New South Wales Government

RTA

Submissions Report

Cameron's Corner

AUGUST 2009

RTA/Pub. 09.331

ISBN 978-1-921598-90-6

Roads and Traffic Authority

Waterfall Way realignment at Cameron's Corner

Submissions Report
August 2009

Prepared by:

Eco Logical Australia Pty Ltd
ABN 87 096 512 088

35 Orlando Street
PO Box 4433
COFFS HARBOUR JETTY NSW 2450

Document Tracking

Item	Detail	Signature
Project Name	Waterfall Way realignment at Cameron's Corner Submissions Report	
Project Number	09COFPLA-0002	
Prepared by	Sarah Wain Katie Maric Martin Stuart Nathan Smith	
Reviewed by	Simon Williams Michael Chilcott	
Status	Final	
Version Number	1	
File location	H:\Synergy\Projects\09COFPLA\0002 - Camerons Corner Submissions Report\Submissions Report\Report	

Acknowledgements
This document has been prepared by Eco Logical Australia Pty Ltd with support from the Roads and Traffic Authority, NSW.

CONTENTS

Executive Summary

This submissions report relates to the Review of Environmental Factors (REF) prepared for the Waterfall Way realignment at Cameron's Corner, and should be read in conjunction with that REF.

The REF was placed on public display and submissions relating to the proposal and the REF were received by the Roads and Traffic Authority, NSW (RTA). The RTA proposal would be approximately 550 metres in length and would be between 1.71 kilometres to 2.26 kilometres west of the Waterfall Way/Pacific Highway intersection.

The RTA received 46 submissions, during the public display period between 6 February and 9 March 2009. Of these submissions, 44 were received from individuals and two were received from government agencies. An additional submission was received after the public display period and was also accepted. Therefore, a total of 47 submissions are addressed in this submissions report.

The issues raised within the submissions have been included under the following sections of this submissions report:

- Project need and options considered.
- Consultation.
- Biodiversity.
- Water Quality and hydrology.
- Aboriginal heritage.
- Non-Aboriginal heritage.
- Climate change.
- Construction impacts.
- Statutory position.
- REF document.

This submissions report has considered the issues raised regarding the RTA's proposal. Issues raised have been summarised in this report and general responses provided. A range of recommendations has been identified following the review of submissions. The RTA has deferred work until those recommendations have been dealt with and funding is provided through the budget.

Prior to the Roads and Traffic Authority determining whether or not to proceed with the proposal it is recommended that:

- In consultation with the community and relevant stakeholders, an investigation of viable alternative options is undertaken. The options investigation would aim to avoid or minimise impact on the Swamp sclerophyll forest Endangered Ecological Community and Freshwater wetland Endangered Ecological Community. The options investigation would also take into account the issues raised during public display of the REF, including the tourism and economy issues.
- Field surveys targeting the Green-thighed frog (*Litoria brevipalmata)*, Hairy jointgrass (*Arthraxon hispidus)*, Southern swamp orchid (*Phaius australis*) and Square-stemmed spike-rush (*Eleocharis tetraquetra)* are undertaken to determine if these species are present within the study area. Where any of these are found to be present, an Environmental Planning and Assessment Act 1979 7-part test and/or Environment Protection and Biodiversity Conservation Act 1999 assessment of significance would be required to assess the impacts of the proposal.

- A heritage assessment to determine the cultural significance of the locality in accordance with the NSW Heritage Office's Manual for assessing heritage significance (2001) is prepared to clarify the cultural, social and visual significance of the study area.
- A flood assessment to confirm the required flood immunity is prepared. The assessment would take into account recent local flood events and the climate change data (from Department of Environment and Climate Change) for the Northern Rivers region.

Further assessment under the Environmental Planning and Assessment Act 1979 may be required if there are any changes to the proposal or to the findings of the REF as a result of the recommendations.

1. Introduction and background

1.1 Purpose

This submissions report relates to the Review of Environmental Factors (REF) prepared for the Waterfall Way realignment at Cameron's Corner (RTA 2009), and should be read in conjunction with that REF.

The REF was placed on public display and submissions relating to the proposal and the REF were received by the Roads and Traffic Authority, NSW (RTA). This submissions report summarises the issues raised and provides responses (Chapter 3). Prior to the RTA determining whether or not to proceed with the proposal, further investigations have been recommended (Chapter 4).

1.2 The proposal

The RTA proposes to realign Waterfall Way (Main Road 76) at Cameron's Corner. The proposal would be approximately 550 metres in length and would be between 1.71 kilometres to 2.26 kilometres west of the Waterfall Way/Pacific Highway intersection.

This section of Waterfall Way is located on the floodplain of the Bellinger River. The Bellinger River is located approximately 300 metres north of the study area. The surrounding environment is rural in nature with five rural residential dwellings located in the vicinity of the proposed works. Remnant vegetation and an associated wetland are located on the southern side of the road midway along the length of the proposal.

In this report, the term 'proposal footprint' refers to the area of direct impact. This includes the area encompassing the existing road and related infrastructure, the proposed realigned road, including all areas impacted by new shoulders, batters and drainage structures, as well as the proposed compound and stockpile site. The 'study area' includes the proposal footprint as well as the area surrounding the proposal footprint that may be indirectly impacted by the proposal.

1.3 REF display

The RTA prepared a REF to assess the environmental impacts of the proposed works. The REF was placed on public display between 6 February and 9 March 2009 at three locations, as detailed in Table 1-1. The REF was also placed on the RTA's website and made available for download. The display locations and website link were advertised in the Coffs Coast Advocate and the Bellingen Shire Courier-Sun.

In addition to the above public displays, an invitation to comment and a copy of the REF was sent directly to Bellingen Shire Council.

Table 1-1: REF display locations

Location	Address
Bellingen Shire Council	Hyde Street, Bellingen NSW 2454
Urunga Library	Bonville Street, Urunga, NSW 2455
Dorrigo Library	Pine Street, Dorrigo, NSW 2453

2. Submissions received

The RTA received 46 submissions, accepted up until the 9 March 2009. Of these submissions, 44 were received from individuals and two were received from government agencies. An additional submission was received after the public display period and was also accepted. Therefore, a total of 47 submissions are addressed in this submissions report.

Table 2-1 lists the respondents and the submission number allocated to each respondent. The table also indicates where the issues from each submission have been addressed in this submissions report.

Table 2-1: Respondents

Respondent	Submission No.	Section number where issues are addressed
Community Survey	1	3.2.1, 3.2.2, 3.3, 3.4.1, 3.4.2, 3.4.4, 3.4.5, 3.4.6, 3.5.1, 3.5.2, 3.6, 3.7, 3.9, 3.10
Individual	2	3.2.2, 3.3, 3.4.1, 3.4.2, 3.4.3, 3.4.4, 3.4.5, 3.4.7, 3.5.2, 3.6, 3.9, 3.11, 3.12
Individual	3	3.2.2, 3.4.1, 3.4.2, 3.4.4, 3.5.1, 3.9
Individual	4	3.2.2, 3.4.4, 3.4.5
Individual	5	3.2.2
Individual	6	3.2.2
Individual	7	3.5.2
Individual	8	3.2.2, 3.4.1, 3.4.4, 3.4.5, 3.4.6, 3.4.7, 3.7, 3.11
Individual	9	3.2.2, 3.3, 3.4.1, 3.4.2, 3.4.4, 3.4.5, 3.4.6, 3.5.1, 3.5.2, 3.7, 3.12
Individual	10	3.2.2
Individual	11	3.2.2, 3.4.1, 3.4.2, 3.4.4, 3.5.2
Bellingen Shire Council	12	3.2.2, 3.4.2, 3.4.4
Individual	13	3.2.2
Individual	14	3.2.2, 3.3, 3.4.1, 3.4.2, 3.4.4, 3.5.1, 3.5.2, 3.7
Individual	15	3.2.2, 3.4.4
Individual	16	3.2.2, 3.4.4, 3.7
Individual	17	3.2.2, 3.3, 3.4.1, 3.5.2, 3.7
Individual	18	3.2.2, 3.5.1, 3.5.2, 3.12
Individual	19	3.2.2, 3.3, 3.4.1, 3.4.2, 3.4.4, 3.5.1, 3.5.2, 3.7
Individual	20	3.2.2, 3.3, 3.4.1, 3.4.2, 3.4.4, 3.5.1, 3.5.2, 3.7
Individual	21	3.2.2, 3.3, 3.4.1, 3.4.2, 3.4.4, 3.5.1, 3.5.2, 3.7
Individual	22	3.2.2, 3.3, 3.4.1, 3.4.4, 3.7, 3.12
Individual	23	3.2.2, 3.4.4, 3.10
Individual	24	3.2.2, 3.3, 3.4.1, 3.4.2, 3.4.4, 3.5.1, 3.7, 3.8
Individual	25	3.2.2, 3.3, 3.4.1, 3.4.2, 3.4.4, 3.5.1, 3.5.2, 3.7
NSW Department of Environment and Climate Change	26	3.5.2

Respondent	Submission No.	Section number where issues are addressed
Individual	27	3.2.2, 3.3, 3.4.1, 3.4.2, 3.4.4, 3.5.1, 3.5.2, 3.7
Individual	28	3.2.2, 3.3, 3.4.4
Individual	29	3.3, 3.5.2, 3.9
Individual	30	3.2.2, 3.3, 3.4.1, 3.4.2, 3.5.1, 3.5.2, 3.7
Individual	31	3.2.2, 3.3, 3.4.1, 3.4.2, 3.4.4, 3.5.1, 3.5.2, 3.7
Individual	32	3.2.2, 3.3, 3.4.1, 3.4.2, 3.4.4, 3.5.1, 3.5.2, 3.7
Individual	33	3.2.2, 3.3, 3.4.4, 3.4.5, 3.5.1, 3.7, 3.9, 3.10
Individual	34	3.2.2, 3.3, 3.4.1, 3.4.2, 3.4.4, 3.5.2, 3.9
Individual	35	3.2.2, 3.4.4, 3.5.2, 3.9
Individual	36	3.2.2, 3.5.1, 3.5.2, 3.9
Individual	37	3.2.2, 3.10, 3.12
Individual	38	3.2.2, 3.4.4
Individual	39	3.2.2, 3.4.4, 3.5.1, 3.5.2
Individual	40	3.3, 3.4.4, 3.7, 3.9
Individual	41	3.2.2, 3.3, 3.4.1, 3.4.2, 3.4.4, 3.5.1, 3.5.2, 3.7
Individual	42	3.4.4
Individual	43	3.2.2, 3.4.4, 3.4.5
Individual	44	3.2.2, 3.3, 3.4.2, 3.4.4, 3.4.5, 3.5.1, 3.5.2, 3.6
Individual	45	3.2.2, 3.4.4, 3.7
Individual	46	3.2.2, 3.3, 3.4.1, 3.4.2, 3.4.4, 3.5.1, 3.5.2, 3.7
Community	47*	3.2.2

* Note: This was a community petition of support including 103 signatures

3. Response to issues

3.1 Overview of issues raised

Of the 47 submissions received, 44 opposed the proposal and three supported the proposal. Of the 44 submissions opposing the proposal, 21 submissions were based on a 'form letter' (i.e. a letter written from a template).

The main issues raised in the individual submissions included:

- The need for the proposal and the potential for alternative options.
- Issues relating to the level of community consultation.
- Hydrology and flooding.
- Biodiversity.
- Heritage and culture including Aboriginal cultural heritage.
- Economy and tourism.

The submission received from the NSW Department of Environment and Climate Change (DECC) suggested that the level of flood immunity be reassessed through a comprehensive socio-economic investigation in consultation with Bellingen Shire Council and DECC.

The submission received from Bellingen Shire Council stated that Bellingen Shire Council no longer supports the proposal due to the degree of impact on Endangered Ecological Communities (EECs). It also questioned the methodology for catchment mapping of EECs in the study area. Bellingen Shire Council prefers a design that eliminates any encroachment on the adjoining EECs, including if necessary consideration of a lower speed rating.

BSC requested the RTA note the petition headed 'Cameron's Corner and Waterfall Way Road Upgrade'. This is the local community survey referenced as submission 1. This survey is addressed in Section 3.2.1 and 3.3 of this submissions report.

A petition was submitted to the RTA on 11 June 2009, supporting the proposal on the grounds of safety and providing a flood free route between Bellingen and the Pacific Highway. This petition has been addressed in section 3.2.2 of this submissions report.

3.2 Project need and options considered

3.2.1 Community survey

Submission Number
1

Issue Description
Submission 1 included a community survey of 296 respondents who were asked to choose from the following seven options:

A - I do not mind which option is chosen, as long as the wetland and paperbark forests remain completely undisturbed.

B - I would like the RTA's proposal to be implemented and I'm not concerned if the wetland and paperbark forests are cleared.

C - Reduce the speed limit to 60 km/h and make safety improvements to the existing road.

D - Reduce the speed limit to 60 km/h and make safety improvements AND flood mitigation.

E - A 70 km/h or 80 km/h option, on an alternative route which leaves the wetland untouched.

F - I do not consider Cameron's Corner unsafe, and I want the road left as it is.

G - I have another idea.

The submission concluded that the overwhelming majority (73%) objected to the RTA's current proposal, conversely a minority (5%) support the current proposal.

The survey provided an opportunity for respondents to give additional feedback and 58 responses were provided.

Response
Not all of the options presented to survey respondents would meet the proposal objectives. However, the survey results identify that while there is some support for the proposal in its current form, a high proportion of the surveyed community would prefer an alternative option to be investigated.

The issues raised in the community survey have been considered. It is recommended that any future alternative options be investigated in consultation with the community and relevant stakeholders.

The additional feedback given in response to the community survey has been reviewed, categorised into issues and addressed in the relevant sections of this submissions report.

3.2.2 Project need and alternative options

Submission Numbers
1, 2, 3, 4, 5, 6, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 27, 28, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 41, 43, 44, 45, 46, 47

Issue Description
Bellingen Shire Council advises that it does not support the choice of option 2, the preferred option in the REF, due to the degree of impact on EECs. Further, Council encourages the RTA to amend the design to eliminate any encroachment on the wetland and if necessary consider a lower speed rating.

On 11 June 2009, the RTA received a petition supporting the proposed upgrades at Cameron's Corner and Marx Hill. The petition was signed by 103 residents and stated support *"on the grounds of safety and providing a flood free route between Bellingen and the Pacific Highway."*

In summary other respondents have raised the following issues:

- There is no need for an upgrade of the Waterfall Way at Cameron's Corner.
- Alternative options should be investigated including those that do not impact on the EECs and threatened species.
- Reduce the speed limit and introduce greater policing.
- Other parts of the road network should be upgraded first.
- The accident data does not justify the proposal.
- Rail should be upgraded rather than roads.
- There is an alternative route e.g. via Shortcut Road.
- There should be a four lane highway.
- Build a bridge over the wetland and forest.
- Choose the cheapest option which has the shortest construction time.
- The proposal is supported.
- Improve road signage and markings.
- The principles of ecologically sustainable development and climate change should be considered when choosing an option.
- The proposal would reduce the tourist value of the Waterfall Way.

Response
The RTA has been lobbied for improvements to Waterfall Way since 1993, which included the receipt of three submissions between 1994 and 2003 from Dumaresq (now known as Armidale-Dumaresq), Nymboida (now known as Clarence Valley), Coffs Harbour City, Inverell Shire, and Bellingen Shire Councils'. These Council submissions focused on the entire Waterfall Way route and the need to improve the standard of the Waterfall Way in relation to the commercial, economic and tourist value to their LGAs. To achieve these outcomes consistency of travel speed, safety and flood immunity were adopted as the objectives for the development of any improvements to sections on Waterfall Way.

