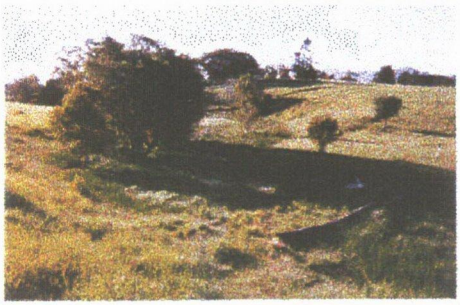
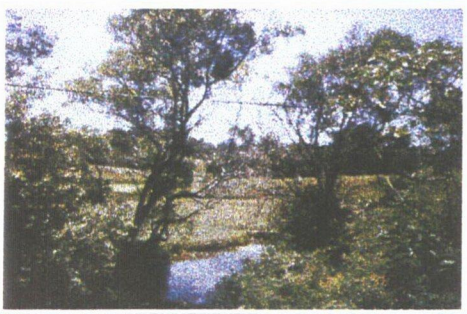
Roads and Traffic Authority

Representations Report





The Bonville Project
Volume I

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Glossary

Afflux Flow of (flood) waters towards a particular point.

AADT Annual Average Daily Traffic.

AEP Annual Exceedence Probability.

Alignment A detailed geometric layout, in plan and profile, following a general route.

ARI Average Recurrence Interval (of a flood). Refers to the flood which occurs on average at any given interval (for example, a 1 in 100 year ARI). These floods are random. It is possible for there to be two 100 year floods in successive years, or the 1 in 100 year ARI may not occur for 200 years.

Carriageway The portion of a road or bridge used by vehicles (inclusive of shoulders and auxiliary lanes).

CEMP Construction Environmental Management Plan. This Environmental Management Plan would translate the requirements of the Project Environmental Management Plan into design criteria and works. Generally, it would be written by the contractor.

Concept design Initial functional layout of concept, such as a road or road system, to provide a level of understanding to later establish detailed design parameters.

Conservation of biological diversity and ecological integrity

On eof the four Ecologically Sustainable Development Principles as set out in Schedule 2 of the Environmental Planning and Assessment Regulation 1994.

dBA Decibels using the 'A' weighted scale, measured according to the frequency of the human ear.

Detailed design stage

The stage at which details are made on the basis of the approved concept design.

Design speed A nominal speed for the design of geometric features of the road, such as curves.

DLWC Department of Land and Water Conservation.

Dual carriageway A highway or road with separated carriageways for traffic travelling in opposite directions.

DUAP Department of Urban Affairs and Planning.

EP&A Act *Environmental Planning and Assessment Act* 1979 as amended.

EIA Environmental Impact Assessment.

EIS Environmental Impact Statement.

EMP Environmental Management Plan see also PEMP.

EPA Environment Protection Authority.

ESD Ecologically Sustainable Development.

ESP Act *Endangered Species Protection Act* (Commonwealth) 1992.

Improved valuation and pricing of environmental resources

One of the four Ecologically Sustainable Development Principles as set out in Schedule 2 of the Environmental Planning and Assessment Regulation 1994.

Interchange A grade separation of two or more roads with one or more interconnecting carriageways or ramps.

Inter-generational equity One of the four Ecologically Sustainable Development Principles as set out in Schedule 2 of the Environmental Planning and Assessment Regulation 1994. Inter-generational equity is described there as: " that the present generation should ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations".

LALC Local Aboriginal Land Council.

Level of service A qualitative measure describing operational conditions within a traffic stream, and their perceptions by motorists and/ or passengers.

LGA Local Government Area.

Local road A road or street used primarily for access to abutting properties.

NHMRC National Health and Medical Research Council.

NPWS NSW National Parks and Wildlife Service.

OEMP Operational Environmental Management Plan. This Environmental Management Plan would be used during the operational phase of the project and would include maintenance works.

PAD Potential archaeological deposit.

PASS Potential Acid Sulphate Soil.

PCSF Pine Creek State Forest.

POEO Act *Protection of the Environment Operations Act* 1997.

PEMP Project Environmental Management Plan. Project Environmental Management Plans are EMPs which translate the requirements of the EIS together with the Representations Report, the Conditions of Consent and the Concept Design Plan into a Plan which contains all environmental measures to be implemented.

Precautionary Principle One of the Ecologically Sustainable Development Principles as set out in Schedule 2 of the Environmental Planning and Assessment Regulation 1994. The Precautionary Principle is described there as: " that if there are threats of serious or irreversible damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation".

REP Regional Environmental Plan.

Road corridor/ reservation

The strip of land along which a road is to be constructed.

ROTAP Rare or Threatened Australian Plants.

RTA Roads and Traffic Authority.

SEPP State Environmental Planning Policy.

Shoulder The portion of the carriageway beyond the traffic lanes adjacent to, and flush with the surface of the pavement.

SISSIR Species Impact Statement Supplementary Information Report.

The Program The Pacific Highway Upgrade Program.

The Proposal The proposed Bonville Upgrade.

TSC Act *Threatened Species Conservation Act* 1995.

1 Introduction

1.1 Preamble

RTA Technology, the independent consulting arm of the Roads and Traffic Authority, has been commissioned by RTA Pacific Highway Development Office to prepare the Representations Report for the proposed upgrade of the Pacific Highway between Perrys Road and Lyons Road, near Bonville which is south of Coffs Harbour (Figures 1.1 and 2.1).

The Proposal relates to a 9.8km deviation of the existing Highway, commencing at the northern end of the Raleigh Deviation, adjacent to Perrys Road and continuing to the southern end of the Lyons Road to Englands Road project near the village of Bonville. The Proposal would bypass this village.

Design features of the Proposal include the provision of a high standard dual carriageway comprising four 3.5m traffic lanes with an inner shoulder of 1.0 metre width (paved and unpaved width) and an outer shoulder width of 2.5 metres. The outer shoulder would serve as a breakdown lane. Separation of the carriageways would be effected by a central median.

Selected parts of the median have been identified as providing opportunities for preserving vegetation and/or for planting locally indigenous species. One faunal overpass, one box culvert, a bridge in Pine Creek State Forest and a bridge near Titans Close have been included in the concept design plan as dedicated faunal access routes across the proposed highway. Further to this, a bridge over the service road in Pine Creek State Forest would provide for vehicles and fauna. The bridge between Gould and East Bonville Roads would permit crossings by cattle and native fauna and three bridges, one over each of Pine, Reedys and Bonville Creeks would permit the passage of fish in the creeks and fauna on the vegetated banks.

Two interchanges (at intersections with Mailmans Track and Archville Station Road) would be provided (EIS, p5-17).

An Environmental Impact Statement (EIS) for the Proposal was prepared on behalf of the RTA by PPK Environment & Infrastructure Pty Ltd and specialist sub-consultants. A Species Impact Statement (SIS) for fauna and flora was prepared behalf of the RTA by Biosis Research Pty Ltd through the principle consultants PPK Environment and Infrastructure and was placed on exhibition at the same time.

Written representations in response to the exhibition of the EIS and SIS raised issues relating, mainly, to fauna and flora, land acquisition, noise, dust and amenity.

In the southern part of the Proposal, Pine Creek State Forest provides a habitat for a range of native fauna and flora. The EIS recognised that the proposed new alignment would lead to the loss of 54 hectares of habitat of which approximately 23 hectares would be in forest. In the post-EIS phase, wider medians in the forest have been incorporated into the design planning to accommodate potential arboreal crossings. The inclusion of the wider medians together with other adjustments, has increased the area of extent to 56 hectares of which 25 hectares would be in forest.

Major opportunities are proposed for faunal crossings that were not possible on the existing alignment. The effect on habitat along various alignments intermediate between the existing highway and the preferred option has been considered in reports accompanying this Representations Report, namely the SIS Supplementary Information Report (SISSIR) and the Supplementary Route Selection and Design Report.

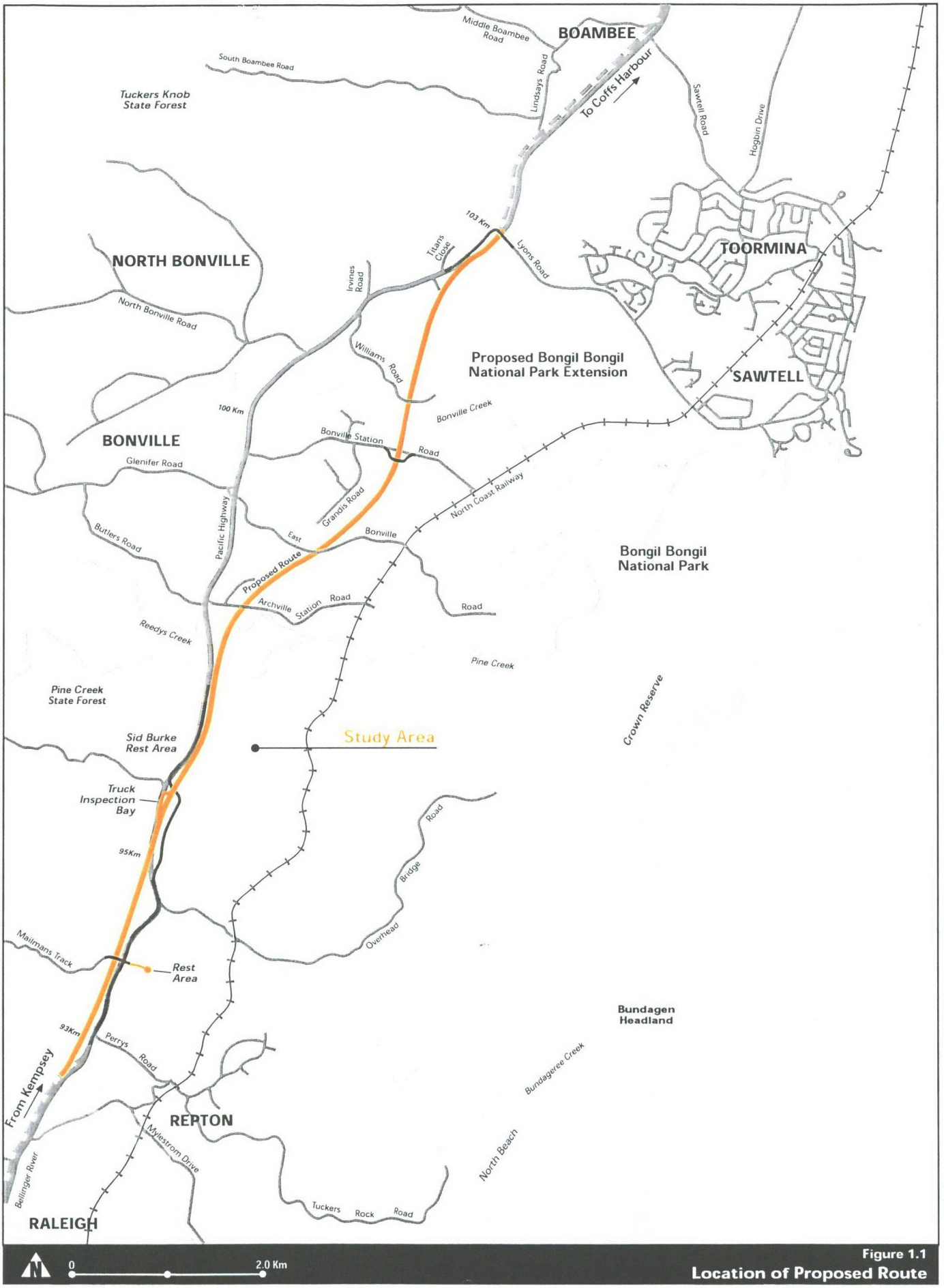


Figure 1.1
Location of Proposed Route

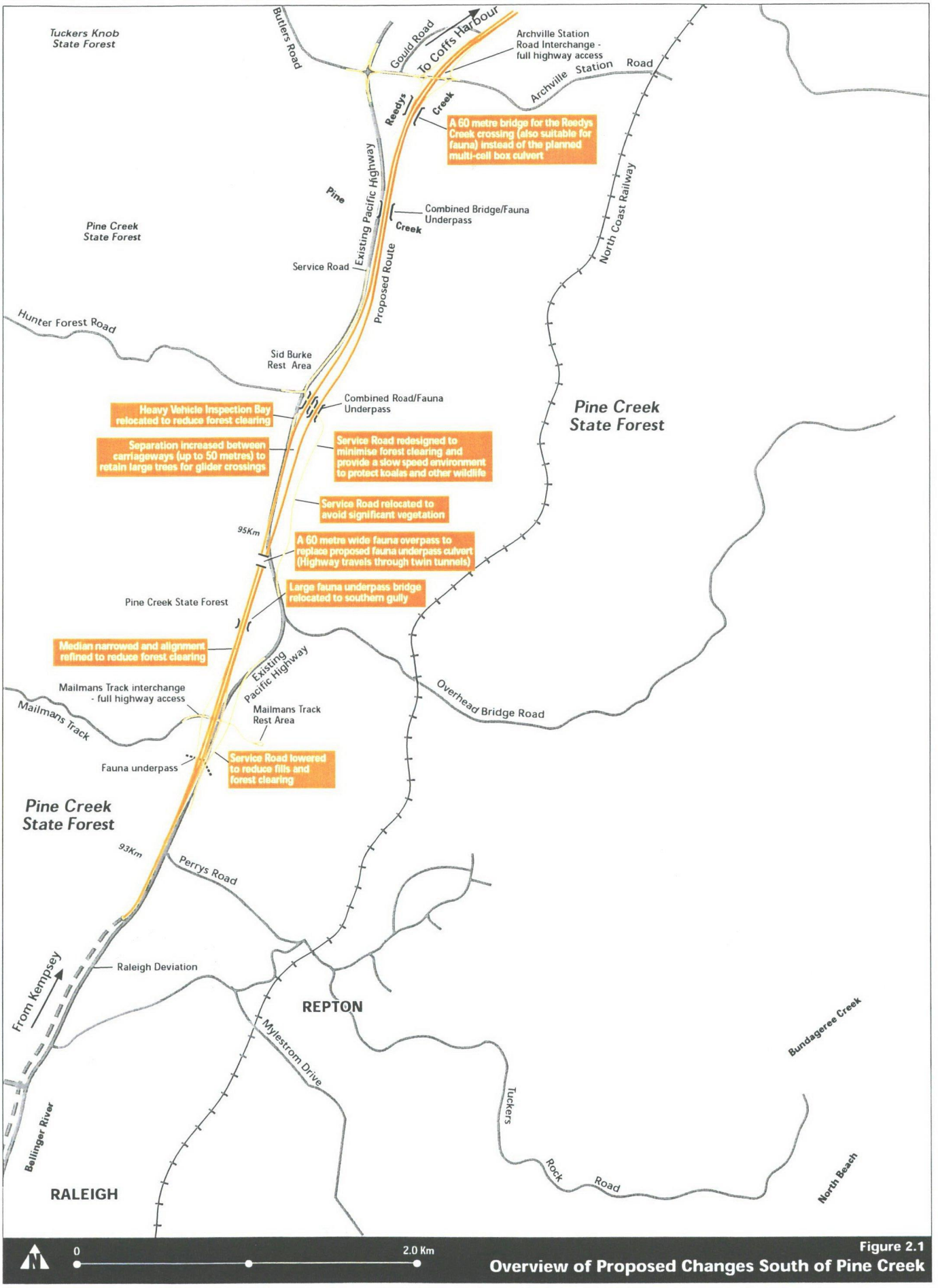


Figure 2.1
Overview of Proposed Changes South of Pine Creek

Land acquisition, noise, dust and amenity were issues raised in written representations mainly for properties lying in the northern part of the Proposal. During the consultation phase, the RTA was able to commence addressing these concerns in some of the concept design proposals and in conjunction with direct negotiation with landholders.

The EIS concluded that the identified adverse impacts of the Proposal could be managed to ensure that the environment was adequately protected by a range of proposed mitigation measures (EIS, p9-4). A Construction Environmental Management Plan(s) (CEMPs) would be prepared to ensure that the proposed controls are implemented during the construction of the highway. Similarly, an Operational Environmental Management Plan (OEMP) would be prepared for the operational phase of the Highway.

The RTA exhibited the EIS between 6 August and 11 September 1998. Sixty-three (63) submissions were received from a range of stakeholders including individuals, interest groups, Council, and State Government authorities.

1.2 Purpose of this Representations Report

This Representations Report is provided to the Chief Executive of the RTA to assist the Chief Executive in determining whether to proceed with this Proposal. The Representations Report provides consideration of the environmental impacts described in the EIS and SIS, a review of the representations received following exhibition of the EIS and SIS, the RTA's responses to these submissions and details of additional investigations undertaken after the exhibition period. It also provides the description and assessment of the proposed modifications to eliminate or reduce environmental impacts (Section 7), recommendations as to whether the Proposal should proceed and, if necessary, recommended conditions upon which a decision should be based (both in Section 9).

If the Chief Executive of the RTA decides that the Proposal should proceed, then concurrence by the Director-General of National Parks and Wildlife Service (NPWS) would be sought under Section 112C of the *Environmental Planning and Assessment Act* 1979. Subject to concurrence being given, this Representations Report would then be provided to the Department of Urban Affairs and Planning. It would be provided to assist in the preparation of a report to the Minister of that Department in consideration as to whether approval would be granted under Part V of the *EP&A Act* 1979. Section 1.3.4 deals with the process in greater detail.

This Representations Report includes the following main sections:

- **Summary of Proposal:** A brief review of the features of the Proposal (Section 2).
- **Consideration of EIS and SIS:** An examination of the EIS and SIS, including its compliance with statutory requirements, the consultation undertaken during the preparation of the EIS, the justification for the Proposal, and the assessment of the environmental impacts of the upgrade (Section 3).
- **Representations to the EIS and SIS:** A review of representations made during the exhibition of the EIS and SIS, and the RTA's consideration of and response to these representations (Section 5).
- **Additional investigations or studies:** A summary of the additional investigations or studies made after the exhibition of the EIS and SIS (Section 6).
- **Design modifications:** A review of all concept design modifications made in response to the representations received in order to reduce environmental impacts of the Proposal or of any proposed modifications (Section 7).
- **Supplementary correspondence:** A summary of letters to government authorities subsequent to the exhibition of the EIS and SIS, the responses to matters raised in them and in meetings (Section 8).

- **Recommendations:** A recommendation that the Proposal proceed together with recommended draft of the conditions of approval (Section 9).

1.3 The Environmental Impact Assessment Process

1.3.1 The Statutory Framework (Parts IV and V of the EP&A Act 1979)

The proposed upgrade of the Pacific Highway at Bonville is subject to Part V of the *EP&A Act* 1979. The RTA is both the proponent and nominated determining authority for the Proposal. Approval of the Minister for Urban Affairs and Planning is required for the activity to be carried out (Section 115A (1)).

The RTA is required to comply with Division 3 of Part V of the *EP&A Act*, in particular, sections 111 to 113 which in general terms require:

- The RTA to examine and consider to the fullest extent possible, all matters affecting or likely to affect the environment by reason of the activity (Section 111).
- The notification and exhibition of the EIS in accordance with Section 113(1) of the Act.
- Consideration of representations made to the RTA or any other determining authority in accordance with Section 113(2) (referred to in Section 112(1)(b), *EP&A Act*).
- Compliance with Section 113(3) of the Act in that copies of all representations made during the exhibition period are provided to Department of Urban Affairs and Planning (referred to in Section 112(1)(c) *EP&A Act*).

Once the RTA has complied with Section 112(1)(a)-(c) (referred to in Section 115B(1), *EP&A Act*) the RTA may seek the approval of the Minister for Urban Affairs and Planning.

This Representations Report has been prepared in accordance with the statutory requirements above.

The requirements are addressed in Sections 3 and 4 of this Representations Report and in the Species Impact Statement Supplementary Information Report (SISSIR) provided with this Representations Report as an attachment.

1.3.2 Preparation of the EIS

An EIS for the proposed upgrade of the Pacific Highway at Bonville was prepared by PPK Environment & Infrastructure Pty Ltd, in conjunction with a number of sub-consultants. The requirements of the Director-General of the Department of Urban Affairs and Planning, specific to this Proposal, are given in Appendix B, Volume 2 of the EIS. These requirements are summarised in Table 1.2 of the EIS.

1.3.3 Preparation of the SIS

Under Section 5A of the *EP&A Act* (with reference to Section 112 (1B)of that Act), it was concluded that an SIS be prepared in accordance with Division 2 of Part 6 of the *Threatened Species Conservation (TSC) Act* 1995 as the Proposal had the potential to have a significant effect on threatened species, populations or ecological communities. The SIS was prepared as a separate document to the EIS and was exhibited simultaneously. It was prepared by Biosis Research Pty Ltd in conjunction with a team of sub-consultants. The names of the study team can be found in Appendix K of the SIS.

The requirements of the Director-General of the National Parks and Wildlife Service are provided in Appendix A of the SIS. These requirements are addressed in the SIS and in SISSIR. A copy of the latter accompanies this Representations Report.

1.3.4 The Determination Process

The determination process for this Proposal is as follows:

i. **Preparation of a Representations Report:** In preparing this Representations Report, consideration of the environmental impacts described in EIS and the SIS, of all representations (by authorities and individuals) received following the exhibition of the EIS and consideration of all issues raised by interested authorities and individuals have been made. Copies of written representations have been sent to DUAP and NPWS.

ii. **The Chief Executive considers Representations Report:** The Chief Executive of the RTA considers the Representations Report, the EIS, the SIS and any other relevant information and makes a decision as to whether the Proposal should proceed.

iii. **Concurrence sought from NPWS:** If the Chief Executive Officer of the RTA decides that the RTA should proceed with the Proposal, a copy of the Representations Report is forwarded to the Director-General of the National Parks and Wildlife Service to seek concurrence.

iv. **Approval sought from DUAP:** If concurrence is received from the Director-General of the National Parks and Wildlife Service, the Representations Report, the concurrence of the Director-General of the NPWS and any other relevant information is forwarded to the Department of Urban Affairs and Planning, seeking the approval of the Minister of Urban Affairs and Planning in accordance with Section 115A of the *EP&A Act* 1979.

v. **DUAP prepares report to the Minister, UAP:** The Department of Urban Affairs and Planning examines the Proposal and prepares a report to the Minister of Urban Affairs and Planning.

vi. **Decision by the Minister, UAP:** Acting on the report prepared by DUAP and after consultation with the Minister for Roads, the Minister of Urban Affairs and Planning decides whether to grant approval for the Proposal.

vii. **CE determination:** If approval is given, the Chief Executive of the RTA determines whether the upgrade will proceed.

viii. **Exhibition:** The report of the Director-General of the Department of Urban Affairs and Planning, the approval of the Minister of Urban Affairs and Planning and the RTA decision are made public.

ix. **Upgrade proceeds:** The Proposal does or does not proceed.

2 Proposal Description

2.1 Location and Description of Site and Surroundings

The Proposal relates to the upgrading of the Pacific Highway from the northern end of the Raleigh deviation to the southern end of the Lyons Road to Englands Road Project near Bonville, south of Coffs Harbour on the NSW North Coast. The upgrade is 9.8km in length and ends approximately 11kms south of Coffs Harbour.

In the south, the site is located within the dissected hilly terrain of Pine Creek State Forest which in the north gives way to a section of undulating coastal plain and the estuary system of Bonville Creek (Figure 1.1 of this Representations Report).

The Proposal site is characterised by the following features:

Settlements and towns: In the south, the village of Repton lies just beyond the limits of the Proposal. The Proposal commences near the southern end of Pine Creek State Forest. North of the Forest it crosses mixed cleared and uncleared rural land. At the extreme northern end of the Proposal, a forested area that is proposed as an addition to Bongil Bongil National Park adjoins the eastern side of the Proposal. To the west of the upgrade is the village of Bonville. Bayldon lies northeast of the Proposal. The coastal towns of Sawtell and Toormina are located farther east again.

Topography and drainage features: Two broad topographic units exist in the Proposal area. North of Pine Creek, gently undulating rises and low hills are intersected by low lying river terraces and minor flood plains with swamps. The potential for flood inundation is limited with the floodline being confined to the low ground from Pine Creek northwards (EIS, Figure 6.3, p6-10).

In the south, the forested land is not as dissected as land in the north and the area does not open out into swamps and low lying areas. The land is at a greater elevation with respect to seal level than in the north and inundation in a 1 in 100 year flood is unlikely.

Geology and soils: The northern section of the route is underlain by argillaceous sediments of the Carboniferous Brooklana Formation. South of Bonville Creek, Early Permian Bellingen Slate underlies most of the Proposal area. Low-lying areas are underlain by Quaternary alluvial, paludal and estuarine deposits. Acid sulphate soils are highly probably to actually present in some parts of area in the vicinity of the creek systems (EIS, p6-5 & Figure 6.2).

Land use: Urban growth in the Coffs Harbour has been rapid over recent years. Future urban growth is expected to take place in areas to the north and west of Bonville, mainly in North Boambee. Rural residential as distinct from urban development is the predominant land use in the areas between Pine Creek State Forest and Lyons Road. Although it incorporates an element of agricultural activity, development appears to be primarily residential in a rural setting. Most of the land north of the State Forest is zoned Rural (Secondary Agriculture). Other areas, mainly between Bonville Creek and Lyons Road are currently zoned Residential. The Proposal passes along the eastern boundary of the Rural (Small Holdings) zone. The area from just north of the Sid Burke Rest Area to just south of the intersection with Mailmans Track forms part of Pine Creek State Forest.

Flora: There are four communities of tall open forest present in Pine Creek State Forest: Dry/Moist Blackbutt, Flooded Gum, Tallowwood and Flooded Gum Plantation. As well, Swamp Forest, exists as remnants in the area to the east of Grandis Road running north to

Bonville Creek. Riparian vegetation is located adjacent to swamp forest to the east of Grandis Road and as a narrow band along Bonville Creek. Sedgeland/Rushland communities exist in wet areas between Lyons Road and Williams Road. Four wetland areas were located along the proposed route and have been the subject of a separate study "Wetland Evaluation" which accompanies this Representations Report.

In the Tall Open Forest in the area, one species listed as Vulnerable on Schedule 2 of the *TSC Act 1995*, *Amorphospermum whitei* Aubrev. (Rusty Plum) has been recorded (SIS, Appendix C). In addition, a sedge *Eleocharis tetraquetrais* Nees has been placed on the provisional list of Threatened Species in July 1998 after being rediscovered approximately three kilometres beyond the northern end of the Proposal. Both are discussed in the SISSIR which accompanies this Representations Report as Appendix 3.

Fauna: Four threatened fauna species were recorded from the Proposal area: Osprey, Koala, Little Bent Wing Bat and the Giant Barred Frog. The koala population is of regional importance as very few large areas of viable coastal habitat remain in the original range of the Coffs Harbour koala population. In addition to the above species the Comb-crested Jacana (*Irediparra galinacea*), the Regent Honeyeater (*Xanthomyza phrygia*), the Eastern Chestnut Mouse (*Pseudomys gracilicaudatus*), the Eastern Cave Bat (*Vespadelus troughtoni*), the Grass Owl (*Tyto capensis*) and the Barking Owl (*Ninox connivens*) have been identified as species which required consideration as potentially present in the Proposal area. These are discussed in the SISSIR which accompanies this Representations Report (as Appendix 3, p27 onwards). The SISSIR includes the Aquatic Ecological Assessment Report which was undertaken to determine the likely effect of the Proposal on the aquatic fauna within Pine, Reedys and Bonville Creeks.

Economy: The Bonville area exhibits the characteristics of a newly developing urban area within a rural setting. The low population density is gradually undergoing a sub-urbanisation process. The economy of the region is predominantly service provision, tourism and some agricultural activities.

Air quality: Previous air quality monitoring (EIS, p6-34) indicated that existing air quality is quite good with respect to roadway emissions.

Water quality: Existing water quality in the area ranges from mildly polluted (Reedys Creek) to very good (Pine Creek) although elevated levels of metals were recorded. These waterways are affected by agricultural activities, sedimentation and acid sulphate soils (EIS, p6-35).

Heritage: The area has undergone disturbance in the past from land clearance, pastoral activities, rural/residential development and road and bridge construction. Thirty-four indigenous heritage sites have been recognised in the Bonville area; however, no sites have been recognised in the vicinity of the Proposal. One artefact was identified in the vicinity of the Proposal and, while not expected to be directly under the new route, it may require removal during the construction phase (EIS, p7-32). In terms of non-indigenous heritage, no listed items of European Heritage are proximal to the upgrade and none would be affected by the Proposal.

Visual quality: Eight landscape units have been identified. The largest landscape unit consists of the southern open forest communities and extends for 2.8km. The forest is visually attractive. Its foreground views are replaced to the north by the semi-rural large holdings and grassed paddocks from Pine Creek State Forest to Archville Station Road which provide a mixed visual catchment. The remaining units identified contain rural/residential communities upon which the topography of the country together with the different land uses has produced the visual variations found over this part of the proposed route (EIS, p7-19). The Proposal would have a substantial visual and landscape effect that is mitigated in areas of hilly topography and where preservation of vegetation in the median strip would be possible. Individual treatments are to be undertaken where an impact has been identified.

2.2 General Description of Proposed Works

As outlined here and in Sections 2.3 and 2.4 of this Representations Report, the term "Proposal" is used as it now exists and includes the modifications made in response to the representations received and additional studies undertaken subsequent to the exhibition period.

The Proposal is approximately 9.8km in length, commencing at the northern end of the Raleigh Deviation, adjacent to Perrys Road and continuing to the southern end of the Lyons Road to Englands Road upgrade near Bonville. For most of the length of the route the Proposal is a deviation from the existing Highway, however, the new alignment is close to the existing alignment throughout most of Pine Creek State Forest.

The Proposal provides four 3.5 metre lanes with inner paved shoulders of 0.5 metres, a sealed outer shoulder/ breakdown lane of 2.5 metres and a 1.5 metre verge adjacent to the breakdown lane. The outer road shoulder/ breakdown lanes would be used by cyclists. The median width would vary through Pine Creek State Forest. It commences at 3 metres with a Type F concrete traffic barrier at the connection with the Raleigh Deviation Project to the south (EIS, p5-27) and widens to 6 metres to the north of the Mailmans Track interchange. In Pine Creek State Forest the median widens to 50 metres in places thereby permitting retention of natural vegetation in the median. North of Pine Creek State Forest, the median is a constant 10 metres in width.

Interchanges at Mailmans Track and Archville Station Road are proposed. The interchanges would be grade separated and would cater for movements in all directions.

2.3 Concept Design Guidelines

The concept design for the upgrading of the Pacific Highway at Bonville has been based on:

- RTA Road Design Guide (continuing amendments).
- NSW Department of Housing (1999). Managing Urban Stormwater: Soils and Construction.
- AUSTROADS Guides to Traffic Engineering Practice.
- Pacific Highway Schedule of Design Policies and Specifications for the Construction of New Sections of Dual Carriageway (RTA 1996, as amended).

2.4 Design Specifications and Features

Table 2-1. Design Specifications and Features

Design Specifications and Features - Bonville	
General Specifications	
Length:	9.8 kms (approx.)
Start:	Approximately 800 metres south of Mailmans Track
Finish:	Lyons Road
LGA:	Bellingen Shire Council / Coffs Harbour City Council
Construction:	Design, Construct, Maintain (DCM) contract.
Road Specifications	
Standard:	Highway

Design Specifications and Features - Bonville

Carriageway:	Dual
Lanes:	Four
Lane width:	3.5 metres
Inner shoulder:	1.0 metres (0.5 metre paved, 0.5 metre unpaved)
Outer shoulder:	2.5 metre (breakdown lane/ bicycle lane)
Medians:	Pine Creek State Forest – 3.0 metres at the connection with the Raleigh Deviation, 6.0 metres (narrow median) or independently aligned carriageways up to 50 metres apart to minimise cleared widths and retain selected areas of mature trees through the forest. North of Pine Creek State Forest –10 metres, depressed and landscaped.
Median barriers:	Type F Concrete traffic barrier at the connection with the Raleigh Deviation (3.0 metre median). Wire rope for 6.0 metre median and where required in landscaped sections.
Road corridor width:	50m-150m to property boundaries. Width of corridor allows for cuttings and associated batters.
Lighting:	At interchanges and within tunnels.
Signage:	Determined at detailed design stage. Specific signage includes guide and service signs. Koala warning signs would be provided on service roads. Tourism sign posting would be agreed to with RTA, Councils and Tourism NSW.

Cut and Fill Specifications

Cuttings:	Up to 15 metres
Cut batters:	Generally 4H:1V to 2H:1V, but can be steepened where competent rock is encountered. Benches included in deep cuttings to improve stability.
Fill batters:	4H:1V to 2H:1V
Earthworks:	Cut: approximately 1.25 million m^3 Fill: approximately 1.0 million m^3

Interchange, Access Road and Tunnel Specifications

Interchange locations:	Mailmans Track:	Diamond type interchange.
	Archville Station Road:	Diamond type interchange.
Interchange specs:	Grade separated, fully directional.	
Access roads:	Local access across the Highway would be maintained by providing overpasses on each of East Bonville Road, Bonville Station Road and Williams Road. Strouds Road would be realigned to join the existing Pacific Highway with an existing interchange at Lyons Road (currently under construction). A service road would be provided through the Pine Creek State Forest to complete a continuous, alternative route from Coffs Harbour to Raleigh adjacent to the Highway.	
Tunnels:	60 metre long cut and cover tunnel within Pine Creek State Forest (fauna overpass).	
Bridges:	Pine Creek (65 m long with a mid span of 25m and two outer spans of 20m) Reedys Creek (60 m long with 2 equal spans and a central pier) Bonville Creek (162.5 m long with five equal spans of 32.5 m).	

