bus stop locations and bus access.

3) As discussed in section 6.4.7 of the environmental assessment, no provision for pedestrian use of the main carriageway has been made due to safety reasons. Cyclists would be permitted to use the 2.5 metre shoulders of the Proposal. Signposting and crossing points would be provided for cyclists at the interchange and traffic arrangement ramps. Cyclists would be encouraged to use the service road network, which would offer a safer cycling environment due to lower vehicle speeds and traffic volumes.

   Pedestrian footways would be provided across the main carriageways at the Sancrox Road overbridge (approximately 600 metres south of Sancrox Road) and the Kundabung Road overbridge. In addition, there would be opportunities for pedestrians to cross the

upgraded highway at other overbridges and vehicular underpasses, however no specific provision has been made due to anticipated low volumes of pedestrian traffic.

2.15.3 Rest areas

Submission numbers

33 – Individual
42 – Individual
141 – NSW Office of Water (NOW)

Issue description

1) Two community submissions asked that the proposed rest areas be relocated further south of their current location with one of the submissions concerned about the potential increased noise from trucks, anti-social behaviour, illegal camping and increased rubbish in Barrys Creek.

2) Environmental assessment does not outline how water will be supplied to the proposed rest areas.

Response

1) There are two rest areas located on the existing Pacific Highway that would be replaced as part of the Proposal. The location for the rest areas was carefully considered and several potential sites assessed against a range of engineering, road safety, social and environmental criteria to determine the most appropriate location. The existing sites were chosen to provide the best balance against those criteria. The location of the rest areas has been selected to minimise impacts on residents and the surrounding environment. The facilities proposed for the rest areas are discussed in section 6.4.9 of the environmental assessment. Waste disposal containers would be provided, with contents disposed of offsite on a regular basis. Overnight camping would be prohibited. The location of these rest areas has been taken into account in the noise modelling undertaken for the Proposal.

2) Page 98 of the environmental assessment states that "*Water for toilet amenities at the rest areas would be provided from on-site rainwater tanks, supplemented as necessary by water tankers.*"

2.15.4 Property access

Submission numbers

5 – Individual
22 – Individual
27 – Individual
28 – Individual
42 – Individual
138 – Kempsey Shire Council (KSC)
146 – Forests NSW

Issue description

1) Four community submissions and the KSC submission expressed concerns over disruption to property access during the construction period. Another community submission requested that an alternative property access be provided for water and sewerage vehicles

servicing the property.

2) One community submission stated that proposed changes to access will result in one of the property allotments and an adjoining property becoming landlocked.

3) The Forests NSW submission identified the need for access by Forests NSW haulage, management and emergency vehicles to existing state forest areas and trails to remain open at all times.

Response

1) The RTA would ensure that where any legal property access is temporarily or permanently affected by the Proposal, alternative access to an equivalent standard would be provided where feasible and reasonable or other alternative arrangements agreed in consultation with the property owner. Where alternative access arrangements are not feasible or practical and a property is left with no access to a public road, negotiations will be undertaken with the relevant property owners for the acquisition of the property in accordance with the provisions of the *Land Acquisition (Just Terms Compensation) Act 1991.*

2) Access to the subject property would be further investigated during the detailed design phase to determine if an opportunity exists to provide an alternative access to the subject properties via the proposed service road.

3) Ongoing consultation would occur between the RTA and Forests NSW to ensure access to State Forest land is adequate. Where access to existing fire trails is impacted alternative arrangements would be made in order to maintain access. The service road network would be a public road under the control of the relevant council with normal access requirements rather than the restricted access arrangements under the Motorway conditions to be put in place for the upgraded highway. Forests NSW would therefore be able to negotiate with Council with regard to the position and/or adjustment of the access arrangements for ongoing State Forest operations.

2.16 Air quality

Submission numbers

4 – Individual
5 – Individual
30 – Individual
143 – Individual (Confidential)

Issue description

1) One community submission expressed concern over dust generated from construction impacting on tank supplied drinking water.

2) Three community submissions expressed concerns over an increase in air pollution as a result of the Proposal due to an increase in traffic and associated exhaust fumes.

Response

1) As discussed in section 20.1.3 of the environmental assessment, impacts associated with dust during construction would include dust generated by construction traffic, clearing groundcover and top soil, earth moving activities and the transport and stockpiling of soil and other construction materials. Measures that could be used to reduce and manage dust

emissions during construction are discussed in section 20.1.5 of the environmental assessment. Suitable measures for dust control would be included in the Air Quality Management Plan prepared prior to construction commencing.

2) The potential impacts on air quality as a result of the Proposal are discussed in section 20.1 of the environmental assessment and confirm that air quality would improve following the construction of the Proposal. This is the result of a higher standard of road and improved traffic flow patterns.

2.17 Geology and soils

Submission numbers

11 – Individual
25 – Individual
35 – Individual
136 – Department of Environment, Climate Change and Water (DECCW)

Issue description

1) Concerns were raised by two community submissions about the potential for bridge pylons to increase erosion at riverbanks and impacts on mangroves.

2) The DECCW submission supported the development of a water use and re-use sub plan and asked that water from sediment basins is reused wherever possible.

3) The DECCW submission noted that the environmental assessment does not indicate size or type of sediment basins that will be used. DECCW expect high level of erosion and sediment controls and encourage adequate areas for these structures

4) One community submission expressed concerns over the potential exposure of acid sulfate soils as a result of the Proposal.

Response

1) The concern about the potential for erosion around the bridge piers is noted. The bridge design will include measures to reduce the potential for erosion and scour to ensure the integrity of the bridge structure. The direction and velocity of the water flow would be considered along with the shape of the piers during the finalisation of the bridge design.

2) DECCW's support for the development of a water use and re-use sub plan is noted. The RTA also notes the DECCW request to re-use water from sediment basins on site and where practicable, and within the constraints of the construction activities and the requirement of the environmental protection licence, the RTA will investigate opportunities for re-use.

3) The concept design prepared for the Proposal includes indicative locations for sediment basins. The size, shape and location of the basins has been estimated using the guidelines *Managing Urban Stormwater: Soils and Construction, Volume 1 (Landcom 2004)* and *Managing Urban Stormwater: Soils and Construction, Volume 2D, Main Road Construction (DECC 2008b)*. The size, shape and location of these basins would be further refined during detailed design and construction stages. Each basin would vary according to local conditions and sensitivity of water catchments.

4) As discussed in section 20.3.2 of the environmental assessment, a high risk of the presence of acid sulfate soil material has been identified in a number of areas along the Proposal (refer figure 20-2 of the environmental assessment for acid sulfate soil risk mapping relevant to the study area). The presence of acid sulfate materials in the study area is predominantly associated with alluvium material of the Hastings and Wilson River floodplains.

The operation and construction of the Proposal through areas of acid sulfate soils have been considered in the development of the concept design for the Proposal and would be further considered during detailed design. In addition, an Acid Sulfate Soils Management Plan (SoC GS2) would be developed for the Proposal. The plan would be developed in consultation with the relevant government departments and Port Macquarie Hastings Council. The RTA has guidelines for managing acid sulfate soils, which would be used in the development of the management plan and referred to throughout the construction phase.

2.18 Contamination

Submission numbers

41 – Individual
136 – Department of Environment, Climate Change and Water (DECCW)

Issue description

1) The DECCW submission notes that targeted contaminated soil investigations would be carried out during the detailed design phase and suggests that the investigations be based on historical evidence and carried out in accordance with DECCW guidelines.

2) One community submission asked if the environmental assessment identified a reported tributyltin (TBT) contamination issue in the Hastings River and seeks further information on the potential for the Proposal to liberate TBT from the river sediments during construction.