The proposal has been developed in full consultation with Bellingen Shire Council. In 2001, the RTA consulted with Bellingen Shire Council and requested that Council develop options for an upgrade to Cameron's Corner on the Waterfall Way. The most desirable option was identified by Council and represents the preferred option assessed in the REF.

The RTA acknowledges Bellingen Shire Council and a proportion of the community do not support an option that would impact on the EECs. It is recommended that an investigation of whether there are viable alternatives that avoid or minimise impact on the Swamp sclerophyll forest EEC and Freshwater wetland EEC be undertaken. In addition, all of the issues raised during public display of the REF should be taken into account during investigations into alternative options.

3.3 Consultation

Submission Numbers
1, 2, 9, 14, 17, 19, 20, 21, 22, 24, 25, 27, 28, 29, 30, 31, 32, 33, 34, 40, 41, 44, 46

Issue Description
In summary the respondents raised the following issues:

- Concerns that if the community members had not raised awareness about the issue there would not have been any public consultation about it as a lot of public consultation has been conducted by the local community. The RTA was perceived to have just informed the community about the proposal.
- The consultation approach should have been transparent.
- The RTA is unwilling to seek alternative suggestions to the preferred option.
- Need for alternative options in consultation with the community.
- Community attitudes and expectations, along with Council's, have changed significantly since 2001.
- Concerns that there has been a misrepresentation of community intentions as some community members said they supported road upgrades at the site and yet the RTA tried to oppose the campaign by inferring that the community did not want improved safety.
- Concerns that the RTA's proposal does not address the interests, views and wishes of the local communities.
- The RTA should have determined the cultural and social significance of Cameron's Corner through a genuine process of public consultation as part of the initial fact finding process in determining and assessing options for the site.
- The map that the RTA is using to promote the development and the information in the REF is misleading. There is inappropriate definitions of indirect impacts as some parts of the site will have 'indirect' impacts only, when clearing of vegetation/habitat will also occur in this location, let alone soil disturbance and changes to hydrology. The RTA is deliberately misleading the public.
- Insufficient public consultation was undertaken initially and this should be done with the community to explore alternative options.
- Greater community consultation was required.
- True community consultation is vital, and will be helpful to the RTA in reducing accidents and creating better roads.
- Community consultation together with a general desire to find a meaningful compromise will ensure we all gain from the experience.

Response
Since the announcement of available funding in July 2008, the RTA has engaged with the community and government agencies with the aim of:

- Informing stakeholders about the proposed realignment.
- Identifying environmental and community issues for consideration during the preparation of the REF.
- Giving the community the opportunity to provide feedback on the proposal.

Table 3-1 below summarises the key announcements and consultation undertaken which has included meetings with the community, Bellingen Shire Council and Elected Members; attendance at advertised staffed displays; letter box drops; responding to letters, e-mails and phone calls; input from Coffs Harbour District Land Council and the Bowraville Local Aboriginal Land Council; and liaison with key government agencies: NSW Department of Environment and Climate Change, NSW Department of Primary Industries, NSW Department of Water and Energy, and the Northern Rivers Catchment Management Authority.

As part of ongoing consultation with the community, the REF was placed on public display between 6 February 2009 and 9 March 2009 and community members were invited to comment. This submission report gives consideration to the issues that were raised by stakeholders and the community.

Table 3-1: Announcements and consultation undertaken for the proposal

Date:	Activity	Advertised or reported
30 July 2008	Media release: Announcement by State Government of major improvements for Cameron's Corner and Marx Hill.	Coffs Coast Advocate and Bellingen Courier.
23 September 2008	The RTA attended a meeting at request from the community and provided information regarding Cameron's Corner and Marx Hill.	Not advertised.
9 November 2008	The RTA released a topographical diagram illustrating the alignment of the proposal and indicative areas of vegetation to be removed, including the affected Swamp sclerophyll forest EEC.	Coffs Coast Advocate and Bellingen Courier as well as local shopfronts.
13 November 2008	The RTA attended a public information session at Bellingen Shire Council Chambers. The public was invited to come forward and ask questions regarding the proposal. Have your say forms were provided so that the public could provide comment.	Coffs Coast Advocate and Bellingen Courier.
31 January 2009	Media Release regarding upcoming public display of REF for Cameron's Corner.	Coffs Coast Advocate and Bellingen Courier.
6 February –– 9 March 2009	Media Release announcing REF placed on public display for public comment.	Coffs Coast Advocate and Bellingen Courier.
6 February 2009	Letter box drops: to names registered at information session informing of release of REF.	Not advertised.

The RTA has received input from the community regarding the proposal. Prior to the public display of the REF on 11th November 2008, the RTA received a petition from local businesses. The petition was signed by 61 people and requested the RTA to:

> "*engage in meaningful public consultation with the residents of Bellingen Shire regarding the proposed upgrade of Waterfall Way, and allow residents to participate in the generation of options concerning the most appropriate routes for the proposed upgrade.*"

In addition the petition stated:

> *"We would like to express our concern regarding the lack of consultation to date."*

During public display of the REF the RTA received 46 submissions in response to the REF. These included a community submission which represented 296 people. The survey and petition that form part of the community submission is listed as submission 1 in this submissions report. As part of the conclusion of this submission respondents raised the concern that the RTA:

> *"has not included any meaningful consultation."*

On 4 March 2009, the RTA received correspondence from Bellingen Shire Council indicating that the Council no longer supports the proposal due to the impact on the Swamp sclerophyll forest EEC and Freshwater wetland EEC.

It is clear from the submissions received that the preferred option is no longer supported by the Council and a large sector of the community. While there is support for the proposal in its current form, a proportion of the community want to have greater involvement in the development of options that would avoid impact on the EECs and meet the flood and safety objectives.

The RTA is committed to appropriately involving the community in its proposals when budget funding is available. It is recommended the following be undertaken in consultation with community and stakeholders:

- Further investigations into alternative options.
- An options comparison assessment, including of the current proposal to select a preferred option.

3.4 Biodiversity

3.4.1 Surveys

Submission Numbers
1, 2, 3, 8, 9, 11, 14, 17, 19, 20, 21, 22, 24, 25, 27, 30, 31, 32, 34, 41, 46

Issue Description
In summary the respondents raised the following issues:

- There has been no recent on-the-ground flora and fauna survey.
- If the REF has not included an on-the-ground fauna survey which takes the whole of the ecosystem into consideration. Concerns were expressed that to base an environmental conclusion substantially on such a limited desktop REF is flawed. It is not possible to assess the impact on the ecological environment unless the whole system is looked at, that is why it is called a system.
- New EEC information should have led to more detailed survey work to provide an adequate up-to-date assessment.
- The 7-part tests are not appropriate as there has been minimal survey of the site to see what actually utilises the site.

- The REF stated that 'a comprehensive fauna survey of the study area was not within the scope of the current project; hence the findings of the fauna survey are unlikely to be comprehensive.' Some submissions regarded this as not acceptable given the importance of the site.
- Just considering the 'Likelihood of occurrence' for threatened flora and fauna is not appropriate for Cameron's Corner.
- Species identified between the previous survey (2003) and the recent community surveys (2009) have been recorded and the differences between the surveys are significant. A high number of species haven't previously been recorded and these include threatened species. A list of species is detailed within the submission (1).
- The site could be potential habitat for threatened fauna species such as the Green-thighed frog, Koala and Squirrel glider.
- Detailed work should be undertaken encompassing each season of the annual cycle and including both daytime and nocturnal study. Every environment has the likelihood of considerable change/variety throughout the year and throughout the 24-hour daily cycle.
- It is imperative that the RTA has consultants survey the flora and fauna of the area for at least a year.

Response

The proposal has been subject to a detailed and up to date biodiversity assessment including investigations in 2003 and in 2008. In 2003, the RTA engaged Environmental Resources Management Australia Pty Ltd (ERM) to prepare an REF. This included a flora, fauna and aquatic habitat assessment incorporating both day time and nocturnal field surveys. The following field survey and assessment techniques were implemented:

- Random vegetation meander survey.
- Quadrat sampling.
- Transect sampling.
- Habitat assessment.
- Koala habitat assessment.
- Diurnal bird survey.
- Fauna features search.
- Dusk census.
- Spotlighting.
- Call playback.
- Bat detection.
- Amphibian and reptile searches.

In 2008 the RTA engaged Eco Logical Australia to update the REF. The biodiversity assessment was updated by undertaking the following:

- Updating the database searches.
- Undertaking a field survey.
- Preparing new EP&A Act 7 part tests and EPBC Act assessments of significance for threatened species considered likely to occur in the study area (refer to Table 3).

A field survey in 2008 was undertaken to confirm the plant communities and their condition and to verify the threatened plant species identified in ERM 2003. The level and timing of the ecological surveys undertaken for the proposal is considered adequate for the REF and accompanying *Environmental Planning and Assessment Act 1979* (EP&A Act) 7-part tests and *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) assessments of significance.

The methodology for the biodiversity assessment is in accordance with DECC's draft Threatened Species Biodiversity Survey Assessment Guidelines for Development and Activities (DEC 2004) and DECCs Threatened species assessment guidelines: The assessment of significance (DECC 2007). These guidelines outline how to develop an appropriate level of survey and how to assess impact to threatened species, with consideration of factors including seasonal and climatic conditions, migratory species, available habitat etc. Surveys undertaken in accordance with the DECC guidelines are generally over short time periods (for example from a few days depending on survey area and the range of species) and are rarely if ever over a period of one year.

The biodiversity assessment included assessment of the likelihood of occurrence of threatened species, populations and ecological communities and their habitats in the study area. Assessing the likelihood of occurrence is standard practice and is in accordance with DECC guidelines. As described within DECC 2007:

> *"all species likely to occur within the study area (based on general species distribution information), and known to use that type of habitat, should be considered in the rationale that determines the list of threatened species, populations and ecological communities for the assessment of significance."*

In accordance with DECC guidelines, the 'likelihood of occurrence' tables, located within Appendix E of the REF, assess the species likely and unlikely to occur on site. Those species which potentially occur within the study area were subject to further assessment in accordance with the criteria in the relevant environmental legislation under which the threatened species, population or endangered ecological community is listed, e.g. the EP&A Act 7-part test or the EPBC Act assessment of significance.

Some community members undertook a biodiversity survey of the study area in 2009 and submitted the results to the RTA within a community survey (submission number 1). The community survey results are summarised in Table 3-2. The community submission survey identified a number of additional species in the study area including commonly occurring birds, mammals (including bats), turtles and frogs. However the community survey did not identify any additional species, populations or ecological communities that are listed as threatened under the *Threatened Species Conservation Act 1995* (TSC Act) or the EPBC Act.

No additional threatened species were identified in the community survey that weren't previously considered in the REF. Potential impact to the commonly occurring species identified would be mitigated by implementation of the measures listed within section 6.4 of the REF including the need for a licensed and registered wildlife carer or ecologist to be present on site during vegetation clearing to ensure all displaced or injured fauna are cared for.

Another submission (8) stated that the Green-thighed frog (*Litoria brevipalmata)* listed as vulnerable under the TSC Act potentially occurs in the study area. A search of the Wildlife Atlas identified no records of this species within a 10 kilometre radius of the study area. This search area is consistent with the DECC Guidelines (2004). However, the study area contains potential habitat for this species. It is recommended that a targeted field survey for the Green-thighed frog (*Litoria brevipalmata)* be undertaken to determine whether it is present within the study area. If this species is found to be present, a 7-part test to assess the impacts of the proposal would be required.

Table 3-2: Species identified by the community survey as inhabiting the site or likely to inhabit the site.

Species (Common Name)	**Listing (TSC Act and EPBC Act)**	**Assessment of Significance**
Birds		
Australian magpie	Not listed	Not required
Australian white ibis	Not listed	Not required
Azure kingfisher	Not listed	Not required
Black-faced cuckoo-shrike	Not listed	Not required
Black-necked stork	TSC Act	No significant impact*
Brown cuckoo-dove	Not listed	Not required
Brown gerygone	Not listed	Not required
Brown thornbill	Not listed	Not required
Chestnut teal	Not listed	Not required
Collared sparrowhawk	Not listed	Not required
Eastern rosella	Not listed	Not required
Eastern whipbird	Not listed	Not required
Eastern yellow robin	Not listed	Not required
Fan-tailed cuckoo	Not listed	Not required
Galah	Not listed	Not required
Golden whistler	Not listed	Not required
Grey butcherbird	Not listed	Not required
Grey fantail	Not listed	Not required
Grey shrike-thrush	Not listed	Not required
Grey teal	Not listed	Not required
Laughing kookaburra	Not listed	Not required
Lewin's honeyeater	Not listed	Not required
Little wattlebird	Not listed	Not required
Magpie-lark	Not listed	Not required
Masked lapwing	Not listed	Not required
Mistletoe bird	Not listed	Not required
Noisy miner	Not listed	Not required
Olive-backed oriole	Not listed	Not required
Pacific black duck	Not listed	Not required
Pied butcherbird	Not listed	Not required
Purple swamphen	Not listed	Not required
Rainbow lorikeet	Not listed	Not required
Rufous whistler	Not listed	Not required
Satin bowerbird	Not listed	Not required
Scarlet honeyeater	Not listed	Not required
Spotted pardalote	Not listed	Not required
Straw-necked ibis	Not listed	Not required
Striated pardalote	Not listed	Not required
Striped honeyeater	Not listed	Not required
Superb fairy-wren	Not listed	Not required
Swift parrot	TSC Act and EPBC Act	No significant impact*
Torresian crow	Not listed	Not required
Variegated fairy wren	Not listed	Not required
Welcome swallow	Not listed	Not required
White-browed scrubwren	Not listed	Not required
White-browed treecreeper	Not listed	Not required
White-faced heron	Not listed	Not required
White-headed pigeon	Not listed	Not required
White-throated gerygone	Not listed	Not required
Willie wagtail	Not listed	Not required

Species (Common Name)	**Listing (TSC Act and EPBC Act)**	**Assessment of Significance**
Yellow thornbill	Not listed	Not required
Yellow-faced honeyeater	Not listed	Not required
Mammals		
Common blossom bat	TSC Act	No significant impact*
Eastern bent-wing bat	TSC Act	This may be referring to the Little or Common Bentwing Bat, both of which are TSC listed, and assessed as having no significant impact
Eastern freetail bat	TSC Act	No significant impact*
Greater broad-nosed bat	TSC Act	No significant impact*
Grey-headed flying fox	TSC Act and EPBC Act	No significant impact*
Koala	TSC Act	No significant impact*
Large-footed myotis	TSC Act	No significant impact*
Little bent-wing bat	TSC Act	No significant impact*
Sugar glider	Not listed	Not required
Yellow-bellied glider	TSC Act	Assessed as unlikely to occur as the study area does not represent preferred habitat (refer to Appendix E of the REF)
Yellow-bellied sheathtail bat	TSC Act	No significant impact*
Turtles		
Bellinger river emydura short-necked turtle	TSC Act and EPBC Act	Assessed as not occurring as this species is restricted to deep freshwater pools of the Bellinger River upstream of Thora, 20km west of the study area (refer to Appendix E of the REF)
Eastern long-necked turtle	Not listed	Not required
Georges' short-necked turtle	Not listed	Not required
Frogs		
Bleating tree frog	Not listed	Not required
Common eastern froglet	Not listed	Not required
Common green tree frog	Not listed	Not required
Dainty green tree frog	Not listed	Not required
Eastern dwarf tree frog	Not listed	Not required
Green and golden bell frog	TSC Act and EPBC Act	Assessed as unlikely to occur as the study area does not represent preferred habitat (refer to Appendix E of the REF)
Peron's tree frog	Not listed	Not required
Striped marsh frog	Not listed	Not required
Tusked frog	Not listed	Not required
Tyler's tree frog	Not listed	Not required
Uperoleia species (unidentified)	Not listed	Not required
Whirring tree frog	Not listed	Not required

* Refer to Appendix E for Likelihood of Occurrence tables, Appendix F for the 7-part tests and Appendix G for the EPBC Act assessments within the REF.