Local Environment Specifications

Rest areas:	Mailmans Track Rest Area: A new rest area provided adjacent to the Mailmans Track Interchange. Access would be for northbound and southbound (light vehicles) via the Interchange. Sid Burke Rest Area: An existing rest area which would be accessible via the service road adjacent to the Highway.
Bicycle access:	On outer shoulders. An alternative route would exist using the existing Highway and service road.
Property access:	Access would be maintained through the existing road network and constructed service roads (including underpasses). These would accommodate heavy vehicles as required. There would be no direct access to the new highway.
Fauna crossings:	Fauna Dedicated: One overpass at Pine Creek State Forest, one box culvert, one bridge in Pine Creek State Forest, one bridge near Titans Close. Road and Fauna: One bridge on Service Road in Pine Creek State Forest. Farm use: (Cattle) and Fauna: One bridge between Gould Road and East

Design Specifications and Features - Bonville

	Bonville Road. Creek and Aquatic Fauna: Bridges across Pine Creek, Reedys Creek and Bonville Creek.
Noise attenuation:	A combination of noise barriers, noise mounds and individual property treatments to meet EPA Noise criteria.
Fencing:	Proposal would be fenced according to rural/ wildlife management requirements. Cattle, fauna and person proof fencing would be provided as appropriate.
Landscaping:	Along the length of the Proposal to complement the characteristics of each area.
Existing Highway:	Would become a local road.
Property acquisition:	47 properties (partial or total acquisition).

Drainage, Erosion and Sedimentation Specifications

Drainage:	Cross Drainage: Bridges and culverts Road Drainage: Kerb, table drains and pipe drainage Flood immunity: 1 percent AEP to Highway carriageways. Incident management: Provision for containing 20,000 litre spill from Highway carriageways in environmentally sensitive areas.
Water Quality	
	Treatment: Non-point source or dispersed runoff management except where discharge is to sensitive receiving waters. Upstream surface runoff diverted before reaching the roadway where possible. South of Pine Creek, both temporary and permanent sediment basins would be employed where necessary. North of Pine Creek, highway runoff upstream of environmentally sensitive areas would be treated by permanent water quality ponds and grassed swales before discharge into wetlands constructed in the early phases of the works.

Construction Specifications

Temporary access:	Access to public roads and private properties maintained throughout construction works.
Construction materials:	Approximately 180,000m² concrete or asphaltic concrete pavement and 93,000m² granular pavement (asphalt surface).
Materials source:	Most from suppliers in region.
Batch plants:	Concrete and/or asphalt on site as per EIS, p5-36 and attached Construction Compounds/Temporary Batch Plants Report.
Workforce:	Approximately 1500 person years of total employment based on construction cost and includes both direct (working on site employed by RTA and /or Contractor) and indirect (working suppliers etc) employment.
Construction Hours:	7am-6pm Monday-Friday, 7am-1pm Saturdays (8am on Sat. near houses). No works anticipated on Sunday or public holidays. Outside hours, works subject to EPA.
Energy usage:	1.1-1.3 M litres distillate; 0.18-0.36 M litres petrol.

Timing Specifications

Construction Timing:	3 years
Cost:	$113M (approx.)
Funded by:	NSW State Government.
Open to traffic:	2002/2003

Source: EIS and PPK Environment and Infrastructure Pty Ltd

3 Consideration of the EIS and SIS

3.1 Preamble

This section presents the consideration of the EIS and SIS, in terms of compliance with statutory requirements including consideration of the environmental impacts associated with the Proposal.

Statutory Requirements: The EIS and SIS have been prepared in accordance with the statutory requirements of the *EP&A Act* 1979 and the *TSC Act* 1995 respectively. Under these Acts, the requirements of the respective Directors-General of the Department of Urban Affairs and Planning and the National Parks and Wildlife Service have been addressed. The requirements of the Director-General of the National Parks and Wildlife Service are provided in the SISSIR which accompanies this Representations Report (Appendix 3) and the requirements of the Director-General of the Department of Urban Affairs and Planning are presented in Chapter 1 of the EIS (Table 1.2, pages 1-8 to 1-10).

3.2 Compliance Checklists

Table 3-2. Compliance Checklist

Requirement	Relates to	Addressed in this report in:
☐ Section 111 of the *EP&A Act* 1979	Requires the RTA to examine and take into account to the fullest extent possible, all matters affecting or likely to affect the environment by reason of the Activity.	3.2.1
☐ Section 112(1)(a) of the *EP&A Act* 1979.	Relates to the preparation and consideration of an EIS in accordance with the prescribed form and manner.	3.2.1
☐ Clause 82 of the *EP&A* Regulation 1994.	Compliance with Sections 111 and 112.	3.2.1
☐ Clause 84 of the *EP&A* Regulation 1994.	Content of the EIS.	3.2.2
☐ Clause 85 of the *EP&A* Regulation 1994 and as part of this, the specific Requirements of the Director-General of the Department of Urban Affairs and Planning.	Content of the EIS.	3.2.3
☐ Section 112(1B) of the *EP&A Act* 1979.	Relates to the preparation of an SIS.	3.2.4
☐ Requirements of the Director-General of the National Parks and Wildlife Service (in compliance with Sections 109 and 110 of *TSC Act 1995).*	Content of the SIS.	3.2.5

☐ Section 113 of the *EP&A Act*, Clause 87 of the *EP&A* Regulation 1994.	The notification and exhibition of the EIS.	3.2.6
☐ Sections 113(3) and 112(1)(c) of the *EP&A Act* 1979.	Providing the Secretary of the Department of Urban Affairs and Planning with all representations made during the EIS exhibition.	3.2.7
☐ Sections 113(2) and 112(1)(b) of the *EP&A Act* 1979.	Receipt and consideration of representations made to the RTA or any other determining authority during the statutory exhibition period.	5

3.2.1 Section 111, 112(1)(a) of the *EP&A Act* and Clause 82 of the *EP&A* Regulation 1994

An EIS for the proposed upgrade of the Pacific Highway at Bonville was prepared on behalf of the RTA by PPK Environment and Infrastructure Pty Ltd and a number of sub-consultants. Details of the study team are provided in Appendix O of the EIS and the specialist studies are documented in Volume 2 of the EIS.

The EIS addressed all relevant requirements under the Act. The EIS takes into account to the fullest extent possible, all matters affecting or likely to affect the environment by reason of the Activity as per section 111 of the Act and as prepared in accordance with the prescribed form and manner set out in Section 112(1)(a).

In doing so, the EIS complies with Clause 82 of the Regulation and addresses the Requirements of the Director-General of the Department of Urban Affairs and Planning. Table 3.2 below sets out the compliance with Clause 82.

Compliance with the Requirements of the Director-General of the National Parks and Wildlife Service is provided in Part A of the SISSIR (Appendix 3 of this Representations Report).

Table 3.2 Compliance with Clause 82 of the EP&A Regulation

Matters to be addressed in the EIS	Impact
(a) any environmental impact on a community;	Yes. The Proposal will benefit some communities through a reduction in through traffic and associated impacts and adversely affect a number of landholders and residents. These environmental impacts have been the subject of the EIS and measures will be implemented to mitigate and minimise adverse impacts.
(b) any transformation of a locality;	Yes. The Proposal includes a deviation through rural land and a State Forest. It will transform the locality through which it traverses. The concept design mitigates these effects through a range of measures.
(c) any environmental impact on the ecosystems of the locality;	Yes. The Proposal will affect areas that contain endangered and vulnerable flora and fauna. These environmental impacts have been the subject of the EIS and SIS, and a range of measures will be implemented to minimise the adverse impacts.

Matters to be addressed in the EIS	Impact
(d) any reduction of the aesthetic, recreational, scientific or other environmental quality or value of a locality;	Yes. The Proposal will reduce the environmental and aesthetic quality of the area through the construction of a Highway in a rural area and an area of native forest. It will reduce the scientific and ecological value of the remaining areas of native habitat. These environmental impacts have been the subject of the EIS and SIS, and safeguards will be implemented to minimise the adverse impacts.
(e) any effect on a locality, place or building having aesthetic, anthropological, archaeological, architectural, cultural, historical, scientific or social significance or other special value for present or future generations;	Yes. The Proposal will affect one area in which an indigenous artefact has been recognised. Safeguards will be implemented to minimise any potential adverse impacts on this and any other sites identified during construction.
(f) any impact on the habitat of protected fauna (within the meaning of the National Parks and Wildlife Act 1974);	Yes. The Proposal will remove an area of the habitat of a number of endangered and vulnerable fauna species. The impacts on habitat have been the subject of the SIS and safeguards, including a compensatory habitat package, will be implemented to mitigate the adverse impacts.
(g) any endangering of any species of animal, plant or other of life, whether living on land, in water or in the air;	Yes. The Proposal may endanger flora, fauna and aquatic species. These environmental impacts have been the subject of the EIS and SIS, and a range of safeguards will be implemented to minimise the adverse impacts.
(h) any long-term effects on the environment;	Yes. The Proposal will have positive and negative long term effects on the environment arising from the improved standard of alignment and anticipated increases in the use of road transport. Impacts on the fauna, flora and nearby communities would also be long term. These environmental impacts have been the subject of the EIS and SIS, and safeguards will be implemented to minimise the adverse impacts on each group.
(i) any degradation of the quality of the environment;	Yes. The Proposal will result in the degradation of the environment in areas of natural and agricultural value. Some residences in areas adjoining the Proposal will be affected by noise and measures will be implemented to minimise these and any other impacts.
(j) any risk to the safety of the environment;	Yes and No. The Proposal will improve road safety through the provision of an improved alignment, reduction of conflict points, and a reduced risk of spillage through accidents. Possible risks to the safety of the environmental include fauna kill potential and acid sulphate soils. These environmental impacts have been identified in the EIS and SIS, and safeguards will be implemented to minimise adverse impacts.
(k) any reduction in the range of beneficial uses of the environment;	Yes. The Proposal will acquire agricultural and forest land and residential property. Access and methods of property management at some locations may also change due to the Proposal. These environmental impacts have been the subject of the EIS, and safeguards will be implemented to minimise adverse impacts.

Matters to be addressed in the EIS	Impact
(l) any pollution of the environment;	Yes. The Proposal will cause some air, noise and water pollution. These environmental impacts have been the subject of the EIS, and safeguards will be implemented to minimise adverse impacts.
(m) any environmental problems associated with the disposal of waste;	No. The Proposal will include measures to ensure that materials are treated and/ or recycled for use on or off-site, or removed and disposed at an approved facility. The Proposal will also include provisions to capture surface runoff and prevent erosion of soils in the vicinity of the Highway.
(n) any increased demands on resources (natural or otherwise) that are, or are likely to become, in short supply;	No. The Proposal will not require resources that are, or are likely to become, in short supply.
(o) any cumulative environmental effect with other existing or likely future activities.	Yes. The Proposal is part of the overall Pacific Highway Upgrading Program and will have both positive and negative cumulative impacts. Positive impacts include improved safety and operation of the Highway. Negative impacts include the potential shift from rail to road transport and the effects of the footprint of the road on the land surface. These environmental impacts have been the subject of the EIS and SIS, and safeguards will be implemented to minimise adverse impacts.

Sources*: EIS and PPK Environment and Infrastructure Pty Ltd.*

3.2.2 Clause 84 of the EP&A Regulation 1994

The EIS was prepared to comply with Clause 84 of this Regulation. This Clause requires that (where no other guidelines are in force) an EIS must comply with Schedule 2 of the Regulation.

The first section of Table 1.2 of the EIS (EIS, p1-8, 1-9) sets out the compliance with this Clause.

A compliance list for the Requirements of the Director-General for the National Parks and Wildlife Service may be viewed in Section A of the SISSIR (Appendix 3 of this Representations Report).

3.2.3 Clause 85 of the EP&A Regulation 1994 and the Requirements of the Director-General of the Department of Urban Affairs and Planning

The EIS was prepared to comply with Clause 85 of this Regulation. This Clause requires that the Director–General of the Department of Urban Affairs and Planning must be consulted before the commencement of the EIS. Requirements of the Director-General dated 10 December, 1997 were included in Appendix B of the EIS (Volume 2) and compliance with these requirements was set out in Table 1.2 of the EIS (p1-8 to 1-10).

3.2.4 Section 113 of the *EP&A Act* and Clause 87 of the EP&A Regulation 1994 – Statutory Exhibition of the EIS

The EIS and SIS were exhibited from 6 August to 11 September 1998. This was undertaken in accordance with the requirements of Clause 87 of the *Environmental Planning and Assessment Act* 1979. Details of the exhibition, including the exhibition locations are provided in Section 4 of this Representations Report.

Advertisements for the exhibition were published as follows:

Sydney Morning Herald: 6 August, 11 August 1998
Daily Telegraph: 6 August, 11 August 1998
The Advocate: 7 August, August 1998
Coffs Independent 7 August 1998.

The advertisements identified the display locations and times, the availability of copies of the EIS for purchase, and the date to which submissions would be received.

3.2.5 Sections 113(3) and 112(1)(c) of the *EP&A Act* 1979 – Provision of Representations

Sixty-three representations were received following the exhibition of the EIS. Copies of these representations were provided to the Secretary of the Department of Urban Affairs and Planning on 28 September, 2 October and 18 November 1998.

Copies were also provided to NSW National Parks and Wildlife Service.

3.3 Environmental Assessment and Mitigation Measures - EIS

Need for the Proposal: The upgrading of the Pacific Highway at Bonville complements upgrades which have occurred to the south and which are being completed just north of this Proposal. One of the objectives of upgrading the Pacific Highway is to reduce current crash rates, provide a carriageway of consistent high standard and provide safer travelling conditions in the future (EIS, p3-5).

This section of the Highway is part of a major transport link. The Pacific Highway is a strategically important corridor, and this upgrading forms part of an overall strategy of improvements between Hexham and Tweed Heads. The present road is generally a two lane rural highway that has a running surface which is generally good in this section. The alignment and capacity of the existing Highway is inferior to the standard of adjacent sections and also with the standards set for other planned upgrades along the Pacific Highway.

The region centred on Coffs Harbour is expected to experience significant population growth and development. Future traffic volumes along the Pacific Highway are expected to increase as populations grow in the region. Accident data for the period 1990 to 1995 on this section of the Highway discussed in this Proposal indicate that 20 head on (not overtaking) and 30 rear end accidents occurred in that period (EIS, Volume 2, Appendix D, Figure 2) out of a total of 112 reported accidents. Of the total accidents, 6 fatalities and 49 admitted injury cases were reported (EIS, Volume 2, Appendix D, p2). A concentration of crashes appeared to occur in areas of traffic conflict through Bonville as well as in sections of poorer road standard to the south through Pine Creek State Forest (ibid., p6). The need to upgrade the route has been recognised by State Government through their commitment to the Pacific Highway Upgrading

Program. The upgrading would straightened the alignment and provide overpasses to separate local and regional traffic.

As well as being part of a planned regional design for the Highway, this section was carefully assessed to determine the best available means of reducing impacts from the upgrade for the region. Details of the reasons for the final design are provided in the accompanying Supplementary Route Selection and Design Report. An analysis of the fauna and flora elements of the modified alignment is given in the SISSIR that accompanies this Representations Report as Appendix 3.

Route Selection: After initial consideration of a wide range of options (EIS, p4-2), two options and two sub-options were short-listed as a result of the first Value Management Study which was held in March, 1997. Impacts associated with these various options included those on residential properties, on NPWS land, on wetlands downstream of the options, and on Pine Creek State Forest. Investigations of the preferred corridor area concentrated on factors which could form a constraint to route development. These investigations included design suitability, noise, air quality, community issues, property impacts, water quality, flooding, geology and soils, effects on areas that support significant vegetation, wildlife habitat and movement corridors, proximity to SEPP 14 wetlands and koala habitat, areas that potentially contain items of indigenous and non-indigenous heritage and impacts on the scenic quality of the area. Traffic and transport aspects, including road safety were an important input to the study at this stage.

The corridor was described as a southern section (common to all options) and a northern section in which the existing corridor and variations of the LEP corridor (EIS, p 4-5) were considered. The options were displayed at public locations and comments and suggestions for modifications were invited from the community. All responses were considered in the development of the preferred alignment.

The process of development of the best route option is provided in Section 4 of this Representations Report which gives details of the various ways in which community consultation was undertaken. The approach to the selection of route options is given in some detail in Section 4 of the EIS.

To establish which route option best met the needs of road users and the community, the following were considered to help distinguish between the various options considered at the route selection stage:

- traffic and transport impacts,
- design suitability,
- water quality and flooding,
- community issues including noise,
- property impacts,
- geology and soils,
- effects on areas that support significant vegetation, wildlife habitat and movement corridors,
- areas that potentially contain items of indigenous and non-indigenous heritage,
- impacts on the scenic quality of the area and economic analysis.

On the basis of the combined input of community consultation and preliminary studies, an option was chosen for which the following impacts were identified and discussed in the EIS:

Topography, Geology and Pedology: Field mapping and geotechnical drilling served to identify areas of likely environmental impact as well as providing engineering information for input into the possible design of the Highway. In order to achieve safeguards, fill embankments and/or bridge structures would be required over gullies and cut excavations through ridges. Variations in geology over the length of the Proposal have been taken into account and areas requiring blasting, flattened cut and fill batters and stabilisation have been

identified in the EIS. Early vegetation of the batters is proposed to assist in the minimisation of batter erosion.

Pyritic material, possibly associated with Holocene sediments, is present and the potential for developing ASS has been considered in the placing of a bridge crossing at Reedys Creek (Supplementary Route Selection and Design Report, accompanying this Representations Report) and in the lengthening of the span of the bridge crossing Bonville Creek (EIS, p6-7). Further, to minimise the impacts associated with disturbance of Potential Acid Sulphate Soils (PASS) during construction, an Acid Sulphate Soil Management Strategy has been prepared and included in Appendix H of the EIS.

Hydrology and Flooding: A single catchment system (Bonville/Pine Creeks) accounts for the drainage through which the Proposal passes. Existing modeling data (from Coffs Harbour City Council) indicates that a projected 1 in 100 year flood would inundate the coastal plain to the east of the North Coast Railway Line. In the vicinity of the Proposal the topography limits inundation (EIS, p6-10, Fig 6.3). Design characteristics of the Proposal over creek crossings at Pine, Reedys and Bonville Creeks have considered afflux and impact on properties within the floodplain to ensure that there would be no unacceptable impacts from the new structures.

The Proposal passes close to a number of stock dams, springs and soaks which are used by landholders. Should any of these suffer from a decrease in supply due to the new Highway, the necessary adjustments would be made in consultation with the property owners and may include the construction of replacement dams or the sinking of new bores (EIS, p6-11). Modifications to the design and positioning of creek crossings have been undertaken to minimize the effect of the crossings on floodplain extent and associated wetland values.

Flora: The Rusty Plum (*Amorphospermum whitei*) was identified in the study area. Two specimens of Rusty Plum would be directly impacted by the Proposal. Collection of propagation material from the Rusty Plum would be undertaken if transplantation were not feasible. As well, a sedge *Eleocharis tetraquetra* has been recorded near the study area. No specimens have been recorded from the study area. Clearing of a road corridor in Pine Creek State Forest and widening of an existing corridor through vegetation communities of regional significance would occur during construction. Rehabilitation of disturbed areas would be undertaken during construction through the landscape planting program which would incorporate hydro-seeding and hydro-mulching techniques.

Overall, the impacts of the Proposal on flora were considered to have local significance and would cause further fragmentation of the habitat over parts of the route (EIS, p6-16). Disturbed areas are to be replanted, where possible, with species which reflect the endemic communities that occur along the length of the Proposal and a planting list has been prepared which correlates closely with species found within the route corridor (EIS, p6-18).

The presence of SEPP 14 wetlands downstream from the Proposal has been considered in the crossing of Pine Creek, Reedys Creek and Bonville Creek by bridge and in measures to mitigate against potential effects of the Proposal. These include a number of water quality treatment systems including sediment basins incorporating constructed wetlands to ensure that runoff is captured and treated prior to discharge.

Fauna: Seven wildlife habitat types were identified in the vicinity of the Proposal. Due to the wide range of fauna species that could occur in the Proposal area and the diverse nature of their habitat requirements, all remnant vegetation areas have the potential to support one or more threatened species. Four species of conservation significance, osprey, koala, little bent-wing bat and giant barred frog were recorded. High local impacts could result for the osprey due to the proximity of a nesting site to the proposed construction. To reduce this impact, it has been proposed that water quality structures be re-positioned on the other side of the Highway at that locality thereby reducing the extent of clearing in the vicinity of the nesting site.

High local impacts may result for koala populations as a result of proposed clearing associated with the Proposal. Limited impacts would be anticipated for the other species. As well several other species listed as vulnerable on the Threatened Species Schedules were considered probably to exist in the study area from the presence of habitat. These have been considered, subsequently, in greater detail in the SISSIR (attached to this Representations Report as Appendix 3).

Existing populations of koalas and possibly some other animal populations are now highly fragmented. Habitat areas exist on either side of the Highway. To optimise use of these areas by fauna and to enable mix of populations, these species would need to cross the Proposal. The construction and operation of the new Highway provides an opportunity to contribute to local management strategies by providing a safer and more secure environment for these populations. Possible impacts during both construction and operation of the Highway were assessed during the initial design stage and mitigation measures to reduce these potential impacts include a faunal overpass, underpasses, bridges and a culvert to allow fauna to pass across the road and fauna exclusion fencing to prevent fauna accessing the new highway and to direct fauna to these crossings. Widening of the median to permit retention of existing vegetation is to be included where possible to facilitate crossing by gliders.

The RTA is investigating, with the National Parks and Wildlife Service (NPWS), options for compensatory habitat.

Aquatic Ecology and Wetlands: Potential impacts were identified from the construction and operation stages and on site control measures were indicated (SIS, p.5-5). Additional studies, the Aquatic Ecological Assessment and the Wetlands Evaluation which consider these impacts further are included as part of the SISSIR (Appendix 3 of this Representations Report).

Water Quality: Potential impact on water quality during the construction and operational phases have been considered and a number of measures to control soil erosion and surface water runoff have been proposed (EIS, p6-38 to 6-39). As part of environmental management during construction, a Soil and Water Management Plan would be developed which would include mitigation measures such as: the installation of a series of sedimentation basins during the earliest phases of the construction program; the installation of first flush interceptors to reduce the likelihood of dust entering domestic rain water supplies at residences within 150 metres of the Proposal; and, monitoring of surface waters both during construction and operational phases.

In the case where the Proposal would lead to the removal of dams, consultation has been undertaken and for those landholders who want to continue to keep livestock, alternative supply arrangements will be provided.

Meteorology and Air Quality: Air quality within the existing environment was considered to be likely to be good with no regional air quality problems associated with the Highway (EIS, p6-43). Monitoring and modelling of air quality impacts associated with the Proposal showed that predicted levels of pollutants to the year 2011 would not result in degraded air quality.

Urban Design: The Proposal is consistent with Coffs Harbour Council's urban growth planning strategies. Future urban growth is expected to take place in areas to the north and west of Bonville. The North Coast Urban Planning Strategy (1995) developed by DUAP identifies in broad terms, potential areas for urban development. The strategy identifies several development opportunities in the Coffs Harbour area including the growth of Bonville for rural residential use. Development in the Bonville area is regulated by Coffs Harbour LEP 1988 which ensures that development only occurs within certain areas. Part of the new route has been included in local plans for the last 20 years (EIS, p7-9). The route of the proposed alignment includes a corner of a parcel of land interim listed for inclusion in Bongil Bongil

National Park. The route would cause the loss of an ecologically important area; however, the provision of compensatory habitat would assist to mitigate this.

Some significant visual and landscape impacts would result with changes resulting from the effect of lighting, acoustic barriers, closer proximity of properties to the Highway, construction of bridges and rest and truck stop areas. Effects on individual elements have been recognised in the EIS and the EIS includes an outline of treatments that would be incorporated at the detailed design stage.

Noise: Measures of existing noise levels were undertaken at 14 residences by the acoustical sub-consultants Wilkinson Murray (EIS, p7-21). A noise and vibration assessment was undertaken using the new draft EPA Environmental Criteria for Road Traffic Noise for noise level goals within the route corridor.

Effects from the construction phase have been identified and measures outlined in the EIS (p7-28) would be implemented as part of the Construction Noise Management Plan. Where future noise levels were identified as having a potential impact, negotiation with landholders to determine appropriate mitigation measures has been undertaken. A post construction noise monitoring program would be undertaken at representative sites to confirm predictions and ensure that the noise mitigation measures achieve appropriate goals.

Indigenous Heritage: During a survey of the study area, one artefact of low significance was identified. Although not directly under the new route, it may require removal during the construction of the Highway. Consultation with members of the Coffs Harbour Local Aboriginal Land Council is continuing and representatives would be requested to be on site during initial site works.

Non-Indigenous Heritage: Four buildings of historical and cultural importance are situated near the existing Pacific Highway. The new alignment passes to the east of the existing Highway and would significantly improve the setting of these historical buildings, reducing the noise and disturbance resulting from the existing traffic. A remnant section of tramway formation adjacent to Reedys Creek would be removed during construction (EIS, p7-30).

Socio-Economic Impacts: The Proposal would benefit the local community in that local businesses which do not rely on passing trade considered that improvement to the local amenity resulting from the removal of through traffic would be a benefit. For businesses that rely on passing trade, the impacts were identified in the EIS and mitigation measures outlined to mitigate for these impacts.

Risk and Hazard Assessment: The Proposed Highway would be used to transport a large range of commodities by heavy vehicles. Hazards and risks associated with the transport of dangerous goods are directly related to the proximity to environmentally sensitive areas, traffic conditions, tunnels, location and to residences and work places. The design of this section of the road was undertaken with the objective of improving the safety of this section of the Pacific Highway. Where the Highway passes over ecologically sensitive areas such as wetlands and creeks, incident interception capability is to be included in the design to prevent movement of spills into sensitive areas.

Cumulative Impacts: Cumulative effects of the Proposal have been discussed in the EIS in relation to the upgrade and its interaction with broader regional factors (EIS, p7-41 to 7-43).

Table 3.3. Summary of Main Cumulative Effects of the Proposal.

Potential Positive Impacts	
The Pacific Highway between Hexham and the Queensland border has been recognised as being inadequate for current and future needs.	This Proposal, when combined with other projects in the Pacific Highway Upgrading Program would contribute to the improvement of road safety and capacity along the Highway and provide a facility of consistent standard along length of the Highway.
The linking of the Proposal with the Raleigh Deviation to the south and the Lyons Road to Englands Road Project to the north would result in a major improvement to the road network to the south of Coffs Harbour	The straighter alignment would provide improvements to safety, capacity and travel times.
The NSW Government's recently released strategy to extend the ten year Pacific Highway Upgrading Program to provide dual carriageways the entire length from Hexham to the Queensland border by 2012, will generate an improvement in economic efficiency and business productivity.	Improved transport facilities and access to the area would contribute to economic development on the north coast.
The removal of through traffic from the old Highway and the associated improvements in local access would result in reductions in environmental impacts on communities along the route.	Opportunities would exist for refocusing activities on existing facilities and the development of new ones with areas of improved amenity and safety.
Increases in access to employment opportunities such as relocation to the Coffs Harbour area are provided.	The upgraded Pacific Highway provides the opportunity for existing firms in northern New South Wales to expand or for new firms to locate in the area. It also provides the opportunity for firms in Sydney, Newcastle and other centres in the corridor to increase their trade with the southeast Queensland market.
Economic benefits from the Pacific Highway exist.	All consumers benefit from reduced transport costs.
The Bonville Proposal can be expected to influence the rate of growth in the area.	Both local and regional planning would influence the rate of growth in the area. The Bonville Proposal would interact with land use planning in improving local amenity. Improved local amenity would contribute to making the area more attractive for development.
Potential Negative Impacts	
Effects on aquatic ecology and wetlands would be expected.	To minimise the effect, bridge crossings are proposed for Pine, Reedys and Bonville Creeks. North of Pine Creek, Highway runoff upstream of environmentally sensitive areas would be treated by permanent water quality structures constructed in the early phases of the works. South of Pine Creek, both temporary and permanent sediment basins would be employed where necessary.

Noise and dust would increase in the vicinity of the Proposal.	Mitigation would be provided in the form of noise walls, mounds or, where the first two are not appropriate, treatments to individual residences. For residences within 150 m of the carriageway and in which rainwater is used for domestic purposes, first flush systems would be proposed.
The route will accommodate additional traffic, part of which is expected to be attracted from alternative routes. Impacts from one section of upgrade may impinge on other sections of the upgrade.	The Pacific Highway Upgrade Program is needed to ensure that those problems expected to be encountered by one section of the route are addressed in a co-ordinated manner as an integral part of the whole program.
The overall improvement of the Pacific Highway has the potential to encourage road transport for passengers and freight over other transport modes in the North Coast corridor.	Reduced travel time will result in easier access to Brisbane for major services, and to other towns in northern NSW for more local services and employment opportunities. A proportion of these would certainly use the Highway but some increases in other forms of transport would be expected also.

Source: PPK Environment and Infrastructure Pty Ltd

3.4 Consideration of the SIS

This section contains a consideration of the SIS, both in terms of its compliance with statutory requirements and in terms of its assessment and mitigation measures.

This consideration shows the following:

Statutory Requirements: The SIS has been prepared in accordance with all statutory requirements, including Sections 109 to 111 of the *TSC Act* and Sections 77 and 90 of the *EP&A Act* .

3.4.1 Section 112 (1B) of the EP&A Act 1979

An SIS for the proposed upgrade of the Pacific Highway at Bonville was prepared on behalf of the RTA by Biosis Research Pty Ltd and a number of subconsultants through PPK Environment and Infrastructure Pty Ltd. Details of the study team are provided in Appendix K of the SIS and the specialist studies are documented in Appendices to the SIS and in Appendices I and J of Volume 2 of the EIS.

The SIS was prepared to comply with Section 112 (1B) of the *EP&A* Act. This subsection requires that an SIS be prepared where an activity is likely to significantly affect a threatened species, populations or ecological communities, or their habitats in accordance with Division 2 of Part 6 of the *TSC Act* 1995.

3.4.2 Sections 109 to 111 of the *TSC Act 1995* together with the Requirements of the Director-General of the NPWS

The SIS was prepared to comply with Sections 109, 110 and 111 of the *TSC Act* 1995. Requirements of the Director-General dated 12 August, 1997 were included in Appendix A of

the SIS and compliance to these requirements is set out in Table A1 of the SISSIR (pages iv to ix).

3.4.3 Environmental Assessment and Mitigation Measures – SIS

Proposal Description: A Proposal description was included in the SIS in accordance with Section 110(1) of the *TSC Act* (SIS, p1-1 to 1-2).

Survey Methods: The Requirements of the Director-General of the National Parks and Wildlife Service were addressed in the SIS and a summary table of the Requirements and the position in which they have been addressed has been placed in the SISSIR (SISSIR, Table A2, pages x to xix). These were addressed as required under Section 111(1) of the *TSC Act*.

Initial Habitat Assessment: With reference to the Requirements of the Director-General, and Section 110(3) of the *TSC Act*, a habitat assessment identified seven broad communities of vegetation. For each, the condition was described as either good or moderate-good and five sites were identified as being of either regional or local significance (SIS, p4-10 to 4-23).

General Description of Threatened Species or Communities: This was undertaken in accordance with Section 110(2)(a) and Section 110(3)(a) of the *TSC Act*. Four species of conservation significance, osprey, koala, little bent-wing bat and giant barred frog were recorded. Several other species listed as vulnerable on the Threatened Species Schedules were considered probably to exist in the study area from the presence of habitat. These have been treated in greater detail in the SISSIR (attached to this Representations Report).

Threatened Species Considered of Relevance: Significant flora and fauna species and vegetation communities and fauna habitats were considered in the SIS (SIS, Sections 4.5.3, 4.5.4, 4.5.7 and 4.5.8) (*TSC Act*, Section 110(2)(b) and Section 110(3)(c)).

Conservation Status, Key Threatening Processes and Habitat Requirements of Threatened Species of Relevance: The conservation status and habitat requirements of the Threatened Species are dealt with in Appendices B, C, D and E of the SIS and in the SISSIR (Table A2, page x which gives references to Figure 4, Table 2 and Section 4.4.2.2 of the SIS). Further details are available in Table A4 and Section B5.0 (page 26 onwards) of the SISSIR. Section 5.3.6 of the SIS (p.5-4) deals with the Threatening Process, the European Red Fox. (Sections 110(2)(c) and 110(3)(b) of the *TCS Act)*.

Abundance of Threatened Species Relevant to the Proposal: Information concerning abundances of threatened plant species is provided on page 15 of the SISSIR in accordance with Section 110(2)(d) *TSC Act*. Probability levels for fauna are provided in Table 2 of the SISSIR (p xxxvii).

Types and Distribution of the Relevant Habitat: As per Section 110(2)(f) of the *TSC Act* are provided in Section B7.0 and Figure B3a to B3c.

Assessment of the Likely Effects of the Proposed Development: This requirement under Sections 110(2)(g) and 110(3)(d) of the *TSC Act* was fulfilled. The SIS indicated that:

- While the habitat of one plant species (Rusty Plum, *Amorphospermum whitei*) on Schedule 2 (Vulnerable species) of the *TSC Act* would have been affected by the Proposal, no specimens were identified along the proposed route.
- Species likely to be present because of habitat presence but which were not found during field surveys are discussed in Section B5 of the SISSIR.
- Ecological communities were discussed in the SIS (Sections 4.5.4, 4.5.7 and 4.5.8) and in the SISSIR (Sections B4.3, B4.4 and B4.5).
- Potential effects on fauna were identified in the SIS (Sections 5.3 and 5.6).

Information Regarding Feasible Alternatives to the Proposal: Alternatives to the Proposal were provided in the EIS (Volume 1, Chapter 4) and a full assessment of modifications after exhibition of the EIS is given in the SISSIR. This is presented in accordance with Sections 110(2)(h) and 110(3)(e) of the *TSC Act*.