Response

1) Areas of potential soil contamination will be identified, investigated and appropriately managed in accordance with the relevant DECCW guidelines.

2) Section 20.4 of the environmental assessment discusses the preliminary assessment of land contamination sites that may be impacted by the Proposal. This assessment identified the potential for contaminants associated with the sand mining operation and slipway on the southern side of the Hastings River. However it should be noted that these sites are not directly impacted by the Proposal and it is considered unlikely that the construction of the Proposal would liberate TBT.

Section 20.4.4 of the environmental assessment outlines the proposed methods for the management of potentially contaminated land that would be impacted by the Proposal.

2.19 Clarifications to the environmental assessment

Submission numbers

25 - Individual
136 - Department of Environment, Climate Change and Water (DECCW)

Issue description

Three submissions sought clarifications to the environmental assessment.

1) One community submission advised that Property 19 identified as a 'non-travelling reserve' in table 10-4 of the environmental assessment either no longer exists or is seriously reduced in width.

2) One community submission advised that Properties 21 and 23 in table 10-4 of the environmental assessment are not 'council road reserve' but are privately owned roads.

3) One community submissions advised that there had been a change in ownership of Property 20 in table 10-4 and figure 10-3b of the environmental assessment.

4) The DECCW submission requested that the 'Description' column in table 6-2 of the environmental assessment be revised to include the height, width and length of the structures. DECCW also recommended that 'Range of species' column be expanded to include the range of species that are likely to use the structure.

Response

1) The RTA notes the advice regarding the reserve.

2) The RTA notes the advice and is currently seeking clarification as to the status of ownership of Properties 21 and 23 through appropriate legal enquiries. Once the correct ownership is identified, acquisition of affected land would be undertaken in accordance with the *Land Acquisition (Just Terms Compensation) Act 1991*.

3) The change of ownership has been noted.

4) Table 6-2 has been revised to reflect the DECCW requests. The revised table is contained in Appendix A.

2.20 Statement of Commitments

Submission numbers

136 – Department of Environment, Climate Change and Water (DECCW)
137 – Industry and Investment NSW (I&I NSW)
141 – NSW Office of Water (NOW)

Issue description

1) DECCW suggested that many commitments in the environmental assessment were not carried forward to the draft statement of commitments included in the environmental assessment. DECCW also suggested that the statement of commitments would be improved with the provision of more detail on the actions and measure that would be undertaken to avoid, minimise, manage, mitigate, offset and/or monitor impacts.

2) I&I NSW asked that all commitments in relation to the mitigation of impacts on farms and properties contained in the environmental assessment be listed fully in the statement of commitments.

3) NOW note the commitment to carry out further groundwater modelling during the detailed design stage and advised that the modelling must be undertaken by a suitably qualified groundwater consultant.

Response

1) The RTA notes the comments from the DECCW regarding specific commitments contained in the draft statement of commitments. Table 2-4 below provides a response to each of the issues and suggestions raised in relation to the statement of commitments (SoCs). It should be noted that the Statement of Commitments represent the broad and overarching measures proposed by the RTA to minimise potential impacts from the Proposal and are not intended to cover all specific issues relating to the Proposal. These commitments are supported by the management measures identified throughout the environmental assessment.

Table 2-4: Statement of Commitment amendment responses

Item	Agency	Suggested SoC amendment/ comment	Response
Water quality and hydrology			
1	DECCW	DECCW notes that the use of water from sediment basins for such things as dust control is preferred to the use of town water or water from natural systems. DECCW recommends that an additional statement of commitment outlining a commitment to appropriate water use hierarchy. (Ref: Page 3 DECCW response - Attachment 1)	The RTA considers that the issues raised by DECCW are addressed in the draft SoC SGW11 and a separate SoC is not required. The water management plan would include actions and strategies to ensure water resources are used in the most efficient manner with a focus on achieving water savings and targeting water recycling and re-use.
2	DECCW	DECCW notes leachate from excess mulch can cause water pollution. DECCW recommends an additional statement of commitment relating to the storage, siting and removal of excess mulch. (Ref: Page 3 DECCW response - Attachment 1)	The RTA agrees that uncontrolled runoff from mulch stockpiles can cause water pollution and the management of pollution from the Proposal is a high priority. However the RTA considers that the management of mulch can be effectively addressed in the soil and water sub plan to the CEMP which will be forwarded to agencies for review and a specific SoC in relation to mulch is not required.
3	DECCW	DECCW notes that it is imperative that clean water diversion is implemented prior to earthworks commencing. DECCW recommends an additional statement of commitment in this regard. (Ref: Page 3 DECCW response - Attachment 1)	The RTA acknowledges that clean water diversion is a fundamental component of any erosion control and sediment plan developed for the construction of the Proposal. The early installation of clean water diversions is a priority for protection of surface water quality. However, the staging required for some construction works will not always permit the diversions to be installed prior to the commencement of earthworks. The erosion and sediment control plan prepared for the project would include erosion and sediment

Item	Agency	Suggested Statement of Commitment amendment/ comment	Response
			control measures to manage surface water. The plan would be prepared in consultation with DECCW. The RTA considers that an SoC dealing specifically with water diversions is not necessary as draft SoC SGW5 includes a commitment that soil and water management will be carried out in accordance with the relevant environmental guidelines.
4	DECCW	DECCW notes all bridges need to have adequate stormwater controls provided for operational use. DECCW recommends an additional statement of commitment in this regard. (Ref: Page 3 DECCW response - Attachment 1)	All waterway crossings will be designed to ensure water quality is adequately protected. The detailed design of bridges will consider a range of factors including stormwater management, flood impacts and fauna crossing and will be developed in consultation with relevant agencies. The RTA considers that an additional SoC regarding a specific bridge design issue is not required.
Groundwater			
5	DECCW	DECCW recommends a new Statement of Commitment in relation to additional groundwater investigations where impacts of more than 5m drawdown on the watertable are likely. (Ref: Page 3 DECCW response - Attachment 1)	The RTA considers that issues raised by DECCW regarding additional groundwater investigations are addressed in SOC SGW6.
Flora and fauna			
6	DECCW	DECCW recommends changes to SOC F16 - bridges and culvert design.	The RTA considers that the recommended changes to bridges and culverts identified in the DECCW submission have been addressed in section 2.12.3 of this report. It should also be noted that the RTA will continue to consult with DECCW and the relevant agencies during the detailed design phase and changes to the SoC are not required. Note: The draft SoCs contained in the environmental assessment contained two SoCs labelled as 'F16". The revised draft SoCs appended to this submissions report have been amended and the SoC relating to bridge and culvert design has been renumbered SoC F17.
7	DECCW	DECCW supports the development of a Biodiversity Offset and Mitigation Strategy as outlined in SOC F18 and suggests that the Northern Rivers CMA vegetation mapping and DECCW's spatial layer of biodiversity conservation priorities be used to	The RTA acknowledges support for the Biodiversity Offset and Mitigation Strategy as outlined in revised SoC F20. The RTA would continue to consult with the DECCW regarding the suitability of offset areas based on a set-ratio approach to offset impacts to endangered ecological communities and broad vegetation types on a like for like basis.