3.4.2 Bellinger catchment mapping

Submission Numbers
1, 2, 3, 9, 11, 12, 14, 19, 20, 21, 24, 25, 27, 30, 31, 32, 34, 41, 44, 46

Issue Description

- The RTA underestimated the amount of wetland and Swamp sclerophyll forest that will be affected by the Proposal - proof of calculations are required and statements reviewed and given to the community.
- A description of the methodology used to calculate the estimated areas of Swamp sclerophyll forest is to be provided including the Forest Ecosystem types selected and justification for their selection, and the methodology for determining the extent of the 'Coastal Floodplain' as referred to in the EEC listing and any other assumptions or matters of relevance.
- An estimate is to be provided of the Swamp sclerophyll forest that exists within a 10km radius of the subject site and a map depicting its predicted occurrence.
- A submission (2) stated that the area of Swamp sclerophyll forest in the Bellinger catchment should be 63.93 hectares.
- An estimate is needed of the Swamp sclerophyll forest that exists within the Bellingen Shire and a map depicting its predicted occurrence.
- The true scale of the impacts of local EECs was not accurately represented and the amount of wetlands left in the 'Bellinger Catchment' was overestimated.

Response
The REF included calculations of the area of EECs in the wider catchment to determine the extent of the EECs at the regional and subregional scale. The area of both Swamp sclerophyll forest and Freshwater wetland EECs were calculated. The calculations have been reviewed and it has been found that there were some inaccuracies. These have now been corrected and the 7-part tests have been revised (see Appendix A and B). The methodology used to calculate the area of EECs is discussed below.

Swamp sclerophyll forest EEC
The REF calculated that approximately 511 hectares of Swamp sclerophyll forest exists within 10 kilometres of the study area and up to 8,580 hectares exists within the Bellinger River catchment. The administrative catchment boundary used for the calculation in the REF was Bellinger[1] which was defined under the *NSW Soil Conservation Act 1938*. This catchment area was incorrectly used because it includes not only the geographic extent of the Bellinger/Kalang system, but also the coastal strip lying to the north (as far as Red Rock/Corindi). Using the Bellinger catchment resulted in an over-estimation of the area of the regional catchment. The appropriate catchment boundary to use in the 7-part test is the Bellinger-Kalang.

The calculation of the regional extent of Swamp sclerophyll forest in the REF incorporated commonly occurring vegetation communities including Swamp oak forest, Paperbark, Swamp mahogany and Swamp oak on coastal sand sheets. In the revised 7 part tests, only the Paperbark on floodplain and Swamp mahogany on floodplain have been included.

The extent of Swamp sclerophyll forest EEC at the regional and sub-regional scale has been revised, using the geographic Bellinger-Kalang catchment boundary and removal of the Swamp oak forest. The revised extent of Swamp sclerophyll forest is 330 hectares within 10 kilometres of the study area and up to 274 hectares within the Bellinger and Kalang catchment.

[1] ANZLIC unique identifier: ANZNS0359000831, Title: Catchment Boundaries of New South Wales, Custodian: Department of Land and Water Conservation (DLWC), Jurisdiction: New South Wales.

The 7-part test for Swamp sclerophyll forest EEC has been revised accordingly (refer Appendix A). The revisions do not change the conclusion of the 7-part test which is that the proposal is unlikely to have a significant impact on the Swamp sclerophyll forest EEC. The amended calculations are listed in Table 3-3 and are included in the revised 7-part test in Appendix A of this submissions report. The extent of Swamp sclerophyll forest EEC within the Kalang and Bellinger catchments is shown in Figure 1.

Table 3-3: Swamp sclerophyll forest at Regional and Sub-regional Scale

Area of interest	Area (ha) of Paperbark (FE_No 112) on floodplain	Area (ha) of Swamp mahogany (FE_No 142) on floodplain	Total Area (ha) of Swamp sclerophyll forest
Bellinger administrative catchment area	3497	414	3911
Bellinger and Kalang catchments	273	0.6	274
10km radius from study area	267	63	330
5km radius from study area	120	0	120

In response to submission 12, the amount of Swamp sclerophyll forest EEC within the Bellingen Shire Local Government Area (LGA) is approximately 259 hectares and the distribution is shown in Figure 2.

Freshwater wetland EEC

The calculation of Freshwater wetland EEC in the REF found that approximately 631 hectares of freshwater wetland exists within 5 kilometres of the study area.

The local occurrence of Freshwater wetland EEC is difficult to estimate as no accurate vegetation mapping exists for this EEC in the lower Bellinger Valley. To assist with the mapping calculations aerial photography was analysed. The identification of the Freshwater wetland EEC in the REF incorrectly included areas of saline wetlands and lagoons. This resulted in an overestimation of the extent of Freshwater wetland EEC.

The extent of Freshwater wetland EEC at the regional and sub-regional scale has been revised to 103 hectares within 5 kilometres of the study area.

Approximately 0.1 hectares of Freshwater wetland EEC would be removed by the proposal. Indirect impacts may affect a further 0.04 hectares of the EEC within the study area. The removal of 0.1 hectares of Freshwater wetland EEC is not considered to be a substantial proportion of the local occurrence of the EEC (103 hectares) and, therefore, it is unlikely that the proposal would have a significant impact on Freshwater wetland EEC (refer to Appendix B of this report).

The errors in the Bellinger catchment mapping and the extent of EECs discussed above have now been identified and corrected and the 7-part tests have been revised. The revised 7-part tests found that the proposal would not cause a significant impact on either EEC occurring within the study area.

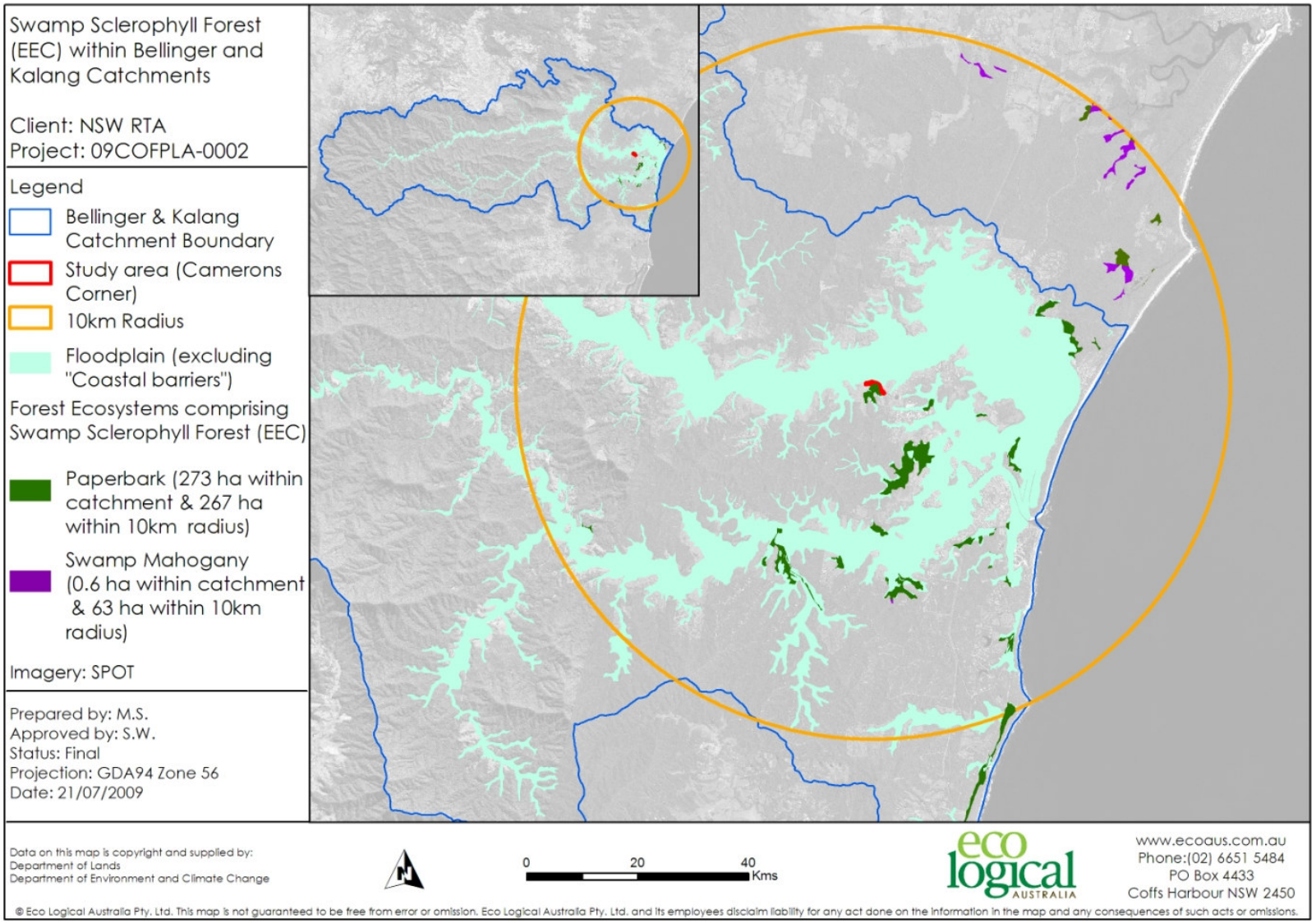

Figure 1: Swamp sclerophyll forest EEC within the Bellinger and Kalang Catchment

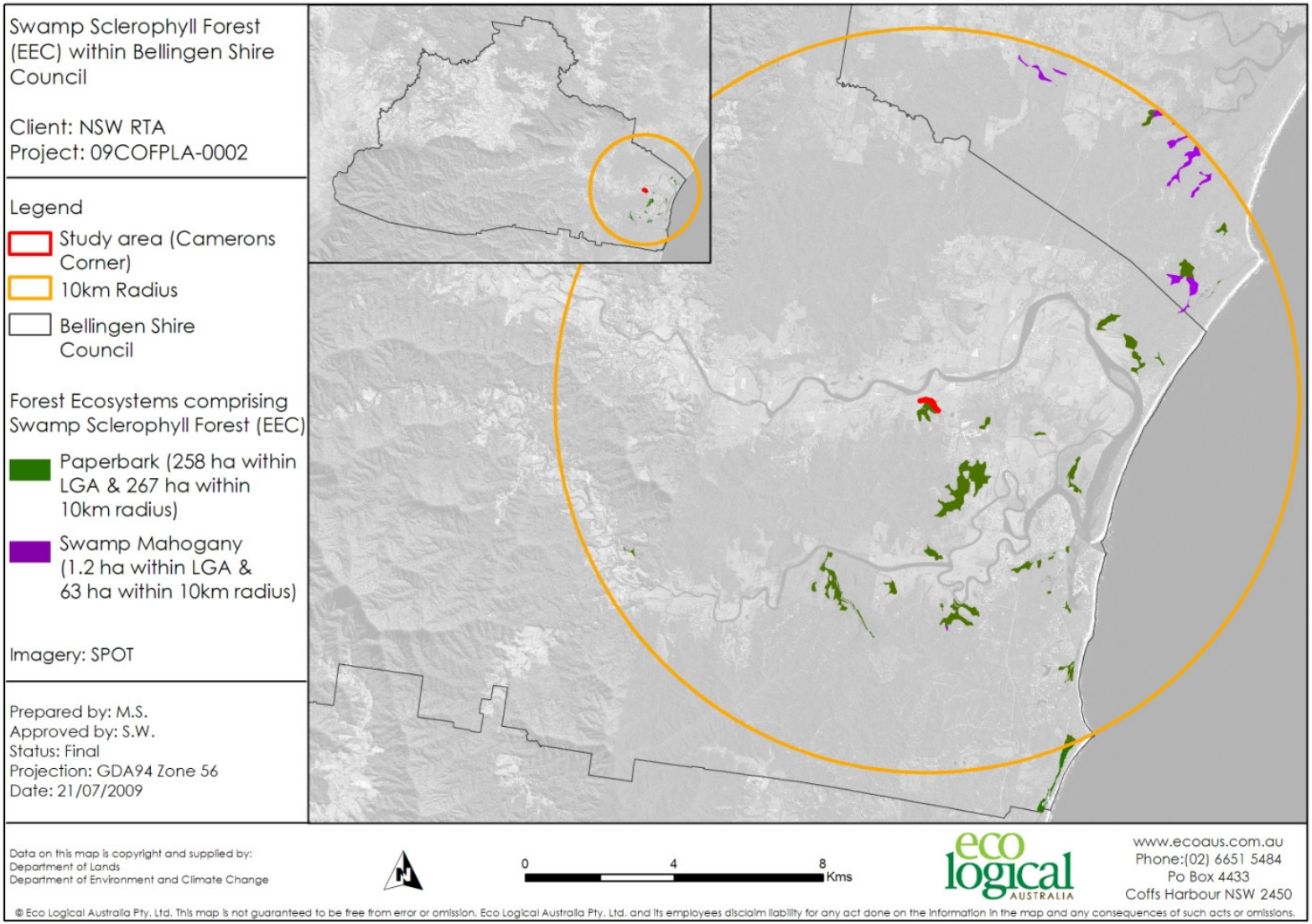

Figure 2: Swamp sclerophyll forest EEC within the Bellingen Shire LGA

3.4.3 SEPP 14 – Coastal Wetlands

Submission Number
2

Issue Description
In summary the respondent raised the following issue:

- The wetland could be listed under SEPP 14 legislation as it meets the criteria. Even though it doesn't, a discussion should have been included.

Response
The NSW Department of Planning (DoP) is responsible for assessing the criteria to list wetlands under State Environmental Planning Policy (SEPP) 14 Coastal Wetlands. The wetland at Cameron's Corner is not listed as a SEPP 14 Coastal Wetland.

3.4.4 Impacts on Endangered Ecological Communities

Submission Numbers
1, 2, 3, 4, 8, 9, 11, 12, 14, 15, 16, 19, 20, 21, 22, 23, 24, 25, 27, 28, 31, 32, 33, 34, 35, 38, 39, 40, 41, 42, 43, 44, 45, 46

Issue Description
In summary the respondents raised the following issues:

- The RTA places no importance on EEC listing and impacts.
- Since the previous REF (2003), the wetland has been listed as an EEC – the RTA does not take this seriously.
- The listing of the Freshwater wetland EEC has not been given adequate recognition in the reconsideration of the proposal. An EEC is listed, when in the opinion of the Scientific Committee, it 'is likely to become extinct in nature in NSW unless the circumstances and factors threatening its survival or evolutionary development cease to operate'.
- The proposal contains inadequate EEC protection and this leads to subjective decisions about 'significant impact' which continue to destroy endangered communities and species.
- The area to be cleared south of the existing road would be greater than described in the REF. A minimum of 7% of the forest equaling over 10% of the EECs would be cleared.
- Some submissions rejected the conclusion of the REF that the direct and indirect impacts on the EECs present at the site are not significant. The REF states that 0.5 hectares (~3.6%) of the 13.9 hectares of Swamp sclerophyll forest would be completely cleared, whilst a further 0.8 hectares (~5.7%) would be indirectly impacted upon by the road works. Consequently almost 10% of the EEC would be negatively impacted upon by the project. A single project which causes the loss of part of a remnant EEC may not lead to its local extinction however as the EEC is a small remnant of a once widespread community which is now endangered, any project which negatively impacts on 10% of a remnant community should be deemed significant.
- As the site to be cleared is only one part of a larger area supporting the EECs, ecological assessments should also have included these adjacent areas. No surrounding land was accessed.
- Freshwater wetland on coastal floodplains of the NSW North Coast, Sydney Basin and South East Corner bioregions has been extensively cleared and modified. On the Tweed lowlands it is estimated that less than 3% of the original floodplain wetlands remained in 1985. Similar

estimates are likely to apply to Freshwater wetlands on coastal floodplains in other parts of the NSW North Coast bioregion.