Justification of Mitigation Measures: This was provided in accordance with Sections 110(2)(i) and 110(3)(f) of the *TSC Act*. Measures are outlined in both the SIS in Section 5.5 and, as a consequence of community consultation, further measures are described in the SISSIR in Section B6.2 to B8 (page 32 onwards).

Additional Details Regarding Other Approvals and Licensing Requirements: Concurrence/Approvals and/or licences required from a range of authorities was provided in accordance with Sections 110(2)(j) 110(3)(g) of the *TSC Act*. These were incorporated into the EIS and in the SISSIR (p xvii and xviii).

Qualifications and Experience: These were presented in Appendix K of the SIS in accordance with Section 110(4) of the *TSC Act*.

4 Consultation and Exhibition

4.1 The Consultation Program

The consultation program for the Bonville Proposal has been extensive, inclusive of all issues raised. It commenced in the early stages of route identification and will continue during the construction phase. Details of the consultation process from the initiation and identification of issues through to the exhibition of the EIS are given in Chapter 2 of the EIS. The Assessment of Route Options is given in Chapter 4 of the EIS.

Consultation has included a range of public displays, newsletters, public meetings, Value Management studies and individual discussions with affected landholders and stakeholders. One of the major outcomes of the program was the early identification of many on the issues prior to the EIS exhibition.

The early extensive consultation provided a series of forums through which interested stakeholders could provide their input into the evolving development of the route design. On exhibition of the EIS 63 written representations were received

Consultation with the community and public authorities was undertaken at a number of stages:

- At the commencement of the study.
- At route selection commencement.
- During route selection, including the Value Management Workshop.
- Displays of the preferred option and second Value Management/Engineering Workshop.
- EIS Exhibition.
- During the preparation of the Representations Report.
- Continuing (for example, with affected landowners and NPWS)

A summary of this program is outlined below in Table 4-1. Further detail on the consultation process during the preparation of the Representations Report is discussed in Sections 4.1.1 to 4.1.3 of this Representations Report.

Table 4-1. Consultation Program for the Bonville Project

Consultation Program	
Consultation at Project Commencement	Consultation commenced in 1996 and included stakeholder identification, initial authority and stakeholder consultation, a planning focus meeting, identification of potential members of the community focus group and preparation of an initial newsletter.
Consultation at Route Selection Commencement	
Correspondence	Undertaken with all relevant authorities.
Information Sheet 1 (January 1997)	Sent directly to groups, individuals, and property owners and included a coupon for placement on the mailing list.
A 1800 (Freecall) Number	Established 12 December 1996 until late 1998.
A Community Database	Established and maintained for the duration of the study.

Consultation Program	
Advertisements	Placed in local press with contact details and advertising the Community Information Meeting.
Planning Focus Meeting, Sawtell (February, 1997)	Representatives from state and local government agencies.
Community Involvement During Route Selection	
Public Display, Sawtell (March, 1997)	Information and response sheets were provided and an exit survey was undertaken on the final day.
Value Management Workshop at Bonville (24 & 25 March, 1997)	Representatives from local Councils, relevant government agencies and community interest groups were included.
Information Sheet 2 (October 1997)	Provided information about the options that had been identified, the preferred route and invited submissions.
Individual and Group Meetings	Were held during the route selection phase and after the preferred route had been selected.
Community Involvement During Draft Concept Design	Some of the most intensive discussions and meetings were held following the route selection.
Display of Preferred Option (October, 1997)	Following the announcement of the preferred route, the preferred option was exhibited for 17 days at: Toormina Gardens Shopping Centre; RTA Motor Registry, Coffs Harbour; RTA Pacific Highway Development Office, Grafton.
Individual Meetings	On-site inspections were undertaken to met with all affected landowners and relevant authorities.
Value Management/Engineering Workshop, Sawtell (February 1998)	This was held to undertake an assessment of the draft concept design and its individual components.
Information Sheet 3 (March 1998)	Provided an update on the study progress and advised of the exhibition of the Project Proposal.
Exhibition of Project Proposal (12 to 27 March, 1998)	This exhibition was held: Toormina Gardens Shopping Centre and RTA Motor Registry, Coffs Harbour to provide the community with information on the current project following its further development and to seek additional feedback prior to the finalisation of the project for inclusion in the EIS.
Consultation during the EIS Exhibition	
Advertisements	Were placed in local and NSW Papers. See also Section 4 of this Representations Report.
Exhibition of the EIS and SIS	Was held between 6 August and 11 September 1998 at a number of locations. (Table 4-1-1 below).
Consultations during the Preparation of the Representations Report	Consultation and site meetings were held with authorities such as NPWS, DLWC, NSW Fisheries and

Consultation Program	
	DUAP and NSW Forests during the preparation of the Representations Report in order to clarify concerns and resolve outstanding issues.
Display of proposed modifications after EIS Representations period	A public display of the Proposal was provided from 17 February to 6 March, 1999 at Toormina Gardens Shopping Centre and the Coffs Harbour and Grafton offices of the RTA.
Continuing Consultation	Consultation is being held with affected landowners, Councils, State government authorities and other stakeholders in order to keep these groups informed and to resolve design issues and other requirements of landowners.

Source: EIS, PPK Environment and Infrastructure Pty Ltd

4.1.1 Consultation during the EIS Exhibition

The EIS and SIS for Bonville were exhibited for 36 days from 6 August to 11 September 1998. This was undertaken in accordance with the requirements of Clause 87 of the *EP&A Act* 1979.

The EIS and SIS were exhibited at the following locations:

Table 4-2. Public Exhibition of the EIS and SIS for the Bonville Project

EIS and SIS Exhibition Locations		EIS	SIS
RTA	Pacific Highway Development Office, 21 Prince Street Grafton	✓	✓
RTA	Coffs Harbour Motor Registry, 32-34 Gordon Street, Coffs Harbour	✓	✓
RTA	Centennial Plaza, 260 Elizabeth Street, Surrey Hills, Sydney	✓	✓
DUAP	49 Victoria Street, Grafton	✓	✓
DUAP	1 Farrer Place, Sydney	✓	✓
NPWS	Head Office. Information Centre, 43 Bridge Street, Hurstville		✓
NPWS	Northern Zone Office, GIO House, Moonee Street, Coffs Harbour		✓
NPWS	Dorrigo Coast Sub District Office, 15 Orlando Street, Coffs Harbour		✓
Coffs Harbour City Council	Coffs and Castle Streets, Coffs Harbour	✓	✓
Toormina Gardens Shopping Centre	Toormina Road, Toormina	✓	✓
NSW Govt Info. Centre	Goodsell Building, Cnr Phillip and Hunter Streets, Sydney	✓	✓
Nature Conservation Council of NSW (NSW Environment Centre)	Level 5, 362 Kent Street, Sydney	✓	✓

**Copies of the EIS could be bought for $20.00 or the EIS, Appendix Volume and SIS for $25.00 from RTA, Coffs Harbour or RTA, Surry Hills.*
Source: Summary Booklet

A copy of the EIS brochure was provided to each person or group on the community data base with the encouragement to view the exhibition and make a submission. Copies of the EIS were sent to those landholders affected by the Proposal.

4.1.2 Consultation during the Preparation of the Representations Report

Consultation with various stakeholders, especially State agencies, has continued during the preparation of the Representations Report. The continuing consultation with stakeholders has been undertaken to ensure that requirements have been considered during the modification of road design and the resolution of design issues.

A number of meetings and inspections were held with National Park and Wildlife Service Officers (15.10.98, 6.11.98, 12.11 98, 15.2.99), with NSW Fisheries (2.11.98), with NSW Forests (15.2.99).

A site visit and issues meeting was held with DUAP on 10 November 1998 in order to establish issues of concern to the Department and to acquaint the Department with progress to date.

4.1.3 Exhibition of the Modifications to the Proposal

In order to provide all stakeholders with up to date information regarding the initial outcomes of representations made, a Community Newsletter advertising a public display was circulated in February, 1999. The public display was mounted from 17 February to 6 March, 1999 at three locations. Further information about the Proposal could be obtained through contacts associated with the display.

5 Representations to the EIS

5.1 Representations to the EIS

Sixty-three (63) representations were received by the RTA following the exhibition of the EIS. A summary of respondents is found in Appendix 1.

An overview of the respondents and the key issues is shown below. A detailed consideration of all the issues is presented in Section 5.3 of the Representations Report.

5.2 Summary of Representations

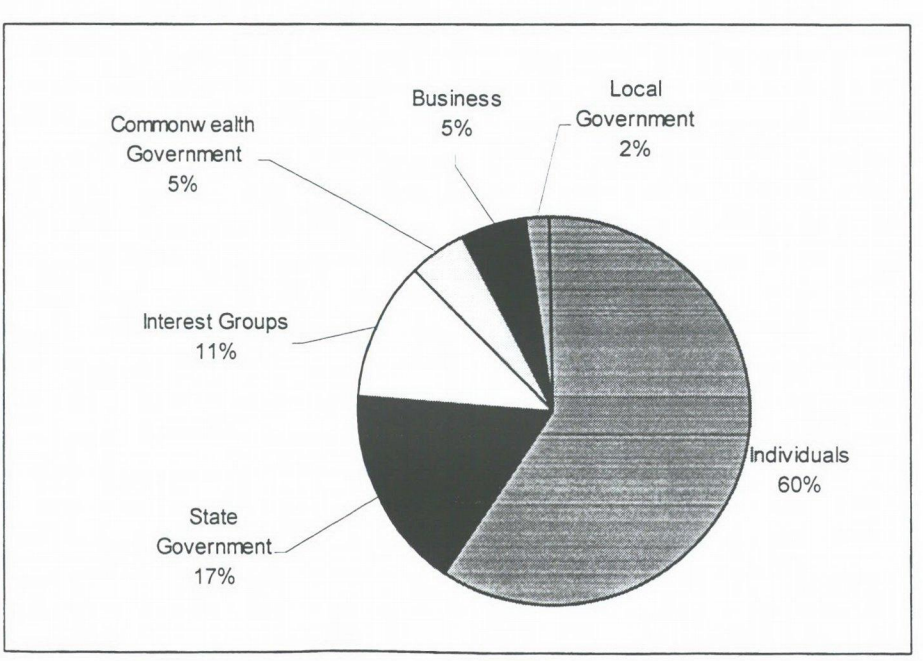
5.2.1 Summary of Who Responded

Most respondents were individuals from the local communities. State government authorities provided almost one fifth of the representations made and lesser numbers of representations from interest groups, Commonwealth and local government and businesses provided the remaining numbers.

Table 5-1. Who Responded to the EIS Exhibition?

Respondent Type	Number of Submissions	% of Submissions
Individuals	38	60%
State Government	11	17%
Interest Groups	7	11%
Commonwealth Government	3	5%
Business	3	5%
Local Government	1	2%
Total	**63**	**100%**

Figure 5-1. Who Responded to the EIS Exhibition?



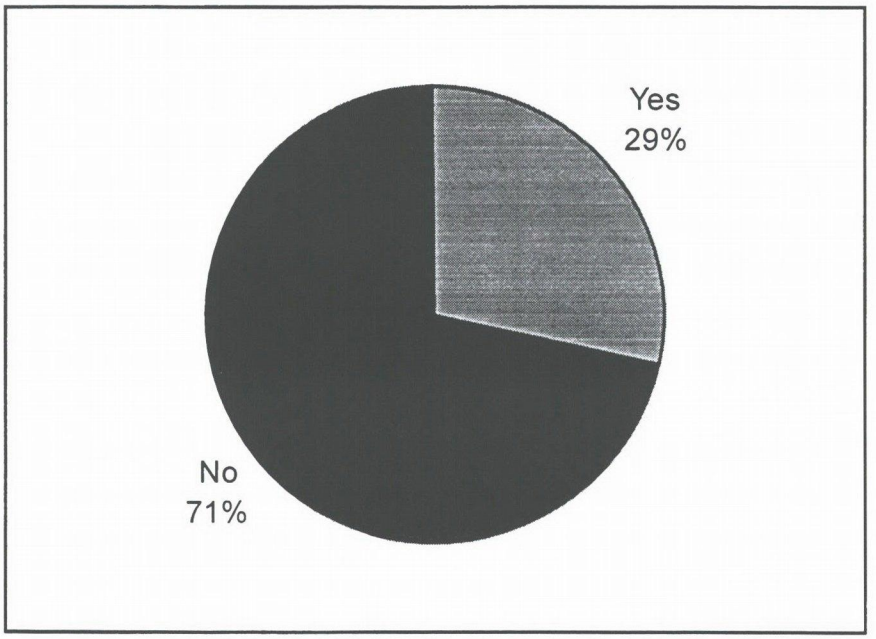
5.2.2 Summary of whether or not respondents' property was directly affected

Almost one third of respondents (29%) were directly affected by the Proposal through property acquisition (Table 5-2 and Figure 5-2).

Table 5-2. Were respondents' property directly affected by the Proposal?

	Number of Submissions	% of Submissions
Yes	18	29%
No	45	71%
Total	**63**	**100%**

Figure 5-2. Were respondents' property directly affected by the Proposal?



5.2.3 Summary of the main issues

Fifty-one issue types were recognised in the representations received (Table 5-3) and Figure 5-3 below). Of these, the most frequently occurring issues concerned:

- Fauna
- Faunal corridors
- Noise and vibration
- Rest area
- General environmental impacts
- Vegetation.

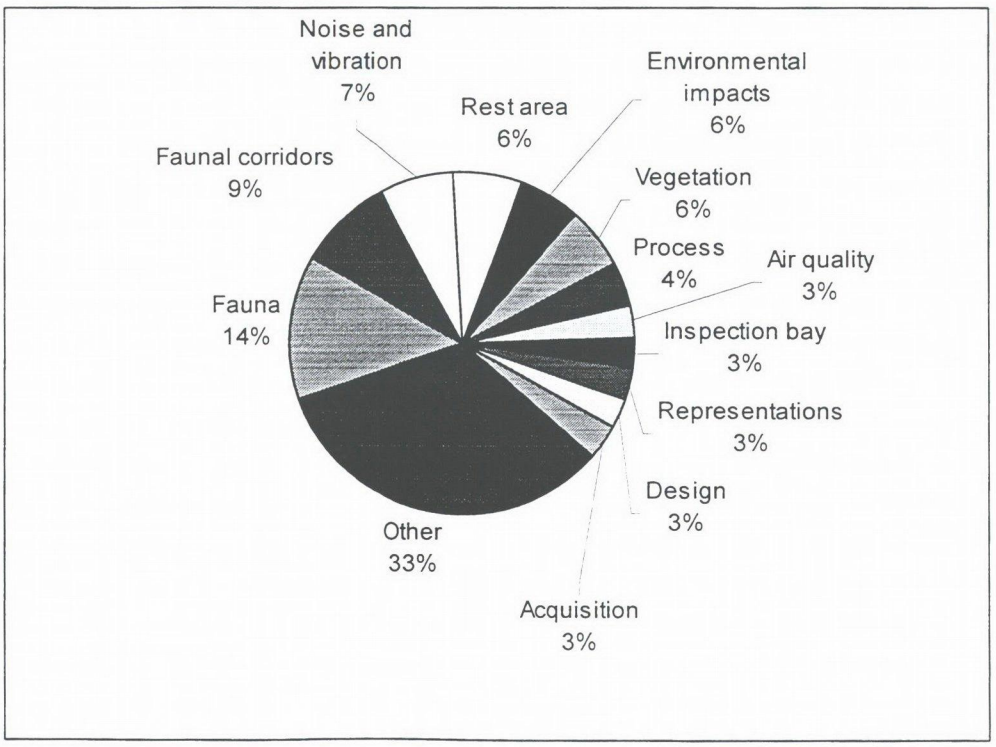
These accounted for 48% of the total number of times an issue was raised. The remaining percentage was spread over forty-five disparate issues. The high number of representations which contained issues only raised in that particular representation indicated the level of independent thought and effort which went into forming the responses to the exhibition of the EIS.

Table 5-3. Issues raised in Representations

Number	Issue	Number of times an Issue is raised	% of total number of Issues raised
1	Fauna	84	14%
2	Faunal corridors	54	9%
3	Noise and vibration	43	7%
4	Rest area	38	6%
5	Environmental impacts	37	6%
6	Vegetation	36	6%
7	Process	27	4%
8	Air quality	21	3%
9	Inspection bay	20	3%
10	Representations	17	3%
11	Design	17	3%
12	Acquisition	16	3%
13	Flooding and drainage	13	2%
14	Amenity	13	2%
15	Heritage	13	2%
16	Access	13	2%
17	Safety	13	2%
18	Water	12	2%
19	Agricultural impacts	11	2%
20	Post-construction issues	9	1%
21	Water quality	9	1%
22	Utilities	8	1%
23	PASS	7	1%
24	Property division and income	7	1%
25	Options	6	1%
26	Property value	5	<1%
27	Visual impacts	4	<1%
28	Erosion and sedimentation	4	<1%
29	Traffic	4	<1%
30	Cumulative impacts	4	<1%

Number	Issue	Number of times an Issue is raised	% of total number of Issues raised
31	Bicycle track	4	<1%
32	Socio-economic impacts	4	<1%
33	Loss of business	4	<1%
34	Licences	3	<1%
35	Pre-construction issues	3	<1%
36	Signage	3	<1%
37	Road classification	3	<1%
38	Privacy	2	<1%
39	Feral animals	2	<1%
40	Visibility	2	<1%
41	Area	2	<1%
42	Nil	2	<1%
43	Fencing	1	<1%
44	Bridge Construction	1	<1%
45	Vehicle lights	1	<1%
46	Lighting	1	<1%
47	Climate	1	<1%
48	Timing	1	<1%
49	Location	1	<1%
50	Integrated transport	1	<1%
51	IDFAs	1	<1%
	Total	**614**	**100%**

Figure 5-3. Issues raised in Representations



Note: Only those issues with 3% or more of the total number of issues have been distinguished

5.3 Consideration of Responses to Representations

Representations received on exhibition of the Bonville EIS have been considered in full detail. The process of logging and consideration included:

Entry into database: The representations were given a number, entered into a database and classified (Appendix 2 and Section 5.4 of this Representations Report) according to the following groups:
Issue numbers: Each issue within a representation was numbered with an alphabetical post-script (for example if representation number 1 raised three issues, these issues would be identified as 1a, 1b, and 1c)
Group type: The divisions used were: Individual, Interest Group, Business, Local, State or Commonwealth Government
Property affected?: Information was summarised concerning whether the property of the respondent would be affected directly by the Proposal or not
Issues type: Each issue raised within a representation was identified as an issue 'type' (for example, fauna, noise and vibration, process)
Response: Responses were given to all issues raised.
Consideration by the RTA in consultation with its consultants commissioned to prepare the EIS.
Additional investigations to resolve outstanding issues (Section 6 of this Representations Report).
Additional design refinements to resolve issues (Section 7 of this Representations Report).
Consultation with groups and individuals in an effort to reach shared or agreed solutions and to comply with all statutory or other requirements (Section 4.1 of this Representations Report).

Responses to the Representations are presented below an dare arranged by issue type. A list of respondents is provided in Appendix 1 and the summary of all issues for each representation is provided in Appendix 2.

In the following parts of this section the symbol
❖ refers to an additional study
and the symbol
❑ refers to a modification of works since the exhibition of the EIS and SIS.

5.3.1 Fauna

5.3.1 Fauna			
Rep. Nr*	By Whom?	Issue	RTA Response
11p ❖ ❑	Individual	If fauna underpasses are shown to be not affective after monitoring, faunal overpasses should be considered. Consideration should be made of sites where cuts provide 5.3m clearance and are not close to road overpasses for future construction. Sites are suggested at 94000 and 101200.	A 60 metre wide fauna overpass is now proposed for the site at chainage 94000 Reservation of the site at chainage 101200 is not considered to be warranted as the overpass together with three dedicated fauna underpasses, three creek bridges, one shared underpass and one culvert are considered adequate to ensure gene flow and population viabililty.
13c; 14c; 20c; 21c; 22c; 37c; 39c, 40c, 47c; 48c; 54c; 55c; 56c; 57c. ❑	Individuals	The Mailmans Track interchange itself will remove a large area of viable koala habitat and is not supported in the present forest location.	An interchange at this location is required to provide access to Repton and adjacent areas. Topographical functions and the location of Mailmans Track require the interchange to be in this position. Forest clearing is acknowledged, but tree retention will be maximised and trees will be planted early where possible. Mitigation measures for koalas are provided in Pine Creek State Forest and include a 60 metre wide fauna overpass and three dedicated underpasses. As well, discussions with NPWS are continuing with regard to compensation agreement.
29ae ❖	NPWS	The Section on Fauna habitats would be improved by some examples of the species of threatened fauna that are likely to utilise each habitat type. Examples are given (S4.5.6).	Fauna Habitats were described in the SIS (Section 4.5.6) and areas of significant sites together with likely species associated with these areas are described in Section 4.6 of the SIS. However, as a result of this request for further information, additional details are provided in the SISSIR (pages xxv, xxvi).
29af	NPWS	NPWS potential habitat models should be used to identify suitable habitat for the Common Planigale and the Queensland Blossom Bat. Both these species have the potential habitat predicted along parts of the proposed route (S4.5.7).	The predicted distribution maps are at a much smaller scale than the study area maps and therefore do not provide enough detail to accurately locate habitat boundaries.
29ah	NPWS	Maps of the location of high quality Koala habitat within Pine Creek State Forest (Zones 4 and 5) would enable assessment of the relevance of these areas to the current proposal (S4.5.8).	Information regarding the position of high quality Koala habitat in Pine Creek State Forest was provided in Section 4.5.8 of the SIS. More details are provided in the SISSIR (Figure 4) in map form.
29an ❖ ❑	NPWS	The proposal does not appear to contain any mitigation measures for gliders including the threatened Yellow-bellied Glider and Squirrel Glider (S5.5).	These have been considered in the SISSIR and a 60 metre wide fauna overpass and wide median strip in Pine Creek State Forest are now proposed.
29as ❖	NPWS	NPWS does not consider that loss of habitat is compensated for by "facilitating movement of and increasing the local survivorship of fauna living near the	More details are provided in the SISSIR (page xxviii).

5.3.1 Fauna			
Rep. Nr*	By Whom?	Issue	RTA Response
		highway" (S5.6.1.2).	
29at ❖	NPWS	Section 8 needs to consider loss of habitat (S5.6.1.2).	Loss of habitat near Bongil Bongil National Park was addressed in the SIS (page 8-1) More details are provided in the SISSIR (Section B8.2, page 44 onwards) which deals with compensating for habitat loss.
29au ❖	NPWS	No quantification of habitat loss is provided in the SIS (S5.6.1.2).	More details are provided in the SISSIR (Table 3, page xxxviii).
29av	NPWS	Some comment should be provided regarding the potential for fauna fencing to prevent movement that currently occurs across the highway (S5.6.1.2).	More details are provided in the SISSIR. Mitigation measures considered in the SISSIR comprise an overpass and a major underpass. These are likely to be used by most fauna groups. In addition, a median strip consisting of retained vegetation and plantings would act to facilitate movement of gliders and small birds across the highway.
29aw	NPWS	Acquisition of compensatory habitat must be considered for the loss of habitat along the entire route, not only for the loss of habitat on land owned by NPWS (S5.6.1.2).	Accepted. Negotiations with NPWS will continue regarding the details of an appropriate compensation argeement.
29ax	NPWS	Table 4 of the SIS is confusing. The "Proposal" column seems to be indicating amelioration measures proposed for the development, and thus comments in the "Amelioration" column state "None required" (S5.6.2.2).	These have been changed to "Mitigation Incorporated as Part of Proposal" and "Amelioration Adequate?" in the SISSIR in Tables B11 and B12 (page 40).
29ay ❖	NPWS	Additional amelioration measures are suggested for the Titans Close area to include investigation of the potential for revegetation west of the current highway to strengthen the vegetation corridor (S5.6.2.2).	Negotiations with NPWS will continue regarding the details of an appropriate compensation agreement. As part of this process, the RTA commissioned a paper on Compensatory Habitat (included with this Representations Report).
29bb	NPWS	It should be clearly stated that there will be a net loss of habitat (S5.6.6).	Details of habitat loss are provided in the SISSIR (page 34 onwards and also Table 3, page xxxviii).
29bc	NPWS	It is incorrect to suggest that roadside habitat is not currently utilised as a wide range of fauna and flora species would occupy this habitat, albeit that there is a loss of fauna from roadkills(S5.6.6).	Details are provided in the SISSIR (page xxviii) concerning the likely loss of habitat associated with the Proposal.
29bd	NPWS	No account is made of the current movement that takes place across the highway, which is likely to be modified by fencing and underpasses (S5.6.6).	As no monitoring has taken place, it is unknown what the current movement is across the road. The overpass, underpasses and median strip are predicted to maintain gene flow despite the fencing.
29be	NPWS	The protocol for circumstances where Koalas may be injured should be extended to all fauna (S6.1.2.1).	More details are provided in the SISSIR (page xxviii) and broad pre-clearing guidelines are presented in Section B8.2.4 of the SISSIR.
29bf	NPWS	Consideration should be given to conducting preconstruction surveys for the Giant Barred Frog (*Mixophyes iteratus*) at the Pine Creek locality(Appendix E).	Minimisation of disturbances to Giant Barred Frog habitat was discussed on page 2 of Appendix E. More details are provided in the SISSIR (pages xxix and

5.3.1 Fauna			
Rep. Nr*	By Whom?	Issue	RTA Response
			46).
29bg	NPWS	Any individual *Mixophyes iteratus* should be relocated to a nearby suitable habitat (Appendix E).	More details are provided in the SISSIR (page xxix).
29bh	NPWS	Timing of construction activities to avoid winter months when Giant Barred Frogs are less active should be attempted (Appendix E).	More details are provided in the SISSIR (page xxix).
29bi	NPWS	Some habitat restoration work should be conducted adjacent to bridge work in this locality to improve the habitat for this species eg weed control and replanting with suitable native species(Appendix E).	A discussion of the impacts on habitat is provided in Section 6.1.2 of the SIS. More details are provided in the SISSIR (page 43 and 44).
29bk	NPWS	Effects of proposed activities on Koalas should include reference to the fact that movement patterns are likely to be altered by fencing along the route (Appendix E).	More details are provided in the SISSIR. This has been modified to reflect the alterations to the original proposal in the the SISSIR.
29bp	NPWS	Predictive distribution maps have not been consulted (DGR1.12).	Predictive distribution maps were consulted.
29bq	NPWS	The extent of habitat removal is not quantified. The nature of habitat to be removed is discussed only in very general terms (DGR2.1).	This has been incorporated into the SISSIR (page xxxviii).
29cc	NPWS	Koala habitat maps have not been referred to or presented (Appendix 3 DGR Survey techniques).	Koala record maps were provided at the back of Appendix I of the SIS. More details are provided in the SISSIR (Figure 4).
29cd	NPWS	No survey was conducted for the Common Planigale but species is to be presumed to be present where there is suitable habitat (Appendix 3 DGR Survey techniques).	The SIS assumed, with agreement from NPWS, that the Common Planigale was present if suitable habitat was present (SIS, page 4-6). More details are provided in the SISSIR (page xviii).
29ce	NPWS	No survey for the Queensland Blossom Bat was conducted but the species is to be presumed present where there is a suitable habitat (Appendix 3 DGR Survey techniques).	The SIS assumed, with agreement from NPWS, that the Queensland Blossom Bat was present if suitable habitat was present (SIS, page 4-6). More details are provided in the SISSIR (page xviii).
29cf	NPWS	Inadequate information is provided to determine whether adequate survey was conducted for diurnal birds. Refer to survey requirements for individual diurnal bird species (Appendix 3 DGR Survey techniques).	The survey effort was summarised in Section 4.3.2.1 of the SIS and described in Section 4.3.2.2 (SIS). More details are provided in the SISSIR (page xviii).
29cg	NPWS	Inadequate information is provided to determine whether adequate survey was conducted for reptiles. Refer to survey requirements for individual reptile requirements (Appendix 3 DGR Survey techniques).	The survey effort was summarised in Section 4.3.2.1 of the SIS and described in Section 4.3.2.2 (SIS). More details are provided in the SISSIR (page xix).
29ch	NPWS	Inadequate information is provided to determine whether adequate survey was conducted for threatened fauna species. (Appendix 3 DGR Survey techniques) .	Surveys are described in Section 4.3.2.2 and Appendix E (SIS, page 4-6 onwards). More details are provided in the SISSIR and a further field survey was undertaken to assess areas to be cleared for widening to retain the vegetated median (SISSIR, page 13 onwards).

5.3.1 Fauna			
Rep. Nr*	By Whom?	Issue	RTA Response
29cl, 29r	NPWS	Calls of the Squirrel Glider and the Bush Thick-knee do not appear to have been played (Appendix 3 DGR Survey techniques).	The Squirrel Glider does not have a recorded call. Call playback was used for the Bush Thick-knee as stated in Section 4.3.2.2 of the SIS.
29cr	NPWS	It should be clearly stated that many of the proposed crossings are bridge crossings (S5.3).	More details are provided in the SISSIR.
29cs	NPWS	In Section 5.3.6 it is indicated that eight areas suitable for fauna underpasses were determined; however, p5-3 states that there will be nine underpasses (S5.3.6).	This has been modified to reflect the latest proposal in the SISSIR (page 32).
29ct	NPWS	Skylights are not recommended in the median areas above underpasses (S5.3.6).	Lighting is discussed in Chapter 5 of the SIS. More details are provided in the SISSIR.
29cv	NPWS	Poles should be erected on the highway side of the fauna exclusion fencing at regular intervals (eg every 200m) to provide Koalas with a means to climb back to safety as it has been noted that Koalas have been unable to climb up the chain mesh fencing after straying onto the highway (S5.3.10).	Climbing poles are described in Appendix I of the SIS (page 22). More details are provided in the SISSIR (page 45).
29cw	NPWS	It is necessary to ensure that fauna exclusion fencing be constructed at a distance from standing trees to prevent Koalas from using trees as a way to access the highway. The ends of fencing should curve back into the forest where appropriate. This is appropriate at the southern end on Pine Creek State Forest (S5.3.10).	Agreed. Fencing details will be incorporated into the detailed design and Project EMP.
29dg	NPWS	It is important to note that patches may contain important habitat features for threatened and other fauna eg Koala food trees, hollow-bearing trees, roost or nests etc (S6.3.6).	More details are provided in the SISSIR (page 38 onwards).
29dh	NPWS	NPWS considers that it is not acceptable that construction of the road would cause the pair of Ospreys to leave their current roosting and nesting tree (S6.3.8).	Accepted. Mitigation including minimisation of clearing in the vicinity of the nest and timing of works and disturbance to coincide with non-breeding season would be adopted.
29di	NPWS	NPWS does not agree that the Ospreys could simply move to another suitable site as these are likely to be used by other species (S6.3.8 and also Appendix E comments).	Refer to 29dh.
29dj	NPWS	NPWS does not agree with the statement in the EIS that exclusion fencing would be equivalent to the breeding output of an additional 500 ha of Koala habitat (S6.3.9). Also refer to comments on S.5.6.6.	Accepted and deleted from the SISSIR.
29dn	NPWS	NPWS wishes to be involved in the development and review of the Environmental Management Plan (EMP)	NPWS review of the Project EMP and of Construction EMP will be provided for.
29f	NPWS	Clarification is sought regarding nocturnal call sites and the timing of visiting these	This has been clarified in the SISSIR (Table A3 commencing at page xx).