Item	Agency	Suggested Statement of Commitment amendment/ comment	Response
		develop a potential offsets map based on the forest ecosystems and vegetation communities that correspond to vegetation communities impacted by the Proposal.	
8	DECCW	DECCW recommends SOC F19 be revised to include a minimum of 5 monitoring events over 10 years after construction is completed.	Revised SoC F21 commits the RTA to a targeted, adaptive monitoring program for a minimum of 12 months to assess the effectiveness of fauna and flora impact mitigation measures. After 12 months a report will be completed to assess the need for additional measures and/or further targeted monitoring in consultation with DECCW. The RTA considers that this monitoring approach is appropriate and changes to the SoC are not necessary. Note: SoC F19 has been renumbered to SoC F20 in the revised SoCs appended to this submissions report.
9	DECCW	DECCW recommends a new Statement of Commitment that states no barbed wire be used in any boundary fencing as part of the Proposal.	The RTA advises that it is not feasible to prevent the use of barbed wire fencing along the entire length of the Proposal's boundary. The fencing installed along the boundary of the Proposal must be suitable for the needs of the adjoining landholder and the risks associated with the adjoining land use. For example where RTA is installing a boundary fence in areas of farmland where stock are (or could be) grazed, fencing needs to be of a standard and design to prevent the stock entering the highway. Where the adjoining landholder is a government agency installation of non-barbed wire fencing would be considered where feasible. Where glider poles or aerial crossings are proposed, the impacts of barbed wire fencing in those locations will be considered and the design will be developed in consultation with DECCW.
Aboriginal heritage			
10	DECCW	The RTA will continue to consult meaningfully with and involve all of the registered Aboriginal stakeholders for the duration of the project in relation to the ongoing management of all Aboriginal cultural heritage matters relevant to this project. Evidence of this consultation must be documented and provided to the consent authority.	The RTA has committed (SoC AH1) to the development of an Aboriginal Heritage Management Plan which will address these issues. DECCW will be consulted on the development of the plan.

Item	Agency	Suggested Statement of Commitment amendment/ comment	Response
11	DECCW	The RTA will provide fair, equitable and reasonable opportunities for all of the local Aboriginal stakeholders to collect and salvage any Aboriginal objects likely to be impacted by the project.	The Aboriginal Heritage Management Plan developed to meet SoC AH1 will address these issues. SoC AH4 also provides for management of heritage items in consultation with Aboriginal stakeholders.
12	DECCW	The RTA will prepare an Aboriginal Heritage Management Plan for the project area.	This is included in SoC AH1.
13	DECCW	In the event that surface disturbance identifies a new Aboriginal site, all works must halt in the immediate area and a suitably qualified archaeologist and representatives from all local Aboriginal stakeholders. The site must also be registered in the Aboriginal Heritage Information Management System.	This is included in SoC AH3.
14	DECCW	If human remains are located, all works must halt in the immediate area and NSW Police contacted immediately and provide written notification to the RTA.	This is included in SoCAH3.
15	DECCW	All reasonable efforts must be made to avoid impacts to Aboriginal cultural heritage at all stages of works. If impacts are unavoidable, mitigation measures are to be negotiated with the local Aboriginal community and DECCW.	This is included in SoC AH4.
16	DECCW	An Aboriginal Cultural Education Program must be developed for the induction of all personnel and contractors involved in construction activities in collaboration with the Aboriginal community.	This is included in SoC AH5.

2) The RTA is committed to implementing the mitigation measures identified in the environmental assessment.

3) Further investigations and groundwater modelling during the detailed design phase would be undertaken by a suitably qualified groundwater consultant.

3 Additional assessment

3.1 Supplementary Flora and Fauna Assessment

The RTA engaged GHD to undertake ecological assessments of five additional study areas potentially impacted by the Proposal. These areas were not previously subject to an ecological survey as part of the environmental assessment for the Proposal.

The field surveys identified the flora and fauna values of the additional study area as being largely consistent with prior investigations reported in the environmental assessment and flora and fauna working paper.

3.1.1 Potential impacts

The Proposal would result in impacts on native biota and their habitats through the clearing of 5.8 hectares of native vegetation in the additional study area. This vegetation also includes 3.8 hectares of vegetation consistent with the following *Threatened Species Conservation Act, 1995* listed Endangered Ecological Communities (EECs):

- Swamp Sclerophyll Forest (1.7 hectares).
- Swamp Oak Floodplain Forest (0.8 hectares).
- Subtropical Coastal Floodplain Forest (1.2 hectares).
- Freshwater Wetlands (0.1 hectares).

The majority of these impacts have been previously identified in the environmental assessment and are predominantly consistent with the estimates provided in these assessments. However some additional impacts have been identified within the additional study area with the key differences between the additional study area and the remainder of the Proposal identified as follows:

- An increase of 0.4 hectares of native vegetation clearing.
- Net increased clearing of Subtropical Coastal Floodplain Forest (0.8 hectares).
- Loss of foraging habitat for the hoary wattled bat at Stumpy Creek.

The direct removal of this vegetation is not likely to comprise a significant reduction in the extent of these EECs and habitat for any local populations of native species. On this basis it is considered that the Proposal continues to meet the 'maintain and improve test' under Part 3A of the *Environmental Planning and Assessment Act, 1979* when considered within the context of the proposed mitigation measures identified in the environmental assessment.

3.1.2 Management of impacts

Impact mitigation measures would avoid or reduce the potential for adverse impacts on threatened biota and their habitats at the site. Mitigation measures recommended in this report include:

- Incorporation of mitigation actions identified in the Flora and Fauna Working Paper (GHD, 2010a) within a Construction Environmental Management Plan for the Proposal.
- Establishment of an offset strategy to offset residual impacts on native biota.

A copy of the Supplementary Flora and Fauna Assessment is contained in Appendix B.

3.2 Supplementary Aboriginal Cultural Heritage Assessment

3.2.1 Overview

A number of minor changes to the study area have been identified since the preparation of the environmental assessment, which are outside of the area originally investigated by South East Archaeology. Inspection and assessment of these areas is the subject of a supplementary report (South East Archaeology 2010b).

The minor changes to the study area include adjustments to the existing road network. Some of those roads would be modified to a standard suitable for use as service roads for the Proposal. The changes to the study area also include an extension to the proposed service road on the eastern side of the Proposal between the Maria River to the north of Stumpy Creek. These areas were not previously assessed as part of the detailed investigations.

The supplementary report prepared by South East Archaeology (2010b) is a confidential report that will not be released to the public in order to protect the Aboriginal heritage evidence referenced in the original confidential Aboriginal heritage report. A summary of the supplementary report is presented below.

3.2.2 Methodology

The survey was conducted using the same methodology as that approved by the registered Aboriginal stakeholders for the environmental assessment investigation (South East Archaeology 2010a). Some of the areas identified in the minor changes to the study area had been sampled during the environmental assessment investigation and therefore were not subject to further inspection.

Supplementary to the investigation undertaken for the Proposal (South East Archaeology 2010a), this additional assessment has involved:

- Review of previous searches of the DECCW Aboriginal Heritage Information Management System (AHIMS) and other relevant information.
- Archaeological survey of the study areas with representatives of the registered Aboriginal stakeholders following the same methodology and consultation procedures established for the main project (South East Archaeology 2010a). This was undertaken between 25 and 28 October 2010 by Stephen Free of South East Archaeology, accompanied within the Birpai LALC area by Lindsay Moran, within the Kempsey LALC area by Edward Smith and Troy Smith, and within the whole area by Isaac Campbell-Cook and Kevin Stewart of the Dunghutti Elders.
- Preparation of the supplementary report to present the results of the investigation, potential impacts of the Proposal and management recommendations.

3.2.3 Results

The total survey coverage (ground physically inspected for heritage evidence) equated to approximately 90,610 m^2. The total effective survey coverage (visible ground surface physically inspected with potential to host heritage evidence) equated to around 1042 m^2.