- Wetlands are most important for native plant and animal life and too many have already been destroyed.
- Concerned about the loss/clearing/impacts on Freshwater wetland EEC
- Concerned about the loss/clearing/impacts on Swamp sclerophyll forest EEC
- Area of Swamp sclerophyll forest EEC between the new and old roads will not just be affected but completely cleared of all vegetation.
- The proposal would clear some of the least disturbed habitat in Bellinger catchment. It is one of the few excellent quality areas of Swamp sclerophyll forest EEC remaining in the Bellinger catchment with very little weed infestation. Most of the Swamp sclerophyll forest left in the Bellinger catchment is dominated by introduced weeds and grasses.
- Part clearing of an EEC is not going to lead to the extinction of the EEC but continued clearing will as identified by the NSW Scientific Committee.
- The REF is misleading in that it fallaciously represents an absence of contiguous forest. The Swamp sclerophyll forest to the south of the area is linked to other forested areas, ranging up the hill.
- There is an assertion in the REF that the option as planned by the RTA (Option 2) is providing a project in harmony with the natural environment (pg 27). This is clearly incorrect because the project as planned will damage part of an EEC.
- This community is an excellent example of Swamp sclerophyll forest on the Bellingen Coastal Floodplain and the proposal from the RTA may lead to significant impact on this community.
- Opening up the wetland - even of levels up to 7.5% - leads to major loss of health and degradation of the forest. Removal of old trees, particularly in fringing vegetation, increases wind exposure and desiccation, at the very least leading to dieback and weed infestation.
- The area to be cleared also supports elements of other endangered ecological communities; lowland rainforest on floodplain and subtropical coastal floodplain forest.
- In addition to the Swamp sclerophyll forest, there are two other significant communities of native forest/vegetation potentially adversely affected by the RTA proposal. These are the tallowwood dominated corridor of forest east of Cameron's Corner, on the north side of the road and a similar smaller corridor forest on the south side of the existing road approximately 200m west of the REF study area. They both warrant full protection. In addition to providing habitat, refuge and movement corridor, (particularly for native birds), linking neighbouring gardens with the swamp forest; this corridor (east of Cameron's Corner) also provide a visual and physical buffer limiting noise, dust and chemical pollution from the ever growing traffic on the Waterfall Way impinging on these households. Destroying this shows contempt for the interests of nearby residents.
- Would like the RTA's proposal implemented and not concerned if the wetland or paperbark forests are cleared.

Response

The Swamp sclerophyll forest on coastal floodplains of the NSW North Coast, Sydney Basin and South East Corner bioregions (Swamp sclerophyll forest) is listed as an EEC in the TSC Act. Freshwater wetland on Coastal Floodplains of the NSW North Coast, Sydney Basin and South East Corner bioregions is listed as an EEC in the TSC Act (herewith referred to as Freshwater wetland EEC).

The REF assessed the study area for occurring or potentially occurring threatened species, populations and ecological communities and their habitat and the potential impacts of the proposal. The methodology

for survey and assessment of biodiversity was in accordance with DECC 2004 and DECC 2007 guidelines. It included searches of the DECC Wildlife Atlas records for threatened species, populations and ecological communities listed under the TSC Act and the Department of the Environment, Water, Heritage and the Arts (DEWHA) database for threatened species, populations and ecological communities listed as matters of National Environmental Significance (NES) under the EPBC Act. Bionet, a website detailing information sourced from NSW DECC, NSW Department of Primary Industries (DPI) and the Australian Museum was also searched. All searches were for a 10 kilometres radius centred upon the proposal site (refer to Section 6.4 and Appendix C, E, F, G and I of the REF).

The resultant list of threatened species, populations or communities was then assessed to identify which were known to occur or considered likely to occur on, or to utilise, the study area. This assessment was based upon the ERM 2003 data and habitat information and the 2008 Eco Logical Australia field survey.

The potential impact to potentially occurring threatened species, populations and ecological communities was then assessed using the criteria in Section 5A of the EP&A Act (the 7-part test) and/or the criteria for the EPBC Act assessment of significance. The REF found that the proposal would cause no significant impact on the threatened flora species and ecological communities found to potentially occur in the study area.

Protection of the EECs in the study area is governed under the TSC Act and the EP&A Act. The REF included 7-part tests in accordance with these Acts which included an assessment of direct and indirect impacts of the proposal on these EECs in accordance with DECC 2007. These 7-part tests have been updated, refer to Appendix A and B of this Submissions report. The REF outlines safeguards and mitigation measures to protect the adjacent areas of EEC that are not impacted by the proposal (refer to section 6.4 and 7.2 of the REF).

The RTA places a high importance on ensuring that all potential environmental impacts of its activities are fully assessed, including identifying and assessing impacts on EECs. In 2003 the RTA engaged ERM to prepare an REF including assessing the potential impacts of the proposal on EECs. This included searching of databases encompassing a 10 kilometre radius, site visits, and field surveys to establish the occurrence of EECs in the study area and identifying and assessing the potential direct and indirect impact on EECs. At that time, one EEC, Swamp sclerophyll forest EEC, was located within the study area.

In 2008 the RTA engaged Eco Logical Australia Pty Ltd to update the REF including the potential impacts of the proposal on EECs. This included searching of databases and a field survey. At this time the new listing of the Freshwater wetland EEC under the TSC Act was identified and it's presence in the study area confirmed. It was identified that the Freshwater Wetland EEC must be included and assessed within the REF.

The proposal would clear approximately 0.8 hectares of native vegetation, of which 0.6 hectares is EEC as listed on the TSC Act. As outlined below the clearing of EECs as a result of the proposal would not cause a significant impact.

The proposal would clear approximately 0.5 hectares and have an indirect impact on 0.8 hectares of Swamp sclerophyll forest EEC. The amount that would be cleared represents approximately 3.6% of the local occurrence of Swamp sclerophyll forest EEC. It has been assessed that approximately 5.8% of the local occurrence of Swamp sclerophyll forest EEC would be indirectly impacted by the proposal. This includes the area of Swamp sclerophyll forest EEC between the new and old road. The 7-part test for the Swamp sclerophyll forest EEC (refer to Appendix A of this report) concluded that the proposal was unlikely to have a significant impact due to the following:

- As an isolated impact, the removal of 0.5 hectares of Swamp sclerophyll forest EEC is unlikely to place the local occurrence of Swamp sclerophyll forest EEC at risk of extinction.
- The proposal neither fragments nor isolates Swamp sclerophyll forest EEC within the locality.

- The amount of Swamp sclerophyll forest EEC to be removed by the proposal (0.5 hectares) is unlikely to be of importance to the long term survival of the EEC.
- The proposal is not inconsistent with the objectives or actions of a recovery plan or threat abatement plan as these plans do not exist.
- Apart from 'Clearing of Native Vegetation', the operation of Key Threatening Processes, as a result of the proposal, would be negligible.

The RTA acknowledges that the Freshwater wetland EEC has been extensively cleared and modified in the NSW North Coast Bioregion. The proposal would clear approximately 0.1 hectares and have indirect impact to approximately 0.04 hectares of Freshwater wetland EEC. This represents approximately 0.1% of the local occurrence of Freshwater wetland EEC.

As a result of the submissions, the 7-part test for the Freshwater wetland EEC has been updated (refer to Appendix B of this report). This updated 7-part test concluded that the proposal was unlikely to have a significant impact due to the following:

- The removal of 0.1 hectares of Freshwater wetland EEC within the study area is unlikely to place the local occurrence of Freshwater wetland EEC at risk of extinction.
- The proposal neither fragments nor isolates Freshwater wetland EEC within the locality;
- The amount of Freshwater wetland EEC to be removed by the proposal (0.1 hectares) is considered to be of minor importance to the long term survival of the EEC within the locality;
- The proposal is not inconsistent with the objectives or actions of a recovery plan or threat abatement plan as these plans do not exist.
- The operation of Key Threatening Processes as a result of the proposal, would be relatively insignificant.

The corridor of Tallowwood forest on the southern side of the Waterfall Way is located approximately 200 metres to the south and south west of the study area and would not be impacted by the proposal. However, the proposal would clear 0.2 hectares of Tallowwood - narrow-leaved white mahogany forest in the eastern end of the study area. Tallowwood forest is not defined as an EEC and consequently no 7-part test was required to be undertaken. The Tallowwood forest areas do not provide a noise buffer however they provide a visual and physical buffer limiting dust and chemical pollution caused by traffic.

The term 'contiguous habitat' is used to identify the 'local occurrence' of the Swamp sclerophyll forest EEC. This is in accordance with DECC 2007. The local occurrence of the Swamp sclerophyll forest EEC is found to be 13.9 hectares including adjacent Swamp sclerophyll forest to the south of the study area. For assessment of the impact to relevant threatened species, 'contiguous habitat' is defined as habitat within five kilometres of the study area. There is no corridor to the north of the study area and the removal of vegetation will not sever any corridor linkages to the south. This definition of contiguous habitat has also been applied to the assessment of impact to the threatened fauna, the koala and the spotted-tailed quoll.

Flora species in the study area occur within the Lowland rainforest in NSW North Coast and Sydney Basin Bioregion EEC and Subtropical coastal floodplain forest of the NSW North Coast bioregion EEC, particularly within the narrow transition area (ecotone) between the Swamp sclerophyll forest EEC and the Tallowwood-narrow-leaved white mahogany forest. However, the dominant overstorey species present within the area mapped as Swamp sclerophyll forest EEC are indicator species for the Swamp Swamp sclerophyll forest EEC as described within the determination of the NSW Scientific Committee. As such, the vegetation community is an example of Swamp sclerophyll forest EEC and has been assessed accordingly (refer to the 7-part test within Appendix A of this report).

3.4.5 Impacts on Fauna

Submission Numbers
1, 2, 4, 8, 9, 33, 43, 44

Issue Description
In summary the respondents raised the following issues:

- Both EECs are the ideal habitat for threatened mammals, birds and frog species and are capable of supporting viable populations of threatened species.
- In its current form, the area has limited native tree cover along both banks of the unnamed creek which drain the wetland from under the existing road to the Bellinger River. There are also high numbers and variety of native wildlife killed by road traffic, in particular at the point where the open water wetland meets the existing road embankment at the western extremity of Cameron's Corner. The RTA should both acknowledge these issues and ensure that their plans for overcoming the current inadequacies of the existing road and would include measures to overcome these problems.
- There needs to be more adequate provision of wildlife underpasses at Cameron's Corner in particular as well as the road from Shortcut Road to the Pacific Highway
- There would be a significant impact on turtle populations within the wetland. There are currently two endemic short-necked turtle species and one long-necked turtle species that inhabit the area. Of these, two are either listed or are to be listed on threatened species legislation.
- The site could be potential habitat for threatened fauna species such as the Green-thighed frog, Koala and Squirrel glider.
- The REF should have stated that the site does support a significant number of koala food trees, with the adjoining lands supporting an even higher proportion of koala feed trees, and koalas have been recorded in the area regardless of whether the percentage of koala food trees at the site is under the percentage defined under SEPP 44 legislation.

Response
The REF assessed the study area for occurring or potentially occurring threatened species, populations and ecological communities and their habitat and the potential impacts of the proposal. The methodology for survey and assessment of biodiversity was in accordance with DECC 2004 and DECC 2007 guidelines. Refer to section 3.4.4 of this submissions report for detailed methodology.

The REF found that the proposal would cause no significant impact on the threatened fauna species and ecological communities found to potentially occur in the study area. These are listed below:

Threatened Birds

- Black-necked stork (*Ephippiorhynchus asiaticus*).
- Regent honeyeater (*Xanthomyza Phrygial).*
- Swift parrot (*Lathamus discolor*).
- Powerful owl (*Ninox strenua*).
- Grass owl (*Tyto capensis*).
- Masked owl (*Tyto novaehollandiae*).
- Sooty owl (*Tyto tenebricosa*).
- Square-tailed kite (*Lophoictinia isura*).
- Osprey (*Pandion haliaetus*).

- Australasian bittern (*Botaurus poiciloptilus*).
- Black bittern (*Ixobrychus flavicollis*)

Threatened Mammals

- Koala (*Phascolarctus cinereus*).
- Spotted-tailed quoll (*Dasyurus* maculates).
- Grey headed flying-fox (*Pteropus poliocephalus*).
- Eastern freetail Bat (*Mormopterus norfolkensis*).
- Greater broad-nosed bat (*Scoteanax rueppellii*).
- Little bentwing bat (*Miniopterus australis*).
- Large bentwing bat (*Miniopterus schreibersii*).
- Large-footed myotis (*Myotis adversus*).
- Northern long-eared bat (*Nyctophilus bifax*).
- Yellow-bellied sheathtail bat (*Saccolaimus flaviventrus).*
- Common blossum bat (*Syconycteris australis*).

Threatened Amphibians

- Wallum froglet (*Crinia tinnula*)

The Bellinger River emydura (*Emydura macquarii*) (Bellinger River form) listed as vulnerable under the TSC Act and EPBC Act is described in the submission as the Bellinger River emydura short-necked turtle (*Emydura macquarii signata*). *Emydura macquarii* has been assessed as not occurring within the study area. This is because the species inhabits the Bellinger River which is located approximately 1.3 kilometres north of the study area. It is largely found upstream of Thora, which is approximately 20 kilometres west of the study area and occurs within deep freshwater pools. The swamp forest and a semi-permanent shallow wetland in the study area does not provide suitable habitat for this species. Therefore a 7-part test pursuant to section 5A of the EP&A Act and an assessment of significance under the EPBC Act is not required for the Bellinger River emydura (*Emydura macquarii*) (Bellinger River form) (refer to Appendix E of the REF).

The George's short-necked turtle (*Elseya georgesi*) and the Eastern long-necked turtle (*Chelodina longicollis*) are neither currently nor preliminary listed as threatened on the TSC Act. An investigation has found that neither of these species are nominated for listing under the TSC Act. As such, there is requirement to consider these species pursuant to Section 5A of the EP&A Act.

Another submission (8) stated that the Green-thighed frog (*Litoria brevipalmata)* listed as vulnerable under the TSC Act potentially occurs in the study area. A search of the Wildlife Atlas identified no records of this species within 10 kilometre radius of the study area. This search area is consistent with the DECC Guidelines (2004). However, the study area contains potential habitat for this species. It is recommended that a targeted field survey for the Green-thighed frog *Litoria brevipalmata* be undertaken to determine whether it is present within the study area. If this species is found to be present, a 7-part test to assess the impacts of the proposal would be required.

The koala is listed as vulnerable under the TSC Act and was assessed as potentially occurring in the study area, even though potential habitat as defined under SEPP 44 Koala Habitat Protection was not found. Koalas have been recorded in the area, with the nearest known record located approximately 1.3 kilometres north of the study area on the southern bank of the Bellinger River. Other records are located approximately 1.5, 2.1 and 2.5 kilometres south west of the study area in an area of contiguous tall open

forest comprising State Forest and private property. Two of the four nearest records have a count of one individual with the other records not recording the number of koalas observed. These records were dated 1997 and 1998 in the DECC Atlas of NSW Wildlife. The potential habitat for the koala within the locality is extensive and is represented by nearly all forested ecosystem types within the locality, therefore a 7-part test was prepared. The 7-part test concluded that the proposal was unlikely to have a significant impact (refer to Appendix E and F of the REF).