5.3.1 Fauna			
Rep. Nr*	By Whom?	Issue	RTA Response
		sites (S4.3.2.1).	
29g	NPWS	Clarification is sought concerning the length of transects on which hair tubes were laid out (S4.3.2.1).	Transects are 200m long; this has been clarified in the SISSIR (page xxi).
29h	NPWS	The survey of the proposed rest area targeted Koalas and Koala habitat suitability and did not survey for other values. This is not stated in the SIS (S4.3.2.1).	This has been clarified in the SISSIR (page xxi).
29i	NPWS	The SIS does not state how suitable habitat for the Common Planigale and Queensland Blossom Bat was determined. Suitable habitat should be determined by referring to NPWS potential habitat models (S4.3.2.2).	Suitable habitat for these species was broadly identified using the potential habitat models. This has been included in the SISSIR (page xviii).
29j	NPWS	The model does not state whether dip net surveys for frogs were conducted (S4.3.2.2).	NPWS did not consider dip net surveys to be essential given that frog playback and active searching were employed. In addition, targeted frog surveys were conducted by Francis Lemckert, a specialist amphibian biologist. This has been clarified in the SISSIR (page xix).
29k	NPWS	The SIS does not state who conducted the identification of the recorded frog calls (S4.3.2.2).	Calls were identified by Ray Williams. This has been clarified in the SISSIR (page xxi).
29l	NPWS	The dates on which each fauna group was surveyed should be specified (S4.3.2.2).	Dates for all the surveys are identified in Section 4.3.2.1 of the SIS.
29m	NPWS	Weather conditions for each day or night of the survey should be given in detail. Were any surveys conducted in cold, windy conditions? (S4.3.2.2).	Meteorological records have been obtained. This has been included in the SISSIR (Table 4, page xxxviii).
29n	NPWS	Which habitats were searched for which species? (S4.3.2.2).	This has been shown through mapping in the SISSIR.
29o	NPWS	Was the *Litoria aurea* survey done both day and night? (S4.3.2.2).	Yes. This has been clarified in the SISSIR (page xxi).
29p	NPWS	Were arboreal epiphytes on fallen trees searched for the Pale-headed Snake? (S4.3.2.2).	A search for the Pale-headed Snake was carried out in the appropriate habitat however none were found.
29q	NPWS	Were buttressed trees and strangler figs targeted for Stephen's Banded Snake? (S4.3.2.2).	Only one fig was encountered and it was searched. This has been clarified in the SISSIR.
29s	NPWS	When were microchiropteran bat surveys conducted? (S4.3.2.2).	This is included in the SIS in Sections 4.3.2.1. for dates and 4.3.2.2 for timing.
29t	NPWS	As only one Anabat site is marked on Figure 4, was Anabat conducted at the same site for three nights? (S4.3.2.2).	Details of the survey effort werer given in Sections 4.3.2.1 and 4.3.2.2 of the SIS (pages 4-5, 4-6). Further clarification has been given in the SISSIR (page xxii).
29u	NPWS	Some discussion as to the limitation of call playback techniques would be considered useful especially for sites near the existing highway (S4.3.2.3).	This has been included in the SISSIR (page xxii).
29v	NPWS	The approach that all threatened bat species occur on site, if a suitable habitat is present, is to be adopted (S4.3.2.3).	Agreed. This has been included in the SISSIR (page xxii).
32a ❑	Individual	While fencing is supported, the adequate movement of the Koala population is	Acknowledged. The EIS (Table 5.2) describes fauna crossings in Pine Creek

5.3.1 Fauna			
Rep. Nr*	By Whom?	Issue	RTA Response
		essential for the continuing viability of the population.	State Forest. Other fauna corridors and increased provision for fauna to cross the highway are proposed. An overpass approximately 60m wide is proposed in the central part of Pine Creek State Forest as well as underpasses. Most fauna groups would utilise the underpasses and overpass.
32i	Individual	The proposed fencing does not provide habitat. It may secure some existing habitat but there is significant loss of koala habitat in the proposed upgrade. It is an assumption that koalas using this habitat would have been killed long ago or will soon be killed.	Acknowledged. Habitat loss for fauna including koalas is being considered as part of a compensation package which will be negotiated between the NPWS and the RTA as in 29aw above in this section.
35e	Interest Group	Attention is brought to the comment on p6.31 of the EIS that "established resident koalas who occupied home ranges adjacent to the Pacific Highway would have been killed long ago". It is not considered to be anything but a suggestion.	Noted.
35f	Interest Group	The SIS has not addressed the impact of the proposal on the Pine Creek population.	This is not supported. Refer to Section 5.6 of the SIS.
35g	Interest Group	High quality habitat is to be clearfelled in this proposal. As such habitat is small and fragmented, this represents a significant loss and must be addressed	Refer to 29aw.
35q	Interest Group	The SIS and EIS fail to address the impact on the koala population in the Pine Creek State Forest in terms of the Koala Management Plan that has been approved by State Forest	The Koala Management Plan in Pine Creek State Forest has been written in relation to timber harvesting operations. This plan was considered when siting the highway (SIS, Appendix I, p11).
35r	Interest Group	If the proposed tunnels do not allow adequate movement, what will be the long term impacts on the population as a whole?	Refer to 35a and 35 l,m,p.
35s	Interest Group	Fencing will not provide more habitat but may make existing habitat more secure but high quality habitat will be lost and equivalent koala habitat must be provided as compensation.	Noted. Refer to 29aw.
35t ❑	Interest Group	Concern is raised about the impact the upgrade may have on the Koala population in Pine Creek State Forest.	The environmental sensitivity is understood. Environmental issues were a major factor in developing the project through Pine Creek State Forest (EIS, Chapters 5 and 6). Significant measures such as a fauna fencing, erosion and sediment control devices, underpasses and revegetation are included in the project. Selected additional measures are proposed as a result of community responses. These include a major fauna overpass and wider carriageway separations for improved tree retention of large trees and replanting

5.3.1 Fauna			
Rep. Nr*	By Whom?	Issue	RTA Response
			where this is not possible.
36c ❖	NSW Fisheries	Sampling aquatic organisms was restricted to macroinvertebrates.	It was agreed, previously, with NSW Fisheries that fish sampling need not be undertaken and the aquatic 8-part test would be based on desktop study and brief site visit. Aquatic organisms including consideration of fish species listed under the 1997 amendment to the Fish Management Act 1994 are included in the Aquatic Ecological Assessment Report . A copy of this report accompanies the SISSIR attached to this Representations Report.
38c	Individual	The interchange itself will remove a large area of viable koala habitat and is not supported in the present forest location.	An interchange at this location is required to provide access to Repton and adjacent areas. Topographical functions and the location of Mailmans Track require the interchange to be in this position. Forest clearing is acknowledged, but tree retention will be maximised and trees will be planted early where possible. Mitigation measures for koalas are provided in Pine Creek State Forest and include a 60 metre wide fauna overpass and three dedicated underpasses. As well, negotiations with NPWS will continue regarding the details of an appropriate compensation agreement.
49aj ❑	Individual	The northern boundary of the property is used as a corridor by koalas with up to 4 male koalas calling in the bushland on the property. The property on the eastern boundary has experienced recent koala sightings when habitat was destroyed next to the railway line. The 4 fauna underpasses as planned in the EIS are inadequate to fully accommodate the koalas around the property.	The mitigation measures described in the SISSIR are considered to be adequate for maintaining gene flow. Eight fauna underpasses and one fauna overpass are proposed along the length of the project, in conjunction with koala exclusion fencing to minimise road kills. Most fauna groups including Koalas, would be able to utilise the underpasses and overpass.
49al	Individual	The proposed road will also endanger the East Bonville Road breeding Osprey nest located 50 metres to the west of the new route on Mr Jim Cassidy's property.	It was agreed during discussions between the RTA and NPWS on 6 November 1997 that the potential impact on nesting Ospreys could be managed by various means. Although a buffer area of 100 m is generally recommended around a known nest site, Clancy (1991) advised that each site be considered individually. A 55 m buffer to the proposed road embankment was considered to be acceptable in the case of Bonville provided that no clearing activities were undertaken in the vicinity during the breeding season from June to October. Noise and disturbance associated with earthworks occurring between 55-100 m from the nest would be continuous in nature and would therefore be unlikely to significantly impact the

5.3.1 Fauna			
Rep. Nr*	By Whom?	Issue	RTA Response
			breeding pair. By minimising aquatic impacts in creeks through both the proposal design and amilioration, it was expected that foraging habitat for this species would be maintained in the long-term. Additional clearing within the 55 metre buffer for a water quality basin (Figure B.3b of the SISSIR) is not recommended. It is proposed to delete this basin and redirect water to the eastern side of the highway in the detailed design stage. To be included in the Project EMP.
49am	Individual	The landholders register their concern over the loss of habitat of the Little Bent Wing Bat.	These are a highly mobile species. Their critical breeding habitat is caves and these will not be affected by the Proposal.
60d	Business	The vegetation remnant on Titans Quarry block is frequently used by koalas.	Refer to 60b in Section 5.3.8.
63c	NRMA	Measures are suggested to reduce the negative impact of the route on faunal species. Such measures could include the use of road overpasses for arboreal mammals and exclusion fencing to prevent the sedentary ground based species from straying onto the new road.	The RTA applies the Precautionary Principle in its approach to environmental mitigation, and proposes to use best current practices for the protection of fauna. The current Proposal includes a 60 metre wide fauna overpass, faunal underpasses, bridges to span Pine, Reedys and Bonville Creeks, exclusion fencing and vegetated medians for arboreal animals monitoring of the use of underpasses and overpasses is proposed.

❖ Refers to an additional study
❑ Refers to a modification of works

5.3.2 Faunal Corridors

5.3.2 Faunal Corridors			
Rep. Nr*	By Whom?	Issue	RTA Response
11e	Individual	Option A removal of strips of remnant vegetation would further reduce likely faunal movement possibly to the point of almost total severance (pp 4.18 & 4.19).	Noted. Option A was not the adopted option.
13a; 14a; 20a; 21a; 22a; 37a; 38a, 39a, 40a, 47a; 48a; 54a; 55a; 56a; 57a. ❖ ❑	Individuals	The provision of a safe passage of fauna beneath the proposed motorway is inadequately addressed by the present plan. A system of linked underpasses spanning several hundred metres would be appropriate.	Following specialist studies and extensive consultation with NPWS, DUAP, NSW Fisheries and the community, additional crossing opportunities are now proposed. Specifically, a 60 metre wide fauna overpass is proposed in the central part of Pine Creek State Forest (PCSF) and retention of large trees is proposed in selected lengths of the median through PCSF for gliders. The provision of very large structures proposed by the respondents cannot be justified either on the basis of scientific knowledge or cost.
15b ❖ ❑	Individual	There is concern as to whether the corridors beneath the highway are adequate for arboreal animals such as gliders.	In the period after exhibition, additional provision for gliders to cross the highway have been proposed through Pine Creek State Forest (PCSF). Provision has been made for a major 60 metre wide overpass and a median strip in PCSF. The median would vary between 10-50 metres in width (refer to attached Supplementary Route Selection and Design Report) and would comprise retained vegetation and plantings. Appropriate plantings would be selected for use by gliders and small bird species.
29ak	NPWS	The SIS states that there are two wildlife corridors within the study area that will be intersected by the proposal. These should be described (S5.3.2).	Corridors are described in Appendix E of the SIS (page 14). More details are provided in the SISSIR (page xxvii).
29ao ❖ ❑	NPWS	There is a need to investigate any opportunities to retain forest vegetation in the median within Pine Creek State Forest to mitigate the impacts to arboreal mammals such as gliders. Possible instances of appropriate areas are given (S5.5).	Opportunities have been investigated as part of the SISSIR. Refer to 29an in Section 5.3.1.
29z	NPWS	Locally significant corridors should be mentioned in addition to "regional" corridors such as those along the waterways of the study areas such as Bonville Creek and Pine Creek (S4.4.3).	This has been included in the SISSIR (page xxiii).
32b	Individual	There has been no attempt to assess the	This has been used in sizing and in the

5.3.2 Faunal Corridors			
Rep. Nr*	By Whom?	Issue	RTA Response
❖ ❑		impact on the population if the proposed underpasses fail and the population is isolated from east and west of the highway .	number of crossing opportunities provided. A 6-year Koala study is being undertaken in Pine Creek State Forest to measure the impacts of the existing and new roads.
32c	Individual	The effect on home range (of koalas), social structure and activity, dispersing young and fragmented habitat have not been addressed.	An extensive fauna survey was undertaken for the EIS (SIS, Appendix H) including a koala survey by Mr Chris Moon (SIS, Appendix I). As well, the 6-year survey mentioned above will provide specific data and knowledge on these issues.
32d	Individual	Bongil Bongil National Park is very small and relies on the surrounding forest for extended habitat, recruitment and dispersal of animals. If free movement of animals is not provided through Pine Creek State Forest, what is the long term viability of Bongil Bongil NP as a habitat?	Adequate movement is the goal as described above so that Bongil Bongil NP can also support viable fauna colonies. To provide this movement, the exhibited EIS included a number of underpasses. As well, since exhibition, provision has been made for a 60 metre wide overpass towards the midway position of Pine Creek State Forest.
32e ❖ ❑	Individual	In a forest such as Pine Creek where the opportunity still exists to allow free movement of animals from the coast to the tablelands, the RTA must take the responsibility for future generations.	The RTA acknowledges its responsibilities in Pine Creek State Forest regarding the impacts of this project. In providing opportunities to improve movement along existing corridors, the Principles of Ecologically Sustainable Development have been considered and are implemented through the inclusion of underpasses and an overpass together with bridges at Pine, Reedys and Bonville Creeks.
32f	Individual	The proposed fauna overpass north of Mailmans Track and the underpass to allow for log trucks at Hunters Road should be extended to 200m to allow arboreal mammals such as the koala and the yellow bellied glider a real chance for movement.	These lengths are considered excessive of needs, but the provision of a 60 metre faunal overpass between these 2 facilities is proposed. Lengths were determined in consultation with NPWS and appropriate experts, based on the Precautionary Principle. There is no scientific justification for an increase greater than that proposed.
32g	Individual	Overpasses across the highway specifically designed for arboreal mammals should be built and monitored.	Acknowledged as in 32f. Monitoring is proposed as described above. Improved provision for gliders is also proposed by provision of wider medians and the retention of large trees in these or revegetation would be provided where retention is not possible.
32h	Individual	The loss of koala habitat should be compensated for in the provision of similar habitat.	A 6 year monitoring program is about to commence in Pine Creek State Forest to monitor impacts on Koalas. If there are any unexpected adverse impacts, appropriate measures will be considered for implementation. As well, refer to 32e.

5.3.2 Faunal Corridors

Rep. Nr*	By Whom?	Issue	RTA Response
32j	Individual	The request is made that the RTA address the free movement of native animals across Pine Creek State Forest to the very best of its ability as this area is extremely important for the long term viability of koalas in the Bellingen/Coffs Harbour area.	The importance of this issue has been recognised by the RTA, both in ensuring adequate provisions in this project and in the long term Koala monitoring program (reference details are described above).
35a	Interest Group	The proposed exclusion fencing is supported only if adequate fauna underpasses are provided. The present underpasses are far from adequate.	To complement the exclusion fencing, opportunities to improve movement along existing corridors are to be implemented through one 60 metre overpass at Pine Creek State Forest, underpasses at chainages 93.5, 94.5, 97.5 and 101.3 together with bridges at Pine, Reedys and Bonville Creeks. It is unnecessary for all individuals within a species to have equal access to the other side of the highway in order for gene flow to occur. Within any species, it is likely that certain age/sex classes (e.g. juveniles, males) disperse more than others. The mitigation measures described in the the SISSIR are highly likely to be adequate for maintaining gene flow. Most land based fauna groups would be able to utilise the underpass and overpass.
35b	Interest Group	Exclusion fencing may impact more on the time taken for the dispersal of young, on their social behaviour, home ranging patterns and on the isolation between east and west populations than the effect of the reduction of road kills.	The home ranges, social structures and activities of most mammal species affected by the highway development are flexible to some extent because they are determined by behaviour. It would be expected that home ranges and activity patterns shift, at least temporarily, in order to accommodate the proposed highway. However, they should stabilise over time. In the present situation, the populations located adjacent to the highway experience a high turn-over of individuals (due to road kills) and are therefore likely to have a highly variable population structure and possibly a low fecundity. The mitigation measures proposed as part of the development would allow adequate dispersal movements to maintain gene flow.
35c	Interest Group	Only two fauna underpasses are to be constructed of which one, the single span, is suitable for koalas.	The EIS describes 5 fauna underpasses considered suitable for koalas from Pine Creek south. The arch underpass will be replaced with a 60 metre wide faunal overpass in the central part of Pine Creek State Forest.
35d ❖ ❑	Interest Group	Major highways isolate koala populations from each other and possibly only large culverts placed back to back 20m apart over the entire length of the habitat would ensure free movement from side to side.	Increased provision for fauna to cross the highway are proposed. An overpass approximately 60 m wide is proposed in the central part of Pine Creek State Forest. Two dedicated underpases and a shared underpass would also be available for koala movements. These measures would promote gene flow.

5.3.2 Faunal Corridors			
Rep. Nr*	By Whom?	Issue	RTA Response
35h	Interest Group	It is essential that carriageways which span gullies 50-500m long are designed to sustain the natural plant communities beneath them and to facilitate the use of these gullies by wildlife.	As much as possible, communities underneath the bridge crossings would be retained during construction.
35i ❖ ❑	Interest Group	For a koala population of state significance, the proposed spacing between crossings is grossly inadequate and with the newly formed Bongil Bongil National Park, this free flow from east to west is even more important.	Exclusion fencing, one 60 metre wide faunal overpass, a faunal underpass at 93.5, two shared faunal underpasses (chainage 94.9 and north of Sid Burke Rest Area) are provided in the Proposal. It is unnnecessary for all individulals within a species to have equal access to the other side of the highway in order for genbe flow to occur. Within any species, it is likely that certain age.sex classes (e.g. juveniles, males) disperse more than others. Therefore the mitigation measures described in the the SISSIR are likely to be adequate for maintaining gene flow.
35j	Interest Group	The area is part of a major ecological gradient and is only one of a few along the NSW Coast where there is an uninterrupted vegetated corridor from the Pacific Ocean to the tablelands. To interrupt this flow could have disastrous consequences.	Measures to provide adequate gene flow include those outlined in 35a above.
35k ❖ ❑	Interest Group	Unless enough large underpasses are provided, it could be safely assumed that this flow will be severely impeded.	A wide 60 metre overpass and underpasses are included in the Proposal to ensure adequate gene flow. Refer to 35a above.
35n	Interest Group	It is too late if research shows that the underpasses are too small or that not enough were provided in the first place. Larger underpasses and more of them are more likely to be used and offer the koala and other fauna the best crossing chances.	As well as measures outlined in 35a and 35m, the RTA will undertake a research program to provide further information as to the effectiveness of measures such as fencing and underpasses. Also as mentioned above, a 60m faunal overpass has been included in the Proposal since exhibition of the EIS.
35o ❖ ❑	Interest Group	Structures should be dedicated fauna underpasses, single span bridge with 15m wide area of clear ground beneath, or prefabricated structure, similar to that on North Bank Road.	Dedicated faunal structures include a 60 metre wide fauna overpass, a faunal underpass at chainage 93.5 together with bridges which span each of the three creeks : Pine, Reedys and Bonville Creeks to provide fish passage.
35p	Interest Group	Maximum spacing of structures for faunal movement should be no greater than 200m and where possible no median strip should exist. This would make the crossing distance as short as possible.	There is no known ideal spacing for faunal movement structures. Following consultation with NPWS, a median is provided in highway sections in Pine Creek State Forest where vegetation could be preserved for appropriate use by gliders. For structures included in the Proposal for the safe crossing of fauna refer to 35a above.
36a ❖ ❑	NSW Fisheries	The EIS does not address the potential impacts (both positive and/or negative) on aquatic organisms, in particular in relation	Aquatic invertebrates have been addressed in Appendix K (Water Quality) of the EIS. Since the exhibition of the EIS

5.3.2 Faunal Corridors			
Rep. Nr*	By Whom?	Issue	RTA Response
		to the proposed crossings of Pine, Bonville and Reedy Creeks and wetland areas. Only two broad statements are made on pp6-27 and 7-5.	and SIS, two studies have been completed which relate to these issues : Aquatic Ecological Assessment and Wetland Evaluation . These reports are attached to this Representations Report at the back of the SISSIR.
41a ❖ ❑	Individual	The proposed wildlife corridors around Mailmans Track are inadequate	A reasonable provision was identified in the EIS, but increased provision is now proposed to reduce risk of facilities not working. A 60 metre wide overpass is now proposed near the middle of the Pine Creek State Forest section of the Proposal. Linked underpasses spanning several hundred metres are considered to be unwarranted for fauna movements.
41f ❖ ❑	Individual	A system of linked underpasses spanning the entire area between Mailmans Track and Sid Burke Rest Area is suggested.	Following specialist studies and extensive consultation with authorities and the community, additional crossing opportunities are now proposed. Specifically a 60 metre wide fauna overpass is proposed in the central part of PCSF and retention of large trees is proposed in selected lengths of the median through PCSF for gliders. Considering the fauna fencing and crossings proposed, linked underpasses spanning several hundred metres are considered to be excessive to needs for fauna movement purposes.
42a ❖ ❑	Interest Group	The destruction of forest gullies as a result of 'straightening out' the highway around Mailmans Track is greatly deplored. Preference is given to overfly/system of bridges to save the rainforest and allow free passage of wildlife.	The straightening of the highway is largely due to constraints set by the alignment of the Raleigh section of the Pacific Highway and to safety and engineering issues. Minor adjustments in design to the alignment of the highway near the gullies have been undertaken to optimise, where possible, ecological benefits. Further details are provided in the EIS and in the Supplementary Route Selection and Design Report which accompanies this Representations Report. In the the SISSIR, a major underpass is proposed to be constructed at chainage 93.5. This is likely to be utilised by most species because it would retain its natural substrate and allow clear visibility of the habitat beyond. A major fauna overpass is to be constructed at about 200 metres north of the northern forest gully. The latter is likely to be used by most fauna groups including gliders provided that revegetation of the 50-60 m corridor includes appropriate species of tall trees.
42b ❖	Interest Group	The proposed wildlife corridors around Mailmans Track are inadequate. A system	Following specialist studies and extensive consultation with authorities and the

5.3.2 Faunal Corridors			
Rep. Nr*	By Whom?	Issue	RTA Response
❑		of linked underpasses spanning the entire area between Mailmans Track and the Sid Burke Rest Area is preferred to accommodate movements of koalas and other endangered species.	community, additional crossing opportunities are now proposed. Specifically, a 60 metre wide fauna overpass is proposed in the central part of PCSF and retention of large trees is proposed in selected lengths of the median through PCSF for gliders. A faunal underpass at chainage 93.5 is likely to be utilised by most species because it would retain its natural substrate and allow clear visibility of the habitat beyond. Considering the fauna fencing and crossings proposed, linked underpasses spanning several hundred metres are considered to be excessive for fauna movement.
43b ❖ ❑	Individual	A system of at least four or five underpasses rather than two, spanning the entire area between Mailmans Track and the Sid Burke Rest Area would be a more adequate wildlife corridor.	The original Proposal provided eight underpass treatments (EIS, p5-20) to protect existing fauna crossing the highway. Following specialist studies and extensive consultation with authorities and the community, additional crossing opportunities are now proposed. Specifically, a 60 metre wide fauna overpass is proposed near the midway point if the route, in PCSF and retention of large trees is proposed in selected lengths of the median through PCSF for gliders. As well, a faunal underpass at chainage 93.5 and a bridge crossing of Reedys Creek are proposed.
44a ❖ ❑	Interest Group	The area the proposal passes through has one of the highest populations of koalas in the state. The proposal does not allow for enough fauna underpasses. Major underpasses at both the north and south ends of the forest are required.	Following specialist studies and extensive consultation with authorities including NPWS and the community, increased provision for fauna to cross the highway is now proposed. A 60 metre wide fauna overpass is proposed approximately half way along the southern section in Pine Creek State Forest. Underpasses would be at chainage 93.5, a shared underpass north of the Sid Burke Rest Area and an underpass with permeable base is proposed north of Herdegen Close. A 6 year monitoring program is also proposed (commencing within the next few months) to assess the success of the fauna crossings. If there are any problems with fauna colonies, appropriate measures could then be developed and implemented.
46r ❖ ❑	Aust Heritage	The proposed route, roughly along the LEP corridor, will still be a significant barrier to birds and arboreal fauna species that require a continuous canopy or a	Barrier impacts for gliders and small birds will be reduced through the construction of an overpass and the inclusion of a median strip along most of the length of Pine

5.3.2 Faunal Corridors			
Rep. Nr*	By Whom?	Issue	RTA Response
		shrub layer for population movements.	Creek State Forest.
49ak	Individual	There is the potential further loss of significant regional habitat along the LEP route.	Negotiations with NPWS will continue regarding the details of an appropriate compensation agreement.
50a ❖	Interest Group	A proposal is made for a forested corridor for the movement of koalas and other wildlife over the motorway. The proposed motorway should be realigned through Pine Creek State Forest and should include the construction of a motorway tunnel of not less than 150m long under both Mailmans Track and Overhead Bridge Road as well as under the forest on this ridge (p2 of Representation).	This Representation is the subject of a report: Response to the Bellingen Environment Centre Inc Representation, a copy of which accompanies this Representations Report (Appendix 9). In short, the report does not support suggested changes to the Proposal.
50n ❖	Interest Group	A raised carriage way should be undertaken by the RTA as a compensation for its motorway impacts upon the North Bonville Regional Wildlife Corridor, to help maintain the viability of the corridor to serve for wildlife movement, dispersal and genetic exchange between the North Bonville section of Bongil Bongil National Park and Tuckers Nob State Forest and the Eastern Dorrigo escarpment forests (page 7 of the Representation).	Refer to 50a (Section 5.3.2).
50p ❖	Interest Group	A proposal is made for establishing a Trust Fund for wildlife underpasses along the Old Pacific Highway within Pine Creek State Forest and for a Trust Fund for the progressive establishment of wildlife underpasses along the Old Pacific Highway through Bonville (page 7 of the Representation).	Refer to 50a (above).
51a ❖ ❑	Interest Group	Concern is expressed about the issue of cutting wildlife corridors by the new four lane highway in both Bonville section and also north of Ballina.	Two regionally significant corridors and two locally-significant corridors would be transected by the proposed highway in the Bonville area. Unlike the existing highway, several major (i.e. overpass, underpasses, bridges) and minor structures (i.e. culverts) form an integral part of the proposal. Although, it is expected that most fauna groups would utilise the overpass, underpasses and bridges, some groups (i.e. burrowing species) would use culverts. In addition, a variable width median strip is proposed for the length of PCSF; this may act as a corridor for gliders and small bird species. The area north of Ballina is outside the scope of the present EIS and SIS. Koala management measures are extensive, reference Section 6.4 of the EIS. For other fauna, measures include bridges, underpasses, overpasses and wide medians for gliders and birds.
51b	Interest	Underpasses may provide a good hunting	Since the exhibition of the EIS,

5.3.2 Faunal Corridors			
Rep. Nr*	By Whom?	Issue	RTA Response
❖ ❑	Group	area for predators and it may be more advantageous to have wide overpasses.	modifications to the design along the route have lead to the replacement of two of the three culverts listed in Table 5.2 of the EIS with larger structures. The culvert in PCSF is replaced by a wide overpass near the northern end of PCSF and the culvert at Reedys Creek is to be replaced by a bridge crossing. Fauna underpasses are generally provided with logs but logs in waterway culverts may cause flow problems. Discussion with NPWS is continuing concerning faunal underpass treatments.

❖ Refers to an additional study
❑ Refers to a modification of works

5.3.3 Noise and Vibration

5.3.3 Noise and vibration			
Rep. Nr*	By Whom?	Issue	RTA Response
11b	Individual	With reference to Table 4.5 of EIS, the 165 residences which would have a reduction of 5dBA possibly should not have been added to the B options (p4.15).	This comparison of options included total noise from new and existing roads. From Table 4.4 the number of properties affected by the options ranged from 109 to 165 along the individual routes but in considering the B options both the properties adjoining the existing Highway and the Proposal were jointly considered. In considering the mix of the combined impacts for each option it was found that there was not a great difference between any of the options (weighting 262 to 284, Table 4.5). The option chosen (B3) was not chosen on the basis of this ranking alone as noise differentials were not significant in the route selection overall.
34d	Individual	Noise during the construction period will be a concern for the landholder as he is required to undertake shift work and the construction will be within 35m of the family residence. Also, windows will have to remain closed during construction in the hot summer months because of the noise.	Night time operational noise levels are estimated to be 8dBA above goals. Daytime construction noise will be above EPA recommended levels. Assessment of acoustic treatment options to reduce noise within the residence has been undertaken since the exhibition of the EIS. Air conditioning is included in this treatment. For further details, refer to the *Noise and Vibration Assessment Supplementary Information Report* which accompanies this Representations Report.
49d	Individual	The measured background noise level of 34 dBA at 189 East Bonville Road is considered to be a better representation of the real environment at the property rather than other figures in the EIS but it is still higher than it really is as it is probably much quieter at the property at night. The measured noise levels at residences displayed in Table 7.1 (p7-21) are very questionable being 55dBA LAeq 15 hr and 50dBA LAeq 9hr. During November the monitor at N5 was placed within close proximity to trees where cicadas were most active. This residence is also relatively close to the Eastern Railway line.	A number of background noise locations are monitored to assist in calibrating the model and compare to predicted noise levels. Cicada noise levels may have been significant at the time of monitoring, but this has no effect on the noise level goals (55 dBA daytime and 50 dBA night time) set by the EPA. Reference to EIS and further report "Noise and Vibration Supplementary Information March 1999".
49e ❖	Individual	No noise monitor was placed at the 159 East Bonville Road residence, even though this residence is approximately 60 metres from the proposed road.	Representative sites were selected and noise modelling, based on data collected from these sites, was used to provide information about noise levels at other sites including this residence. It is not necessary to measure background noise levels at all residences. For further discussion refer to the EIS and the Noise and Vibration Assessment Supplementary Information Report (page 9 onwards). The latter accompanies this

5.3.3 Noise and vibration			
Rep. Nr*	By Whom?	Issue	RTA Response
			Representations Report.
49f	Individual	It is appropriate to measure background noise levels at the most sensitive point of particular importance which is nearest to the noise source to satisfy EPA objectives. N5 is the point that is fartherest away. Why have monitors been located at the greatest distance from the proposed road if the data are to be used as a noise level standard for those located nearest to the proposed road?	Refer to comments in 49e. A range of distances were selected along the route to calibrate the model. Adequate noise level assessments have been undertaken.
49g ❖	Individual	All LA 10 levels are excessive. The residences in East Bonville Road closest to earthworks will have noise levels of 75dBA and this is the highest level. Levels exceed EPA guidelines.	Noted. Specific assessment of acoustic treatment options to reduce noise within a residence has been undertaken since the exhibition of the EIS. Mitigation and management of construction noise is described in Sections 7.4 and 8.5 of the EIS and in Section 3.11 of the Noise and Vibration Assessment Supplementary Information March 1999. Mitigation measures would be installed prior to construction and the measures for each property will be included in the Project and Construction EMPs.
49h ❖	Individual	Expected noise levels from paving activity for East Bonville Road residences are up to 56dBA and exceed EPA guidelines (p36, Vol.2). Further annoyance will be generated by concrete cutting noise which will occur during evening or night time.	Noted. Refer to 49g.
49i ❖	Individual	Expected noise levels from 6 months of bridgeworks are predicted as up to 71dBA (p37, vol.2). The level exceeds EPA guidelines.	Noted. Refer to 49g.
49j ❖	Individual	Predicted noise levels on East Bonville Road for earthworks, paving and bridgeworks all exceed EPA guidelines.	Noted. Refer to 49g.
49k	Individual	The EPA guidelines state "that the new road should be designed so as not to increase existing noise levels by more than 0.5dBA" (p7-21, vol.1). However, at 159 East Bonville Road, noise levels with mitigation are predicted as 56dBA (Table 7.3, p7-26, vol.1). The noise level exceeds EPA guidelines. The noise levels predicted are completely unacceptable in a rural residential area with a previous measured background noise level of 34dBA (p7-27, vol.1).	The applicable EPA goal limits for this property are 55dBA daytime and 50dBA night time. The other criterion, which is that noise should not increase by more than 0.5dBA, applies if the 55/50dBA limits are already exceeded by existing local traffic noise. This is explained in Appendix M Section 4.1. Nonetheless, the submission is correct in stating that the 56dBA night time prediction exceeds the EPA night time goal of 50dBA. This is addressed further in 49l.
49l ❖	Individual	Noise mitigation will not bring down noise levels to meet EPA guidelines in all areas adjacent to the proposed route. The Bonville Project will impact on our peaceful rural amenity.	To address the noise exceedence predicted at this property, an assessment of acoustic treatment options to reduce noise within the residence has been undertaken since the EIS exhibition. Treatments would be provided, as appropriate, with reference to this

5.3.3 Noise and vibration			
Rep. Nr*	By Whom?	Issue	RTA Response
			assessment. Refer to the accompanying Noise and Vibration Assessment Supplementary Information Report (Appendix 6).
49n ❖	Individual	The relevant Australian Standard recommends a bedroom background level of 25-30dBA. The level at which sleep is disturbed by noise varies according to the age of the person with the elderly apparently most easily woken (EOA 15-2). There is a concentration of elderly people along the proposed route and in particular, East Bonville Road within a very close distance of the proposed new road.	In the additional work to assess acoustic treatment options to reduce noise within the residence (refer to 49l), the Australian Standard AS2107 recommendation for the maximum internal noise level of 30 dBA for bedrooms in rural areas has been adopted. Appropriate treatment options to achieve this are given in the Noise and Vibration Assessment Supplementary Information Report (Appendix 6) and treatments would be provided, as appropriate, with reference to this assessment.
49o	Individual	Noise pollution has a different impact on different people, some being more sensitive than others. This influenced the decision to live on a property away from the highway in the first place. The northern facing bedrooms of the home will be most exposed to traffic noise. The proposed highway will make undisturbed sleep impossible. The EPA recommends that "noise control should be applied with the general intent to protect people from sleep arousal. To achieve this, measurements have to be taken outside the bedroom window" (EPA 19-3)	The EIS Appendix M (page 24) acknowledges this point by stating that "even with the noise mitigation measures incorporated, very noticeable increases in noise levels are predicted and significant impact would be likely immediately after opening". Refer to comments in 49ba. Noise reduction measures appropriate to the location of bedrooms on this property have been addressed, as descirbed in 49l and 49n. It is not necessary to measure noise levels outside each property. Refer to 49d. Appropriate treatment options to achieve noise reduction are given in the Noise and Vibration Assessment Supplementary Information Report (Appendix 6) and treatments would be provided, as appropriate, with reference to this assessment.
49p	Individual	There has been no monitoring of existent noise levels found inside homes. Therefore the EIS does not address the impact of noise in the bedrooms.	Internal noise measurements are not specifically required by the EPA Guidelines. However, external noise measurements have been used to determine the likely effect at the residence. Refer to comments in 49l and 49n for noise reduction options for bedrooms.
49q ❖	Individual	Research suggests that those who have not experienced moderate to high levels of noise exposure are more likely to have a higher rate of annoyance to noise levels, which are suddenly introduced, than those who have lived with such exposure most of their lives. It is simply not fair to inflict residents on East Bonville Road with levels of noise similar to those which residents who chose to live near the present Pacific Highway chose to live with when they purchased their properties.	Noted. EPA goals do however reflect this need for roads in new locations versus upgrading of existing roads. Internal noise levels for bedrooms are also recommended appropriate for rural areas. Refer to 29ba. Noise mitigation options will continue to be discussed with affected residents and noise reduction treatments will be provided, as appropariate, with reference to the Noise and Vibration Assessment Supplementary Information Report (Appendix 6) which accompanies