These totals do not include the previously surveyed areas. These totals also do not include portions of the investigation area that are 'modified' areas (including roads, houses, etc) which have been extensively impacted by previous works such that there is negligible potential for any Aboriginal heritage evidence to survive. Visual inspection was made of these modified areas to confirm that negligible potential for heritage evidence exists.

No Aboriginal heritage evidence was identified within the areas inspected and no Aboriginal heritage sites have previously been recorded in these locations. The registered Aboriginal stakeholders did not disclose any specific knowledge of any traditional or historical cultural values/places within these areas. However, the possibility cannot be excluded that traditional or historical Aboriginal values or associations may exist that were not divulged to South East Archaeology by the persons consulted.

The additional survey areas are located in areas that cannot be characterised as being within primary or secondary resource zones. Hence, consistent with the wider survey results and occupation model, a very low density of artefacts and potentially shallow low-density subsurface deposit of artefacts may occur. The potential for sub-surface deposits of artefacts that may be in situ and/or of research value is low to very low, considering the landscape formation history, shallow "A" unit soil, levels of ground disturbance and/or occupation model.

The potential for evidence in the areas totally impacted by recent land use is negligible.

3.2.4 Potential impacts

The potential impacts of the Proposal are presented in the Aboriginal Heritage Working Paper contained in Volume 3 of the environmental assessment and remain essentially unaltered. The Proposal will not result in any impacts to any identified heritage evidence within the area assessed for this supplementary report. The Proposal will not result in any material change to the extent of potential impacts as assessed in the environmental assessment (South East Archaeology 2010a) to the:

- Areas of cultural sensitivity (A-E);
- Areas of moderate to high potential for artefact deposits of research value around the
- Maria River, Pipers Creek, Smiths Creek and Cooperabung Creek;
- Areas of high potential for artefact deposits of research value north of the Wilson River or Hastings River; or
- Areas of low potential for skeletal remains.

The predictive model remains unchanged from that presented in the Aboriginal Heritage Working Paper.

3.2.5 Management of impacts

The management and mitigation measures proposed in section 10 of South East Archaeology (2010a), with consideration of legal requirements under the *National Parks and Wildlife Act 1974* and *Environmental Planning and Assessment Act 1979*, the results of the survey and sub-surface investigations, and consultation with the local Aboriginal community, remain unaltered by this supplementary assessment.

Single copies of the supplementary report would be forwarded to the registered Aboriginal stakeholders for their review and comment, and final copies of the report forwarded to DECCW.

3.3 Median Widening Assessment – Preliminary Scoping Investigation

The Proposal includes the provision for aerial fauna crossings at several locations to assist arboreal fauna movement in key fauna corridors. This includes the provision of rope ladder crossings and glider poles. Advice from DECCW during the planning of recent Pacific Highway upgrade projects led the RTA to initiate a median widening assessment in July 2010 to investigate the feasibility of widening the median at some of the locations identified in the Proposal for aerial fauna crossings (glider poles).

The median widening assessment would be developed as a three stage process.

- Preliminary scoping investigation. Identifying potential aerial crossing sites and the review of existing project information to determine the suitability of adopting median widening at the sites.
- Stage 1 – Detailed investigation. The sites identified as requiring further investigation would be subject to detailed investigation during the detailed design phase in consultation with DECCW.
- Stage 2 – Finalisation and approval.

A copy of the preliminary scoping investigation is attached to this submissions report in *Appendix C - Median Widening Assessment – Preliminary Scoping Investigation (GHD, 2011)*.

The preliminary scoping investigation identified the following three locations that will require further investigated for the potential for median widening as part of the Stage 1 of the assessment:

- Cairncross State Forest (Ch: 10000 to 11160).
- Ballengarra State Forest (Ch: 23200 to 23940).
- Maria River State Forest (Ch: 33760 to 34380).

Further investigation of the above sites as part of the Stage 1 assessment during the detailed design would include:

- Preliminary engineering design and cost analysis.
- Field investigations as necessary.
- Consultation with affected landowners and relevant agencies.
- Analysis to qualify the benefits and impacts based on the preliminary designs.
- Confirmation of those sites where median widening would be feasible and reasonable.

Following completion of the above tasks a workshop involving the RTA and relevant agencies to discuss the outcomes of the assessment.

4 Revised Statement of Commitments

The environmental assessment for the Oxley Highway to Kempsey Pacific Highway upgrade identified a range of environmental outcomes and management measures that would be required to avoid or reduce the environmental impacts.

After consideration of the issues raised in the public submissions, the draft statement of commitments for the Oxley Highway to Kempsey Pacific Highway upgrade (refer to section 8 of the environmental assessment) has been revised. Should the project be approved, the revised commitments will guide the subsequent phases of the Oxley Highway to Kempsey Pacific Highway upgrade development.

The following definitions apply in relation to the revised statement of commitments:

Pre-construction	Work in respect of the project that includes design, survey, acquisitions, fencing, investigative drilling or excavation, building/road dilapidation surveys, minor clearing (except where threatened species, populations or ecological communities would be affected), establishing ancillary facilities such as site compounds in locations which meet criteria identified in the environmental assessment, or other relevant activities determined to have minimal environmental impact (eg minor access tracks and adjustments to services/utilities etc).
Construction	All work in respect of the project other than that defined as a pre-construction activity/work.
Operation	The operation of the project, but not including commissioning trials of equipment, or temporary use of parts of the project during construction.

The revised statement of commitments, including commitments relating to the key issues described in the Director-General's environmental assessment requirements is provided in table 4-1. Additional and/or modified commitments to those presented in the draft statement of commitments have been highlighted and deleted commitments, or parts of commitments, have been ~~struck out~~.

Table 4-1 Revised statement of commitments

Outcome	Ref. number	Key action	Timing	Reference document
Environmental management				
Compliance and continual improvement in environmental management.	EM1	The head contractor for the Proposal will have an environmental management system.	Pre-construction	ISO 14001. RTA *QA Specification G36 Environmental Protection (Management System).* All relevant RTA policies, specifications, guidance notes and environmental directions.
	EM2	Suitable qualified and experienced personnel will develop and implement project-specific environmental management plans and procedures. The environmental management plans and procedures will incorporate management measures identified in the environmental assessment.	Pre-construction and construction.	RTA *QA Specification G36 Environmental Protection (Management System).* All relevant RTA policies, specifications, guidance notes and environmental directions.
	EM3	A construction resource plan will be developed to ensure there are adequate resources to undertake the proposed works according to programme.	Pre-construction and construction.	All relevant RTA policies, specifications, guidance notes and environmental directions.
	EM4	The head contractor will implement a construction environmental management plan.	Pre-construction and construction.	RTA *QA Specification G36 Environmental Protection (Management System).* All relevant RTA policies, specifications, guidance notes and environmental directions.

Outcome	Ref. number	Key action	Timing	Reference document
Communication and consultation				
An informed community.	CC1	The community will be provided with regular project updates, given prior notice of project activities and provided contact details for enquiries. Where required, affected individuals or groups will be consulted directly and provided with targeted notifications (eg watercourse users and noise affected residences).	Pre-construction and construction.	*Community Involvement and Communications, Draft: A resource manual for staff June 2008* AS 4269 *Complaints Handling.*
	CC2	The community will be able to make complaints using the project's 24-hour toll free complaints number or the project web page. The number will be publicised and the project-specific web page will include directions on how to register a complaint. All complaints will be acknowledged within a specified timeframe, recorded and tracked until resolved.	Pre-construction and construction.	Community Involvement and Communications, Draft: A resource manual for staff June 2008. AS 4269 Complaints Handling.
	CC3	A community consultation plan will be implemented.	Pre-construction and construction.	*Community Involvement and Communications, Draft: A resource manual for staff June 2008.*
	CC4	Consultation will take place between the RTA and Forests NSW and all other necessary agencies to agree management principles for Crown land.	Pre-construction and construction.	All relevant RTA policies, specifications, guidance notes and environmental directions.