The Squirrel glider (*Petaurus norfolcensis*) is listed as vulnerable under the TSC Act and was assessed as unlikely to occur within the study area as the species is associated with dry hardwood forest and woodlands. Habitats typically include gum barked and a high nectar producing species, including winter flower species. The presence of hollow bearing eucalypts is a critical habitat value however the ERM 2003 ecological survey report concluded that due to the type of vegetation present, hollow bearing trees of the sort suitable for animals to roost/breed in are unlikely to occur. Therefore a 7-part test pursuant to section 5A of the EP&A Act is not required for the Squirrel glider (*Petaurus norfolcensis*) (refer to Appendix E of the REF).

The study area is not protected as SEPP 14 Coastal Wetland or SEPP 26 Littoral Rainforest. Nor is it a protected area as defined by the IUCN Protected Area Guidelines (1994). The proposal would however impact areas providing habitat for wildlife, including for threatened fauna and flora. The proposal would also impact on vegetation communities listed as EECs under the TSC Act. The REF assessed the impact of the proposal on important and protected areas including wildlife sites, habitat for threatened flora and fauna and EECs. It found that there would be no significant impact to any threatened species, populations or ecological communities listed under the TSC Act or the EPBC Act (refer to Section 6.4 and Appendix F and G of the REF).

There would be minimal impact to native fauna during the construction phase of the proposal. The REF outlines safeguards and management measures to minimise impact to native fauna during construction. These include that a qualified ecologist would check areas to be cleared prior to clearing and that licensed and registered wildlife carers e.g. from WIRES would rescue and relocated any disturbed fauna.

The existing culvert at the wetland may provide some passage for native fauna, however as the area north of the culvert is cleared paddock there is limited north-south corridor value for fauna movements. The proposal would retain the existing culvert and would install a new triple-cell box culvert at the wetland which has been designed to maintain fish passage. The existing opportunities for fauna movement at the proposal site would be maintained, however installation of a fauna underpass is not warranted due to the limited corridor value present.

All areas disturbed by the proposal would be revegetated where possible. Revegetation would be undertaken using a mix of native species endemic to the local area. This may include planting native laurels to replace the exotic weed species Camphor laurel. The banks of the unnamed creek would not be impacted by the proposal.

3.4.6 Impacts on flora

Submission Numbers
1, 8, 9

Issue Description
In summary the respondents raised the following issues:

- A minimum of 400 trees plus many saplings, and the diverse understorey, will be bulldozed.
- The vegetation community contains habitat for the threatened flora species such as *Arthraxon hispidus*, *Eleocharis tetraquetra*, and *Phaius australis*.

Response
The REF assessed the study area for occurring or potentially occurring threatened species, populations and ecological communities and their habitat and the potential impacts of the proposal. The methodology for survey and assessment of biodiversity was in accordance with DECC 2004 and DECC 2007. Refer to section 3.4.4 of this submissions report for detailed methodology.

The REF found that the proposal would cause no significant impact on the Milky silkpod (*Parsonsia dorrigoensis)* which is listed as vulnerable under the TSC Act and endangered under the EPBC Act and potentially occurs in the study area.

The REF assessed the likelihood of occurrence for threatened flora species (refer to Appendix D of REF). Hairy jointgrass (*Arthraxon hispidus*) is listed as a vulnerable species under both the TSC Act and EPBC Act. A search of the EPBC Act database identified that potential habitat for this species is likely to occur within 10 kilometres of the study area. However, the NSW Wildlife Atlas search identified the nearest known record as being located approximately 15 kilometres to the north. As such, the species was identified as not likely to occur on site (refer to Appendix D of the REF). However, it is recommended that a targeted field survey for the Hairy jointgrass (*Arthraxon hispidus)* be undertaken to determine whether it is present within the study area. If this species is found to be present, an EP&A Act 7-part test and an EPBC Act assessment of significance to assess the impacts of the proposal would be required.

The Square-stemmed spike-rush (*Eleocharis tetraquetra)* is listed as endangered on the TSC Act. It is found in damp locations on stream edges and in and on the margins of freshwater swamps. The nearest known record is located near Boambee Creek over 10 kilometres away thus it was not assessed. However, the site represents potential habitat for this species. It is recommended that a targeted field survey for the Square-stemmed spike-rush (*Eleocharis tetraquetra)* be undertaken to determine whether it is present within the study area. If this species is found to be present, an EP&A Act 7-part test to assess the impacts of the proposal would be required.

The Southern swamp orchid (*Phaius australis)* is listed as endangered on both the TSC Act and EPBC Act. It is found in swampy grassland or swampy forest including paperbark forest, mostly in coastal areas. The nearest known wild population of this species is located in Coffs Harbour Botanic Gardens approximately 24 kilometres north east of Cameron's Corner according to interpretative signage within the Coffs Harbour Botanic Gardens. It is recommended that a targeted field survey for the Southern swamp orchid (*Phaius australis*) be undertaken to determine whether it is present within the study area. If this species is found to be present, an EP&A Act 7-part test and an EPBC Act assessment of significance to assess the impacts of the proposal would be required.

3.4.7 Section 5A EP&A Act – 7-part tests

Submission Numbers
2, 8

Issue Description
In summary the respondents raised the following issues:

- Use of conflicting justifications in and between 7-part tests.
- A Species Impact Statement needs to be produced.

Response
The 7-part tests have been reviewed to identify whether there are any conflicting justifications. A miscalculation was identified in the 7-part tests for the Swamp sclerophyll forest EEC and Freshwater wetland EEC. This has been rectified (refer to Section 3.4.2 and Appendix A and B of this Submissions Report). No other conflicting justifications have been identified.

The 7-part tests prepared for threatened species and ecological communities concluded that the proposal was unlikely to have a significant impact on those threatened species and ecological communities. Therefore an SIS is not required pursuant to Section 5A of the EP&A Act.

3.5 Water Quality and Hydrology

3.5.1 Hydrology Impacts

Submission Number (s)
1, 3, 9, 14, 18, 19, 20, 21, 24, 25, 27, 30, 31, 32, 33, 36, 39, 41, 44, 46

Issue Description
In summary the respondents raised the following issues:

- No knowledge of actual effects on local hydrology.
- It is impossible to determine exactly how the proposal will affect the water level and therefore viability of the Freshwater wetland EEC.
- To keep wetland healthy, it is imperative that water-flows over paperbarks are maintained, as this is a key part of the filtration process, and thus a key part of the wetland ecology.
- Any variation in water levels and drainage patterns will surely have a major impact on the wetland.
- Once the natural drainage and filtration system is destroyed, there are prohibitive costs in designing and providing compensatory man-made drains and channels to properly 'fix' the damage incurred. Without direct and comprehensive consultation with environmental design hydrologists, it cannot be assumed that the proposed box culverts will address the impact created by the vast volumes of fill for this work. If this is not addressed, there will be significant permanent damage to the area's hydrology, resulting in degradation of the area leading to increase of mosquito and midge populations. To keep wetland healthy, it is imperative that water-flows over paperbarks are maintained, as this is a key part of the filtration process, and thus a key part of the wetland ecology.
- Concerns the proposed removal of vegetation has direct effects upon the whole wetland. The function of these fringes is to filter and remove nutrients and bacteria, thereby keeping the whole area healthy and controlling the mosquito and midge populations. Any silting or build-up of clay deposits, such as necessitated by reclamation of lands for the building up of road base, also contaminates the wetland as filtration is compromised. To keep the wetland healthy, it is imperative that waterflows over paperbarks are maintained, as this is a key part of the filtration process, and thus a key part of the wetland ecology. The volumes of fill proposed will bring changes to the filtration process and can be likened to the blocking up of a sink. The root systems of the wetland trees and other plants have to have water flowing freely to survive.
- It is impossible to determine exactly how the proposal will affect the water level and therefore viability of the Swamp sclerophyll forest EEC.
- Swamp sclerophyll forest EEC is known to be threatened by change to flooding and drainage.

- Hydrology impacts and flood immunity have not been assessed properly in the REF and is internally contradictory in certain places. For example, whether hydrology will be affected - page 4 versus page 5 of the REF.
- The potential disturbances resulting from the RTA proposal will expose Acid Sulfate Soils and will result in acid discharges into the Bellinger River and will result in fish kills within the wetland, the unnamed creek and the Bellinger River.

Response

The REF characterises the existing local hydrology of the study area including of the wetland, its flow and drainage regime. There would be no change to the flow and drainage regime as a result of the proposal. The existing culvert and road embankment would remain in the current location and the new culvert would be designed to ensure that the existing low flow conditions of the wetland are maintained. The design would ensure that the proposal maintains the existing water level in both of the adjoining EECs including maintaining the existing water flow over the paperbarks (Swamp sclerophyll forest EEC).

In addition, safeguards and mitigation measures in the REF include, undertaking consultation with the Department of Water and Energy for the design and construction of the culvert works and that detailed design of the culverts would maintain the existing drainage characteristics of the wetland including maintaining the present drainage time lags and retention periods. There would be no prohibitive cost to achieve these design objectives.

The statements on pages 5 and 6 of the REF have been reviewed and appear contradictory. The statement on page 5 that "the hydrology of the wetland remains unchanged" appears to be contradicted by the statement on page 6 of the REF, which states that an adverse effect for hydrology includes "alteration of the hydrology of the wetland". The statement on page 6 addresses the change in hydrology of the wetland caused by reducing it in size by 0.1 hectares. However, as stated on page 5, the design would mitigate this impact to hydrology by maintaining the water level in the remaining wetland. The potential adverse effect of the proposal on the hydrology of the wetland would therefore be mitigated and would not cause a significant impact (refer to Appendix H of the REF).

The likelihood of potential impacts of exposing Potential Acid Sulfate Soils occurring within the proposal site are assessed in Section 6.1 of the REF. Acid Sulfate Soil risk maps produced by the former Department of Land and Water Conservation in 1995, show that the low lying wetland areas within the study area have a high risk occurrence of Acid Sulfate Soils. Soil excavated and disturbed would therefore have a high potential of oxidising. The location of the mapped Potential Acid Sulfate Soils within the study area is shown on Figure 3. Mitigation measures and safeguards are provided in Section 6.1 of the REF to ensure minimal disturbance of Potential Acid Sulfate Soils and to manage and mitigate any exposed Potential Acid Sulfate Soils. These safeguards would ensure that no acid discharge would be released from the proposal site.

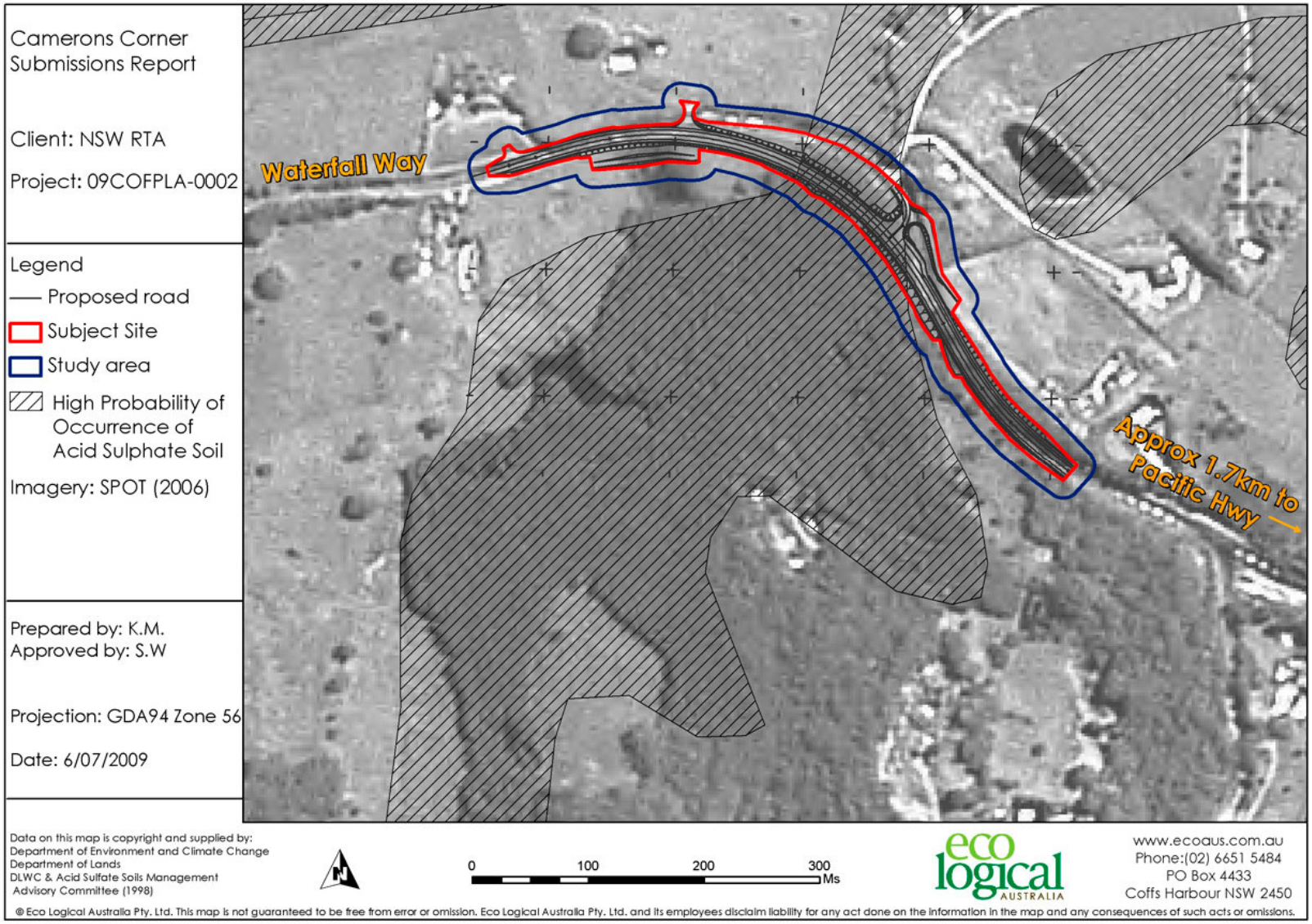

Figure 3: Potential acid sulfate soils within the study area

3.5.2 Flood immunity

Submission Number (s)
1, 2, 7, 9, 11, 14, 17, 18, 19, 20, 21, 25, 26, 27, 29, 30, 31, 32, 34, 35, 36, 39, 41, 44, 46

Issue Description
In summary the respondents raised the following issues:

- The proposal does not significantly mitigate road flooding
- The current proposal doesn't significantly reduce the travel times or make the road less flood prone.
- The improvement to flood immunity is only a reduction in flooding to a 1 in 5 year flood from a 1 in 4 year flood. This is not significant.
- Flood immunity of 1 in 5 year flooding is in direct contradiction with Council's Floodplain Risk Management Study that calls for a minimum of 20 year flood immunity. It could also be inconsistent with the NSW Government Flood Policy and Floodplain Management process. No adequate justification has been provided for the adoption of a lower level.
- What is the actual flood mitigation that will result from the proposal? The REF is contradictory in some sections.
- There are no guarantees the historical flood data will accurately map future changes in rainfall and flooding events.
- Option 2 does not alleviate the impact of river floods, it does however reduce the impact and it does alleviate known catchment flooding.
- Flood immunity should be reassessed through a comprehensive socio-economic investigation in consultation with Bellingen Shire Council and DECC.
- Flooding is a part of life in Bellingen and it will always be a problem, as it is in many areas of the shire.
- Unless the flooding issues along other sections of Waterfall Way are upgraded, Waterfall Way will still have flooding problems.
- Should undertake a detailed economic analysis that looks at the benefits and costs of various levels of flood immunity and consultation is to be undertaken with Council's Flood Committee and the NSW Governments Technical Advisor on Floodplain Management for the region.
- A previous study prepared for the NSW Governments Interdepartmental Floodplain Management Committee identified an incredibly high benefit cost ratio of 3 if Waterfall Way was raised to at least the 10 year level.
- Flood mitigation is important. The new road needs to be built up and it could be closer to the existing road. Believe this would have minimal impact on the wetland.
- Install an adjustable weir beneath the road to control drainage
- Raise the road to at least a 1 in 5 year flood level, sufficient culvert drainage; widen the road by 2 metres within additional camber, within the present road reserve.
- To avoid road closure - elevate the existing road, which is currently subject to flooding, and bridge the wetland area to enable normal water flow through the entire swamp area

Response
At present, the Waterfall Way is subject to flooding about one in every four years (on average). The proposal would improve flood immunity by achieving an Average Recurrence Interval[2] (ARI) 5 or otherwise known as a 1 in 5 year flood.