5.3.3 Noise and vibration			
Rep. Nr*	By Whom?	Issue	RTA Response
			this Representations Report.
49av ❖	Individual	The EIS stated that 'there would be exceedences of the noise level goal at 13 properties'. However, in Table 7.3, Predicted Noise Levels with Mitigation, 23 properties are shown which do not meet EPA noise goals and only 12 properties meet the EPA goals (p7-26, vol.1).	The EIS text refers to significant exceedance (3dBA or greater). All properties which exceed the EPA goals have been investigated further to determine additional mitigation measures. These investigations and the outcomes to date are given in the Noise and Vibration Assessment Supplementary Information Report which accompanies this Representations Report.
49az	Individual	Although the noise barriers will destroy the energy efficiency of the house, the EIS states that this measure will not be completely effective in reducing noise levels.	Acknowledged. There is a compromise to be reached between noise, visual, breezes etc. Refer to 49aw (Section 5.3.14). Consultation is to continue to obtain a satisfactory solution during the detailed design phase for all properties where this occurs. This will be considered in the Project EMP.
49ba ❖	Individual	The landholders are upset by the suggestion that "It is expected that many residents would soon habituate to the traffic noise." (Noise and vibration assessment, p24, vol.2).	Noted. Preceeding this sentence, the same report (Appendix M) states that "very noticeable increases in noise levels are predicted and significant impact would be likely immediately after opening". The effects on people is further addressed in the Noise and Vibration Assessment Supplementary Information Report (page 11). Basically, it is agreed that while many people do adapt and habituate to noise, long term health effects are not well researched and different people exhibit different sensitivities to traffic noise.
49bb ❖	Individual	The impact of noise levels which exceed EPA guidelines cannot be tolerated by the household.	Mitigation measures to reduce noise impacts further will be provided for this property. Work done to date is provided in the Noise and Vibration Assessment Supplementary Information Report which accompanies this Representations Report (Appendix 6). Refer to 49i and 49n.
50k	Interest Group	The potential value of North Bongil Bongil National Park as a passive recreation and nature study resource will be radically downgraded unless there is amelioration of noise effects (page 6 of Representation).	Refer to 50a (Section 5.3.2).
53v ❖	EPA	Section 7.4.2 of the EIS notes that the noise impact from the proposal, when assessed in accordance with the Draft Environmental Criteria for Road Traffic Noise, is predicted to exceed the draft criteria at 13 residences. Table 5.3, Appendix M, Volume 2 of the EIS lists 23 locations where the EPA's draft criteria are predicted to be exceeded. Clarification is sought regarding this difference.	The EIS refers to exceedance by 3dBA or more, and hence 13 residences affected. Table 7.3 of the EIS and Table 5.6 in Appendix M list 23 residences exceeding the criteria. Further assessment of all properties exceeding EPA goal limits is given in the Noise and Vibration Assessment Supplementary Information Report March 1999 (Appendix 6).
53w ❖	EPA	The EPA recommends that the control works be undertaken prior to the commencement of construction activities in	This is intended as the early part of the works wherever possible; however, temporary noise (and vibration) measures

5.3.3 Noise and vibration			
Rep. Nr*	By Whom?	Issue	RTA Response
		order to maximise the benefits of the noise mitigation measures.	and early erection of permanent measures may not always be possible. Sections 7.3, 7.4 and 7.5 of Appendix M of the EIS describe possible measures and implementation would be undertaken in a realistic and cost-effective manner. Further information is given in Section 3 of Noise and Vibration Assessment Supplementary Information Report March 1999. These measures would be included in Noise Management Plan developed as part of the Construction EMP.
53x ❖	EPA	As stated in the EIS it will be essential to construct the noise mounds and barriers as soon as possible to provide mitigation of noise generated from the earthworks. The use of temporary barriers to reduce noise from any fixed items of plant is supported.	Noted. Refer to 53w.
53y	EPA	The Construction Noise Management Plan listed on page7-28 of the EIS should be formulated in accordance with the EPA's Noise Control Manual.	Noted. A Noise Management Plan will be developed as part of the Construction EMP.
53z	EPA	All blasting should be designed to comply with criteria set out in EPA guidelines, the EPA's Noise Control Manual and the Department of Mineral Resources and the Department of Industrial Relations, Training and Further Education's current damage criteria as set out in the EPA representation.	Noted. This would be included in the Construction EMP.
53aa ❖	EPA	An extensive community consultation programme involving potentially affected residents is recommended prior to blasting operations.	Noted. Measures would be implemented in consultation with affected property owners. Appendix M Section 7.3, 7.4 and 7.5 describe this as well as in Section 3 of the Noise and Vibration Supplementary Information Report – March 1999.
53ab	EPA	The temporary relocation of significantly impacted residents should be considered.	This is a reasonable option in special cases as in the case of shift workers, and will be considered further. It would be included in the Project EMP.
53ac	EPA	The Construction Noise Management Plan to be included in the Environmental Management Plan should identify the range of noise exceedences likely to occur and the range of mitigation measures available to remedy the exceedences.	Acknowledged. This would be included in both the project and Construction EMPs and the Construction Noise Management Plan.
60a	Business	The owner conducts a business from home and noise, if quarrying were to be undertaken at Titans Quarry is of a major concern.	Noted. It is not intended that Titans Quarry be reopened. The RTA has recently disposed of the site.
62d	CHCC	Noise impact assessment and mitigation should include land adjacent to the	This has been covered in Section 7.4 of the EIS and Appendix M.

5.3.3 Noise and vibration			
Rep. Nr*	By Whom?	Issue	RTA Response
		Highway alignment which is currently zoned residential.	
63f	NRMA	The NRMA suggests that the RTA should liaise with the EPA to ensure that the most up to date version of the noise Guidelines, after input from state wide community consultation, are used rather than the draft version.	The RTA will use the RTA and EPA policy that is current at the time of project determination.

❖ Refers to an additional study
❑ Refers to a modification of works

5.3.4 Rest Area

5.3.4 Rest Area			
Rep. Nr*	By Whom?	Issue	RTA Response
11o	Individual	It may be preferable to remove the Mailmans Track Rest Area and redirect rest and recreation traffic into Bonville.	Noted but considered that all rest area opportunities (ie forest and Bonville) should be encouraged. The Mailmans Track Rest Area is important because of its immediate highway access.
13b 14b; 15c; 20b; 21b; 22b; 37b; 38b; 39b; 40b; 43g; 47b; 48b; 54b; 55b; 56b; 57b.	Individuals	The proposal for an additional rest area east of Mailmans Track will pose an unnecessary fire risk on the residents of Repton.	Fire risk is a recognised issue to be managed but is not considered to be increased significantly by this rest area. Provision of this rest area is strategically important with respect to the overall fatigue management on the Pacific Highway.
13e; 14e; 20e; 21e; 22e; 37e; 38e; 39e, 40e; 47e; 48e; 54e; 55e; 56e; 57e.	Individuals	The potential for pollution will increase and the general amenity of the rest area is likely to be downgraded if the heavy vehicle bay is sited next to it.	Pollution will be controlled and contained within the inspection bay by swales and a sedimentation basin. The rest area and heavly vehicle inspection bay are over one kilometre apart.
18c; 19a.	Individuals	A request is made that the area of the Sid Burke Rest Area be not reduced and that the road be located farther to the east.	Sid Burke Rest Area will not be reduced in area by this project. The road batter has been moved slightly east to increase the width of the median. This has been noted for the detailed design.
41d; 42c; 43f.	Individual; Inverest Group; Individual	The proposed rest area east of Mailmans Track is unnecessary and poses a fire risk for Repton, there is already an adequate recreational area at the Sid Burke Rest area.	Fire is a recognised issue to be managed but is not considered to be increased significantly by this rest area. Provision of this rest area is strategically important. Direct access from the highway will no longer exist to Sid Burke Rest Area. It will be available by travelling along the old

5.3.4 Rest Area			
Rep. Nr*	By Whom?	Issue	RTA Response
			Highway. The new rest area is required for ready access from the new highway, to counter fatigue and to provide additional facilities.

❖ Refers to an additional study
❑ Refers to a modification of works

5.3.5 Environmental Impacts

5.3.5 Environmental Impacts			
Rep. Nr*	By Whom?	Issue	RTA Response
13g; 14g; 20g; 21g; 22g; 37g; 38g; 39g; 40g; 47g; 48g; 54g; 55g; 56g; 57g. ❑	Individuals	The upgrade doesn't adequately address the environmental sensitivity of the area. The RTA may be responsible for further decline in endangered species in Pine Creek.	The environmental sensitivity is understood. Environmental issues were a major factor in developing the project through Pine Creek State Forest (EIS, Chapters 5 and 6). Significant measures such as a fauna fencing, erosion and sediment control devices, underpasses and revegetation are included in the project. Selected additional measures are proposed as a result of community responses. These include a major fauna overpass and wider carriageway separations for improved tree retention of large trees and replanting where this is not possible.
15d	Individual	The proposed heavy vehicle inspection area would be better sited near Grafton on flat, clear land.	Siting has been adjusted to reduce clearing and with further refinement will not create significant additional impacts. Provision of this inspection bay is strategically important with respect to the checking of the safety of heavy vehicles at regular intervals along the highway.
15e ❖ ❑	Individual	The interchanges will impact a lot on the forest.	An interchange at this location is required to provide access to Repton and adjacent areas. Topographical functions and the location of Mailmans Track require the interchange to be in this position. Forest clearing is acknowledged, but tree retention will be maximised and trees will be planted early where possible. Mitigation measures for koalas are discussed further in 32e.
25d	Individual	The EIS admits increased use of Butlers Road but does not address issues of the impact on the environment.	Refer to 25a (Section 5.3.30).
29aj	NPWS	Habitat loss Section 5.6.1 of the SIS needs to address the quantification of vegetation clearance and habitat loss (S5.3.1).	These have been incorporated into the SISSIR (Table 3, page xxxvi).
29br	NPWS	Draft recovery plans have not been referred to (DGR3.1).	No relevant draft recovery plans have been approved. Section 110 was excluded from consideration in the D-G requirements.
29bs	NPWS	Possible options for changes to mitigation measures in the light of monitoring results have not been included (DGR 3.3).	More details are provided in the SISSIR (sectionB8.0).
29dq	NPWS	The statement, that the proposal would have no significant impact on any threatened plants known, or have the potential to occur within the route corridor,	The proposal may have an impact on individual plants but it is highly unlikely to have any significant impact on a regional scale.

5.3.5 Environmental Impacts			
Rep. Nr*	By Whom?	Issue	RTA Response
		is incorrect (S9.3).	
29ds	NPWS	NPWS does not agree with some of the conclusions that have been reached regarding the overall impact assessment.	The Overall Impact Assessment of the Proposal is considered in Section B10 of the SISSIR.
36b ❖ ❑	NSW Fisheries	While it is agreed that bridges and box culverts are the preferred crossing options over waterways, impacts and mitigation measures associated with the construction of such structures should have been addressed in more detail (ie potential restrictions on fish passage during construction, impacts on breeding/spawning cycles during waterway crossing construction, sedimentation and runoff, acid sulphate soil impacts etc).	Since the exhibition of the EIS and SIS, impacts and mitigation measures associated with the construction of bridges and box culverts have been considered in the SISSIR. As well, additional features such as a bridge crossing at Reedys Creek and permeable underlayers in appropriate areas have been included in the design of the Proposal.
36d ❖	NSW Fisheries	Discussion of impacts of the project on aquatic organisms is limited to the Water Quality Assessment in Appendix H only.	Discussion of impacts on wetlands and fish is included in specialist reports attached to the SISSIR.
36e ❖	NSW Fisheries	Other impacts associated with the crossing of the wetland areas at Bonville Creek south and west of Bayldon was not discussed in detail, in particular, potential changes to site drainage and wetland integrity.	Maintenance of wetland functionality throughout the development is discussed in a specialist wetland report attached to the SISSIR which accompanies this Representations Report. In particular, mitigation options include bridging, use of permeable aggregates under culverts and consideration of ASS.
41c	Individual	Pine Creek State Forest is an environmentally sensitive area, bordering the Bongil Bongil National Park and the heavy vehicle inspection site seems inappropriate here .	Pollution will be controlled and contained within the Heavy Vehicle Inspection Site by swales and a sedimentation basin. It is an appropriate location given that the site will require little clearing and is remote from housing.
43a	Individual	An objection is made to the destruction of forest necessary for the construction of a four-lane highway through Pine Creek State Forest. Preference is given to the upgrading of the current highway.	The existing alignment is only to 80 km/h standards. Upgrading on the current highway alignment to a 100 km/h design standard is not possible. Refer to the Supplementary Route Selection and Design Report which accompanies this Representations Report.
43c	Individual	A more costly system of bridges and overflies could prevent the destruction of the rainforests around Mailmans Track.	Refinement of the design has minimised the impact on forest gullies at this location. Full length bridging cannot be justified for forest retention or for fauna preservation. Measures to address these issues are described in the SISSIR which accompanies this Representations Report. Details are provided in the SISSIR in Sections B7.0 and B8.0.
44b	Interest Group	Environmentally valuable land, which could be added to Bongil Bongil National Park, is suggested for inclusion in the National Park.	Negotiations with NPWS will continue regarding the details of an appropriate compensation agreement. A copy of the Compensatory Habitat paper by Biosis Research Pty Ltd is provided with this

5.3.5 Environmental Impacts			
Rep. Nr*	By Whom?	Issue	RTA Response
			Representations Report.
46a	Aust Heritage	The natural values of the Bongil Bongil interim listed area could be negatively impacted upon in the longer term with the LEP3 option due to the influences of introduced species. The increased risk of pest plants and animals invading from disturbed areas such as road corridors is well known (edge effect).	The proposed highway transects the very western edge of the interim listed Bongil Bongil area. The route alignment was shifted to the west in order to reduce fragmentation of the NPWS-owned land. This area was identified as an important regional corridor by NPWS and a major underpass is proposed to minimise barrier impacts. Further mitigation measures have been recommended for the Pacific Highway. The western edge of the Bongil Bongil area, although containing mature trees, is already close to an existing national park boundary. Given the surrounding land uses and the existing edge effects, it is unlikely that highway construction will further significantly degrade this area.
46b	Aust Heritage	Selection of LEP3 (B3) reduces the buffer between highway impacts and the Bongil Bongil heritage area and increases the risk of pest species invading the place.	The LEP corridor was selected after a rigorous assessment of options (refer to Section 4 of the EIS). During route selection, impacts such as as koala habitat value, plant community conservation significance and other habitat values (EIS, p4-28) were identified. The B3 alignment refinement was undertaken to minimise these impacts.
46c	Aust Heritage	Upgrading of the existing highway would be the most desirable option for minimising environmental impacts.	Issues raised by the community during the route selection phase included community impacts, safety, flora and fauna and local access (EIS, p4-23). Upgrading the existing highway was considered as Option A during this process. Natural environment issues would favour the existing highway overall, but issues such as visual impact, community access and koala management are difficult to address on the existing highway. The current Proposal has included mitigation measures which would not have been possible on the existing route. These include a fauna overpass approximately 200 m north of the northern forest gully in PCSF; a faunal underpass at chainage 93.5, a faunal underpass, north of Herdegen Close and bridge spans across Pine, Reedys and Bonville Creeks.
46f	Aust Heritage	The Heritage Commission would like to see the Environmental Management Plan developed before the NSW Department of Urban Affairs and Planning approves the project. This would maintain an emphasis and help ensure that the successful	The Project EMP will not be prepared until the project is approved. Procedures will be in place to ensure all commitments and environmental safeguards are translated into various EMPs.

5.3.5 Environmental Impacts			
Rep. Nr*	By Whom?	Issue	RTA Response
		construction company was aware of the protection requirements to avoid negative impacts on the natural heritage values of the interim listed place and budget accordingly.	
46p	Aust Heritage	Operational procedures should be developed for the transport and use of fire risk materials once they have left the storage area. Works programmes should be designed to minimise the requirement for storage of large quantities of these materials. Plant and equipment service crews should be made aware of best practice procedures so that material such as machine oil, filters and grease cartridges are not discarded on site.	An overall Project EMP would be developed once project approval has been obtained. The issues raised will then be fully addressed in the Construction EMP.
59d	NPWS	NPWS recommends that the formulation of the Environmental Management Plan take account of the fact that a Consent to Destroy will be required prior to the commencement of construction works, to enable the disturbance of site BH1. As well it is possible that the area over which consent is sought could be extended to include the entire development corridor. This approach would require the concurrence of the appropriate organisations, and would only be feasible if operated in conjunction with a program of Aboriginal monitoring, which NPWS notes is already a component of the proposed EMP. NPWS is willing to discuss this further at your convenience.	Acknowledged. Indigenous heritage issues have been considered through consultation with NPWS. Monitoring of construction would be included in the Project EMP.
63j	NRMA	The EIS appears unclear as to whether the road reservation provides sufficient width to accommodate further road widening beyond 2016. It would be good planning to ensure (if not already done so) that the corridor width includes sufficient space for future widening of the highway to cater for an additional lane in each direction.	It would be possible to modify this design to increase from 4 lanes to 6 lanes in the future if this were considered necessary, however, this is beyond the planning horizon for the project and has not been considered, specifically.

❖ Refers to an additional study
❑ Refers to a modification of works

5.3.6 Vegetation

5.3.6 Vegetation			
Rep. Nr*	By Whom?	Issue	RTA Response
7b	Individual	The obtaining of approval for the commercial harvesting of plantation timber rests with Mr Bull.	Acknowledged. Harvesting may require relevant agency approvals.
10	Interest Group	The potential impact of vehicular access to the riparian zone beneath the Bonville Creek bridge was raised.	During construction, access to Bonville Creek will be required in the vicinity of the bridge crossing and consideration of riparian vegetation has been treated in the Aquatic Ecological Assessment which accompanies this Representations Report (in Appendix 3). In particular it is stated in the report that there is ample width between clumps of mangroves to launch any equipment or gain access to the water without damaging riparian vegetation. During the post-construction (maintenance phase) access will be required to maintain the sediment basins which will lie one on each side of the road on each side of the river. The final design plan will resolve the position of these basins and access to them to ensure that riparian vegetation is preserved. This requirement will also be incorporated into the Construction EMP.
18b	Individual	Tree planting is requested not to proceed between the new fence and the embankment.	While the extent of acquisition will be minimsed, it is intended that, where possible, the road reservation will be actively landscaped.
23j	DLWC	Clearing of riparian vegetation should be kept to a minimum and that RTA specifications for clearing are strictly adhered to.	Acknowledged/agreed.
24o	Individual	The mature liquid amber (30-40 years old) next to the green house is of some local significance and gives a particular character to the allotment. Retention or relocation is suggested.	Consideration of retention at the detailed design stage will be considered. This issue would be included in the Project EMP.
29a	NPWS	Eleocharis tetraquetra is now provisionally listed as endangered (S 2).	This has been ammended in the SISSIR and is referred to on pages xxii, xxx, and further references are given on those pages.
29c	NPWS	A map of the vegetation communities which were identified using aerial photography needs to be provided (S4.3.1.3).	Mapping has been provided and is included in the SISSIR as Figure 3.
29w	NPWS	The reference for Briggs and Leigh should be 1996, not 1995 as stated in the SIS (S4.4.1.1).	This has been amended in the SISSIR (page xx).
29y	NPWS	Regional significance for vegetation should be assessed using Griffith (1993) and Resource and Conservation Assessment Council (1996) conservation targets, in addition to Hager and Benson (S4.4.1.2).	This has been included in the SISSIR (page xx).

5.3.6 Vegetation			
Rep. Nr*	By Whom?	Issue	RTA Response
29aa	NPWS	Without a vegetation map, it is not possible to determine the location and extent of the vegetation communities (S4.5.2)	Vegetation maps has been provided in the SISSIR (Figure 1a to 1c).
29ab	NPWS	The "riparian vegetation community" which includes Bonville Creek should include some discussion of the large, hollow-bearing trees that occur along this creek. Ospreys are known to occur along Bonville Creek (S4.5.2).	This community was discussed on page 4-15 of the SIS. Since exhibition of the EIS and SIS, alignment modifications have been made to reduce, further, the impacts of the porposal. A discussion of hollow-bearing logs along the proposed alignment is provided in the SISSIR (page 15).
29ac	NPWS	NPWS considers that Amorphospermum whitei should be relocated and, if impacted by the proposal, that propagation material (seed and cuttings) should be taken for use in appropriate revegetation or landscaping areas (S4.5.3).	An estimated two specimens of Rusty Plum would be directly impacted by the Proposal (SISSIR, page 35). If possible, this species could be used in revegetation or landscaping areas. Any other Rusty Plum individuals encountered prior to construction would be relocated or suitable propagation material would be collected according to guidelines included in the SISSIR (page 43).
29ad	NPWS	In addition to TSC-listed flora, the significance of flora species should be assessed using Sheringham and Westaway (1995) (S4.5.3).	More details are provided in the SISSIR (page xxii).
29ai	NPWS	No quantification of the vegetation clearance and habitat loss is presented in the SIS. Without these figures it is very difficult to assess the potential impact of the proposal and its relevance to threatened species habitat (S5.3.1).	These have been incorporated into the SISSIR (Table 3, page xxxvi).
29ar	NPWS	Table 3 of the SIS does not note that Site Number 10 to the north of the proposal involves the loss of an area of land owned by NPWS (S5.6.1.1).	More details are provided in the SISSIR (page xxv).
29az	NPWS	NPWS recommends the investigation of potential for habitat regeneration (eg weeding and replanting with appropriate species) work to be undertaken in appropriate roadside areas, for example adjacent to Bongil Bongil National Park (S5.6.3, also 6.1.1.3 of SIS).	Weed management and plantings were discussed in Section 6.1.1 of the SIS9Page 6-1). More details are provided in the SISSIR (page 44).
29bn	NPWS	A plan showing the location and type of vegetation communities has not been provided (DGR1.2).	This has been incorporated into the SISSIR (Figures B3a to c).
29ci	NPWS	No mention has been made as to whether data have been provided to NPWS for inclusion in the NSW Wildlife Atlas (Appendix 3 DGR Survey techniques).	More details are provided in the SISSIR.
29co	NPWS	No information is given as to whether species were flowering or fruiting (Appendix 3 DGR Survey techniques).	Information not collected.
29cq	NPWS	The term "stump hollows" needs to be clarified as to whether it means hollow-bearing trees (S4.8).	This should read hollow-bearing trees and has been modified in the SISSIR.
29cu	NPWS	Trees and understorey shrubs should be maintained in highway rest areas and	Minimal clearing will be undertaken for this project for features such as rest areas.

5.3.6 Vegetation			
Rep. Nr*	By Whom?	Issue	RTA Response
		driver reviver sites wherever possible (S5.3.8).	However, fire control will need to be addressed at these sites, and this may mean some clearing and continuing supression of undergrowth.
29cy	NPWS	Clear zones should be minimised wherever possible. An investigation should be conducted into the use of guard rails within Pine Creek State Forest in order to minimise clear zones and maximise the retention of forest vegetation (S5.7.1).	The use of wire rope safety fence in PCSF is described in the landscaping section of the EIS page 5-48. Following further consultation with NPWS, the design has been modified to retain mature trees along verges and in sections of the median. This will require increased usage of wire rope safety barriers. Inclusion of fencing would be addressed in the Project EMP.
29cz	NPWS	Amorphospermum whitei is recommended as a landscaping plant where appropriate, given that it is the only threatened plant species recorded during the flora surveys (S5.7.1).	Accepted. This has been included in the SISSIR (page 43).
29db	NPWS	NPWS recommends that plant species used in landscaping will provide a food source for fauna. In particular, nectar-producing species such as Banksia spp., Callistemon spp. and Melaleuca spp (S5.7.3).	Native plant species would be used for vegetation. Species would be chosen so that safety and other functional requirements are met and plantings are within natural ecotones that would ensure good growth responses.
29dc	NPWS	Consideration should be given to the retention of vegetation between access roads and the proposed new highway wherever possible through Pine Creek State Forest (S5.7.3).	Accepted. This has been included as part of the mitigation measures (SISSIR, page 43).
46i	Aust Heritage	Landscape areas should be monitored and water monitoring continued until the landscape works have fully established and there is no risk of erosion. These should be watched through a full seasonal cycle assuming average rainfall.	Noted for inclusion in the Project and Construction EMPs.
46j	Aust Heritage	Plants utilised in landscaping should only be ones from that province, not "mostly" from that province.	Noted for detailed design. It may not be possible to comply in all cases but the RTA will endeavour to do this.
46k	Aust Heritage	Vegetation that has to be removed should be utilised in stabilisation and landscape works wherever possible. Rocks and logs not used in landscaping should be strategically placed for habitat purposes.	Noted. This is in accordance with current industry practices and would be included in the Construction EMP. Logs would be used wherever possible for fauna habitat purposes.
46l	Aust Heritage	The EMP should specify that quarry sites intended for obtaining soils for utilisation in the project should be assessed for their weed infestations before materials from these sites are transported.	No topsoil will be required from off-site.
46m	Aust Heritage	The EMP should specify that monitoring and control strategies for weeds should ensure that search and control activities are carried out at the correct time for detection and maximum effectiveness of control activity and not just any time of the year.	Noted for inclusion in the Project and Construction EMPs.
46n	Aust	The EMP should specify that machinery	Noted. The location and treatment of

5.3.6 Vegetation			
Rep. Nr*	By Whom?	Issue	RTA Response
	Heritage	and vehicles brought in from other regions to work on this project should be thoroughly washed down with high pressure cleaners to remove soil and vegetative matter that might spread weeds or soil borne plant pathogens.	washdown needs to be specified also. These are to be included in the Project and Construction EMPs.
49an ❖ ❑	Individual	The proposed route passes through 6 most sensitive catchments and there is concern that this "will lead to unacceptable levels of damage to local flora and fauna" including aquatic systems (EIS p4-22, Volume 1).	Mitigation of impacts on flora and fauna include: construction of major structures such as the faunal overpass and underpasses, fencing and retention of the vegetated median strip. In addition, major bridges are planned for Pine, Reedys and Bonville Creeks. Aquatic and wetland environments have been the subject of additional studies to ensure their protection. These studies are included in the SISSIR which accompanies this Representations Report. A number of mitigation measures would be implemented in order to control soil erosion and surface water runoff. Negotiations with NPWS will continue regarding the details of an appropriate compensation agreement.
50c	Interest Group	The proposed design will result in a reduction in the need for cut and fill in the forest and pass through poorer quality habitat than that of the project proposal (p2 of the Representation).	Refer to 50a (Section 5.3.2).
50g	Interest Group	The RTA proposal fails to capture heavy trucking traffic joining the Pacific Highway (northbound) at Bonville off Gleniffer Road as trucks will use Hydes Creek Road and Gleniffer Road to avoid the checking station (page 4 of the Representation).	Refer to 50a (Section 5.3.2). This site has the least bypass potential of any section of the Pacific Highway on the North Coast and the adjoining service road can be readily monitored.
50q	Interest Group	A proposal is made for a Trust Fund to re-enforce and re-establish or secure faunal corridors to compensate for the destruction of Koala Habitat in Pine Creek State Forest and East and North Bonville (page 7 of the Representation).	Refer to 50a (Section 5.3.2).
62e	CHCC	The proposal includes land identified in Council's Draft LEP as Flora & Fauna Protection. Further consultation with Council's Planning & Parks & Reserves Departments in regard to those areas and to landscape proposals is requested at the design stage.	This is noted for detailed design and for inclusion in landscaping plans. Consultation will be held with Council at the detailed design stage. To be included in the Project EMP.

❖ Refers to an additional study
❑ Refers to a modification of works

5.3.7 Process

5.3.7 Process			
Rep. Nr*	**By Whom?**	**Issue**	**RTA Response**
29b	NPWS	No mention is made of the Director-General's Requirements for a species Impact Statement which is required by Section 111 of the Threatened Species Conservation Act 1995 (S3).	This was mentioned in other sections of the SIS (i.e. B1.0, B4.0, B4.3.2.1, etc.). As well, a full summary of these Requirements is present in the SISSIR in Table A2 commencing on page ix.
29d	NPWS	The SIS confuses "threatened" flora with "significant" and "rare" flora (S4.3.1.3).	Any confusion in the terminology has been cleared up in the SISSIR.
29e	NPWS	The following maps need to be included: map from Fisher et al. (1996); map from Pine Creek State Forest Koala Habitat Mapping and a reference to the document containing the latter (S4.3.1.6).	These maps (incorporated into Figures 1a to 1c) and reference have been included in the SISSIR.
29x	NPWS	National significance should also be assessed using the Commonwealth Endangered Species Protection Act 1992 (S4.4.1.1).	This has been included in the SISSIR (page xx).
29ag	NPWS	NPWS potential habitat models can be used to more accurately define habitat boundaries as requested in the DGRs s.1.1.2 (S4.5.8).	The predicted distribution maps are at a much smaller scale than the study area maps and therefore do not provide enough detail to accurately locate habitat boundaries.
29ap	NPWS	The proposal does not appear to include any mitigation measures for habitat loss, particularly threatened species habitat, apart from that associated with NPWS-owned land in the north of the study area. Mitigation measures for habitat loss may include compensatory habitat, or revegetation/regeneration of degraded habitat areas (S5.5).	NPWS and the RTA willl negotiate on the basis of the Compensatory Habitat paper provided by Biosis Research Pty Ltd.
29bl	NPWS	The timetable for the carrying out of the proposal has not been provided (DGR1.1).	An indicative construction schedule was contained in Figure 5.16 of the EIS. Further clarification of the indicative construction schedule is contained as Figure 3.12 of the Supplementary Route Selection and Design Report attached to this Representations Report (Appendix 10).
29bo	NPWS	The Giant Barred Frog records are not indicated on the map. Although this species was the target of a separate study, map localities should be provided (DGR1.5).	These are outside the study area.
29bv	NPWS	The name of the determining authority or when approvals are proposed to be obtained has not been provided (DGR 4.1).	The determination process was provided in Section 1.6 of the EIS (page 1-5 onwards). In response to this request, additional details are provided in the SISSIR (page xvii).
29bw	NPWS	Animal Care and Ethics Committee approval has not been listed	Biosis Research has the approval of the Director-General of NSW Agriculture Animal Care and Wethics Committee to conduct surveys for EISs and SISs. More details are provided in the SISSIR (page

5.3.7 Process			
Rep. Nr*	**By Whom?**	**Issue**	**RTA Response**
			xviii).
29bx	NPWS	Draft recovery plans should be referred to as specified in S3.1 of the DGRs (S110(2c)).	No draft recovery plans have been approved.
29by	NPWS	Compliance with Section 110(2f) of the TSC Act has been partly met (see comments under S2.1 of the DGRs).	Section 110(2f) of the TSC Act was addressed in Appendix E of the SIS. In response to this comment, further information has been provided in the SISSIR (Section B).
29bz	NPWS	No alternatives to the proposal are described (S110(2h) of TSC Act).	Alternative routes were summarised in Section 4.1, 4.2 and 4.8 of the EIS and in Section 6.1 of the SIS. More details are provided in the SISSIR (pages v, vi).
29ca	NPWS	Section 110(2j) of the TSC Act is only partly complied with (also S.4.1.of DGRs).	Section 3 of the SIS provided information with regard to this section of the Act. More details are provided in the SISSIR (page vii).
29cb	NPWS	Comments on the TSC Act S110(2a-j) should be addressed.	Section 110 of the TSC Act has been described in Sections 3 and 4 and Appendix E of the SIS, and in Section 6 of the EIS. More details are provided in SISSIR (page iv onwards).
29cj	NPWS	No details are provided for the flora survey. No locality descriptions are given. No survey point or transect details are given. No survey start and finish times are given (Appendix 3 DGR Survey techniques).	A flora assessment is provided in Appendix L of the SIS. More details are provided in the SISSIR (SectionB4.3).
29ck	NPWS	No AMG is provided to indicate the location of the Rusty Plum (Appendix 3 DGR Survey techniques).	Information was placed on Figure 3 of the SIS. As aresult f this request for additional information, more details are provided in the SISSIR (page 15).
29cn	NPWS	The name of the person conducting the Flora survey is not given (Appendix 3 DGR Survey techniques).	Appendix K of the SIS contained information about the project team. More details are provided in the SISSIR. For additional studies undertaken since the exhibition of the EIS, a summary of consultants is given in Table B2 (SISSIR, page 9).
29cp	NPWS	In addition to threatened species, the TSC Act includes assessment of whether there is a significant impact on threatened species habitat, populations and ecological communities (S1.6).	The SIS contained an assessment of the threatened species and their habitats. More details are provided in the SISSIR (page 7).
29da	NPWS	NPWS requests to be involved in the detailed design phase of the project (S5.7.2).	Acknowledged . This would be included in the Project EMP and the relevant sections of the detailed design plans.
29dd	NPWS	Reference to all comments provided by NPWS should be provided in the SIS summary of information Sect. 6.3.	Noted.
29dr	NPWS	NPWS considers that the Director-General's Requirements have not been adequately addressed.	Requirements of the Director-General are referred to and addressed in various parts of the SIS and EIS as outlines in responses to other comments under Representation 29 indicate. As well, the Requirements of the Director-General for

5.3.7 Process			
Rep. Nr*	**By Whom?**	**Issue**	**RTA Response**
			NPWS are further addressed in Section A of the SISSIR.
36h ❖	NSW Fisheries	In correspondence from NSW Fisheries, dated 21 January 1997 (in Appendix B), the need for permits for any proposed dredging and reclamation works and damage or removal of marine vegetation (ie mangroves, seagrasses) was raised. These requirements have not been addressed in this section.	A permit would be required for the removal of mangroves. It was determined as part of the Aquatic Ecological Report that, in general no vegetation would need to be removed but that some vegetation would need to be removed at the Reedys Creek bridge crossing. Where damage or removal of marine vegetation is required, a permit would be obtained from NSW Fisheries. Similarly, proposed dredging would require notification to the Minister.
36i ❖	NSW Fisheries	This project has not discussed the new threatened species provisions under the Fisheries Management Amendment Act 1997. While the saving provisions under this Act apply in this instance, the approach adopted over recent RTA projects has not been consistent.	Since exhibition of the EIS and SIS, a study has been undertaken by W.S. Rooney and Associates Pty Ltd Aquatic Ecological Assessment which addresses the Threatened Species provisions under the *Fisheries Management Amendment Act* 1997. This report is provided at the back of the SISSIR.
49b ❖	Individual	There was no consultation or notification by either the DMR or the Coffs Harbour City Council when the LEP route was imposed on our property. The EIS therefore provides some concerns in the manner it has addressed the consultation process.	Processes in the 1970s cannot be researched and responded to comprehensively in this study. The current project and EIS was developed through extensive consultation as described in Sections 2 and 4 of the EIS and this process is discussed further in Supplementary Route Selection and Design Report which accompanies this Representations Report. Also, consultation with affected property owners has continued during the period subsequent to exhibition of the EIS.
49at	Individual	The exhibition period was not the 6 week period expressed in the EIS.	Original closure of submissions was 11 September 1998 (5 weeks). An incorrect newspaper article stated 17 September 1998. The RTA extended to 17 September 1998 to avoid any problems. Late submissions were accepted to the end of the month (8 weeks) Some submissions were received after this date and have also been considered.
49au	Individual	The proposal was displayed for one day before the advertisement appeared in the local newspaper. The RTA has not honoured the commitment for public display stated in the EIS and the time should be extended by 1 week to give full opportunity for submissions to be received from the community	Refer to 49at. The time for submissions was extended considerably to accommodate all submissions. The Proposal was on display at Coffs Harbour Motor Registry, Coffs City Council and Toormina Gardens Shopping Centre from 6 August to 11 September, 1998.
63s	NRMA	The NRMA acknowledges that the RTA and relevant consultants have attempted	No statutory requirement exists for "4 weeks per proposal". However, the EIS

5.3.7 Process			
Rep. Nr*	**By Whom?**	**Issue**	**RTA Response**
		to consult with the community as much as possible. However, the limited time frame granted for this review is disappointing. In August 1998, the NRMA received three EIS proposals for comment by 11 Septmeber 1998. This is clearly unacceptable as normally (and in line with statutory requirements) the RTA must provide a minimum of four weeks per proposal.	response period was extended from 11 September to 30 September 1998. The NRMA response was received on 19 October 1998 and has been considered herein.
63t	NRMA	The NRMA intends to continue to examine each EIS in considerable detail beyond the short time frame provided for community comment.	Noted. The RTA has complied with its statutory requirements and will accommodate all responses wherever possible.