Outcome	Ref. number	Key action	Timing	Reference document
Land use and property				
Provide appropriate level of compensation in relation to property acquisitions.	LP1	All property acquisitions will be negotiated in accordance with the RTA Land Acquisitions, Policy Statement and compensation will be assessed under the provisions of the Land Acquisition (Just Terms Compensation) Act 1991.	Pre-construction	RTA *Land Acquisitions, Policy Statement. Land Acquisition (Just Terms Compensation) Act 1991.*
Maintain highway Access.	LP2	Where alternative access arrangements are not feasible or practical and a property is left with no access to a public road, negotiations will be undertaken with the relevant property owners for the acquisition of the property in accordance with the provisions of the *Land Acquisition (Just Terms Compensation) Act 1991*.	Pre-construction, construction and operation.	RTA *Land Acquisitions, Policy Statement. Land Acquisition (Just Terms Compensation) Act 1991*.
Maximise use of existing forestry resources.	LP3	Forests NSW will have access to areas of state forest land identified for acquisition to remove any harvestable timber within the footprint of the Proposal.	Pre-construction and construction.	
Access to water supply for properties maintained.	LP4	Where a licensed bore, dam or other property water supply is adversely affected the RTA will investigate an alternative source of water or negotiate compensation with the property owner.	Pre-construction, construction and operation.	
Minimise socioeconomic impacts during construction and operation.	SE1	On-going consultation with potentially affected community and businesses will occur prior to and during construction to address concerns and issues and to identify any adaptive management requirements where feasible and reasonable.	Pre-construction.	Community Involvement and Communications, Draft: A resource manual for staff June 2008.

Outcome	Ref. number	Key action	Timing	Reference document
	SE2	Adequate signage will be implemented during construction and operation to ensure businesses and their patrons are aware of new access routes and/or potential disruptions.	Construction.	All relevant RTA policies, specifications, guidance notes and environmental directions.
	SE3	Occupation and use of compounds and work sites will minimise disturbance to adjacent residents by managing, and minimising where possible: the movement of vehicles, particularly outside of standard working hours; providing temporary noise attenuation (eg, shielding) if practicable; and providing screening to minimise visual intrusion.		RTA *QA Specification G36 Environmental Protection (Management System).*
	SE4	Traffic management procedures to minimise disruption.	Construction.	All relevant RTA policies, specifications, guidance notes and environmental directions.
	SE5	Adopt a construction environmental management plan to minimise amenity impact.	Construction.	RTA *QA Specification G36 Environmental Protection (Management System).*
	SE6	Management of acid sulfate soils to minimise impacts on priority oyster aquaculture areas.	Construction.	RTA *QA Specification G36 Environmental Protection (Management System).*

Outcome	Ref. number	Key action	Timing	Reference document
Surface and groundwater				
Minimise water quality impacts.	SGW1	Bunded areas will be used for storage of oils, chemicals, toxic substances and combustible liquids, and for potentially hazardous and contaminating activities (eg washing construction vehicles, plant and equipment, handling and pouring hazardous materials and liquids etc).	Construction.	RTA *QA Specification G38 Soil and Water Management (Soil and Water Management Plan).* *AS 1940 The storage and handling of flammable and combustible liquids.* *DECC Bunding and Spill Management Guidelines (in DECC Environment Protection Manual for Authorised Officers).* RTA *Code of Practice for Water Management 1999.*
				Managing Urban Stormwater: Soils and Construction, Volume 2D, Main Road Construction. RTA's *Guidelines for the Control of Erosion and Sedimentation in Roadworks.*

Outcome	Ref. number	Key action	Timing	Reference document
	SGW2	Spills will be contained immediately and will be stored in bunded areas until disposal. Spills will be disposed of at a facility that is licensed to receive the waste, or may be disposed of after appropriate treatment.	Construction.	RTA *QA Specification G38 Soil and Water Management (Soil and Water Management Plan).* *AS 1940 The storage and handling of flammable and combustible liquids.* *DECC Bunding and Spill Management Guidelines (in DECC Environment Protection Manual for Authorised Officers).* RTA *Code of Practice for Water Management 1999.* *Managing Urban Stormwater: Soils and Construction, Volume 2D, Main Road Construction.* RTA's *Guidelines for the Control of Erosion and Sedimentation in Roadworks.*

Outcome	Ref. number	Key action	Timing	Reference document
	SGW3	Water quality will be monitored upstream and downstream of the Proposal site during construction to determine the effectiveness of mitigation strategies. The monitoring program will be developed in consultation with DECCW.	Pre-construction and construction.	*Managing Urban Stormwater: Soils and Construction, Volume 2D, Main Road Construction.* *Managing Urban Stormwater: Soils and Construction, Volume 1.* *The RTA's Code of Practice for Water Management – Road Development and Management.* RTA *QA Specification G38 Soil and Water Management (Soil and Water Management Plan).*
	SGW4	Specific work method statements for in-stream works will be developed and implemented in consultation with relevant government agencies.	Pre-construction and construction.	*Managing Urban Stormwater: Soils and Construction, Volume 2D, Main Road Construction.* *The RTA's Code of Practice for Water Management – Road Development and Management.* RTA *QA Specification G38 Soil and Water Management (Soil and Water Management Plan).*

Outcome	Ref. number	Key action	Timing	Reference document
	SGW5	Sediment and erosion control measures will be implemented during the construction and the post construction rehabilitation process.	Construction and operation.	RTA *QA Specification G38 Soil and Water Management (Soil and Water Management Plan).* *Managing Urban Stormwater: Soils and Construction, Volume 2D, Main Road Construction (DECC, 2008).*
	SGW6	The potential for changes in the groundwater table will be further investigated before any major earthworks (defined as a cut or fill with a depth or height exceeding five metres) are undertaken. Where a potential for change is identified, the significance of the change and any resultant impacts will be determined. Where necessary, measures to manage the changes will be designed and implemented.	Pre-construction and construction.	The RTA's Code of Practice for Water Management – Road Development and Management. RTA QA Specification G38 Soil and Water Management (Soil and Water Management Plan).
	SGW7	Areas of potential acid sulfate soils and actual acid sulfate soils will be confirmed and managed in accordance with standard environmental management measures.	Pre-construction and construction.	*Acid Sulfate Soils Manual.* RTA *QA Specification G38 Soil and Water Management (Soil and Water Management Plan).* *Guidelines for the Management of Acid Sulphate materials: Acid Sulphate Soils, Acid Sulphate Rock and Monosulfidic Black Ooze.*
Minimise impacts to waterways.	SGW8	Design to be sensitive to stream morphology, reduce sour and minimise impacts to vegetation.	Pre-construction and construction.	All relevant RTA policies, specifications, guidance notes and environmental directions.