To achieve this level of flood immunity the road centreline level would be lifted approximately 0.8 of a metre higher than the existing road level. To achieve a greater immunity e.g. to ARI 10 (1 in 10 year flood), the road would need to be lifted approximately 1.7 metres higher than the existing road, which would result in a larger disturbance footprint. This would reduce opportunities to minimise other environmental impacts including to biodiversity, hydrology and visual amenity. A greater amount of fill would also be required, increasing the cost of the project, the demand on resources and the number of truck movements required during construction.

Although the proposal does not meet the 1 in 20 year flood immunity suggested in the Bellingen Shire Council Floodplain Risk Management Study and Plan, the improvements to the flood immunity of the Waterfall Way as a result of the proposal would be beneficial for road users.

The submissions received for improvements in flood immunity have been assessed and the following recommendations have been identified:

- A flood assessment of the site is to be undertaken to confirm the required flood immunity. The assessment should take into account recent local flood events and the DECC climate change data for the Northern Rivers region.

3.6 Aboriginal heritage

Submission Numbers
1, 2, 44

Issue Description
In summary the respondents raised the following issues:

- The cultural significance of the area is not given enough consideration in the REF, and further consultation with the local Aboriginal community is required.
- Considering the Aboriginal site assessment clearly stated the site had Aboriginal heritage value, avoidance or at least minimisation of construction impacts on the site should occur. Concern was expressed the RTA still operates on a narrow view of what Aboriginal site assessments should involve.
- Local Aboriginal sites advisors and elders also state that Cameron's Corner is an important site for local Aboriginal people as it represents a large remnant of the original vegetation/habitats and supports substantial food and medicine resources.

Response
The RTA is committed to effectively consult with Aboriginal communities on activities that may impact on Aboriginal cultural heritage. The proposal has been undertaken in accordance with the "RTA Procedure for Aboriginal Cultural Heritage Consultation and Investigation" (August 2008). This procedure is consistent with the DECC Interim Community Consultation Requirements for Applicants (2004) and addresses the requirements for assessing impacts on Aboriginal cultural heritage under the

[2] The Average Recurrence Interval (ARI) is a statistical estimate of the average period in years between the occurrence of a flood of a given size. For example, the 100 year ARI event will occur on average once every 100 years: this is equivalent to a 100 year ARI having a 1% probability of occurring in any given year.

National Parks and Wildlife Act, 1974 and the EP&A Act. It provides a process to ensure that the views of Aboriginal people on Aboriginal cultural heritage matters are considered and respected by the RTA during project development and implementation.

In accordance with the procedure the Coffs Harbour and District Local Aboriginal Land Council (CHLALC) and the Bowraville Local Aboriginal Land Council (BLALC) were invited to participate in the Aboriginal cultural heritage assessment. In addition, the RTA engaged Adise Pty Ltd to conduct an Aboriginal cultural heritage assessment of Cameron's Corner in 2008. This assessment included a site survey and was undertaken in consultation with the CHLALC and Urunga Elder, Tom Kelly. A low level of archaeological potential and Aboriginal cultural heritage sensitivity was identified. Safeguards were incorporated into the REF to address the potential of encountering isolated artefacts and to minimise construction impacts at the paperbark swamp through safeguards and mitigation measures (refer to Section 6.5 of the REF).

A survey of the proposal site was conducted on foot by archaeologist Jacqueline Collins CHLALC Senior Sites Officer Mark Flanders and Urunga Elder Tom Kelly. The survey involved inspection of all available ground surface exposures, including erosion scours, road verges and cuttings, unpaved road surfaces, stock tracks, and areas supporting light and patchy vegetation cover. The trunks of all mature/large trees were inspected for evidence of Aboriginal cultural markings (i.e. scarred trees).

No artefacts or evidence of Aboriginal occupation or use were detected during the survey. No areas of Potential Archaeological Deposit (PADs) were identified, either during the survey or as a result of consultation with local Aboriginal community members and no scarred trees are present within the study area.

The assessment found that any undetected archaeological evidence would be restricted to a low density 'background' distribution of isolated stone artefacts. As 'background' artefact distributions are dispersed and unpredictable and as the area to be impacted by the proposal at the foot of the hill is relatively small, neither subsurface archaeological testing nor monitoring of construction is considered warranted.

The study area was assessed as having a low level of Aboriginal cultural heritage sensitivity. The assessment was undertaken in consultation with Urunga Elder Tom Kelly and CHLALC Senior Sites Officer Mark Flanders. The advice received during the cultural assessment was that no sites/places or resources of traditional, historic or contemporary socio-cultural significance are known to occur in the study locality and the study area has a low level of Aboriginal cultural heritage sensitivity. The paperbark swamp is likely to have provided traditional water, food and material cultural resources, and is therefore of general Aboriginal cultural heritage value. To preserve this value, it was recommended that construction impacts on the paperbark swamp should be avoided or at least minimised as far as possible.

Due to the low level of Aboriginal cultural heritage sensitivity identified, further investigation of the Aboriginal cultural heritage significance of the study area is not warranted.

The likelihood of finding presently undetected Aboriginal objects and/or places within the proposal site during construction is considered to be low. Impacts on Aboriginal objects and/or places are therefore unlikely to occur as a result of the proposal. The management and mitigation measures outlined within the Aboriginal heritage assessment also include the recommendation to confine the construction impacts as far as possible to the road footprint itself to minimise the impacts on the paperbark swamp. These mitigation measures were discussed during the site survey, endorsed as the most appropriate means of conserving the study area's Aboriginal cultural heritage value, and are included in the REF (refer to Section 6.5).

3.7 Non-Aboriginal heritage

Submission Numbers
1, 8, 9, 14, 16, 17, 19, 20, 21, 22, 24, 25, 27, 30, 31, 32, 33, 40, 41, 45, 46

Issue Description
In summary the respondents raised the following issues:

- Cameron's Corner is a cultural icon.
- Visitors and residents alike are welcomed 'home' by the visual amenity of the site.
- The site is not only an ecological oasis, but also a major cultural and tourism asset.
- This area has been seriously undervalued by the RTA for its cultural importance.
- The REF seems unable to measure the importance of this piece of wetland to the lower Bellinger Valley and to the community.
- The REF gave insufficient consideration to the cultural and social significance of the site to the local Indigenous community and the wider community. There is no evidence that the consultants who prepared the REF sought to assess the cultural and social significance of the site beyond a desktop survey of heritage databases.
- The REF works with too narrow a definition of 'cultural significance'.
- The forest provides aesthetic value. It also contributes significantly to the character of the valley.

Response
During the preparation of the REF, all relevant heritage databases were searched in order to identify known heritage items within the study area. This included the NSW Heritage Office State Heritage Register, Bellingen LEP 2003, the Australian Heritage Database Register and the RTA's section 170 heritage register. No items or places were located and the REF considered that the proposal would not impact on any known heritage items. A process was recommended for managing any heritage items that might be uncovered during construction.

Submissions have been received referring to Cameron's Corner as a 'cultural icon' with cultural importance and high visual amenity. For this reason, it is recommended that a heritage assessment be undertaken to determine the cultural significance of the locality. This assessment should be undertaken in accordance with the NSW Heritage Office's Manual for assessing heritage significance (2001) so that the cultural, social and visual significance of the study area can be clarified.

3.8 Climate change

Submission Number
24

Issue Description
In summary the respondent raised the following issue:

- Reduction of the forest by 400 trees, will reduce its effective 'carbon sink' function as an environmental asset. The probable ensuing degradation of the area risks further reduction of this asset. This directly works against the Carbon Pollution Reduction Scheme.

Response
The proposal would remove approximately 0.8 hectares of native vegetation. This would reduce the carbon sink function. However this impact would be minimised by revegetating all disturbed areas and

redundant road pavement. In addition, operation of the proposal would deliver immediate reductions in carbon emissions as a result of the improvements to the road alignment, allowing for reduced braking and acceleration and a more consistent travel speed.

The RTA has prepared a draft Climate Change Plan (RTA 2009) which outlines a holistic approach to reducing impacts on climate change. The draft plan outlines how the RTA will:

1. Reduce the RTA's carbon footprint.
2. Help to reduce the carbon footprint of road transport.
3. Adapt the RTA road transport system to the impacts of climate change.
4. Manage the RTA's transition to a low carbon economy.

3.9 Economy and Tourism

Submission Number
1, 2, 3, 29, 33, 34, 35, 36, 40

Issue Description
In summary the respondents raised the following issues:

- Cameron's Corner is a significant part of the reason for the Waterfall Way being rated by the NRMA as the best tourist drive in NSW and one of the best three in Australia. Tourists are not attracted by the speed with which they can drive along Waterfall Way, but by its scenic and natural beauty.
- Whilst the Waterfall Way is a link road between Armidale and Coffs Harbour, it needs to be treated in a different category again to a Main Road. It is in fact a major tourist drive and whilst needing to be a safe road to ensure risk free journeys, it needs to maintain the magic that makes it NSW #1 Tourist Drive.
- It is submitted in the REF that Option 2 would provide a road network that would promote economic development. This doesn't take into account the importance of Waterfall Way as a tourist drive. Having Waterfall Way recognised as the No 1 Tourist Drive in NSW is very important in attracting tourists thus maintaining Waterfall Way as an attractive drive and protecting the endangered natural environment are extremely important for the local economy.
- Potential economic damage caused by the area's degradation. Clay could be left at the site for one year while road base settles. This will be unsightly and will impact tourist value/economy.
- Apart from the potential negative tourist aspects of the proposal to a major local industry, there will be few improvements to economic development and the proposal will not be an acceptable return on project investment.
- The economic benefits of the proposal would be negligible given the plethora of winding roads and other speed signs along Waterfall Way. Doubt there would be any loss of tourism.
- Economic benefits of enhancing the tourism value of the wetland.
- The wetlands should be preserved for the tourists, locals and future generations to enjoy.
- The land acquisition brings a significant part of the wetland and SSF into public ownership allowing road upgrade plans to accommodate and facilitate public access to experience the mystery, atmosphere and beauty of this forest and to see up close the great many species of waterbirds that frequently use this wetland.

- The Cameron's Corner Swamp sclerophyll forest and wetland is an ecological and scenic treasure. It is a rare treasure with the potential to play a significantly positive role in the growing ecotourism contribution to the Bellingen Shire economy.
- A listed EEC is important to the community and tourism should have been included in the assessment as this is important in the Bellingen Shire.
- The Proposal will destroy an important and protected wildlife site and this may in turn impact on the tourism to the area.

Response
The RTA acknowledges the Waterfall Way as an important tourist route and attraction. Any proposal to upgrade the route needs to carefully balance tourism and economic issues with safety, traffic efficiency, engineering and community issues.

The issues raised regarding tourism and the economy would be considered in the investigation of alternative options for the proposal.

3.10 Construction impacts

Submission Numbers
1, 23, 33, 37

Issue Description
In summary the respondents raised the following issues:

- Where is the fill to be accessed from?
- Fill should be sourced from somewhere else without encroaching on the forest and destroying the scenic, habitat and cultural values of the site.
- Concerns regarding the need for 14,000 cubic meters of fill of which requires 700 fully laden truck movements by a six axle truck/dog combination were expressed. This equivalent to 7 million cars, based on previous studies by Austroads. This is not taking into consideration the damage caused by empty trucks returning to pick up more fill. The impact caused by these truck movements through the Bellingen Township (40km/h areas) is also a concern. Who is responsible for the damage caused by these truck movements and what provision would Bellingen Council need to make in its budget for the repair of these damaged roads.
- Ongoing delays and interruptions, increased volume of heavy trucks, requirement of 14,000 cubic metres of fill, damage to the wetland while the road base settles (clay), reduction in safety, speed of travel and tourism value of the road during this time should not be underestimated.

Response
The majority of fill (approximately 13,000 cubic metres) would be sourced from approved, operational quarries in the local area, including in Coffs Harbour and Dorrigo. The remainder of fill (approximately1,200 cubic metres) would be sourced directly from a cutting located at the eastern end of the proposal site.

Fill sourced from the eastern end of the proposal site would be generated from works required to upgrade a substandard curve to meet the safety objectives of the proposal. Use of this fill material would reduce the demand on resources including quarry materials and fossil fuels for transporting materials to the proposal site. It would also reduce the impact on traffic by avoiding the need for approximately 60 truck movements on the local and or regional road networks.

The proposal would involve approximately 20 trucks movements per day on the Waterfall Way over a six (6) month period. Heavy vehicle numbers per day would increase from approximately 402 to approximately 422, which represents a 5% increase in heavy vehicles. Waterfall Way currently has 6,700 vehicles per day and the increased trucks represent an additional 0.3% in overall traffic movements over the short-term. Therefore, the additional truck movements are not expected to have a significant impact on the road traffic or surface of the Waterfall Way.

The maintenance of the Waterfall Way is the responsibility of the RTA. While Bellingen Shire Council is contracted by the RTA to undertake maintenance works, the maintenance funding of Waterfall Way remains the responsibility of the RTA and the proposal would not affect Bellingen Shire Council's budget. The proposal would be expected to reduce the long-term maintenance costs at this location.

During construction the proposal would cause short-term impacts to traffic including delays and interruptions. The majority of works would be undertaken off the existing Waterfall Way and existing traffic lanes would be maintained. Impacts to traffic would be mitigated by planning truck movements to avoid peak times and advising motorists by appropriate signage prior to delays occurring. A Traffic Management Plan (TMP) would be prepared in accordance with the *Traffic Control at Work Sites Manual (*RTA 2006) and the RTA QA Specification G10 Control of Traffic (refer to Section 6.10 of the REF). The Traffic Management Plan would include consideration of construction traffic through the Bellingen township.

3.11 Statutory position

Submission Numbers
2, 8

Issue Description
In summary the respondents raised the following issues:

- The RTA should not be its own consent authority and DECC should have been consulted for the important environmental issues as the RTA lack this knowledge.
- An environmental impact statement should be prepared pursuant to Part 5 of the EP&A Act 1979 to adequately assess the impact of any direct impact on this area from the proposed road works to Waterfall Way.

Response
Section 3 of the REF outlines the statutory position. Pursuant to clause 94(1) of the SEPP (Infrastructure) 2007, development is permitted on any land for the purpose of a road or road infrastructure facilities to be carried out by or on behalf of a public authority without consent. As such, the proposal is subject to an environmental assessment and determination under Part 5 of the EP&A Act.