❖ Refers to an additional study
❑ Refers to a modification of works

5.3.8 Air Quality

5.3.8 Air Quality			
Rep. Nr*	By Whom?	Issue	RTA Response
8b	Individual	Concerns are raised about dust emissions during construction.	Dust emissions were estimated in the EIS (refer to Section 6.6.5 in the EIS). During construction, stringent dust control measures are required and will be included in the Air Quality Management Plan.
8c	Individual	Concerns are raised about pollutants from car emissions after construction	Air pollution from vehicle emissions is predicted to be less than recognised (EPA and NHMRC) limits at all properties along the route.
11m	Individual	Large trees at several locations (such as Williams Road) are used as windbreaks. The loss of trees and the effect of their loss needs to be addressed in this regard.	Potential for property damage due to increased wind speeds is considered to be unlikely.
16d	Individual	Dust during and after construction should be compensated for by full air conditioning.	As part of the Construction EMP, an Air Quality Management Plan including dust control will incorporate stringent dust control measures. Air conditioning provided in conjunction with noise mitigation measures will help control dust at this location.
25f	Individual	Increased use of Butlers Road will increase dust problems for nearby residents as dust already causes family health problems and increases the load of domestic chores.	Refer to 25a (Section 5.3.30).
34c	Individual	Dust emissions are of concern to the family. Also, windows would have to remain closed during the hot summer to prevent dust entering the house.	Stringent control of construction dust will be a requirement of Construction EMP(s). Windows could be closed in conjunction with the provision of air conditioning, to mitigate against noise as outlined in 34d (Section 5.3.3).
34h	Individual	Vehicle exhaust fumes are a major concern.	Noted, although air pollution from vehicle emissions is predicted to be less than recognised (EPA, NHMRC) limits.
49r	Individual	"There has been no monitoring of the background air quality within the project area" (p6-43, vol.1). The proposed new route through Eastern Bonville does not have the pre-existing features of the Lyons to Englands Road project which is proximal to the southern Coffs Harbour Industrial area and local waste disposal depot. Because of the different circumstances, the Bonville project requires a pre-construction monitoring of our air quality to assess the measurements both during construction and after construction for comparison, should the proposal be accepted.	Noted. Page 6-43 of the EIS states that the rural air quality would be "good with no regional air quality problems associated with vehicle emissions." Monitoring of the section of Highway immediately to the north (Lyons Road to Englands Road) has been adopted as an equivalent base case.

5.3.8 Air Quality			
Rep. Nr*	By Whom?	Issue	RTA Response
49s	Individual	Why has Bonville air quality not been measured?	Refer to 49r and to pages 6-43 of the EIS (Section 6.6.1).
49t	Individual	"The total dust generated in a ten hour working day could be as high as 50-60 kilograms ...which would impact on individual residences...On a hot dry day ...the amount of dust from wind erosion could be much higher ...." (EIS p6-48, vol.1). The landholders have major concerns about health impacts during construction.	Noted. Stringent control of dust generation and monitoring would be included in the Construction EMP. Refer to EIS pages 6-48.
49v	Individual	The dust levels described on page 6-48 of the EIS are a major concern in terms of impacts on the landholders' solar hot water system.	First flush interceptors would be proposed,as appropriate, for rainwater collection systems within 150 metres of works to minimise dust entering the water supplied to the hot water system. Also, the effects of dust on the solar panels may be of concern as these panels may require cleaning after periods of higher dust generation. While it is anticipated this is unlikely to be a problem due to normal cleancins by rainfall, the RTA would clean down if a combination of prolonged dry weather and high dust generation from the site causes performance problems.
49w	Individual	"The total dust generated in a ten hour working day could be as high as 50-60 kilograms" (EIS, Vol.1, p6-48) ...which would impact on individual residences . The construction of the road will exceed the EPA guidelines for dust emission.	To meet the EPA goals, certain activities may have to be stopped during some extreme wind conditions. Refer to EIS pages 6-48 and 6-49. This will be Included in Construction EMP.
49x	Individual	The Grandis Road concrete batch plant (Noise Study p30, vol.2) will be to the north of the house mixing sand, rock, gravel aggregate, cement and fly ash with water. As fly ash is produced from burning pulverised coal and has cement-like qualities, we are fearful of the impact on impared respiratory systems, drinking water, the house's solar hot water panels and pipes.	Batch plant sites are to be determined by the contractor. Sites selected would be subject to separate environmental approval. Refer Section 5.4.5 of the EIS, page 5-36 and the Construction Compound and Temporary Batch Plants Report which accompanies the Representations Report. Cement and fly ash will be handled with enclosed systems to prevent dust emission.
49y	Individual	Concerns about vehicle emissions and photochemical smog area raised as the house will be 60 metres from the kerbside and therefore subject to close range emissions	Air quality impacts are predicted to be within accepted guidelines (EPA, NHRMC). Refer to EIS Section 6.6 and Appendix L.
49z	Individual	Extreme concern is raised about the health effects of fine particulate matter.	Refer to 49y.
49aa	Individual	Concerns are raised about the health effects of sulphur dioxide, benzene and nitrogen dioxide emissions.	Refer to 49y.
53s	EPA	A dust monitoring programme including the provision of dust monitoring equipment should be implemented at the most	Acknowledged. This is to be included in the Construction EMP.

5.3.8 Air Quality			
Rep. Nr*	By Whom?	Issue	RTA Response
		potentially affected residences to objectively determine the extent of any resulting dust nuisance.	
60b	Business	Dust generated by any operations at Titans Quarry and dust from the access road would affect the owner and his property.	Noted. It is not intended that Titans Quarry be opened.
63i	NRMA	The Greenhouse Reduction Plan as outlined in Appendix L (Vol. 2, EIS) is likely to lead to reductions only in individual vehicle greenhouse emissions. The NRMA believes that, with the expected increase in the use of the road, there is likely to be an overall increase in greenhouse emissions for the region. Therefore it is suggested that the RTA should consider strategies for the reduction of Vehicle Kilometres Travelled) VKT if an overall decrease in greenhouse emissions is to be achieved for the region.	Noted. Greenhouse gas levels are subject to many factors. It is expected that fuel economy, improved technologies and improved practices will reduce the level of individual vehicle greenhouse emissions. To some degree, these may be offset by increased car usage particularly in relation to cumulative improvements in design on the Pacific Highway. The RTA has an overall policy for reducing VKT, in areas where engineering and environmental constraints are not significant factors.

5.3.9 Inspection Bay

5.3.9 Inspection Bay			
Rep. Nr*	By Whom?	Issue	RTA Response
13d; 14d; 20d; 21d; 22d; 37d; 38d; 39d; 40d; 47d; 48d; 54d; 55d; 56d; 57d.	Individuals	The siting of the heavy vehicle inspection bay adjacent to the Sid Burke Forest Park places a further imposition on the environmental values of Pine Creek. The Grafton area is more appropriate for the siting of the heavy vehicle inspection bay.	Siting has been adjusted to reduce clearing and with further refinement will not create significant additional impacts. Provision of an inspection bay in this area is strategically important with respect to the checking of the safety of heavy vehicles at regular intervals along the Pacific Highway.
41b; 42e; 43d.	Individual; Interest Group; Individual	The heavy vehicle inspection bay adjacent to the Sid Burke Rest Area would be more appropriately located in the Grafton area.	Siting has been adjusted to reduce clearing and with further refinement will not create significant additional impacts. Provision of an inspection bay in this area is strategically important for checking the safety of heavy vehicles at regular intervals along the highway.
42f; 43e	Interest Group; Individual	Pine Creek State Forest is an environmentally sensitive area, bordering the Bongil Bongil National Park and the inspection site seems inappropriate there.	Siting of the project has been adjusted to reduce clearing and with further refinement will not create significant additional impacts. Pollution will be controlled and contained within the Heavy Vehicle Inspection site by swales and a sedimentation basin.
50e	Interest Group	A proposal is made to relocate the RTA's North bound Truck Checking Station, from Pine Creek State Forest to Boambee (p4 of the Representation).	This Representation is the subject of a report: Response to the Bellingen Environment Centre Inc Representation, a copy of which accompanies this Representations Report (Representation 50a (Section 5.3.2)).
50f	Interest Group	The RTA's proposal to locate the Truck Checking Station within Pine Creek State Forest will unnecessarily destroy scenically significant forest, including koala habitat (p4 of the Representation).	Refer to 50a (Section 5.3.2).

5.3.10 Representations

5.3.10 Representations			
Rep. Nr*	By Whom?	Issue	RTA Response
9a	Individual	Verification was sought concerning the closing date for representations.	The original closure for representations was 11 September 1998 (5 weeks). An incorrect newspaper article stated 17 September 1998. The RTA extended the closure date to 17 September 1998 to avoid any confusion. Late representations were accepted to the end of September (8 weeks). One representation was received after this date and has also been considered.
13f; 14f; 20f; 21f; 22f; 37f; 38f; 39f; 40f; 47f; 48f; 54f; 55f; 56f; 57f.	Individuals	The exhibition period of five weeks is insufficient time to fully examine this proposal. The RTA would appear more responsive to public concerns if the closing date for submissions extended beyond the public release of the EIS.	Refer to 9a.
15a	Individual	The closing date for representations must be extended.	Refer to 9a.

5.3.11 Design

5.3.11 Design			
Rep. Nr*	By Whom?	Issue	RTA Response
29aq	NPWS	The structure north of Herdegen Close has been listed as both a major and a medium structure. Clarification as to whether there are two structures is required (Sect5.5.1&5.5.2).	It is a major structure.
29dl	NPWS	Consideration should be given to the internal design features of each fauna underpass such as provision of vertical and horizontal logs to provide Koalas with an escape mechanism if predators enter the underpass (S6.4.3).	Since the exhibition of the EIS, modifications to the design along the route have lead to the replacement of two of the three culverts listed in Table 5.2 of the EIS with larger structures. The culvert in PCSF is replaced by a wide overpass near the northern end of PCSF and the culvert at Reedys Creek is to be replaced by a bridge crossing. The third box culvert structure referred to was built as part of the Raleigh project at the northern temporary tie–in and will be extended at both ends. Fauna underpasses are generally provided with logs but logs in waterway culverts may cause flow problems. Discussion with NPWS is continuing concerning faunal underpass treatments.
29dm	NPWS	NPWS recommends that reduced speed limits and traffic calming measures be implemented in the area close to Titans Close on the existing highway (S6.4.3)	The use of traffic calming devices on the existing highway adjacent to the fauna corridor at Titans Close would be incorporated into the detailed design and the Project EMP.
29do	NPWS	Section 8.5 of the SIS should include a dot point which includes inspection for other fauna as well as Koalas (S8.5)	More details are provided in the SISSIR on page 46.
36j	NSW Fisheries	NSW Fisheries suggests that the Project Manager for the Bonville Deviation project work in close consultation with the person employed under the Memorandum of Understanding between NSW Fisheries and the RTA to address the following issues during the design, construction and operational phases of the project: • Bridge and culvert design across all waterways to ensure that fish passage is unhindered and site drainage, tidal inundation and wetland area integrity is not affected • The development and/or review of aquatic flora and fauna and water quality monitoring programs during construction and operational phases of the project • Minimisation of impacts on aquatic organisms and marine vegetation (mangroves, seagrasses) during dredging and reclamation works and the construction of waterway	The relevant liaison officer is Graeme White and he took up the position on 15 December 1998. The Project Manager will consult with Mr White on those issues. During the period after exhibition of the EIS and SIS, a number of design changes have occurred. These include a bridge crossing at Reedys Creek to replace an original culvert crossing and permeable base layers appropriate areas. As part of the Project EMP a Water Quality Management Plan would be developed. Impacts identified in relation to creek crossing have been summarised in the SISSIR (p34) and amelioration measures are described in Section B8.0 of the SISSIR.

5.3.11 Design			
Rep. Nr*	By Whom?	Issue	RTA Response
		crossings • The design of the erosion and sedimentation control plan to ensure impacts on organisms are minimised.	
49m	Individual	The road buffer zones are inadequate, and far too narrow. The green belt on each side of the highway must be of sufficient width (at least 40 metres). This width should only be broken by bridge crossings. This measure will enable current residents to better continue their rural lifestyle and protect any future residential development already planned for Bonville.	Noted. A variable width of buffering and landscaping is proposed. Forty metres is rarely available, however, as land take is kept to a minimum after incorporation of environmental mitigation measures.
50b	Interest Group	A proposal is made for construction of a gentle bend in the motorway which would reduce the impact on the scenic amenity of Pine Creek State Forest (p2 of Representation).	This Representation is the subject of a report: Response to the Bellingen Environment Centre Inc Representation, a copy of which accompanies this Representations Report (Appendix 9). The Highway alignment is discussed on page 6 onwards of the BEC Report. Refer to Representation 50a (Section 5.3.2).
50d	Interest Group	A proposal is made to relocate the RTA's investment in a 'dog-leg' bend in the existing highway and two motorway bridges over that 'dog-leg' bend, near the Sid Bourke Rest Area and to replace the 'Koala underpass' at the southern edge of Pine Creek State Forest. This proposal serves to minimise the impact of the highway redevelopment on the scenic amenity of the State Forest (p3 of the Representation).	Refer to 50a (Section 5.3.2). The Highway alignment is discussed on page 6 onwards of the BEC Report (Appendix 9 of the Representations Report).
50h	Interest Group	A proposal is made that the RTA raise carriageways and bridges over all wetland, creeks and water courses in East and North Bonville to avoid destroying wetland habitat (p5 of the Representation).	Refer to 50a (Section 5.3.2). Bridges over these areas are discussed in Section 3.1.3 of the Response to the Bellingen Environment Centre Inc Representation (Appendix 9, page 10).
50i	Interest Group	A proposal is made to reduce the depth of cuts through the timbered hill between Station Road and the wetland north of East Bonville Road and the hills supporting East Bonville and Archville Station Roads (page 5 of the Representations).	Refer to 50a (Section 5.3.2). Depth of Cuts is made in Section 3.1.4 of the Response to the Bellingen Environment Centre Inc Representation (Appendix 9, page 11).
50j	Interest Group	A proposal is made for a "sound wall" rather than a floppy cyclone fence along the eastern boundary of the motorway easement (linking with bridgeheads over flood zones) from Bonville Creek Bridge to Lyons Road. This measure is required to protect the North Bonville Bongil Bongil picnic grounds from overpowering motorway noise pollution (page 6 of the representation).	Refer to 50a (Section 5.3.2). Additional noise amelioration measures are discussed in Section 3.1.5 of the Response to the Bellingen Environment Centre Inc Representation (Appendix 9, page 12).
50l	Interest Group	A proposal is made to construct underpasses to accommodate the safe movement of humans and wildlife under	Refer to 50a (Section 5.3.2). Faunal underpasses are discussed the Response to the Bellingen Environment Centre Inc

5.3.11 Design			
Rep. Nr*	By Whom?	Issue	RTA Response
		the proposed motorway at every gully and water course within Pine Creek State Forest. These must be of a minimum of five metres wide at the ground surface, and should include at least one set of the proposed arched bridges for wildlife movement, proposed by the RTA for its western route motorway (page 6 of the Representation).	Representation (Appendix 9, page 8).
50m	Interest Group	A proposal is made for the construction of a raised carriageway over the full width of the flood zone at the Old Pacific Highway in North Bonville where it traverses the North Bonville Regional Wildlife Corridor. This overbridging of the flood zone should be designed to accommodate the free and unrestricted movement of humans, wildlife and flood waters under the old Pacific Highway as well as accommodating flood free access for motor vehicles to and from Bonville and Coffs Harbour (p7 of the Representation).	Refer to 50a (Section 5.3.2). This alternative option is discussed the Response to the Bellingen Environment Centre Inc Representation (Appendix 9, page 10).
51c	Interest Group	A proposal is made to take the highway to the east of the existing road and construct a tunnel for the new four lane road under Overhead Bridge and Mailmans Track Road a distance of approximately 150metres.	This alignment is discussed in the Response to the Bellingen Environment Centre Inc Representation (Appendix 9, pages 8, 9). The RTA Proposal includes a 60 metre wide faunal overpass in Pine Creek State Forest. Refer to 50a (Section 5.3.2).
51d	Interest Group	The new animal tunnel near the northern end of the present four lane road could be converted into an underpass for the existing highway. This would save the expense of the proposed interchange just to the north. It would eliminate the need to underpass the road near the Sid Burke's rest area and the need for cut and fill operations. It would also save more valuable koala habitat as the route would be directed through much poorer habitat.	This interchange proposal has been investigated throughly. It would be quite complex and of lesser standard than the proposed Mailmans Track interchange. It would require extensive reconstruction to the south and extensive earthworks and clearing in PCSF. Refer to 50a (Section 5.3.2). A discussion of this alternative to the RTA Proposal is discussed in the Response to the Bellingen Environment Centre Inc Representation (Appendix 9, pages 7, 8).

5.3.12 Property Acquisition

5.3.12 Property Acquisition			
Rep. Nr*	By Whom?	Issue	RTA Response
7a	Individual	Total acquisition of property is requested.	Property impacts are significant with the total area reduced from 48 ha to 19 ha by the Proposal. This request will be considered during negotiations in accordance with *the Land Acquisition (Just Terms Compensation) Act* 1991 and RTA Land Acquisition policies.
8a	Individual	Impact on the amenity for residents was raised. Total acquitision is requested.	Property acquisition required is approximately 0.9 ha from the present total of 4.1 ha. The resident's personal circumstances warrant special consideration. The RTA will consider this request during negotiations in accordance with the *Land Acquisition (Just Terms Compensation) Act* 1991 and RTA Land Acquisition policies.
12d	Individual	There is a possible concern about the purchase of land to undertake the proposed drainage plan.	In the period after exhibition, consultation with the owners concerning drainage was undertaken and agreement to an appropriate acquisition was reached. This agreement will allow room for the drain in the proposed road reserve.
16a	Individual	The acquisition will split the property and there is a request for consideration of further acquisition by the RTA.	The RTA is prepared to negotiate acquisition of the severed parcel of land to the east of the proposed corridor in accordance with the *Land Acquisition (Just Terms Compensation) Act* 1991 and RTA Land Acquisition Policies. Amalgamation of this isolated land parcel with adjacent properties would be then subject to negotiation.
23n	DLWC	Crown lands impacted by the proposed Deviation will need to be acquired by the RTA.	Acknowledged/agreed.
24s	Individual	The acquisition of approximately 25m of land along Archville Station Road has significantly reduced the area of available flat land for future development.	A minimum acquisition width is proposed to accommodate the new road alignment.
24u	Individual	The owner requests that a minimum area of flat land to the north of the blocks be acquired.	A minimum acquisition width is proposed to accommodate the new road alignment. Subject to the availability of the adjoining property, opportunity for land exchange options may be available.
24v	Individual	The owner requests information about total acquisition.	Property acquisition required is approx 0.3 ha from the present total of 2.0 ha. Total acquisition is not proposed.
26b	Individual	The owners request the purchase of the	The RTA is prepared to negotiate for total

5.3.12 Property Acquisition			
Rep. Nr*	By Whom?	Issue	RTA Response
		whole property.	acquisition, in accordance with the *Land Acquisition (Just Terms Compensation) Act* 1991 and RTA Land Acquisition Policies.
30d	Individual	If the preferred option is to remain, then total acquisition and compensation to provide an equivalent property is requested.	Impacts on this property are significant, noting noise impacts as well in their further representation (No.31). The RTA is prepared to negotiate for total acquisition in accordance with the *Land Acquisition (Just Terms Compensation) Act* 1991 and the RTA's Land Acquisition Policies.
34a	Individual	Acquisition has led to uncertainty about future extensions to the existing house as extensions can only be placed on the eastern side or go upwards, both of which appear to be in conflict with the proposal.	Acknowledged.
34m	Individual	The landholder requests total acquisition.	Impacts are severe in nearly all respects. The RTA is prepared to negotiate for total acquisition in accordance with the *Land Acquisition (Just Terms Compensation) Act* 1991 and RTA Land Acquisition Policies.
49bc	Individual	If the proposal, to have the highway go through the property is accepted, the landholders would request that the RTA grant full compensation for loss of property and amenity.	The property reduces from approximately 2 ha to 1 ha with this proposal. The RTA is prepared to negotiate for total acquisition in accordance with the *Land Acquisition (Just Terms Compensation) Act* 1991 and RTA Land Acquisition Policies.
49be	Individual	The impact of the proposal will sever any security for potential sub-division of the property if circumstances require the landholders to do so.	Noted. The RTA is prepared to negotiate for total acquisition in accordance with the *Land Acquisition (Just Terms Compensation) Act* 1991 and RTA Land Acquisition Policies.
58c	Individual	The owners do not wish to live 65 metres from a major highway and as a consequence there is an implied request for acquisition.	The property is not physically impacted and accordingly the RTA does not propose to acquire the property.

5.3.13 Flooding and Drainage

5.3.13 Flooding and Drainage			
Rep. Nr*	By Whom?	Issue	RTA Response
12c	Individual	There is concern about the drainage of surface water by open dish drain from the residents' property to Mr Moody's property.	Refer to 12d in Section 5.3.12.
49ap	Individual	It is difficult to realise how the strategy to 'maintain the flood immunity of the route' (p3-9, vol.1) will be achieved when the route is centrally located on flood plains, wetlands, known intermittent water courses and 1-100 year flood zones. The impact of the dam effect of the new road through Raleigh is yet to be fully experienced.	The floodplain has been fully modelled and sufficient openings provided in the embankment to handle flood flows. Section 6.2 summarises the assessment of hydrology and flooding.
53d	EPA	Sedimentation dam specifications should be provided including the following details: 1. Dimensions 2. anticipated level of wastewater in dam(s) under various conditions 3. capacity; and 4. time taken to empty dams.	Acknowledged. Details in line with the State Government's commitment to the guidelines for Soils and Construction (Managing Urban Stormwater, Department of Housing, 1998) would be included in the Concept Design Report.
53e	EPA	The type and number of sedimentation dam(s), gravel filters and catch/diversion drains with respect to site topography should be described. A plan showing these features should be included in the proposal plan.	Acknowledged. Details are to be included in the Concept Design Report and the Detailed Design Report.
53f	EPA	All runoff from disturbed areas (including access tracks/roads) should be diverted to sedimentation dam(s).	Sediment basins will be provided for all disturbed areas where possible. Where it is not possible to do so e.g. for runoff from areas below sediment basins and for very small sub-catchments without sediment basins, silt fences will be provided.
53g	EPA	Any discharges from the site should contain less than 30mg/L of non-filtrable residue (NFR), less than 10mg/L of grease and oil and a pH in the range 6.5 to 8.5. Any pH of any discharge from the site should be within 0.5 pH units of the receiving waters. Compliance with the NFR standard may require the use of a coagulation injection system.	Generally agreed. The RTA considers that 50m/L is normal in this region. This issue will be discussed further with the EPA.
53h	EPA	The EPA recommends the implementation of an event based (when discharges occur from sedimentation dams) water quality monitoring program to assess the adequacy of sedimentation dams and to assess compliance with suggested discharge criteria in 53g above.	Generally agreed. Further discussion with the EPA as per 53g will be undertaken.
53i	EPA	Measures for wastewater drainage after storm events (pumping out of dams 36 to 48 hours after storm events) should be provided.	Acknowledged. This will be included in Soil and Water Management Plan.
53j	EPA	The time taken to empty (sedimentation) dams should be provided.	Refer to 53d (Section 5.3.13).

5.3.13 Flooding and Drainage			
Rep. Nr*	By Whom?	Issue	RTA Response
53k	EPA	Measures for de-silting dams to maintain design capacity should be provided.	Acknowledged. Accesses for maintenance will be allowed for. This is for inclusion in the final design and Construction EMP.
53m	EPA	Fuel should be stored within a bunded area on a flood free zone. The gross capacity of the bunded area should be at least the capacity of the largest tank plus the aggregate volume displaced by all of the tanks below the level of the crest, plus the volume displaced by any foundations.	Acknowledged. This is to be included in the Construction EMP.
53n	EPA	Refuelling should be undertaken upslope from the sedimentation dam so that any spills can be intercepted by the dam.	Acknowledged. This is to be included in the Construction EMP.
53ad	EPA	The potential presence of any cattle tick dip sites or other contaminated sites along the proposed route was not assessed in the EIS and this should be undertaken prior to the commencement of any earthworks.	Soil contamination is addressed in the "Interim Geotechnical Investigation Report" referred to in Appendix G of the EIS. This report includes Department of Agriculture records of a former cattle dip site 1.1 km north of Bonville adjacent to the existing highway. Decommissioning and cleanup has commenced. There are no such contaminated sites identified along the proposed route.

5.3.14 Amenity

5.3.14 Amenity			
Rep. Nr*	**By Whom?**	**Issue**	**RTA Response**
24g	Individual	The speed and proposed volume of traffic on Archville Station Road will reduce the amenity of the access.	Volumes will increase but speeds should not increase to any extent because of the relatively short length between roundabouts. A standard driveway access will be constructed from the new road works to the property. Access safety has been considered and would be satisfactory.
25e	Individual	The EIS admits increased use of Butlers Road but does not address issues of the impact on the residents of Butlers Road.	Refer to 25a (Section 5.3.30).
26a	Individual	The LEP route affects the property in a substantial manner. The personal circumstances of the residents are requested to be considered.	Note representation No. 12 and responses. Due to significant property impacts and the personal circumstances of the residents, the RTA is prepared to negotiate for total acquisition, in accordance with the *Land Acquisition (Just Terms Compensation) Act* 1991 and RTA Land Acquisition Policies.
34g	Individual	With the upgrade, views will be lost (EIS, Vol 1, p7-15) and any recreational use will be lost.	Acknowledged. Due to significant property impacts and the personal circumstances of the residents, the RTA is prepared to negotiate for total acquisition, in accordance with the *Land Acquisition (Just Terms Compensation) Act* 1991 and RTA Land Acquisition Policies.
49a	Individual	The property is currently in a quiet rural environment. The owners have their power, telephone and 2" water pipe placed underground so as not to intrude on the vista. The owners consider that their personal circumstances will be affected by the proposal.	Visual impacts are acknowledged and visual and landscaping measures are addressed in the EIS in Sections 5.7 and 7.3. The RTA is prepared to negotiate for total acquisition in accordance with the *Land Acquisition (Just Terms Compensation) Act* 1991 and RTA Land Acquisition Policies.
49af	Individual	The residents' chosen self-sufficient lifestyle will be compromised if the RTA proposal is accepted.	Noted. Loss of approximately 1 ha of the current 2 ha land is significant in maintaining their self-sufficient lifestyle. Refer to 49a.
49ai	Individual	The rural amenity will be lost forever.	Acknowledged. The change will be significant. Landscaping will be used as mitigation. Refer, also to 49a.
49aw ❖	Individual	Sound barriers would not adequately protect our home from noise. The sound barriers would be 5-6m from the northern windows and 2-3m high. This would totally destroy the amenity.	The impact on amenity by providing noise barriers is noted and discussed in the Noise and Vibration Assessment Supplementary Information Report (Appendix 6, page 9) which accompanies

5.3.14 Amenity			
Rep. Nr*	**By Whom?**	**Issue**	**RTA Response**
			this Report. Consultation is continuing to provide the most acceptable outcome for the owners. This is to be included in the Project EMP.
49ax	Individual	In principle the internal house space is an extension of the external environment to enable a free flow of air and sunlight. All noise sensitive rooms with large windows are located to the north. The roof and eaves are not designed for the impact of construction or traffic noise because of location in an extremely quiet area. Sound barriers would impede the northern cooling breezes in summer and block out the warmth of the winter sun.	Refer to 49aw (this section).
49bf	Individual	The memorial trees planted by an earlier member of the family can never be replaced.	Relocation would be difficult, but could be considered. Include in Project EMP.
49bh	Individual	If the proposed RTA Bonville Project is approved, it will change the character of the home and property forever to the complete opposite of what it has always been.	Noted. Mitigation measures proposed as above will reduce this effect to an extent.
60e	Business	There is a concern that clearing or damage to vegetation on the quarry block has the potential to expose the vegetation on the owner's property to the impacts from westerly winds, weed invasion and "edge effects".	Refer to 60b in Section 5.3.8. It is not proposed to use Titans Quarry.
63p	NRMA	The EIS mentions the possibility of rezoning land to allow higher density rural residential development between East Bonville Road and Bonville Creek to the west of the proposed route. As the proposed route is likely to impact on the amenity of residents with properties adjacent to the bypass, an appropriate buffer to mitigate against visual and noise impacts should be considered.	Visual and noise criteria would be satisfactorily achieved for the current development in this area. Appropriate rezoning, including densities and buffers, would be the responsibility of Council if further development is proposed.