Outcome	Ref. number	Key action	Timing	Reference document
	SGW9	The detailed design of minor waterway crossing structures will be refined during detailed design to maximise hydraulic performance.	Pre-construction.	All relevant RTA policies, specifications, guidance notes and environmental directions.
Minimise impacts to geomorphology.	SGW10	Measures to mitigate potential impacts on local geomorphology will be investigated during detailed design.	Pre-construction.	All relevant RTA policies, specifications, guidance notes and environmental directions. RTA *QA Specification G38 Soil and Water Management (Soil and Water Management Plan).*
Maximise water efficiency.	SGW11	A water management plan will be developed to ensure water resources are used in the most efficient manner with a focus on achieving water savings and targeting water recycling and re-use.	Pre-construction and construction.	RTA *Specification G38 Soil and Water Management (Soil and Water Management Plan).*
Flora and fauna				
Minimise impacts on native vegetation, fauna and their habitats.	F1	Detailed design will minimise the area of native vegetation and habitat to be cleared wherever reasonable and feasible.	Pre-construction.	RTA *QA Specification G36 Environmental Protection (Management System).*
	F2	The limits of clearing and other native vegetation disturbance will be clearly marked on relevant work plans and on site with temporary fencing installed prior to clearing.	Construction.	RTA *QA Specification G36 Environmental Protection (Management System).* RTA *QA Specification B30 - Clearing, Excavation & Backfill for Bridgeworks.* RTA *QA Specification R178 – Vegetation.*
	F3	Rehabilitation and revegetation will be undertaken in stages and as early as practicable to restore and enhance habitat opportunities.	Construction and operation.	RTA *QA Specification G36 Environmental Protection (Management System).*

Outcome	Ref. number	Key action	Timing	Reference document
	F4	Habitat features and resources for native fauna (such as hollow-bearing trees, hollow logs, nest boxes and bush rocks) impacted by the Proposal will be relocated where feasible and reasonable. Such relocation will be undertaken in a manner to limit damage to existing vegetation and will not occur in high condition remnant vegetation.	Pre-construction and construction.	RTA *QA Specification G36 Environmental Protection (Management System).*
	F5	Native and locally indigenous plants will be used in the landscaping and disturbed areas will be progressively revegetated.	Construction and operation.	RTA *QA Specification G36 Environmental Protection (Management System).*
Minimise adverse impacts on aquatic habitat and fish species.	F6	Watercourse crossings will be designed to facilitate fish passage where appropriate and in consultation with relevant government agencies.	Pre-construction.	RTA *QA Specification G36 Environmental Protection (Management System).* *Fishnote: Policy and Guidelines for Fish Friendly Waterway Crossings.* *Policy and Guidelines for Design and Construction of Bridges, Roads, Causeways, Culverts and Similar Structures.* *Fish Passage Requirements for Waterway Crossings.*
	F7	Water quality control measures will be installed as early as possible in the construction program and will be designed / selected to meet identified receiving water objectives.	Pre-construction.	RTA *QA Specification G36 Environmental Protection (Management System).* RTA *QA Specification G38 Soil and Water Management (Soil and Water Management Plan).*

Outcome	Ref. number	Key action	Timing	Reference document
	F8	A weed management strategy would be developed as part of the construction environmental management plan.	Construction and operation.	*All relevant RTA policies, specifications, guidance notes and environmental directions.*
Manage impacts on threatened plant species where possible.	F9	Threatened plants in proximity to the Proposal that are to be retained will be identified by pre construction surveys and protected during construction through exclusion fencing and education of construction workers through the site induction process.	Pre-construction.	RTA *QA Specification G36 Environmental Protection (Management System).*
	F10	The feasibility of relocating individuals of threatened species to suitable habitat will be investigated.	Pre-construction.	RTA *QA Specification G36 Environmental Protection (Management System).* *Australian Network for Plant Conservation 2004 guidelines.*
	F11	Consideration would be given to constructing artificial frog ponds if appropriate.	Pre-construction and construction.	RTA *QA Specification G36 Environmental Protection (Management System).*
Minimise impacts on native fauna during construction.	F12	A suitably qualified ecologist will undertake preclearance surveys. Searches will include nests and large hollow-bearing trees and target habitats of hollow-dwelling species, koalas and frogs. Fauna species found in pre-clearance surveys will be relocated to suitable habitat as close as possible to the area in which they were found.	Pre-construction and construction.	RTA *QA Specification G36 Environmental Protection (Management System).*
	F13	Where feasible and reasonable, removal of frog habitat along drainage lines will not be undertaken during periods of wet weather.	Construction.	RTA *QA Specification G36 Environmental Protection (Management System).*

Outcome	Ref. number	Key action	Timing	Reference document
	F14	The construction contractor will maintain contact details for local DECCW officers, WIRES and/or other relevant local wildlife carer groups.	Pre-construction and construction.	RTA *QA Specification G36 Environmental Protection (Management System).*
	F15	Surveys will be undertaken for threatened bat species by a suitably qualified ecologist to identify any roosting bats prior to the demolition of the existing highway bridges. Any bats will be moved and relocated following consultation with DECCW.	Pre-construction and construction.	RTA *QA Specification G36 Environmental Protection (Management System).*
	F16	Development of a nest box strategy will be undertaken.	Pre-construction.	RTA *QA Specification G36 Environmental Protection (Management System).*
Maintain terrestrial fauna connectivity.	~~F16~~ F17	Culverts and bridges identified in the Environmental Assessment as having a potential role in fauna crossing will be designed to facilitate fauna movements where feasible and reasonable.	Pre-construction.	RTA *QA Specification G36 Environmental Protection (Management System).* RTA *QA Specification B30 - Clearing, Excavation & Backfill for Bridgeworks.*
	F18	The feasibility of widening the median will be further investigated in consultation with DECCW during the detailed design.	Pre-construction.	RTA *QA Specification G36 Environmental Protection (Management System).*
Limit opportunities for animals to access the highway.	~~F17~~ F19	Fauna exclusion fencing (eg floppy-top fencing) will be erected along the Proposal at appropriate locations to direct fauna movement towards fauna crossing structures.	Pre-construction.	RTA *QA Specification G36 Environmental Protection (Management System).*
Offset the residual impacts of the Proposal on key habitat.	~~F18~~ F20	An agreement will be developed in negotiation with Department of Planning and in consultation with DECCW for habitat offsets.	Pre-construction and construction.	RTA *QA Specification G36 Environmental Protection (Management System).* *RTA Compensatory Habitat Policy and Guideline (draft).*

Outcome	Ref. number	Key action	Timing	Reference document
Determine effectiveness of flora and fauna mitigation measures.	~~F19~~ F21	A monitoring program will be developed to allow the effectiveness of mitigation and offset measures to be assessed and allow for their modification if necessary. The program will be for a minimum of 12 months after construction completion.	Pre-construction, construction and operation.	*RTA QA Specification G36 Environmental Protection (Management System).*
Noise and vibration				
Construction noise				
Minimise construction noise and vibration impacts.	CN1	All feasible and reasonable mitigation and management measures to minimise construction noise and vibration at sensitive receivers will be investigated. Noise and vibration will be monitored to measure against predicted levels. Where required, feasible and reasonable mitigation measures will be implemented.	Pre-construction and construction.	*Environmental Noise Management Manual.* *Interim Construction Noise Guideline (DECC).*
	CN2	All reasonable attempts will be made to contact sensitive receivers that will be affected by blasting at least 48 hours prior. Blasting will normally be limited to between 9am and 5pm Monday to Friday and between 9am and 1pm Saturday. No blasting will take place outside these hours without approval from Department of Planning and following consultation with and/or notification of local residents and DECCW.	Construction.	*Technical Basis for Guidelines to Minimise Annoyance Due to Blasting Overpressure and Ground Vibration. Community Involvement and Communications, Draft: A resource manual for staff June 2008.*