Section 5.2 of the REF outlines consultation with agencies and how issues raised were addressed. This includes consultation with DECC in August 2008.

An environmental impact assessment (EIA) was carried out pursuant to Part 5 of the EP&A Act. This involves the preparation of an REF. If the REF had found that the proposal would have a significant impact on the environment, then an environmental impact statement may have been required. The REF concluded that the proposal would not have a significant impact on the environment and therefore an environmental impact statement is not required under section 112 of the EP&A Act.

3.12 REF document

Submission Numbers
2, 9, 18, 22, 37

Issue Description
In summary the respondents raised the following issues:

- This proposal involved a minor/limited environmental review. It should always be based on the significance of the site and the potential impacts.
- The Executive Summary indicates the road length is 560m but the main body of the REF specifies 550m.
- The REF is flawed with errors and omissions. Needs to be rewritten.

Response
The environmental impact assessment, in the form of an REF, was carried out pursuant to Part 5 of the EP&A Act. The REF was prepared by a specialist EIA contractor and specialists were engaged where appropriate e.g. to assess biodiversity, flooding, and Aboriginal heritage impacts. The REF identified the characteristics of the existing environment at the proposal site. Potential direct and indirect impacts of the proposal on the existing environment were then assessed and mitigation and management measures were identified to avoid, minimise and mitigate impact (refer to section 7.2 of the REF). The REF concluded that the proposal would not have a significant impact on the environment.

As part of the ongoing environmental assessment, the RTA invited public comment on the REF to ensure that all aspects of the environment were identified and that the impacts of the proposal were adequately assessed. In response to submissions received further investigations have been recommended. These recommendations are summarised in section 4 of this submissions report.

The Executive Summary of the REF indicates that the proposal would be approximately 560 metres while the Section 2.1 of the REF indicates a length of approximately 550 metres. This represents a minor contradiction as works to tie the proposal into the existing Waterfall Way at each end would be on the existing Waterfall Way pavement. However it would be more accurate to state that the proposal would be approximately 550 metres in length.

A review of the REF to identify flaws and omissions was undertaken for this Submission report. The errors and omissions identified are addressed in this submissions report and associated recommendations are summarised in Section 4 of this submissions report.

4. Recommendations

This submissions report has taken into consideration the issues raised following the display of the REF for the proposal. Prior to the RTA determining whether or not to proceed with the proposal it is recommended that:

- In consultation with the community and relevant stakeholders, an investigation of viable alternative options is undertaken. The options investigation would aim to avoid or minimise impact on the Swamp sclerophyll forest Endangered Ecological Community and Freshwater wetland Endangered Ecological Community. The options investigation would also take into account the issues raised during public display of the REF, including the tourism and economy issues.
- Field surveys targeting the Green-thighed frog (*Litoria brevipalmata)*, Hairy jointgrass (*Arthraxon hispidus)*, Southern swamp orchid (*Phaius australis*) and Square-stemmed spike-rush (*Eleocharis tetraquetra)* are undertaken to determine if these species are present within the study area. Where any of these are found to be present, an Environmental Planning and Assessment Act 1979 7-part test and/or Environment Protection and Biodiversity Conservation Act 1999 assessment of significance would be required to assess the impacts of the proposal.
- A heritage assessment to determine the cultural significance of the locality in accordance with the NSW Heritage Office's Manual for assessing heritage significance (2001) is prepared to clarify the cultural, social and visual significance of the study area.
- A flood assessment to confirm the required flood immunity is prepared. The assessment would take into account recent local flood events and the climate change data (from Department of Environment and Climate Change) for the Northern Rivers region.

5. References

DEC (2004) *Threatened Species Survey and Assessment: Guidelines for developments and activities (working draft).* New South Wales Department of Environment and Conservation, Hurstville, NSW.

DECC (2007) *Threatened species assessment guidelines. The assessment of significance.* Department of Environment and Climate Change NSW. Sydney.

RTA (2009). *Review of Environmental Factors for Waterfall Way realignment at Cameron's Corner.* Coffs Harbour, NSW (prepared by Eco Logical Australia Pty Ltd).

IUCN. 1994. *Guidelines for Protected Area Management Categories.* CNPPA with the assistance of WCMC. IUCN, Gland, Switzerland and Cambridge, UK.

APPENDICES

APPENDIX A – AMENDED SWAMP SCLEROPHYLL FOREST EEC 7-PART TEST

Endangered Ecological Communities (EECs)

Swamp Sclerophyll Forest
Swamp sclerophyll forest on Coastal Floodplains of the NSW North Coast, Sydney Basin and South East Corner bioregions (SSF) is listed as an endangered ecological community (EEC) on the *Threatened Species Conservation Act 1995* (TSC Act).

The RTA proposes to realign Waterfall Way (the Proposal) at Cameron's Corner near Bellingen, NSW. The proposed works would affect a portion of SSF. This Assessment of Significance (AoS) has been prepared to assess the significance of that impact as required under the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act).

ERM previously conducted an assessment in 2003 and considered a range of threatened biota as listed under the TSC Act. However, SSF was not listed as an EEC at that time and was, therefore, not considered. This AoS:

- Presents the important definitions for impact assessment in relation to threatened biota as listed under the TSC Act in the context of the Proposal;
- Outlines the direct and indirect impacts associated with the Proposal;
- Defines the SSF EEC as determined by the NSW Scientific Committee;
- Describes the extent and condition of SSF within the study area and locality;
- Assesses the likely significance of impacts to SSF that would arise from the Proposal; and
- Includes figures to support the information presented.

Definitions
The following key terms are defined in DECC (2007) Threatened Species Assessment Guidelines – The Assessment of Significance, DECC, Hurstville NSW, and are utilised in this AoS:

- *Subject site*: means the area that would be directly impacted upon by the Proposal (direct impacts are defined below). In this case this is the area defined by the red line in **Figure 2** as the development footprint. The subject site is approximately 2.1 hectares.
- *Study area*: means the subject site and any additional areas which are likely to be affected by the Proposal, either directly or indirectly (indirect impacts are defined below). The study area should extend as far as is necessary to take all potential impacts into account. In this case a buffer of 15 metres around the subject site has been defined to include all possible additional impacts. The study area includes the subject site, and is the area within the dark blue line in **Figure 2.** The study area is approximately 4.2 hectares.
- *Direct impacts:* Direct impacts are defined as those that directly affect habitat and individuals. They include, but are not limited to, death through predation, trampling, poisoning of the animal/plant itself and the removal of suitable habitat. When applying each factor, consideration must be given to all of the likely direct impacts of the proposed activity or development. The amount of SSF to be directly impacted upon by the Proposal is approximately 0.5 hectares.
- *Indirect Impacts:* Indirect impacts are defined as those that occur when project-related activities affect species, populations or ecological communities in a manner other than direct loss. Indirect impacts can include loss of individuals through starvation, exposure, predation by domestic and/or feral animals, loss of breeding opportunities, loss of shade/shelter, deleterious hydrological changes, increased soil salinity, erosion, inhibition of nitrogen fixation, weed invasion, fertilizer drift, or increased human activity within or directly adjacent to sensitive habitat areas. As with direct impacts, consideration must be given, when applying each factor, to all of the likely indirect impacts of the proposed activity or development. The amount of SSF potentially indirectly impacted by the Proposal is 0.8 hectares.

The terms local occurrence and locality are defined at the relevant sections of the AoS (Sections c and d.iii respectively).

Impacts to SSF associated with the Proposal

Direct impacts of the Proposal are related to clearing 0.5 hectares of SSF within the study area. This is an unavoidable impact.

Indirect impacts of the Proposal include the creation of a new bushland edge not previously exposed to disturbance, the likelihood of rubbish dumping and other non-specific human use and weed invasion. These indirect impacts are pre-existing processes in the study area due to adjacent land uses (agricultural) and, as such, are unlikely to be exacerbated by the Proposal. It is unlikely that the Proposal would lead to erosion and sedimentation as it is largely located on flat land.

Whilst some indirect impacts, such non-specific human use, are unavoidable, it is anticipated that the design of the Proposal would include measures to ameliorate the indirect impacts related to weed invasion.

In terms of the hydrology of the site, the aquatic ecology assessment carried out by Marine Pollution Research Pty Ltd (2003) states that the hydraulic system of the study area was unlikely to be affected provided drainage structures associated with the realignment were designed to maintain the current flooding and drainage regimes in the study area.

Definition of Swamp sclerophyll forest on coastal floodplain EEC

This definition is taken from NSW Scientific Committee (2004), Swamp sclerophyll forest on coastal floodplains of the NSW North Coast, Sydney Basin and South East Corner bioregions – endangered ecological listing, NSW Scientific Committee final determination, Hurstville NSW.

On the NSW North Coast SSF is dominated by a tree layer of eucalypts and paperbarks that may exceed 25 metres in height but can be considerably shorter in regrowth stands. Areas of fernland, tall reedland or sedgeland are common. Typically the community is associated with humic clay loams and sandy loams, on waterlogged or periodically inundated alluvial flats and drainage lines associated with coastal floodplains and generally occurs below 20 metres elevation.

The composition of Swamp sclerophyll forest on coastal floodplains is primarily determined by the frequency and duration of waterlogging and the texture, salinity nutrient and moisture content of the soil. Composition also varies with latitude. The community is characterised by the following assemblage of species:

Acacia irrorata
Acmena smithii
Allocasuarina littoralis
Banksia spinulosa
Baumea juncea
Blechnum indicum
Callistemon salignus
Carex appressa
Centella asiatica
Dodonaea triquetra
Entolasia marginata
Eucalyptus botryoides
Eucalyptus resinifera subsp. *hemilampra*
Ficus coronata
Gahnia sieberiana
Glycine clandestina
Hydrocotyle peduncularis
Acacia longifolia
Adiantum aethiopicum
Banksia oblongifolia
Baumea articulata
Blechnum camfieldii
Breynia oblongifolia
Calochlaena dubia
Casuarina glauca
Dianella caerulea
Elaeocarpus reticulatus
Entolasia stricta
Eucalyptus longifolia
Eucalyptus robusta
Gahnia clarkei
Glochidion ferdinandi
Gonocarpus tetragynus
Hypolepis muelleri

Imperata cylindrica var. *major*
Leptospermum polygalifolium subsp. *polygalifolium*
Lomandra longifolia
Melaeuca ericifolia
Melaleuca quinquenervia
Melaleuca styphelioides
Omalanthus populifolius
Oplismenus imbecillis
Phragmites australis
Pratia purpurascens
Stephania japonica var. *discolor*
Villarsia exaltata
Viola hederacea
Isachne globosa
Livistona australis
Lophostemon suaveolens
Melaleuca linariifolia
Melaleuca sieberi
Morinda jasminoides
Oplismenus aemulus
Parsonsia straminea
Polyscias sambucifolia
Pteridium esculentum
Themeda australis
Viola banksii

The dominant tree species include *Eucalyptus robusta* and *Melaleuca quinquenervia*. Other scattered or locally common trees may include *Callistemon salignus, Casuarina glauca, Eucalyptus resinifera subsp. hemilampra, Livistona australis* and *Lophostemon suaveolens*. A layer of small trees may be present including *Acacia irrorata, Acmena smithii, Elaeocarpus reticulatus, Glochidion ferdinandi, Melaleuca linariifolia and M. styphelioides*. Shrubs include *Acacia longifolia, Dodonaea triquetra, Ficus coronata, Leptospermum polygalifolium* subsp. *polygalifolium* and *Melaleuca* spp. while the vines *Parsonsia straminea, Morinda jasminoides* and *Stephania japonica* var. *discolor* are sometimes present. The groundcover is usually composed of *Gahnia clarkei, Pteridium esculentum, Hypolepis muelleri, Calochlaena dubia, Dianella caerulea, Viola hederacea, Lomandra longifolia, Entolasia marginata* and *Imperata cylindrica*.

Description of swamp sclerophyll forest within the study area

SSF occurs on the flat, poorly drained parts of the study area. It is a tall forest dominated by Broad-leaved paperbark (*Melaleuca quinquenervia*) with occasional Swamp mahogany (*Eucalyptus robusta*). There is a sparse small tree and shrub layer and a dense tall ground layer dominated by the sedges *Carex appressa* and *Gahnia clarkei.*

Table 1: Areas of Swamp sclerophyll forest on coastal floodplain

Parameter	**Total Area (ha to 0.1 d.p.)**	**SSF (ha to 0.1 d.p.)**
Subject Site (footprint or area of direct impact)	2.1	0.5
Study Area (area of direct and indirect impacts)	4.2	1.3
Local Occurrence of SSF (area of contiguous SSF habitat)	-	13.9

The 13.9 hectares local occurrence of SSF was considered to be in good condition with few weeds and a tall mixed-age canopy with many *Melaleuca quinquenervia* over 400 millimetres diameter and the occasional larger *Eucalyptus robusta*. The local occurrence of SSF was assessed as having high regenerative potential due to a relatively undisturbed and intact soil profile. The edges were in moderate condition due to the localised invasion of weeds, pressures from adjacent competing land uses (such as clearing and grazing) and from roadside maintenance (slashing) along the existing Waterfall Way edge. 1.3 hectares of SSF is present within the study area, of which 0.5 hectares would be directly impacted upon by the Proposal as a result of clearing. The remaining 0.8 hectares would be indirectly impacted upon by the Proposal.

Seven Part Test

a) In the case of a threatened species, whether the action proposed is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction.

N/A

b) In the case of an endangered population, whether the action proposed is likely to have an adverse effect on the life cycle of the species that constitutes the endangered population such that a viable local population of the species is likely to be placed at risk of extinction.

N/A

c) In the case of a critically endangered or endangered ecological community, whether the action proposed:

i. is likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction, or

ii. is likely to substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction.

Local Occurrence: In reference to EECs, this is "the ecological community that occurs within the study area". However, the local occurrence may include adjacent areas if the ecological community on the study area forms part of a larger contiguous area of that ecological community and the movement of individuals and exchange of genetic material across the boundary of the study area can be clearly demonstrated. In this case, the local occurrence is the area of contiguous habitat to the south of the study area and is 13.9 hectares. This has been defined as the extent of the local occurrence.

Extent

The local occurrence of SSF is 13.9 hectares. Approximately 0.5 hectares of the local occurrence of SSF would be removed by the Proposal and this represents 3.6 per cent of the local occurrence of the EEC.

The removal of 0.5 hectares (3.6 per cent) of SSF is considered to be a substantial amount of the local occurrence of the EEC. However, it is unlikely that, as an isolated impact, the removal of this amount would place the local occurrence of SSF at risk of extinction.

Composition

The composition and structure of SSF is primarily determined by a regime of natural disturbance involving flooding and wild fire. It is unlikely that the Proposal would adversely affect the fire regime within the study area and Marine Pollution Research Pty Ltd (2003) concluded that the hydrological regime within the study area was unlikely to be impacted by the Proposal.

Despite the removal of 0.5 hectares of SSF, the Proposal is unlikely to substantially simplify the faunal, floristic or vegetation structure of the remaining occurrence of the EEC. A minor alteration to the structure and composition of the EEC within the study area may occur along the newly created edge.

It is unlikely that the Proposal would substantially and adversely modify the composition of the EEC such that its local occurrence is likely to be placed at risk of extinction.

d) In relation to the habitat of a threatened species, population or ecological community:

i. the extent to which habitat is likely to be removed or modified as a result of the action proposed, and

ii. whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed action, and

iii. the importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species, population or ecological community in the locality.