❖ Refers to an additional study

5.3.15 Heritage

5.3.15 Heritage			
Rep. Nr*	By Whom?	Issue	RTA Response
46d	Aust Heritage	The EIS section on "Non Indigenous Heritage" does not adequately reflect that the chosen LEP route between Bonville Station Road and East Bonville Road runs very close to the area interim listed on the Register of the National Estate.	Acknowledged. Requests for information on the interim listed area were made to the Australian Heritage Commission (AHC) following receipt of this representation. Information was provided by the AHC by letter on 19 April, 1999. This letter advised that "although the status is described as 'Interim List(ed)', the Australian Heritage Commission has in fact considered the objections to the listing and has decided to list the place on the Register of the National Estate. This process will be formally completed on the publication of a notice to that effect in the Commonwealth Government Gazette and this will occur in May, 1999".
46e ❖	Aust Heritage	It appears from Figure 5.1d in the EIS that the boundary between the area interim listed on the Register of the National Estate and the LEP route is common with the indicated resumption boundary approximately located between metre marks 98500 and 98800 on the south eastern side of the proposed route. None of the maps in the reports appear to identify the boundary of the Bongil Bongil interim registered area. To enable all of the stakeholders to fully appreciate the implications of the project, this information should be included.	The proposed road acquisition boundary is approximately 60 metres upstream of the nearest point of the AHC area to be listed. It appears that the area to be listed by the AHC covers SEPP 14 Wetland Number 335, which has been identified for protection in the EIS and subsequent reports. The proposed roadworks are approximately 100 metres upstream of the SEPP 14 Wetland, and appropriate water quality measures are proposed to ensure that the wetland environment is not impacted. Refer in particular to the supplementary report Wetland Evaluation (February 1999) by Biosis Pty Ltd. Concerning broader effects within the AHC area to be listed, it could be noted that the Bongil Bongil National Park overlaps with most of the AHC area overlap. The Bongil Bongil National Park was considered in the preparation of the EIS and SIS and it was determined that the proposal would not cause any adverse impacts to the environment of these downstream areas.
46g	Aust Heritage	The Australian Heritage Commission suggests that the recommendations made in Chapter 12 (Appendix N) of the EIS Volume 2 are implemented as they provide a firm basis to ensure that the Indigenous values, within the study area, are minimally impacted upon.	Noted for inclusion in the Project EMP. A representative of Coffs Harbour and District LALC will be engaged to monitor clearing and topsoil removal on commencement of construction of the Project. Discussions have been held with NPWS regarding statutory responsibilities relating to issues raised by the Gunbular Julipi Elders Group.
59a	NPWS	NPWS is concerned that the area to be impacted on by the proposal set out in S5.3, 5.7.2 and illustrated in Figures 5.1a and 5.18a has not been subjected to systematic survey for indigenous cultural	Acknowledged. Further field inspection was undertaken of this area in September 1998. NPWS by letter of 10 November 1998 advised that it concurred with the findings of the LALC and that these issues

5.3.15 Heritage			
Rep. Nr*	By Whom?	Issue	RTA Response
		heritage sites. NPWS recommends that the issue of impact of the proposal be resolved before any negotiation is entered into with regard to monitoring during the construction phase. Concerns about the location and a review of other options need to be undertaken. NPWS is willing to participate in any future negotiations regarding this matter.	were now adequately addressed. Inspection of areas in Pine Creek State Forest affected by alignment refinements was undertaken in February 1999. No evidence of indigenous cultural heritage was found (refer to NPWS report to the RTA, March, 1999). A copy of a letter from the LALC indicating concurrence with the NPWS report is provided in Appendix 1 of this NPWS.
59b	NPWS	The artefact (s7.6.2) at coded site BH1 in Appendix N will be impacted by the proposal and requires the lodgement of a Consent to Destroy application with NPWS, prior to the commencement of construction.	Acknowledged. A NPWS letter of 10 November 1998 advised that it is now in a position to consider favourably a Consent to Destroy (with salvage) application for site BH1.
59c	NPWS	NPWS contends that, with regard to Section 7.6.2, it has not been determined whether areas of importance will be impacted on by the proposal. Further consultation should be undertaken with appropriate organisations that were involved in the field survey component of the proposal.	Acknowledged. Further field inspections were undertaken to the NPWS satisfaction as described above in Issue 59a.
59e	NPWS	The nature and extent of Aboriginal monitoring should be subject to further consultation with all of the Aboriginal organisations that were involved in the initial field assessments.	Achnowledged. To be included in the Project and Construction EMPs
61a	NSW Heritage Office	The heritage significance of the site and any impacts the development may have upon this significance should be assessed. This assessment should include natural areas and places of Aboriginal, historical or archaeological significance.	EIS Sections 7.5 and 7.6 describe the assessment of these issues adequately. Further consultation and field inspection have been undertaken as described in the NPWS issues 59a-59d to ensure indigenous heritage issues are adequately addressed.
61b	NSW Heritage Office	The wider heritage impacts in the area surrounding the site should be considered.	This was considered and described in EIS Sections 7.5 and 7.6 and Appendix N.
61c	NSW Heritage Office	Lists maintained by the NSW National Parks and Wildlife Service, the National Trust, the Australian Heritage Commission and the local council should be consulted in order to identify any items of heritage significance in the area affected by the proposal.	Consultation of these lists were undertaken during the preparation of the EIS (EIS, p7-31 and Appendix N, p4.1). During preliminary survey work, only one indigenous artifact of low significance was found (EIS, Appendix N, p7-6). However, during the construction phase, all artefacts found would be left undisturbed until the NPWS and the Local Aboriginal Land Council or other Aboriginal group are notified. Notification would be made as soon as possible after discovery.
61d	NSW Heritage Office	Heritage lists maintained by NSW National Parks and Wildlife Service, the National Trust, the Australian Heritage Commission and the local council are constantly evolving so that checks should be made	Undertaken as described in 61c. Continuing communication with NPWS and Aboriginal groups was undertaken after the EIS publication as described in 61c. Refer also to 46d for information on a

5.3.15 Heritage			
Rep. Nr*	By Whom?	Issue	RTA Response
		with the relevant body for items with potential heritage significance which may not yet be listed. In particular, archaeological sites are rarely listed.	listing by the Australian Heritage Commission.
61e	NSW Heritage Office	Non-aboriginal heritage items within the area affected by the proposal should be identified by field survey. This should include any buildings, works, relics (including relics underwater), trees or places of non-Aboriginal heritage significance. A statement of significance and as assessment of the impact of the proposal on the heritage significance of these items should be identified. This assessment should be undertaken in accordance with the guidelines in the NSW Heritage Manual.	No heritage listed buildings are affected (EIS, p 7-31). No other works, relics etc are affected by the proposal except for the remnant of tram track formation. See responses to 61f or 61g below.
61f	NSW Heritage Office	The relics provisions in the Heritage Act require an excavation permit to be obtained from the Heritage Council prior to commencement of works if disturbance to a site with known or potential archaeological relics is proposed. If any unexpected archaeological relics are uncovered during the course of work, excavation should cease and an excavation permit obtained.	Noted. These requirements to be included in the Project and Construction EMPs.
61g	NSW Heritage Office	On page 7-31, Section 7.5.1 Impact Assessment, it is noted that remnant tram tracks will be removed during the course of the proposed works. The heritage significance of these tracks should be assessed and mitigation measures should be provided for. It may be appropriate at a minimum to record these items photographically prior to demolition, based on their significance.	Noted. Not listed as a heritage item (EIS, page 7-31). Further investigation since the publication of the EIS reveals that there are no tracks or sleepers.

❖ Refers to an additional study

5.3.16 Access

5.3.16 Access			
Rep. Nr*	**By Whom?**	**Issue**	**RTA Response**
4a	Individual	Access will be moved 200m to south. Use of the underpass by the Bundagen Rural Co-operative at Repton will increase road use near the start of Reedy's Forest Road. The standard of access and the responsibility for maintenance of the road were raised.	A similar standard gravel access road, as currently exists, is intended for the new length in the State Forest. Maintenance of the new length by State Forest would be undertaken on a similar basis to the present.
5b	Department of Transport	Severance issues are inadequately addressed.	There is no change to the current road network and no traffic severence will result. Pedestrian and bicycle links are provided on all traffic overpasses.
5c	Department of Transport	Impact on access to railway stations is not addressed nor is the current usage of the railway line described.	There is no change to the access to the railway station at Coffs Harbour. Railway Stations no longer exist in the vicinity of Bonville Station Road and Archville Station Road. Long term cumulative impacts on rail transport (passenger and freight) due to the highway upgrading are hard to predict. The line which is the main North Coast line is used extensively, principly for intensive freight movements.
11i	Individual	Option A gives longer distances than at present. This would affect emergency vehicles, general deliveries and school travel times.	Noted. This was taken into account in the safety and economic assessments and in the choice of the B3 option as the preferred option.
11j	Individual	More emphasis needs to be placed on alternative routes for emergencies.	Acknowledged. This was taken into account in selecting B3 as the preferred option. Refer to Section 4.3 of the EIS, in particular, page 4-7.
24e	Individual	The property has two points of access via Archville Station Road. (not as shown on p5-57, Table 5.3 of EIS)	Acknowledged.
24f	Individual	There will be a considerable increase in traffic usage of Archville Station Road as it will service the on and off ramps.	Acknowledged. 2011 traffic estimates are for 2,300 vehicles per day rather than 650 vehicles per day if the project including these ramps did not proceed. These volumes are still considered to be relatively light however, and not excessive for a road of this standard.
27b	State Government	Fauna protection fences may limit access for maintenance. Access points for maintenance of drainage, environmental structures, landscaping, slopes, fencing and flora are required.	See issue number 27a under Post-Construction issues (Section 5.3.20).
27c	State Government	Suitable cross-over points need to be provided to facilitate maintenance on	See issue number 27a under Post-Construction issues (Section 5.3.20).

5.3.16 Access			
Rep. Nr*	**By Whom?**	**Issue**	**RTA Response**
		divided carriageways and provide emergency access and traffic management.	
28	State Government	The Bonville Creek crossing should be at least 3m above MHW to cater for any future expansion of use or activity on the waterway.	This has been noted for the final design plan. Approximately 4 metres clearance is provided in the design of this bridge.

5.3.17 Safety

5.3.17 Safety			
Rep. Nr*	By Whom?	Issue	RTA Response
11d	Individual	Northern section of Option A is likely to be affected by the angle of the sun in the early morning and late in the afternoon (p4.9).	Acknowledged.
11n	Individual	P plate drivers should have the choice of using a low speed alternative route for safety. The LEP option allows the present Highway to become this alternative route to Sawtell and Toormina. This should be publicised as an important factor.	Acknowledged.
25c	Individual	The EIS admits increased use of Butlers Road but does not address issues of safety.	Refer to 25a (Section 5.3.30).
25i	Individual	The narrowness of part of Butlers Road together with the location of the bus stop makes this section of road unsafe for school children.	Refer to 25c (Section 5.3.17). No increase in traffic and safety impacts is anticipated. Present usage and width are a matter for Council.
25j	Individual	There is no footpath on Butlers Road so residents cannot walk safely along the side of the road.	Refer to 25c (Section 5.3.17).
25l	Individual	The only access to the owners' property is on a blind corner.	Refer to 25c (Section 5.3.17)..
25m	Individual	Butlers Road is unsuitable for heavy vehicles.	Refer to 25c (Section 5.3.17).
25n	Individual	The dirt road (Butlers Road) causes hazardous driving/braking conditions.	Refer to 25c (Section 5.3.17).
34b	Individual	The owner has expressed concern about the safety of the children of the family during the construction period. At present the children do not have to be supervised constantly at the commencement of construction, supervision would be necessary and their safety would be a major problem.	Acknowledged. Fencing (temporary and permanent) would be provided to protect against entering construction works. Negotiations with owners would be undertaken as to the type and location of fencing.
42d	Interest Group	The proposed area east of Mailmans Track poses a fire risk for Repton.	Fire is a recognised issue to be managed but is not considered to be increased significantly by this rest area. Provision of this rest area is strategically important with respect to the overall fatigue management on the Pacific Highway.

5.3.17 Safety			
Rep. Nr*	By Whom?	Issue	RTA Response
46o	Aust Heritage	Although mention is made of preparing a "risk management plan" to deal with a fire once it has started, attention should be given to implementing operational procedures to minimise fire ignition risks during different climatic conditions particularly in the summer.	Noted. Appropriate fire management authorities will be consulted to ensure appropriate management strategies are in place for the project. A strategy would be included in the Project EMP.
49as	Individual	The overpasses require wire mesh pedestrian enclosures to protect highway traffic below from the risk of thrown rocks.	Acknowledged. Safety screens will be incorporated into all overpass bridges over the Pacific Highway. This will be included in the final design and the Project EMP.
63a	NRMA	The NRMA strongly supports the upgrading of this section of the Pacific Highway.	Noted.
63b	NRMA	The NRMA supports the provision of a high standard route through this major transport corridor.	Noted.

5.3.18 Water

5.3.18 Water			
Rep. Nr*	By Whom?	Issue	RTA Response
23a	DLWC	All piezometers will need to be licensed and a copy of results should be forwarded to the Department.	Acknowledged/agreed. Applications for an appropriate licence(s) would be made.
23b	DLWC	The quality of groundwater discharge should be closely monitored to prevent the discharge of heavy metals or acid water, into adjacent waterbodies.	Acknowledged/agreed. A small scale water quality monitoring programme would be undertaken for Acid Sulphate Soil variables early in the construction phase.
23c	DLWC	Both surface water and groundwater are a vital source of water supply to landholders. It is important that, before any replacement dams or bores are dug, that consultation is carried out with the Department to see if they require licencing.	Acknowledged. Consultation will be held with DLWC before any replacement dams or bores are dug and during the Construction Acid Sulphate Soil Management Plan prepared by the contractor. Applications for appropriate licences would be made.
23d	DLWC	The need for a fresh water supply during construction should be determined prior to work commencing by the contractors as any water pumped from the streams or bores will require a permit from the Department and alternative sources should be investigated prior to work commencing. Contact John Finlay on (02) 6640 2111.	Acknowledged. This issue will be addressed in the Project EMP. Applications for appropriate licences would be made.
24r	Individual	There is a request for a first flush system on the basis that it is believed that the house will be affected.	It is proposed in the EIS (p6-41) that first flush interceptors would be installed on all properties within 150 metres. For properties beyond this distance, interceptors would be considered in

5.3.18 Water			
Rep. Nr*	By Whom?	Issue	RTA Response
			circumstances where high dust levels have been found to be associated with the construction. This issue would be addressed in the Project EMP.
34k	Individual	The proposed acquisition would leave the land without any access to water of any kind as the proposal goes through both existing dams on the property.	Further discussions between the RTA and the property owner would be undertaken regarding the provision of a bore or a dam(s) subject to acquisition negotiations.
34l	Individual	Drinking water would be affected by dust if the proposal goes ahead. The water in the inground swimming pool would be affected.	A first flush device would be installed to minimise dust in the drinking water system (EIS, p6-41 gives details).
36f	NSW Fisheries	NSW Fisheries recommends that monitoring during construction, as outlined on p6-39 of the EIS, be expanded to include dissolved oxygen, aluminium and iron to ensure that the release or mobilisation of any acid sulfate soils within sedimentation basins and receiving waters is detected.	The water quality monitoring will include testing for dissolved oxygen. Testing for aluminium and iron will only be undertaken if the pH and/or other information indicates an ASS problem is present. This may be from water pH data or during a known disturbance of ASS areas. This will be included in the Project EMP.
49u	Individual	The dust levels described on page 6-48 of the EIS are a major concern in terms of impacts on the landholders' tank drawn drinking water.	First flush interceptors are proposed in rainwater collection systems within 150 metres of works. Refer to EIS page 6-41.
49ao ❖	Individual	Attempts to sample water from SEPP14 wetlands between East Bonville Road and Bonville Station Road should have been possible. There is an inaccuracy in the way the access is described in the EIS.	Noted. Additional wetland studies have been undertaken since publication of the EIS to ensure adequate protection of wetlands. These studies are Aquatic Ecological Assessment and Wetland Evaluation appended the SISSIR which accompanies this Representations Report.
53l	EPA	Water from the sedimentation dams is recommended for irrigation and/or dust control.	Water from these sources would be used for dust control and compaction when available.
53t	EPA	The EPA recommends that using recycled water from sedimentation ponds be used for dust suppression rather than using treated sewerage effluent.	Acknowledged. This is the preferred alternative and would be included in the Construction EMP.

❖ Refers to an additional study

5.3.19 Agricultural Impacts

5.3.19 Agricultural Impacts			
Rep. Nr*	By Whom?	Issue	RTA Response
11l	Individual	Concern is registered that some options may reduce the accessibility of "terrace" soils.	Accessibility would not be affected by this project.
12b	Individual	The loss of a dam and of land will necessitate year round feeding of horses. The earth barrier will eliminate natural seepage and will cause the ground to become boggy.	Provision of an alternative water supply (bore) is proposed (reference page 6-41, EIS). Loss of land is 0.4 ha from present total of 1.7 ha. Proposed drainage will not allow the ground within this property to become boggy.
16f	Individual	A request has been made for the replacement of the stockyards and dam and in the event of the construction adversely affecting the property's deep bore, replacement of the bore is requested.	This will be addressed during land acquisition negotiations with the owner. The yield of the deep bore would not be affected.
30a	Individual	The present proposal removes the owners' pastures and leaves a narrow strip of land as narrow as 25m at one end.	Acknowledged. The property reduces from 10.4 ha to 5.1 ha with this proposal.
33a	NSW Agriculture	The Department (Agriculture) in its letter dated 9 January 1997 requested a study of the agricultural lands and agricultural enterprises that could be affected by the proposal. The EIS submitted is extremely brief in its assessment and description of agricultural issues. The agricultural assessment is confined to comments provided on pages 7-1, 7-2 and 7-5.	Acknowledged. However, it is considered that a detailed study is not required as there is little significant agriculture or future potential within the study area, given the area has already been substantially converted to rural residential with expected further conversion in the future.
33b	NSW Agriculture	It is of concern that the EIS states on page 7-2 "Department of Agriculture has not been greatly concerned with this area as it has assumed that urban development would eventually take place" without any supporting evidence issued by the Department.	Acknowledged. Telephone discussions may not have been accurately interpreted. The Department does seem to accept that the agricultural impacts overall are "not likely to significantly hinder the project given all other considerations and aspects".
33c	NSW Agriculture	The Department (Agriculture) recommends that property severance be kept to a minimum and where severance does occur, all attempts should be made to combine smaller lots with neighbouring properties.	Acknowledged/Agreed. Some opportunities for severed land to be amalgamated with adjoining properties do appear to be possible.
34f	Individual	Once the upgrading has commenced, there will be insufficient land to perform any type of rural activity.	Noted. The property would be reduced from 4.4 ha to 1.5 ha approximately.
34j	Individual	The acquisition of 3ha would leave a total of 1.4ha of which 0.8ha is covered by the main building of the property. The 3ha acquisition would make the property unproductive for any form of livestock.	Accepted. Negotiations concerning acquisition are about to commence and these concerns will be dealt with at that time.
49ac	Individual	Vehicle emissions will greatly impact on	The vegetable garden is sited at

5.3.19 Agricultural Impacts			
Rep. Nr*	By Whom?	Issue	RTA Response
		the present large vegetable garden which has not been sprayed or chemically fertilised for the past 24 years.	approximately 30 metres distance from the proposed southbound carriageway and 50 metres distance from the proposed northbound carriageway. Potential impacts from motor vehicle emissions fall into two categories. The first is the potential effect from air pollution (ozone, sulphur dioxide and nitrogen dioxide) on growth. The second is the potential contamination of vegetables, primarily from lead. It has been calculated that levels of pollution from ozone, sulphur dioxide and nitrogen dioxide would be below World Health Organisation recommended limits so that growth of vegetables (and other vegetation) would not be affected by the proposed Highway. It has been calculated that lead accumulation in vegetables is likely to be at very low levels after opening of the proposed Highway and amounts will reduce further as the vehicle fleet changes over completely to unleaded petrol. Hence, vegetable contamination would not occur due to the proposed Highway.
49ad	Individual	The proposed highway will adversely affect the landholders' ability to produce food.	Noted. Loss of approximately 1 ha of the current 2 ha land is significant.

5.3.20 Post construction Issues

5.3.20 Post construction Issues			
Rep. Nr*	By Whom?	Issue	RTA Response
27a	RTA	Monitoring and maintenance of environmental protection and landscaping systems will need to continue after the construction phase.	Issues raised in this submission, by the Northern Region Assets Management section of the RTA, are part of normal RTA operations and procedures and are to be taken into account with the development of the project.
27d	RTA	Where fills are constructed on soft ground, it is essential that any requirements for ongoing management of the fill be documented and the budget implications be identified.	See issue number 27a above.
27e	RTA	It is essential that any requirements for ongoing management of slopes be documented prior to handover for maintenance.	See issue number 27a above.
27f	RTA	It is essential that there be a handover	See issue number 27a above.

5.3.20 Post construction Issues			
Rep. Nr*	By Whom?	Issue	RTA Response
		process to Asset Management at completion of the construction phase including transfer or works, monitoring and maintenance requirements.	
27i	RTA	It is anticipated that the RTA will have ongoing responsibility for bridges over the Pacific Highway as well as bridges carrying the Pacific Highway over other roads etc.	See issue number 27a above.
29bt	NPWS	The expected time frame for habitat restoration has not been specified, apart from a recommendation for weed management to continue for 2 years (DGR3.4).	Measures designed to support habitat restoration such as weed control, fencing and water quality monitoring were outlined in Section 7 of the SIS (page 7-1 onwards). Additional information has been provided in the SISSIR (page xvii).
29bu	NPWS	No opportunities for improving habitat have been provided (DGR3.4).	Amelioration measures were provided in the SIS (Section 5.6.1) in which a number of sites were identified as requiring amelioration and the types of rehabilitation and improvement were described. Additional information regarding opportunities for revegetation and habitat improvement have been incorporated into the SISSIR (page xvii).
29dp	NPWS	Maintenance of fauna fencing and underpasses should be included in Section 8.5 of the EIS.	It is acknowledged that the maintenance of the fauna exclusion fence should be included in the Project EMP.
46q	Aust Heritage	Any compacted compound areas should be rehabilitated when finished with.	An overall Project EMP would be developed once project approval has been obtained. This would include measures for inclusion into the relevant Construction EMP.
63d	NRMA	Because of uncertainty about the effectiveness of fauna underpasses, overpasses and exclusion fencing it is suggested that regular post-construction audits should be undertaken. The audits could include performance indicators such as the number of injured and killed animals.	The RTA is funding a separate 6-year monitoring program to address this issue for Koalas and a separate post-construction monitioriong program for other species is also proposed (refer to SISSIR, Appendix 3).

5.3.21 Water Quality

5.3.21 Water Quality			
Rep. Nr*	By Whom?	Issue	RTA Response
8d	Individual	Concerns are raised about the quality of rain water collected after construction.	First flush interceptors are proposed for roof water collection during construction to minimise dust entering domestic water tanks on this property. (Page 6-41 of the EIS states that first flush interceptors would be installed at all properties within 150 metres). After construction, the level of particles generated from the carriageways would be negligible. However, first flush interceptors would remain in place.
25g	Individual	Dust pollutes the owners'water supply.	Refer to 25c. No decrease in water quality is anticipated.
53a	EPA	The EPA recommends that the water quality monitoring programme be continued on a seasonal basis (3 monthly) to gather further representative baseline water quality data and ecological data prior to the commencement of works.	Acknowledged. The RTA will ensure that monitoring programs are in place to cover representative baseline data. Note the community involvement described on page 6-41 of the EIS.)
53b	EPA	Grease and oil monitoring should be included in the water quality monitoring programme during construction.	The RTA plans to have further discussion on monitoring for grease and oil within the construction programme. Monitoring of these variables can be expensive and in many cases, unnecessary, as mitigation measures are likely to prevent movement of these substances.
53c	EPA	Details of design discharge standards should be included in the proposed water quality management plan.	Noted. Details are to be included in the proposed Soil and Water Management Plan. Standards discussed in Appendix K of the EIS will be further developed for inclusion in this.
53o	EPA	The water quality management plan proposed in the EIS and the acid sulphate soil management plan should be sufficiently integrated to ensure that any water quality impacts from the disturbance of ASS are detected early and remedial action effectively initiated.	Noted. A Soil and Water Quality Management Plan will be implemented as part of the Construction EMP.
53q	EPA	All contractors should be aware that the results of any soil and water quality analyses and any pre-construction soils and water quality monitoring should be interpreted and incorporated into the proposed management plan before the commencement of any excavation works.	Noted. A Soil and Water Quality Management Plan would be prepared as part of the Construction EMP and this would be required to take these data into account.
53r	EPA	All calculations relating to defining the liming rate for treating acid water discharges and ASS to an appropriate pH level should be documented in the	Noted. A Soil and Water Quality Management Plan wouild be prepared as part of the Construction EMP.

5.3.21 Water Quality			
Rep. Nr*	By Whom?	Issue	RTA Response
		proposed management plan.	
53u	EPA	Treated sewage effluent may still be suitable for reuse in some circumstances, if applied in accordance with the EPA's (1995) Draft Environmental Guidelines for Industry and "The Utilisation of Treated Effluent by Irrigation".	This option is noted and would be included in the Construction EMP.
63e	NRMA	Water quality parameters listed within the EIS should include chlorinated hydrocarbons as with high rainfall events these chemicals could be washed from nearby agricultural land onto the new road and into nearby catchments.	A Water Quality Monitoring Programme for chemicals from agricultural land does not appear to be necessary as very little agricultural land is present along the route. The RTA will undertake a programme of water quality monitoring determined in consultation with EPA and DLWC. This programme will be incorporated into the Project EMP.

5.3.22 Utilities

5.3.22 Utilities			
Rep. Nr*	By Whom?	Issue	RTA Response
2	Optus	Optus does not have existing assets in the vicinity of the proposed road works, therefore Optus does not have any comments with regards to the EIS and SIS.	Acknowledged.
52a	Telstra	The Sydney-Brisbane optical fibre cable crosses Butlers Road at the proposed roundabout and is likely to need lowering and/or be provided with concrete slab protection due to insufficient cover after excavation work has been carried out at the location. Positive identification of depth by hand excavation prior to excavation is essential. Consideration should be given to the location of this cable with the design of any drainage in this area.	Noted for the detailed design.
52b	Telstra	The Sydney-Brisbane optical fibre cable crosses under the proposed Lyons Road roundabout and it crosses the new highway as it swings away from the existing highway South of Lyons Road. In both cases it requires lowering or protection depending on the amount of topsoil stripping to be carried out before compaction of fill overhead.	Noted for the detailed design.
52c	Telstra	Care should be taken in the detailed design phase to ensure that access is preserved to pits and manholes on the Sydney-Brisbane fibre route, especially	Acknowledged.

5.3.22 Utilities			
Rep. Nr*	By Whom?	Issue	RTA Response
		those containing joints, as these must be able to be assessed for maintenance and network growth reasons.	
52d	Telstra	Various cable replacement/protection solutions will be necessary for smaller copper cables at various locations including Williams Road, Bonville Station Road, East Bonville Road and Archerville Road.	Noted for the detailed design stage and for consultation with Telstra.
52e	Telstra	The Sydney-Brisbane Co-axial cable (as distinct from the Sydney-Brisbane Optical Fibre cable) is located along the project, running beneath the proposed route through the Pine Creek State Forest and near Lyons Road. This cable has been decommissioned in this section, however it should be cut off at either end before any work is carried out which may intercept it to avoid the possibility of damaging any associated network beyond the extent of the project.	Noted for detailed design.
52f	Telstra	A desirable means of dealing with this cable in the affected section is to transfer ownership of the cable to the RTA, enabling the RTA or the RTA's contractor to recover the cable where desirable. This option can be progressed if mutually acceptable to both parties.	Noted for detailed design and further discussion with Telstra.
52g	Telstra	Any adjustments to the optical fibre cable should be carried out by the RTA's contractor with Telstra supervision, and would not involve any cutover of the cable itself.	Noted for detailed design and further discussion with Telstra.
52h	Telstra	It will be necessary to identify, first, which cables can be protected in their current location when RTA surveyors have confirmed details of cable location in relation to the proposed construction zones.	Noted for detailed design and further discussion with Telstra.

5.3.23 Potential Acid Sulphate Soils

5.3.23 Potential Acid Sulphate Soils (PASS)			
Rep. Nr*	By Whom?	Issue	RTA Response
11k	Individual	Minimum disturbance is suggested in areas east of Grandis Road and north and south of the Archville Station Road/Pine Creek area	Potential Acid Sulphate Soils (PASS) including pyrite sources in cuttings would be located in more detail prior to construction, and controlled carefully during all works through the Acid Sulphate Soils Management Plan outlined in Appendix H (EIS, Volume 2). This issue will be addressed in the Project EMP and a more detailed plan would be prepared as part of the Construction EMP, including monitoring of runoff.
23e	DLWC	There needs to be a detailed acid sulphate soil management plan compiled prior to works commencing.	Refer to 11k.
23f	DLWC	Consideration will need to be given to controlling and treating pyrite leachates from phyllite cuttings and structures to collect runoff from road cuttings may be required, to allow treatment of leachate runoff. Further geotechnical work may be required to identify possible pyrite sources in the phyllites of the Pine Creek Forest section of the highway.	Refer to 11k.
29ba	DLWC	Disturbance of ASS has not been mentioned as a potential downstream impact to aquatic systems (5.6.5).	Refer to 11k.
36g	NSW Fisheries	Monitoring and control of ASS during the construction phase, particularly during bridge and culvert construction, is crucial to ensure significant impacts on aquatic organisms are minimised.	Refer to 11k.
49ar	Individual	Most native trees and plants are intolerant of lime. The neutralised ASS by lime should not be used on median strips but at the base of deep fill areas.	Noted.
53p	EPA	The newly released NSW Acid Sulfate Soils Management Advisory Committee's Acid Sulfate Soils Manual should be referred to for technical and planning advice on ASS when finalising the proposed ASS management plan.	Noted. The 1998 NSW Acid Sulfate Soils Management Advisory Committee's Acid Sulfate Soils Manual will be referenced in the Acid Sulphate Soil Management Plan.

5.3.24 Property division and/or income

5.3.24 Property division and/or income			
Rep. Nr*	By Whom?	Issue	RTA Response
24a	Individual	A request is made to provide some form of security to the tenant to ensure that the house remains occupied until acquisition to prevent loss of income to the owner. To ensure occupancy up to acquisition, it may be necessary to permit occupancy until Dec 99.	Losses incurred by both owner and tenant will be addressed in accordance with the *Land Acquisition (Just Terms Compensation) Act* 1991.
24b	Individual	The second dwelling cannot be relocated on the block and rental income will be reduced.	If as a result of RTA acquisition, the property loses an existing building entitlement, then this issue can be addressed during the acquisition process.
24c	Individual	The property was acquired prior to capital gains tax legislation and the owner will lose some capital gains tax free status.	Noted. Payment of income tax on capital gains is a matter between the landowner and the Australian Taxation Office. Enquiries should be directed to that office for any roll over provisions relating to compensation for acquisition of land by a government authority.
24d	Individual	There is a request that the RTA consider using its powers to achieve a subdivision of the property with relocation of the greenhouse and preservation of the double rental income.	Subdivision does not seem possible with current zoning. See further acquisition issues below.
24p	Individual	The perception of inconvenience by tenants of the red roofed house is sufficient to reduce the rental value.	The design of the project has now been considered in more detail, and construction should cause a minimum of disruption and nuisance. Access would be maintained at all times. Acquisition negotiations would take issues such as this into account.
24q	Individual	Compensation would be sought if the red house were to be vacant due to letting difficulties during works and since the rent had not risen in order to retain or find a tenant.	Refer to 24p.
24t	Individual	The encirclement of the flat area of land by the proposed and existing highways will create a very isolated site.	Noted, but the traffic reductions on the existing highway to the west of this property will ease this affect considerably. To the extent that factors such as this impact on the market value of the residue, acquisition negotiations would take them into account.

5.3.25 Pre-construction Issues

5.3.25 Pre-construction Issues			
Rep. Nr*	By Whom?	Issue	RTA Response
27g	State Government	It is essential that future responsibilities of property owners, Council and the RTA are agreed to prior to construction where altered arrangements for property access are provided.	See issue number 27a (Section 5.3.20).
27h	State Government	It is essential that RTA and Councils agree on revised road status. Correspondence between the RTA and Coffs Harbour Council should commence as soon as possible.	See issue number 27a (Section 5.3.20).
29bj	NPWS	It is recommended that activities, particularly clearing, should be minimised or avoided during the nesting period of the Osprey located adjacent to the proposed works (Appendix E).	Accepted and included in the SISSIR (Table A3, page xxix).
63g	NRMA	The NRMA suggests that a detailed waste management plan should be developed before commencement of construction. The plan should include, where possible, measures for the reduction, reuse and recycling of waste material.	Noted. To be discussed in the Project EMP and included in detail in the Construction EMPs.
63h	NRMA	The EPA publishes an annual waste recycling directory which could assist with the location of recycling companies that may be prepared to use some of the waste material. The NRMA suggests that the RTA or successful construction contractor should contact the EPA for a copy of this directory. This measure should also be included in the waste management plan.	Noted. To be included in the Project and Construction EMPs.
63n	NRMA	There appears to be no mention in the EIS about the maintenance responsibilities of the existing highway and proposed service road. This issue should be resolved prior to construction of the new highway to ensure that the existing highway is suitably maintained for use by local traffic.	Negotiation with the Coffs Harbour City Council will be undertaken to resolve responsibilities.
63u	NRMA	The NRMA has raised issues in the areas of environmental management, landuse, social planning and road design. These issues should be addressed prior to the construction of this project.	All issues have been addressed elsewhere under appropriate sections.

5.3.26 Options

5.3.26 Options			
Rep. Nr*	By Whom?	Issue	RTA Response
11a	Individual	The Representation provided strong supprt for the proposed project and the EIS, in particular the selection of the LEP corridor through Bonville.	Noted.
11c	Individual	There may be some dispute over table 4.5 (EIS, p4.15) in that the 165 existing residences which would have a reduction of 5dBA should perhaps not have been added to the B option. Also, the B2 option appears to be better than the other new options.	In terms of noise rankings, the difference between the various options was a minor one only (Table 4.5, EIS). The option B2 ranked at 269 and the B3 (preferred) option ranked at 274. As the range of rankings for the various options was from 262 to 284, there appeared to be very little difference between the options in relation to acoustic performance. The assessment of noise impacts alone did not provide sufficient information to distinguish between the alternatives.
11g	Individual	LEP route favoured over Option A by more than the reported 2:1 ratio (p4.23).	The selected B3 option which is a variation of the LEP option was favoured approximately 2:1 in responses to the PPK survey of residents (Refer to Section 4.6 of the EIS).
11h	Individual	Advantageous aspects of the LEP route were not fully reported. These aspects include the advantage of such a barrier to Bongil Bongil N.P. from domestic animals, unsupervised children and the dumping of refuse and garden waste as well as access for firefighters.	Noted but not considered as major advantages, as these positive aspects could also be offset by some negative edge effects such as noise, weed invasion, fire risk etc.
30c	Individual	Option B2 is preferred because of the lower impact on the respondent's property.	Option B3 was chosen in preference to Option B2 because of the reduction to environmental impacts (refer to Chapter 4 of the EIS on route selection). The extra impact resulting on this property is acknowledged.
31c	Individual	On page 5-9 of the EIS the old LEP is shown as affecting the property and that changes in the new plan (Option B3) have been small. This does not correspond to the changes on the Northern section to save replanted bush.	Error acknowledged. Adoption of B3 would have increased impacts on this property.