Outcome	Ref. number	Key action	Timing	Reference document
	CN3	Construction will normally be limited to the following hours: • Between 6am and 6pm Monday to Friday. • Between 7am and 4pm Saturday. There would be no works outside these hours, or on Sundays or public holidays, except: a) For works that do not cause construction noise to be audible at any sensitive receivers. b) For the delivery of materials required outside these hours by the Police or other authorities for safety reasons. c) Where work is required in an emergency to avoid the loss of lives, property and/or to prevent environmental harm. d) For any other work as agreed through negotiations between the RTA and potentially affected sensitive receivers. Any such agreement must be recorded in writing and a copy kept on site for the duration of the works.	Construction.	*Interim Construction Noise Guideline (DECC). Community Involvement and Communications, Draft: A resource manual for staff June 2008.*

Outcome	Ref. number	Key action	Timing	Reference document
		e) Where the work is identified in the construction noise and vibration management plan and approved as part of the construction environmental management plan. f) As otherwise agreed by the DECCW. Local residents and the DECCW will be informed of the timing and duration of work approved under items (d) and (e) at least 48 hours before that work commences. Hours of work will be addressed in the construction noise and vibration management plan, which will be finalised in consultation with the Department of Planning and the DECCW.		
Operational noise				
Operational noise and vibration managed.	ON1	Where required, reasonable and feasible noise and vibration management measures will be further developed and implemented during detailed design in consultation with relevant property owners.	Pre-construction and construction.	*Environmental Criteria for Road Traffic Noise.* *Environmental Noise Management Manual.*
Determine effectiveness of operational noise control measures.		Operational noise will be monitored within one year after construction is finished. If monitoring indicates a clear trend that traffic noise levels exceed those predicted, all further feasible and reasonable measure will be investigated. Any additional mitigation measures will be developed in consultation with a suitably qualified and experienced acoustic specialist and the affected property owner.	Operation.	*Environmental Criteria for Road Traffic Noise.* *Environmental Noise Management Manual.*

Outcome	Ref. number	Key action	Timing	Reference document
Visual amenity and design				
Maintained or enhanced Landscape character.	VAD1	A detailed urban and landscape design plan would be developed during the detailed design phase. The detailed design and implementation of built elements (such as new carriageways, bridges and roadside furniture) and landscapes, and the mitigation of residual impacts will be undertaken in accordance with the visual and design objectives and principles of the Proposal.	Pre-construction and construction.	*Beyond the Pavement RTA Urban Design Policy, Procedures and Design Principles.* *RTA Bridge Aesthetics.* RTA *Landscape Guideline.*
Visual impacts are mitigated over the long-term and ongoing maintenance of urban design elements and landscape is minimised.	VAD2	Built elements will be robust, long-lasting, replaceable and easy to maintain materials and designs.	Pre-construction and construction.	*Beyond the Pavement RTA Urban Design Policy, Procedures and Design Principles.* *RTA Bridge Aesthetics.* RTA *Landscape Guideline.*
Minimise the visual impact of the Proposal.	VAD3	The schedule of species to be used in the landscaping treatments will include self-sustaining native and locally indigenous plants that will be selected in consultation with a qualified landscape officer.	Pre-construction and construction.	RTA *QA Specification R179 – Landscape Planting.* RTA *QA Specification R178 – Vegetation.*
	VAD4	Disturbed areas will be progressively revegetated with consideration to related controls such as erosion and sedimentation controls, drainage and future road user safety requirements.	Construction and operation.	RTA *QA Specification R179 – Landscape Planting.* RTA *QA Specification R178 – Vegetation.*
	VAD5	Design criteria will be applied during detailed design to reduce any potential adverse visual impacts to the existing landscape character and visual amenity.	Pre-construction.	*Beyond the Pavement RTA Urban Design Policy, Procedures and Design Principles.* *RTA Bridge Aesthetics.* RTA *Landscape Guideline.*

Outcome	Ref. number	Key action	Timing	Reference document
Maintenance and management of landscaping.	VAD6	Landscaped or rehabilitated areas will be monitored and maintained for a minimum of two years after opening.	Construction and operation.	RTA *QA Specification R179 – Landscape Planting.* RTA *QA Specification R178 – Vegetation.*
Traffic and transport				
Resolution of damage to roads as a result of construction.	T1	Pre-construction dilapidation reports will be prepared for all non-arterial roads likely to be used by construction traffic. Copies of the reports will be provided to the relevant roads authority.	Pre-construction.	RTA *QA Specification G36 Environmental Protection (Management System).* *All relevant RTA policies, specifications, guidance notes and environmental directions.*
	T2	Post–construction dilapidation reports will be prepared for the roads assessed in T1 above. Copies of the reports will be provided to the relevant roads authority. Any damage resulting from construction, (not normal wear and tear), will be repaired or an alternative arrangement for road damage will be agreed with the relevant roads authority.	Operation.	RTA *QA Specification G36 Environmental Protection (Management System).* *All relevant RTA policies, specifications, guidance notes and environmental directions.*
	T3	Construction vehicle movements, work programs and traffic control measures will be planned to avoid or minimise impacts on traffic through the implementation of all feasible and reasonable design, and mitigation and management measures.	Pre-construction construction.	RTA *Traffic Control at Work Sites.* RTA *QA Specification G10 Control of Traffic.*
Impacts to waterway users minimised.	T4	The centre spans of the bridges over the Hastings River and the Wilson River will be no lower in height than the existing bridges to ensure navigational clearance is maintained.	Pre-construction.	

Outcome	Ref. number	Key action	Timing	Reference document
Informed residents.	T5	Consultation with those residents whose access will be affected during construction will be undertaken.	Pre-construction construction.	*Community Involvement and Communications, Draft: A resource manual for staff June 2008.* *AS 4269 Complaints Handling.*
Safer cycling and pedestrian movement.	T6	Signposting and crossing points will be provided for cyclists at the on and off ramps at interchanges offering a safer cycling and pedestrian environment.	Operation.	All relevant RTA policies, specifications, guidance notes and environmental directions.
Reliable public transport.	T7	Provision will be made to maintain access for the existing bus operation.	Construction.	All relevant RTA policies, specifications, guidance notes and environmental directions.
Aboriginal heritage				
Minimise the impact on Aboriginal heritage.	AH1	An Aboriginal heritage management plan will be developed to document procedures, management measures and protocols to minimise impacts.	Pre-construction and construction.	RTA *Procedure for Aboriginal cultural heritage consultation and investigation. Aboriginal cultural heritage: standards and guidelines kit (DECC).* *Protecting Aboriginal objects and places - interim guidelines for community consultation (DECC).*

Outcome	Ref. number	Key action	Timing	Reference document
	AH2	Items and areas of archaeological significance not directly affected will be protected during construction.	Pre-construction and construction.	RTA *Procedure for Aboriginal cultural heritage consultation and investigation. Aboriginal cultural heritage: standards and guidelines kit (DECC).* *Protecting Aboriginal objects and places interim guidelines for community consultation (DECC).* *National Parks and Wildlife Act 1974.*
	AH3	Protocols will be established and implemented should any previously unidentified Aboriginal objects or human skeletal remains be encountered during construction works on the project. All works in the vicinity of the find will cease until Police and Aboriginal heritage specialist advice is obtained and the DECCW.	Construction.	RTA *Procedure for Aboriginal cultural heritage consultation and investigation. National Parks and Wildlife Act 1974.* *Protecting Aboriginal objects and places - interim guidelines for community consultation (DECC).*
	AH4	Any Aboriginal heritage items directly affected will be managed in consultation with Aboriginal stakeholders and the DECCW.	Pre-construction and construction.	RTA *Procedure for Aboriginal cultural heritage consultation and investigation. National Parks and Wildlife Act 1974.* *Protecting Aboriginal objects and places - interim guidelines for community consultation (DECC).*