Extent

The extent of the local occurrence of SSF is 13.9 hectares. Approximately 0.5 hectares (3.6 per cent) of the local occurrence of SSF would be removed by the Proposal. Furthermore, the Proposal may indirectly affect a further 0.8 hectares (5.8 per cent) of the local occurrence of SSF.

Table 2 summarises the extent of SSF at a regional and sub-regional scale. Approximately 274 hectares of SSF exists within the Bellinger-Kalang catchments, 330 hectares within 10 kilometres of the study area and 120 hectares within five kilometres of the study area. The removal of 0.5 hectares of SSF is considered to be negligible in relation to the extent of the community at the regional and sub-regional levels.

Table 2: Swamp Sclerophyll Forest at Regional and Sub-regional Scale.
(NB: FE units 112 (Paperbark) and 142 (Swamp Mahogany) include vegetation on coastal sands which does not constitute SSF. As such, the figures provided in Table 2 have been corrected for such occurrences)

Area of interest	Area (ha) of Paperbark (FE_No 112) on floodplain	Area (ha) of Swamp Mahogany (FE_No 142) on floodplain	Total Area of SSF
Bellinger administrative catchment boundary	3497	414	3911
Bellinger and Kalang catchments	273	0.6	274
10km radius from study area	267	63	330
5km radius from study area	120	0	120

Fragmentation and Isolation

The patch of SSF to be affected by the Proposal is at the northern extent of the local occurrence of the EEC (**Figure 2**). Despite the removal of 0.5 hectares of SSF, the Proposal would neither fragment nor isolate SSF within the locality, nor would it increase the edges of SSF that may be exposed to indirect impacts.

Importance

Locality; in terms of EECs (and therefore this AoS), the term locality refers to the "local occurrence" as defined above. Therefore, the amount of SSF within the locality is 13.9 hectares. *Note; In relation to other threatened species under consideration in relation to this Proposal, the area of "contiguous habitat" has been defined as the habitat within 5 km of the study area.*

Approximately 330 hectares of SSF exists within 10 kilometres of the study area, up to 274 hectares exists within the Bellinger/Kalang catchment and up to 8,580 hectares within the Bellinger administrative catchment area. At this scale, the removal of 0.5 hectares of SSF is considered negligible.

There is no question that the local occurrence of SSF (13.9 hectares) is an important example of this community within the local area, however, it is unlikely that the removal of 0.5 hectares of SSF would

place the local occurrence of the EEC at risk of extinction (criteria c above) nor would it detract from the local importance of this remnant. Furthermore, at a broader scale, the patch of SSF to be removed is considered to be negligible. Therefore, the 0.5 hectares of SSF to be removed by the Proposal is unlikely to be important to the long term survival of the EEC.

e) Whether the action proposed is likely to have an adverse effect on critical habitat (either directly or indirectly).

Under the TSC Act, the Director-General of Department of Environment and Climate Change (DECC) maintains a Register of Critical Habitat. To date, no critical habitat has been declared for SSF.

The Proposal would not have an adverse effect upon critical habitat (directly or indirectly).

f) Whether the action proposed is consistent with the objectives or actions of a recovery plan or threat abatement plan.

To date, no recovery plan has been prepared for SSF. DECC has listed 12 priority actions to help recover the EEC, none of which relate to the Proposal, or the impacts of the Proposal on SSF. As such, the Proposal is not inconsistent with the objectives or actions of a recovery plan or threat abatement plan, despite the removal of 0.5 hectares of SSF.

g) Whether the action proposed constitutes or is part of a Key Threatening Process or is likely to result in the operation of, or increase the impact of, a Key Threatening Process.

The Proposal would result in the clearing of approximately 0.5 hectares of SSF. The 'Clearing of Native Vegetation' constitutes a Key Threatening Process (KTP) under the TSC Act and is a threat to all endangered ecological communities.

The act of clearing would also result in the removal of some dead wood and trees from the site. The 'Removal of Dead Wood and Dead Trees' constitutes a KTP under the TSC Act. Dead logs, stags and hollows were not a key habitat feature associated with the study area and, therefore, it is considered that the operation of this KTP, as a result of the Proposal, would be negligible.

Additionally, the Proposal may indirectly result in the operation or increase the impact of following KTPs:

- 'Invasion of Native Plant Communities by Exotic Perennial Grasses' – through the creation of a disturbed edge in previously undisturbed native vegetation, especially along battered edges of the road. However, this is unlikely to be exacerbated by the Proposal due to the existing pressures of adjacent land use on the local occurrence of SSF.
- 'Human-caused Climate Change' – through the loss of native vegetation as a carbon-sink and the use of fossil fuels during the construction and operation of the Proposal. This is considered to be a relatively minor impact of the Proposal and is unlikely to increase the impact of climate change on SSF.

Conclusion

It is considered that:

- As an isolated impact, the removal of 0.5 hectares of SSF is unlikely to place the local occurrence of SSF at risk of extinction;
- The Proposal neither fragments nor isolates SSF within the locality;

- The amount of SSF to be removed by the Proposal (0.5 hectares) is unlikely to be of importance to the long term survival of the EEC;
- The Proposal is not inconsistent with the objectives or actions of a recovery plan or threat abatement plan; and
- Apart from 'Clearing of Native Vegetation', the operation of Key Threatening Processes, as a result of the Proposal, would be negligible.

Given the factors above, it is unlikely that the Proposal would have a significant impact on SSF.

APPENDIX B – AMENDED FRESHWATER WETLAND EEC 7-PART TEST

Freshwater Wetland on Coastal Floodplain

Freshwater wetland on coastal floodplains of the NSW North Coast, Sydney Basin and South East Corner bioregions (Freshwater wetland) is listed as an endangered ecological community (EEC) under the NSW Threatened Species Conservation Act 1995 (TSC Act).

The following description is quoted *verbatim* from NSW Scientific Committee (2004), Freshwater wetlands on coastal floodplains of the NSW North Coast, Sydney Basin and South East Corner bioregions - endangered ecological community listing, Hurstville NSW.

"Freshwater wetlands on coastal floodplains of the NSW North Coast, Sydney Basin and South East Corner bioregions" is the name given to the ecological community associated with periodic or semi-permanent inundation by freshwater, although there may be minor saline influence in some wetlands. They typically occur on silts, muds or humic loams in depressions, flats, drainage lines, backswamps, lagoons and lakes associated with coastal floodplains. Floodplains are level landform patterns on which there may be active erosion and aggradation by channelled and overbank stream flow with an average recurrence interval of 100 years or less (adapted from Speight 1990). Freshwater wetlands on Coastal Floodplains generally occur below 20 metres elevation in the NSW North Coast, Sydney Basin and South East Corner bioregions. The structure of the community may vary from sedgelands and reedlands to herbfields, and woody species of plants are generally scarce. Typically these wetlands form mosaics with other floodplain communities, and often they include or are associated with ephemeral or semi-permanent standing water (e.g. Goodrick 1970).

The community is characterised by the following assemblage of species:

Alisma plantago-aquatica
Azolla pinnata
Baumea rubiginosa
Bolboschoenus fluviatilis
Carex appressa
Ceratophyllum demersum
Eclipta platyglossa
Eleocharis acuta
Eleocharis minuta
Fimbristylis dichotoma
Hemarthria uncinata
Hydrocharis dubia
Juncus usitatus
Lemna spp.
Ludwigia peploides subsp. montevidensis
Maundia triglochinoides
Myriophyllum latifolium
Myriophyllum variifolium
Najas tenuifolia
Nymphoides geminata
Ottelia ovalifolia
Panicum vaginatum
Persicaria attenuata
Persicaria hydropiper
Persicaria strigosa
Phragmites australis
Potamogeton ochreatus
Potamogeton tricarinatus
Ranunculus inundatus
Schoenoplectus mucronatus
Spirodella spp.
Azolla filiculoides var. rubra
Baumea articulata
Bolboschoenus caldwellii
Brasenia schreiberi
Centipeda minima
Cyperus lucidus
Eclipta prostrata
Eleocharis equisetina
Eleocharis sphacelata
Gratiola pedunculata
Hydrilla verticillata
Juncus polyanthemos
Leersia hexandra
Lepironia articulata
Marsilea mutica
Myriophyllum crispatum
Myriophyllum propinquum
Najas marina
Nymphaea gigantea
Nymphoides indica
Panicum obseptum
Paspalum distichum
Persicaria decipiens
Persicaria lapathifolia
Philydrum lanuginosum
Potamogeton crispus
Potamogeton perfoliatus
Pseudoraphis spinescens
Schoenoplectus litoralis
Schoenoplectus validus
Triglochin procera sensu lato

Typha orientalis *Utricularia australis*
Vallisneria spp. *Wolffia spp."*

Freshwater wetland occurs as a small area (0.2 hectares) in the north west of the study area. There are scattered Broad-leaved paperbark *Melaleuca quinquenervia* with species such as Frogsmouth *Philydrum lanuginosum*, Water ribbons *Triglochin procera* and *Persicaria strigosa* growing in the semi-permanent open water swamp. The Freshwater wetland within the study area is in poor condition due to grazing by domestic stock.

The Proposal would result in the removal of 0.1 hectares of Freshwater wetland within the study area. This is an unavoidable impact related to the Proposal. An additional 0.04 hectares has been allowed to account for indirect impacts of the Proposal. This is based on a 15 metre buffer from the Proposal footprint.

Indirect impacts of the Proposal are related to the creation of a new edge, and are likely to include rubbish dumping and other non-specific human use and weed invasion. These indirect impacts are pre-existing processes in the study area due to adjacent land uses (agricultural and the existing road corridor) and, as such, are unlikely to be exacerbated by the Proposal.

It is unlikely that the Proposal would lead to erosion and sedimentation as it is largely located on flat land. Whilst some indirect impacts, such as non-specific human use, are unavoidable it is anticipated that the design of the Proposal would include measures to ameliorate the indirect impacts related to weed invasion.

In terms of the hydrology of the site, the aquatic ecology assessment undertaken by Marine Pollution Research Pty Ltd (2003) states that the hydraulic system of the study area is unlikely to be affected, provided drainage structures associated with the realignment are designed to maintain the current flooding and drainage regimes in the study area.

Seven Part Test

a) In the case of a threatened species, whether the action proposed is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction.

N/A

b) In the case of an endangered population, whether the action proposed is likely to have an adverse effect on the life cycle of the species that constitutes the endangered population such that a viable local population of the species is likely to be placed at risk of extinction.

N/A

c) In the case of a critically endangered or endangered ecological community, whether the action proposed:

- **i. is likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction, or**
- **ii. is likely to substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction.**

Extent

In this case, an estimation of the local occurrence of Freshwater wetland is difficult as no accurate vegetation mapping accounts for this unit in the lower Bellinger Valley. However, based upon an

analysis of aerial photography, it is estimated that approximately 103 hectares of the same or similar habitat exists within the locality (5 kilometre radius from the study area).

Approximately 0.1 hectares of Freshwater wetland would be removed by the Proposal. This is considered to be a negligible amount of the EEC within the locality and, therefore, it is unlikely that, as an isolated impact, the removal of this amount would place the local occurrence of Freshwater wetland at risk of extinction.

Composition
The composition of Freshwater wetlands on coastal floodplains is primarily determined by the frequency, duration and depth of waterlogging and may be influenced by the level of nutrients and salinity in the water and substrate.

In terms of the hydrology of the site, the aquatic ecology assessment carried out by Marine Pollution Research Pty Ltd (2003) states that the hydraulic system of the study area is unlikely to be impacted provided drainage structures associated with the realignment are designed to maintain the current flooding and drainage regimes in the study area.

In addition to this, Freshwater wetland within the study area was assessed as being highly disturbed and in poor condition due to current land uses. The composition of the community within the study area has already been substantially altered and it is unlikely that the Proposal would further substantially and adversely modify the composition of the EEC such that its local occurrence is likely to be placed at risk of extinction.

d) In relation to the habitat of a threatened species, population or ecological community:

- **i. the extent to which habitat is likely to be removed or modified as a result of the action proposed, and**
- **ii. whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed action, and**
- **iii. the importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species, population or ecological community in the locality.**

Extent
Approximately 0.1 hectares of Freshwater wetland would be removed by the Proposal. Indirect impacts may affect a further 0.04 hectares of the EEC within the study area. The removal of 0.1 hectares of Freshwater wetland is not considered to be a substantial amount of the local occurrence of the EEC and, therefore, it is unlikely that the removal of this amount would place the local occurrence of the EEC at risk of extinction.

Fragmentation and Isolation
The patch of Freshwater wetland to be impacted by the Proposal is at the northern extent of the EEC within the study area. Freshwater wetland exists to the north of the existing road which already fragments the EEC within the locality. Therefore it is unlikely that the Proposal would exacerbate the existing fragmentation of the EEC within the locality.

Importance
Approximately 103 hectares of Freshwater wetland or equivalent habitat exists within the locality. The removal of 0.1 hectares of Freshwater wetland within the study area is considered negligible in relation to the local extent of the EEC. Furthermore the vegetation to be impacted is in poor condition due to existing landuse pressures. Therefore, the Freshwater wetland to be impacted by the Proposal is considered to be of minor importance to the long term survival of the EEC within the locality.

e) Whether the action proposed is likely to have an adverse effect on critical habitat (either directly or indirectly).

Under the TSC Act, the Director-General of Department of Environment and Climate Change maintains a Register of Critical Habitat. To date, no critical habitat has been declared within the study area.

The Proposal would not have an adverse effect on critical habitat (directly or indirectly).

f) Whether the action proposed is consistent with the objectives or actions of a recovery plan or threat abatement plan.

To date, no recovery plan has been prepared for Freshwater wetland. DECC has listed 13 priority actions to help recover the EEC, three of which relate to the Proposal:

- Ongoing EIA - Advice to consent and planning authorities;
- Site Protection (e.g. Fencing/Signage); and
- Weed Control.

As such, the Proposal is not inconsistent with the objectives or actions of a recovery plan or threat abatement plan.

g) Whether the action proposed constitutes or is part of a Key Threatening Process or is likely to result in the operation of, or increase the impact of, a Key Threatening Process.

The Proposal would result in the clearing of approximately 0.1 hectares of poor condition Freshwater wetland. The 'Clearing of Native Vegetation' constitutes a Key Threatening Process under the TSC Act and is a threat to all endangered ecological communities.

The act of clearing would also result in the minimal removal of dead wood and trees from the site. The 'Removal of Dead Wood and Dead Trees' constitutes a Key Threatening Process under the TSC Act.

Furthermore, the Proposal may indirectly result in the operation or increase the impact of following Key Threatening Processes:

- 'Invasion of Native Plant Communities by Exotic Perennial Grasses' – through the creation of disturbed edges in previously undisturbed native vegetation, especially along battered edges of the road. However, this is unlikely to be exacerbated by the Proposal due to the existing pressures of adjacent land uses on Freshwater wetland within the study area.
- 'Human-caused Climate Change' – through the loss of native vegetation as a carbon-sink and the use of fossil fuels during the construction and operation of the Proposal. This is considered to be a relatively minor impact of the Proposal and is unlikely to increase the impact on Freshwater wetland in this case.

Conclusion
It is considered that:

- The removal of 0.1 hectares of Freshwater wetland within the study area is unlikely to place the local occurrence of Freshwater wetland at risk of extinction;
- The Proposal neither fragments nor isolates Freshwater wetland within the locality;
- The amount of Freshwater wetland to be removed by the Proposal (0.1 hectares) is considered to be of minor importance to the long term survival of the EEC within the locality;

- The Proposal is not inconsistent with the objectives or actions of a recovery plan or threat abatement plan; and
- The operation of KTPs as a result of the Proposal would be relatively insignificant.

It is therefore unlikely that the Proposal would have a significant impact on Freshwater wetland.