Outcome	Ref. number	Key action	Timing	Reference document
	AH5	All construction personnel will receive Aboriginal heritage awareness training on their obligations for protection of Aboriginal cultural materials, including information on site locations, conservation management requirements and legal obligations in regard to Aboriginal cultural materials.	Pre-construction.	RTA *Procedure for Aboriginal cultural heritage consultation and investigation. National Parks and Wildlife Act 1974.*
Ensuring on-going Aboriginal participation.	AH6	The RTA will comply with the NSW Government's Aboriginal Participation in Construction Guidelines.	Pre-construction and construction.	RTA *Procedure for Aboriginal cultural heritage consultation and investigation.* *NSW Government's Aboriginal Participation in Construction Guidelines (2007).*
	AH7	The RTA will consult with the Birpai Local Aboriginal Land Council regarding management of any potential adverse impacts on the identified sensitive site in accordance with the aboriginal heritage management plan.	Pre-construction and construction.	RTA *Procedure for Aboriginal cultural heritage consultation and investigation.* *NSW Government's Aboriginal Participation in Construction Guidelines (2007).*
Air quality				
	AQ1	Feasible and reasonable mitigation measures will be adopted to minimise windblown, traffic-generated or equipment-generated dust and emissions.	Construction.	*Protection of the Environment Operations Act 1997.* RTA *QA Specification G36 Environmental Protection (Management System).*
	AQ2	Dust generating activities will stop where visible dust is being emitted outside the construction corridor and when dust suppression methods are ineffective.	Construction.	RTA *QA Specification G36 Environmental Protection (Management System).*

Outcome	Ref. number	Key action	Timing	Reference document
Climate change and greenhouse gas emissions				
	CG1	Energy efficient work practices will be adopted to limit energy use. Where reasonable and feasible, equipment and management measures will be adopted to minimise energy use and greenhouse gas production. Minimise vegetation clearance where possible.	Pre-construction and construction.	RTA *QA Specification G36 Environmental Protection (Management System).*
	CG2	A lighting scheme will be developed during detailed design. The aim of the design will be to minimise the use of lighting.	Pre-construction.	RTA *Pacific Highway Design Guidelines.*
Non-Aboriginal heritage				
Minimise impacts on non-Aboriginal heritage items.	NAH1	The detailed design will minimise impacts to the identified non-Aboriginal heritage items where feasible and reasonable.	Pre-construction.	*Heritage Act 1977.* RTA *QA Specification G36 Environmental Protection (Management System).*
	~~NAH4~~ NAH2	A non-Aboriginal heritage management plan will be developed.	Pre-construction.	*Heritage Act 1977.* RTA *QA Specification G36 Environmental Protection (Management System).*
	NAH3	Staff will receive training with respect to identifying items of non-Aboriginal heritage during construction and the correct methods of communication on the worksite.	Construction.	*Heritage Act 1977.* RTA *QA Specification G36 Environmental Protection (Management System).*
	~~NAH2~~ NAH4	If any material of potential archaeological significance is unearthed, work will cease until specialist heritage advice has been obtained. Should any material of potential archaeological significance be unearthed, the Heritage Branch would be notified.	Pre-construction and construction.	*Heritage Act 1977.* RTA *QA Specification G36 Environmental Protection (Management System).*

Outcome	Ref. number	Key action	Timing	Reference document
Waste minimisation and management				
	WMM1	The 'waste hierarchy' (avoid/reuse/recycle/ resource recovery/disposal) will be maximised during construction; incorporated into work programs, purchase strategies and site inductions; and will be assessed quarterly to identify opportunities for improvement. Recycled materials will be used where feasible.	Construction.	*NSW Government's Waste Reduction and Purchasing Policy.* *Protection of the Environment Operations Act 1997.*
	WMM2	Staff to be trained in waste reduction.	Construction.	*NSW Government's Waste Reduction and Purchasing Policy.* *Waste Avoidance and Resource Recovery Act 2001* *Relevant DECCW Waste management and classification guidelines.*
	WMM3	A waste register to be developed during construction.	Construction.	*NSW Government's Waste Reduction and Purchasing Policy.* *Waste Avoidance and Resource Recovery Act 2001* *Relevant DECCW Waste management and classification guidelines.*

Outcome	Ref. number	Key action	Timing	Reference document
	WMM4	Any waste material that is unable to be re-used, reprocessed or recycled will be disposed at a facility approved to receive that type of waste. Waste will be disposed at a facility licensed to accept that classification of waste.	Construction and operation.	*NSW Government's Waste Reduction and Purchasing Policy.* *Waste Avoidance and Resource Recovery Act 2001* *Relevant DECCW Waste management and classification guidelines.*
Contamination				
Manage potential areas of Contaminated material.	C1	Areas of potential contamination identified during preconstruction and construction activities will be further investigated and appropriately managed.	Pre-construction and construction.	*Relevant DECCW Waste management and classification guidelines.* RTA *Contaminated Land Management Guideline.* *DECCW Guidelines for NSW Site Auditor Scheme.* *Contaminated Land Management Act 1997.*

Outcome	Ref. number	Key action	Timing	Reference document
Geology and soils				
Erosion and sedimentation minimised.	GS1	Erosion and sedimentation management and control measures will be designed and installed with the advice of a soil conservationist. Controls will be inspected regularly, maintained and managed to maximise their effectiveness.	Pre-construction and construction.	RTA *Erosion and Sedimentation Risk Assessment Procedure 2004.* RTA *QA Specification G38 Soil and Water Management (Soil and Water Management Plan).* *Managing Urban Stormwater: Soils and Construction, Volume 2D, Main Road Construction (DECC, 2008).* RTA *QA Specification 40 Clearing and Grubbing.* RTA *QA Specification R178 Vegetation.* RTA *Stockpile Management Procedures 2001.*
	GS2	Acid Sulphate Soil Management Plan will be developed to outline strategies that will be implemented to manage potential impacts of development works that are likely to disturb acid sulfate soils.	Construction.	*Acid Sulfate Soils Manual.* RTA *Guidelines for the Management of Acid Sulphate materials: Acid Sulphate Soils, Acid Sulphate Rock and Monosulfidic Black Ooze.*
Confirm ground conditions.	GS3	Geotechnical investigations will be undertaken as part of the detailed design phase to confirm preliminary geotechnical investigative works.	Pre-construction.	*All relevant RTA policies, specifications, guidance notes and environmental directions.*

Outcome	Ref. number	Key action	Timing	Reference document
	GS4	Geomorphologic investigations will be undertaken during the detailed design phase to determine bank and riverbed stability.	Pre-construction.	*All relevant RTA policies, specifications, guidance notes and environmental directions.*
Manage construction spoil.	GS5	A spoil management strategy will be identifying opportunities for re-using the material onsite and locations outside the Proposal for re-use or disposal. Re-use onsite will be the priority.	Pre-construction.	*All relevant RTA policies, specifications, guidance notes and environmental directions.*
Minimise potential adverse impacts to banks.	GS6	Detailed design of cut slopes and embankments will be undertaken to ensure there will be minimal long term adverse impacts to banks.	Pre-construction.	RTA *guidelines R44 Earthworks.*
Utility services				
Minimise disruption to utilities and services.	US1	Utilities and services potentially affected by construction will be identified and requirements for their diversion, protection and / or support identified. Alterations to services will be determined in negotiation with the service providers and will ensure that disruption to services resulting from the project are limited and advised to customers.	Pre-construction and construction.	RTA *QA Specification G36 Environmental Protection (Management System).* RTA *QA Specification G35 Environmental Protection (Management Plan).*

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