5.3.27 Property Value

5.3.27 Property Value			
Rep. Nr*	By Whom?	Issue	RTA Response
12f	Individual	There is a concern about the possibility of sale of property in the future.	The RTA is prepared to negotiate for total acquisition in accordance with the *Land Acquisition (Just Terms Compensation) Act* 1991, RTA policies and further consultation. (See further Representation No. 26 and response in Section 5.3.14).
16b	Individual	Compensation is requested for the second house on the property to be constructed to an equivalent size and standard of the original building by a reputable builder and with proper landscaping.	If the existing second house entitlement is lost, then this will be considered in the valuation/negotiation process.
30b	Individual	The present proposal reduces the value of the land and house.	Any injurious affection flowing from the proposed roadway will be compensated by assessing the reduction in value of the residue property.
49ah	Individual	Property values will suffer as a result of the proposal.	Refer to 30b.
58a	Individual	As a result of the new highway and bridge, the property will be devalued.	Noted. The property is not directly (physically) affected. Although noise mitigation will be offered to the owners, no financial or other compensation will be provided.

5.3.28 Visual aspects

5.3.28 Visual Impacts			
Rep. Nr*	By Whom?	Issue	RTA Response
11f	Individual	On Option A the almost complete loss of trees and the building of up to 6 lanes, would have a greater impact than the LEP route as there is less space for the use vegetation screens (p4.22).	Acknowledged. This was taken into account in selecting the B3 option which consists of 4 lanes with an alignment designed to minimise impacts on flora and fauna.
12a	Individual	The proposed earth barrier would eliminate a tree lined corridor which the landholder has nurtured. There are no dimensions given for the proposed barrier.	Visual impacts are acknowledged although only part of the tree lined corridor is affected. Intensive landscaping is proposed to replace tree loss. Height (4 metres) and location of noise barrier is given in Table 5.4 (page 21) of Appendix M "Noise Study".
24m	Individual	The view from the red house's eastern verandah will be of a raised off ramp to Archville Road at an approximate height of 2-3m with significant decrease in the quality of view.	The considerable distance (approximately 200 metres) plus landscaping of ramp will soften this significantly (refer to Figure 5.5 of the EIS).

5.3.28 Visual Impacts			
Rep. Nr*	By Whom?	Issue	RTA Response
49bg	Individual	The northern outlook will be invaded by '...direct foreground views of the acoustic barriers' (p7-15, vol.1).	Noted. Landscaping is planned to soften this.

5.3.29 Erosion and Sedimentation

5.3.29 Erosion and Sedimentation			
Rep. Nr*	By Whom?	Issue	RTA Response
23l	DLWC	A detailed erosion and sediment control plan will need to be compiled prior to works commencing. While no licence is required under the Rivers and Foreshores Improvement Act 1948 and the Vegetation Conservation Act 1998, work will still need to conform to these Acts.	Acknowledged. An Erosion and Sediment Control Plan will be developed as part of the Construction EMP.
23m	DLWC	Roadside batters should be 1:2 (v:h) or less where possible to reduce erosion and aid vegetation.	Acknowledged and noted for final design.
46h	Aust Hertiage	The Environmental Management Plan should specify environmental protection measures to be implemented well before works commence or at least progressively with works. Having a lot of bare soil left exposed when the machinery moves onto the next section runs the risk of massive soil movement if significant rainfall occurs.	Section 6.5.3 of the EIS covers this issue extensively. A Soil and Water Management Plan will be prepared by the contractor. Further development and inclusion in Project and Construction EMPs are proposed.
60c	Business	The movement of sediment from Titans Quarry and the generation of acid and toxic runoff is of concern because the quarry drains through the owners property.	Refer to 60a (Section 5.3.3). This quarry is not proposed for use.

5.3.30 Traffic

5.3.30 Traffic			
Rep. Nr*	By Whom?	Issue	RTA Response
25a	Individual	The EIS fails to address the issue of increased use of Butlers Road as a 'short cut' between the highway and Gleniffer Road.	The EIS does not state anticipated increased use of Butlers Road. Section 5.3.4 of the EIS refers to changes in the priority of the intersecting roads and to Archville Station Road in relation to the existing Highway. This Road would provide the new connection to Bonville from the south. The proposed roundabout would give equal priority to all legs of the intersection. Considerable consultation was undertaken

5.3.30 Traffic			
Rep. Nr*	By Whom?	Issue	RTA Response
			with Coffs Harbour City Council (CHCC) on the issue of the potential traffic increase in use of Butlers Road. CHCC preferred this intersection option as the southern Bonville connection to the highway. CHCC acknowledged some redistribution of traffic on local roads as a result of the project overall, but did not consider that traffic increase on Butlers Road would be significant other than that which would occur by part of normal growth in the area. In the longer term, the Council has indicated that monitoring will be undertaken and appropriate measures taken. Any upgrading of Butlers Road would be Coffs Harbour City Council's responsibility.
25b	Individual	The proposed roundabout at this intersection will encourage increased use of Butlers Road.	Refer to 25a.
25h	Individual	Some of the sections of Butlers Road are very narrow and unsuitable for heavy traffic.	Refer also to 25a. No increase in heavy traffic is anticipated. Present usage is a matter for Council.
25k	Individual	There is no speed limit on Butlers Road and many vehicles travel at high speed on it.	Refer to 25h.
63k	NRMA	The EIS states, in Section 5.2, that the route will provide for a "signposted speed of 100km/h, with a possible increase to 110km/hr in the future". It is unclear what this statement actually means. If it means that motorists could easily and safely travel at 110km/hr in a 100km/hr speed zone (as the local conditions are conducive to this higher limit) then this issue should be resolved now rather than in the future.	The Proposal will be designed to be suitable for 110kph. Whether the limit is set at 100kph or 110kph will depend on statewide zoning policies appropriate at the time and no final decision will be made at this stage. It is possible the initial speed limit will be 100kph, increasing later as long lengths of high standard road are completed.
63l	NRMA	The setting of appropriate and consistent speed limits should enhance community acceptance of the posted limit. The logic behind the speed zones should be apparent to drivers.	Agreed. Refer to 63k.

5.3.31 Cumulative Impacts

5.3.31 Cumulative Impacts			
Rep. Nr*	By Whom?	Issue	RTA Response
29dk	NPWS	Cumulative impacts should address the following: loss of poorly conserved vegetation/forest types; increase of barrier effects between the coastal plain and the hinterland escarpment; and loss of habitat in an area of high biodiversity (S6.3.9).	Accepted and addressed in the SISSIR (Section B7.0).
35l	Interest Group	The impedence of flow of fauna is in direct conflict with the Principle of Intergenerational Equity.	The Principle of Intergenerational Equity namely "that the present generation should ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations" is considered in the EIS. The flow of fauna across the highway is maintained by a 60m wide faunal overpass, underpasses and, for aquatic fauna, the spanning of Pine, Bonville and Reedys Creeks by bridges.
35m	Interest Group	The whole proposal is in conflict with three of the Principles of Ecologically Sustainable Development (The Precautionary Principle, Inter-generational equity, conservation of biological diversity and equity) either in part or in full.	The Principle of Intergenerational equity is considered above in 35l. The Precautionary Principle namely "that if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation" is considered throughout the EIS and SIS. Measures to prevent environmental degradation form an integral part of the Proposal and include options for faunal movement across the Highway as described in 35l, revegetation and widened medians to provide access by gliders across the highway . The RTA, in conjunction with the NPWS, is developing a compensatory habitat package for those effects which mitigation cannot fully address. The Principle of biological diversity and ecological intregity is considered in the EIS and SIS by the measures described above.
49ab	Individual	By the year 2011 an estimated 34,000 vehicles will pass per day. This is in sharp contrast to the present clean and silent environment and cannot be accepted.	The predicted increase in traffic is acknowledged, but appropriate air and noise criteria will be met. Refer to 49o and 49r.

5.3.32 Bicycle Track

5.3.32 Bicycle Track			
Rep. Nr*	**By Whom?**	**Issue**	**RTA Response**
41e	Individual	It is hoped that safe bicycle access to Coffs and Bellingen via the Pacific Highway and and/or bicycle tracks will be secured as part of the upgrade of the Pacific Highway.	Shoulders on the new highway are 2.5 metres wide and designed to provide for cycling. The old highway will provide a preferred alternative route.
42g	Interest Group	The community hopes that safe bicycle access to Coffs and Bellingen via the old Pacific Highway and/or bicycle tracks will be secured.	The old highway will provide an alternative route.
43h	Individual	Safe bicycle access to Coffs and Bellingen via the old Pacific Highway and/or bicycle tracks are suggested as part of the upgrade.	Refer to 42g.
50o	Interest Group	A proposal is made for establishing a Cycleway Trust Fund (page 7 of the Representation).	Not accepted. Full details are provided in the accompanying Supplementary Route Selection and Design Report.

5.3.33 Socio-economic Impacts

5.3.33 Socio-economic Impacts			
Rep. Nr*	By Whom?	Issue	RTA Response
49ag	Individual	The EIS contains an inadequate analysis of the socio-economic impacts on the health of residents who have made a deliberate choice to live away from the intrusive nature of a major highway.	Socio-economic impacts are dealt with in detail in Section 4 (Route Selection) and Section 7.7 of the EIS. The EIS acknowledges that residents close to the new route will experience a deterioration in current amenity. Personal circumstances of the residents will also be taken into account in assessing compensation and/or the need for total acquisition. Refer to 49bc (Section 5.3.12).
49ay	Individual	The proposal will impact on the energy efficient design of the home. It would greatly increase the cost of living because of the need to provide artificial cooling and heating.	Noted. This could be considered in assessing compensation if a partial acquisition were requested by the owners.
49bd	Individual	Many of the valuable features of the property including the vegetable garden, food trees and planted natives will be lost.	Noted. To be considered in assessing compensation.
58b	Individual	The completion of the highway may be up to five years away. The landholders consider that this would be too long to wait for the sale of their property and wish to move prior to works commencing.	The property is not physically impacted and accordingly acquisition by the RTA is not proposed.
63o	NRMA	With the proposed bypass being designated as a road corridor in the 1988	Noted. The proposed route, being essentially that which is included in Coffs

5.3.33 Socio-economic Impacts			
Rep. Nr*	By Whom?	Issue	RTA Response
		Coffs Harbour LEP, integration with local strategies to accomodate subsequent residential development in this high growth region should be pursued to reduce short and longer term impacts on the community.	Harbour City Council LEP is in accordance with current local town planning objectives. Confirmation of this route would provide certainty for further planning in the vicinity.
63q	NRMA	The EIS indicates that the potential impacts of reduced through traffic on existing businesses along the existing route are unclear. However, the proposed bypass provides the opportunity to consolidate local urban and economic development in Bonville, as the population increases in the area with the uptake of rural residential developments.	Acknowledged.

5.3.34 Loss of Business

5.3.34 Loss of Business			
Rep. Nr*	By Whom?	Issue	RTA Response
49ae	Individual	The landholders' will suffer a loss of income from their extensive native gardens because of the effects of smog.	The effects of smog on the native gardens are similar to those affecting growth of vegetables. As described in 49ac, the growth of vegetation would not be affected by the proposed Highway.

5.3.35 Licences

5.3.35 Licences			
Rep. Nr*	By Whom?	Issue	RTA Response
23h	DLWC	Realignment of Reedy Creek will require a licence under Part 2 of the Water Act 1912. Contact Mr John Finlay (02) 66402111 as soon as possible after the EIS has been determined to avoid delays in processing the application.	Acknowledged - applications for appropriate license(s) would be made.
23i	DLWC	Realignment of any other watercourses will also require licencing under the Water Act.	Acknowledged - applications for appropriate license(s) would be made.
23k	DLWC	Under the new Native Vegetation Conservation Act 1997 and the Roads Act, no licence is required to clear Protected lands within 20m of a prescribed stream or on steep lands with >18° slope.	Acknowledged. The application of this provision to land not proclaimed as road is unclear and licencing may be required.

5.3.36 Signage

5.3.36 Signage			
Rep. Nr*	**By Whom?**	**Issue**	**RTA Response**
4b	Individual	Concern that the signage be of such a standard that visitors to Bundagen not mistakenly use Reedys Forest Road.	Appropriate signposting will be provided. This will be determined at the final design stage.
29cx	NPWS	It is not clear which locality is referred to in the EIS which states that Koala warning signs will be erected "along the service road link". Koala warning signs should be erected along all service roads where fauna fencing is erected (S5.3.13).	The existing highway is retained as a local service road with lower volumes and speeds of traffic. The areas referred to in particular are Pine Creek State Forest and just north of the Titans Road intersection. This is discussed in Section 6.4 (Koala Management) Page 6-34 of the EIS. Inclusion of Koala warning signs would be addressed in the Project EMP.

5.3.37 Road Classification

5.3.37 Road Classification			
Rep. Nr*	**By Whom?**	**Issue**	**RTA Response**
62a	Road classific-ation	The EIS does not seem to fully address the proposed status of the existing sections of the Pacific Highway, which will remain to act as Service Road and local access to the new highway alignment.	This is covered throughout the EIS. Refer to "Need for the Proposal" (Section 3), "Assessment of Route Options" (Section 4) and "Description of the Proposal" (Section 5.3.1). The formal status of the old highway is referred to in 62b.
62b	Road classific-ation	Coffs Harbour Council seeks a commitment from the RTA that the remaining sections of the Pacific Highway and connecting roads to the new highway will be designated as Regional Roads.	The future status of the existing highway (regional or local) will be determined in accordance with RTA policy and guidelines and will be discussed with Coffs Harbour City Council.
62c	Road classific-ation	Council is currently preparing a Development Control Plan for the North Bonville residential area between the NPWS land (which is to be joined to Bongil Bongil National Park) and Lyons Road. Confirmation of the Highway route, land acquisitions and possible rezoning in this vicinity is required as soon as possible.	Noted. Further discussions will be held with Council following project determination to confirm the route, acquisitions and any required rezoning.

5.3.38 Privacy

5.3.38 Privacy			
Rep. Nr*	By Whom?	Issue	RTA Response
16e	Individual	The loss of privacy both during and after construction should be compensated for by the construction of a man proof noise barrier along the Highway.	A noise barrier is not effective in this location due to the topography. Intensive and dense landscaping will be provided along this section to provide privacy. Fauna exclusion fencing will be placed south of East Bonville Road. Help telephones will be placed along the highway and these will reduce the need for persons seeking assistance from residences along the route.
24n	Individual	Removal of the vegetation on the existing verge will diminish the visual amenity from the red house and remove the privacy screening.	Replacement landscaping is proposed. The house has trees planted close to it for screening at present (see Figure 5.5 of EIS).

5.3.39 Feral Animals

5.3.39 Feral Animals			
Rep. Nr*	By Whom?	Issue	RTA Response
29al	NPWS	Statements in the SIS with regards to feral animals should be assessed for consistency (S5.3.6).	Addressed in the SISSIR (page xxvii).
29am	NPWS	Some discussion needs to be provided on predation by the European Red Fox as this has been added to Schedule 3 of the TSC Act as a Key Threatening Process (S5.3.6).	Addressed in the SISSIR (page xxvii).

5.3.40 Visibility

5.3.40 Visibility			
Rep. Nr*	By Whom?	Issue	RTA Response
49aq	Individual	The impact of thick fogs near the property and the possible hazard to speeding drivers needs to be considered.	Noted. The incidence of fogs is unlikely to be significantly different between the proposed route and the existing highway.

5.3.41 Area

5.3.41 Area			
Rep. Nr*	**By Whom?**	**Issue**	**RTA Response**
29bm	NPWS	The number of hectares affected by the proposal has not been provided (DGR1.1).	This has been incorporated into the SISSIR (Table A3, page xxxviii).
29de	NPWS	The amount of land to be cleared should be quantified for the entire route and the amount of land owned by NPWS for removal should be quantified.	Accepted and included in the SISSIR. NPWS has been given details of its property (cleared and total) required for the Proposal.

5.3.42 No Issue

5.3.42 No Issue			
Rep. Nr*	By Whom?	Issue	RTA Response
6	Individual	Supports project.	Noted.
17	Interest Group	Mr McOrist wished to have recorded that the Bonville United Residents Group supported the Project.	Acknowledged.

5.3.43 Fencing

5.3.43 Fencing			
Rep. Nr*	**By Whom?**	**Issue**	**RTA Response**
18a	Individual	The property fencing is requested to be allocated as close as practicable to the top of the embankment.	Fencing would be provided at the property boundary.

5.3.44 Bridge Construction

5.3.44 Bridge Construction			
Rep. Nr*	**By Whom?**	**Issue**	**RTA Response**
23g	DLWC	A method statement complying with the requirements of relevant authorities is to be compiled prior to the commencement of bridge construction.	Acknowledged. This issue will be addressed in the Construction EMP.

5.3.45 Vehicle Lights

5.3.45 Vehicle LIghts			
Rep. Nr*	**By Whom?**	**Issue**	**RTA Response**
24k	Individual	Lights from increased traffic making right hand turns off the old highway onto Archville Station Road will sweep the block .	Turning traffic is at a lower level than the property, therefore minimal light intrusion is anticipated. Also, landscaping provisions will assist to minimise any effect.

5.3.46 Lighting

5.3.46 Lighting			
Rep. Nr*	**By Whom?**	**Issue**	**RTA Response**
24l	Individual	Lighting above the roundabout and new interchange will diminish the rural amenity at night.	Lighting would be shielded, as far as possible, to reduce spillage and glare. This issue would be included in the detailed design plan and in the Project EMP.
63m	NRMA	The warranted locations for street lighting should be specified in the EIS and should include rest areas such as Mailmans Track.	Lighting at interchanges and, if necessarey, in the tunnels, is the only proposal at this stage. Lighting of rural rest areas is not proposed.

5.3.47 Climate

5.3.47 Climate			
Rep. Nr*	**By Whom?**	**Issue**	**RTA Response**
29cm	NPWS	Inadequate detail is provided about the climate (Appendix 3 DGR Survey techniques).	Addressed in the SISSIR (Table 4, page xxxviii).

5.3.48 Effects of Options

5.3.48 Effects of Options			
Rep. Nr*	By Whom?	Issue	RTA Response
15f	Individual	The proposed route west of the existing highway may destroy a more diverse habitat than would a route east of the present highway.	Various route options have been considered. The route proposed is determined to an extent by the project already constructed to the south. Impacts on flora and fauna are minimized by following the existing highway corridor as closely as possible. For further details

5.3.48 Effects of Options			
Rep. Nr*	By Whom?	Issue	RTA Response
			refer to Chapter 4 of the EIS and the Supplementary Route Selection and Design Report which accompanies this Representations Report. The alignment has been moved slightly to the east and the median has been narrowed to reduce impacts to the diverse habitat in two forest gullies. Refer also to additional study Report on the Assessment of Bellingen Environment Centre Inc Submission (Appendix 10).

5.3.49 Geology and Soils

5.3.49 Geology and Soils			
Rep. Nr*	By Whom?	Issue	RTA Response
3a	State Government	NSW Department of Mineral Resources has nothing further to add to its previous submission (of 13.10.97) which recommended that the EIS include consideration of • The demand for construction materials for use in highway construction, and the possibly cumulative impact on sources of supply in the district • Future access to the Pacific Highway from existing quarries • The possibility that highway development could open up opportunities for short or long term quarry development adjacent to the proposed by-pass and whether road design could incorporate provisions for future quarry access.	Acknowledged. The demand for materials for this project is anticipated to be satisfied easily by existing sources. For this project there is likely to be a balance of earthworks and therefore the pavement materials are all that are required to be imported. The Draft Cumulative Impact Study has identified that for this vicinity generally, road building material supply is far in excess of that required for the highway construction. On this basis, it is expected that materials would be available in sufficient quantities for other uses of this resource. The exception is sand. Supply of sand is problematic for the construction industry on the North Coast, not in terms of the amount available, but in terms of the fact that it is concentrated at a small number of quarries. Therefore, haulage distances increase the cost of the resource available for some locations. Future access to the highway will be available via all existing roads to the major interchanges on this Proposal. No other access points are proposed in the future.

5.3.50 Timing

5.3.50 Timing			
Rep. Nr*	By Whom?	Issue	RTA Response
31a	Individual	The EIS on page 5-31 states, in the starting schedule, that the Northern Section will commence in April 1999. The owners are under the understanding that the starting date may be 2000 and this will extend the period of uncertainty.	Error acknowledged. The proposed starting date is in the year 2000 according to the indicative construction schedule. Property negotiation can commence soon after determination of this EIS.

5.3.51 Location

5.3.51 Location			
Rep. Nr*	By Whom?	Issue	RTA Response
31b	Individual	Figure 5.4 (p5-12) is considered to be misleading as it indicates that the property is unaffected by the proposed Motorway.	The error in the oblique aerial photomosaic is acknowledged. However, the aerial photograph and plan Figure 5.1f shows the location accurately.

5.3.52 Integrated Transport

5.3.52 Integrated Transport			
Rep. Nr*	By Whom?	Issue	RTA Response
5a	State Government	Little or no attention has been paid to the impact of the proposal on current public transport services. Impacts on school bus services have not been assessed.	Consultation has been undertaken with both schools and the whole Bonville community regarding bus, pedestrian and bicycle travel. There are no negative impacts on current public transport and school bus services as routes are not affected. Significant improvements in traffic and safety conditions will result on both the new highway and the old highway as a result of traffic segregation, design standards and speed environments.
63r	NRMA	To accommodate future urban growth, it is important that adequate access points east-west across the proposed bypass allow future access to integrated transport services such as bus and rail links to local and regional centres (such as Boambee, Toormina and particularly Coffs Harbour).	Current access is maintained and improved to an extent through reductions in traffic on the old highway. Access from Bonville to transport links in Toomina, Sawtell and Coffs Harbour is available via Lyons Road without entering the new highway.

5.3.53 Interim Deferred Forest Areas

5.3.53 Interim Deferred Forest Areas			
Rep. Nr*	By Whom?	Issue	RTA Response
29df	NPWS	No discussion is presented regarding Interim Deferred Forest Area (IDFAs) in Pine Creek Forest (S6.3.5)	Addressed in the SISSIR (page 28).

6 Additional Investigations Undertaken after the Exhibition of the EIS

A total of ten additional studies or reports were completed for the Bonville Proposal following exhibition of the EIS. These studies and reports were prepared in response to issues raised in representations, changes to legislation and continuing consultation with authorities, interest groups and the community. Studies were commissioned with a view to investigating the means of eliminating or, further, reducing the impacts identified.

The studies and reports provided in response to issues are the following:

1. **Species Impact Statement Supplementary Information Report (SISSIR):** The SISSIR reports on additional field work undertaken since the exhibition of the EIS, assesses the impacts of modifications to the Proposal and provides additional information on mitigation measures. As well, this report contains:
    - **Aquatic Ecological Assessment:** An eight part test was undertaken to address the requirements of the newly introduced *Fisheries Management (Amendment) Act* 1997.
    - **Wetlands Evaluation:** The Evaluation considered the impacts of the Proposal on the wetlands in the vicinity of the Proposal and any likely impacts on SEPP 14 Wetlands downstream of the Proposal.

2. **Compensatory Habitat:** A paper was developed in response to representations from stakeholders which outlines considerations in the assessment of areas for compensatory habitat.

3. **Preliminary Field Investigation for Indigenous Heritage Report:** A preliminary indigenous heritage field assessment was undertaken along the route described in the *Supplementary Route Selection and Design Report* (Section 7 of this Representations Report).

4. **Noise and Vibration Assessment Supplementary Information:** Amelioration measures and individual treatments to residences potentially affected by construction and operational noise are provided in this report.

5. **Construction Compounds/Temporary Batch Plants:** Additional information about potential sites and environmental impacts at these sites are provided.

6. **Ecological Assessment of the Bellingen Environment Centre Inc. Alternative Route through Pine Creek State Forest:** As part of the response to the Bellingen Environment Centre representation, an ecological assessment of the BEC alternative route was undertaken in order to provide fauna and flora information.

7. **Response to the Bellingen Environment Centre Inc. Representation:** Findings from the Ecological Assessment were incorporated into the overall assessment of the BEC alternative route and a comparison between this and the Proposal was provided.

8. **Risk Assessment of Twin Tunnels in Pine Creek State Forest:** A risk assessment was undertaken for the vehicular twin tunnels associated with the proposed faunal overpass. This study is discussed in Section 8 with the Route Selection and Design Report.

6.1 Species Impact Statement Supplementary Information Report (SISSIR)

An SISSIR (Appendix 3) was provided in response to requests for additional information from NSW National Parks and Wildlife Service (NPWS) and from other stakeholders. The information required related to compliance with the TSC Act, the requirements of the Director-General for NPWS and comments from NPWS. As well, representations provided by stakeholders in response to the exhibition of the EIS and SIS and assessment of impacts of the proposed modifications to the original Proposal have been included in this SISSIR. The RTA commissioned Biosis Research Pty Ltd to undertake this work (through the principal consultant PPK Environment and Infrastructure Pty Ltd).

All additional threatened flora and fauna species listed in a review of the '8-Part Test' undertaken by Smith and Smith (1998) on behalf of DUAP were considered in Sections B 5.1 (Terrestrial Flora) and B5.2 (Terrestrial Fauna) of the SISSIR.

6.1.1 Results of the SISSIR

Compliances: Information, establishing compliance of the SIS with the requirements of the *TSC Act,* is provided in the SISSIR (Part A, Table A1, p iii-ix) for the original Proposal and in Part B, information about the modified Proposal is summarised in Section B6.1 (of the SISSIR).

Information, establishing the compliance of the SIS with the requirements of the Director-General for NPWS, is provided in Part A (Table A2, p x-xix). Additional information, in response to NPWS comments received (9.9.98), is given in Part A, Table A3 (p xx-xxx).

The issues, raised in the review of the SIS commissioned by DUAP from P. and J. Smith Ecological Consultants (November, 1998), are dealt with in Part A (SISSIR, Table A4, p xxxi-xxxiii).

Further clarification of the SIS based on comments provided by Mr Chris Moon are provided in Table A5 (SISSIR, p xxxiv).

As well, relevant sections of the *EP&A Act*, the *Threatened Species Conservation Act* 1995 and the *Fisheries Management Act* are addressed in Part B (SISSIR, Section 3.1, 3.2 and 3.3 respectively) and assessments are provided (Section B5.0). In response to representations made, the design has been revised to further reduce impacts identified. These modifications are the subject of a separate report the Supplementary Route Selection and Design Report and a summary of the revised alignment and mitigation measures is provided in Section B6.0 of the SISSIR (p 31 onwards).

Impacts: Descriptions of the impacts associated with the proposed design modifications and amelioration measures are provided in Sections B7.0 and B8.0 respectively and monitoring is discussed in Section B9.0 (SISSIR, p 49 onwards). The Aquatic Ecological Assessment and Wetland Evaluation reports are dealt with separately below but were incorporated in the SISSIR as part of the overall assessment of the impacts of the Proposal on the fauna and flora.

6.1.2 Outcomes of the SISSIR

P. & J. Smith Review: It was found that *Thesium australe,* considered in the P. and J. Smith review, was unlikely to be present as there is no suitable habitat within the study area for this species. Additional information has been provided for six endangered and vulnerable species. It was considered the Eastern Chestnut Mouse would be unlikely to be affected by

the Proposal as habitat for the Mouse does not exist along the Proposal although potential habitat may be found in swampy areas within Bongil Bongil National Park (SISSIR, p35). The comb-crested Jacana "would not be impacted by any alterations to the Proposal occurring in Pine Creek State Forest" (Section B7.1.1) and as the Regent Honeyeater, the Eastern Cave Bat and the two owl species (Grass Owl and Barking Owl) were highly mobile species, any removal of potential habitat is not likely to significantly impact these species (Section B7.1.1, p 35). No caves suitable for roosting Eastern Cave Bats are known from within the proposed corridor (ibid.)

Amelioration: Two Rusty Plum individuals would be removed (Section B7.1.1, p35) and it is proposed that these individuals be relocated.

- Barrier effects and fragmentation were considered in the revised design and modifications include a major faunal overpass, a major faunal underpass, a shared underpass and a culvert, a vegetated median along approximately 60% of the route through Pine Creek State Forest, major bridges at Bonville, Reedys and Pine Creeks (Section B7.1.2, p 39).
- Additional amelioration in Section B8.0 addresses impacts on Rusty Plums (B8.1.1, p43) and compensation for habitat loss (B8.2.1, p 44)
- The Giant Barred Frog (listed as Vulnerable in Schedule 2 of the *TSC Act*) was identified at Pine Creek during the original studies for the SIS. Amelioration measures are recommended in Table A3 (pxxix) of the SISSIR.

Compensation for net habitat loss: The RTA and NPWS are currently developing a package for compensation. A paper dealing with compensatory habitat is discussed in Section 6.4 and a copy of this paper is provided in Appendix 4.

6.2 Aquatic Ecological Assessment

In its representation, NSW Fisheries requested further information about the potential impacts on aquatic organisms in Pine, Reedys and Bonville Creeks at the proposed crossings and in wetlands adjacent to the Proposal. Additional information concerning the creek crossings is contained in the Aquatic Ecological Assessment. This report accompanies the SISSIR (Appendix 3 of this Representations Report). W.S. Rooney and Associates Pty Ltd undertook the study on behalf of the RTA through the principal consultants, PPK Environment and Infrastructure Pty Ltd.

An assessment of the habitats in the three creeks is provided and the potential likelihood of occurrence of fish species listed in the 1997 amendments (Schedules 4-6A) to the *Fisheries Management Act* 1994 is discussed and an 8-part test for those four species listed under the Act has been made.

6.2.1 Result of the Aquatic Ecological Assessment

8-Part Test: It was concluded that, within the study area, suitable habitat occurs for up to three of the listed threatened species (the Oxyleyan pygmy perch, the Honey blue-eye and the Eastern cod). The assessment and 8 Part Test indicated that these species are not likely to be significantly affected by the Proposal (Aquatic Ecological Assessment, p21). As well, currently, there are no threatened populations or ecological communities on the schedules of the Act and no critical habitat listed.

Other Species: Seven species listed either by the Australian Society for Fish Biology, or as 'potentially threatened' and protected under the *Fisheries Management Act* 1994, or near the limit of their geographical range were considered might utilise aquatic habitats under consideration. While these species are not declared or listed in schedules, their possible occurrence in the study area would be of scientific and ecological value. However,

modifications to the proposed construction methods have been made in response to aquatic habitats in the three creeks and the modified Proposal is not considered likely to significantly impact any of the listed or additional seven species (Aquatic Ecological Assessment, p23).

Outcomes of the Aquatic Ecological Assessment

The outcomes of the Aquatic Ecological Assessment are as follows:

- **8 Part Test:** The 8-Part Test does not reveal that a significant impact on threatened fish species is likely (Aquatic Ecological Assessment, p21).
- **SIS:** The RTA would not be required to undertake an SIS for aquatic species for the Proposal.
- **NSW Fisheries 'sign off':** NSW Fisheries concur that the project is unlikely to have a significant impact on the declared threatened species of fish in NSW (NSW Fisheries letter, 20.4.99, page 2) and the RTA would continue to liaise with NSW Fisheries during the construction and early operation phases of the project in terms of:
  - culvert design and placement across waterways to ensure that hindrance to fish passage is minimised, and site drainage, tidal inundation and areas of wetland are minimally impacted;
  - the review of the water quality monitoring program;
  - minimising the impacts of construction of waterway crossings on aquatic organisms and marine vegetation.
- **Mitigation Measures:** The proposed bridges for the crossing of Bonville, Reedys and Pine Creeks would ensure that long-term impacts on fish passage, isolation or habitat would be avoided (Aquatic Ecological Assessment, p21).
  - Seagrasses: A survey for the presence of seagrasses indicated that the nearest seagrasses were several kilometres downstream of the Proposal.
  - Mangroves: It is not expected that mangroves would be removed or trimmed during construction or operation of the Proposal. However, if this should be necessary, then the RTA would submit an application (to NSW Fisheries) seeking approval for the removal of mangroves.
  - Paperbarks: It is expected that some paperbarks would be removed and great care so as not to damage the understorey and submerged or floating vegetation will be required (Aquatic Ecological Assessment, p7).
  - Water Quality: The RTA would avoid unacceptable impacts on water quality in all waterways during the construction phases.

6.3 Wetland Evaluation

Details of a supplementary study to determine whether the Proposal would be likely to significantly affect wetland areas is provided in a report, Wetland Evaluation by Biosis Research Pty Ltd. This report is provided as an appendix to the SISSIR which is bound into this Representations Report as Appendix 3. The RTA commissioned Biosis Research Pty Ltd, through the principal Consultant PPK Environment and Infrastructure Pty Ltd, to undertake this study.

6.3.1 Results of the Wetland Evaluation

Habitats: Four wetland areas were located along the Proposal. These are Wetlands 1 and 2 on Reedys Creek, Wetland 3 south of East Bonville Road, Wetland 6 (north of East Bonville Road), and, Wetlands 7 and 8 (Bongil Bongil Swamp).

Issues: Issues identified related to:

- The exclusion of native fauna species from the wetland

- The alteration of fish and amphibian habitat at the Reedys Creek bridge locality
- The exclusion and loss of vegetation at the crossing locality resulting in a cumulative loss of wetland habitat on a catchment scale at Reedys Creek
- Maintenance of water quality and natural hydrology
- ASS management
- Maintaining the status of downstream SEPP 14 No. 344

6.3.2 Outcomes of the Wetland Evaluation

Mitigation Measures: The first three issues have been addressed by inclusion of a bridge crossing at Reedys Creek as an alternative to the original (culvert) crossing. The bridge crossing is expected to have only limited impacts at the crossing locality and an insignificant impact on downstream wetland habitats (Wetland Evaluation, p12). Passage under the bridges would limit the impact on fish and amphibian habitat at the crossings.

Maintenance of water quality and natural hydrology: This would be achieved by underlying with permeable rock layers to maintain sub-surface flow and would be supplemented by pipes at Wetland 6.

Wetland Function: The hydrology of wetlands on Reedys Creek would be maintained by construction of twin 60m bridges and placement of a permeable rock layer underneath the northern part of the carriageways contained within the oxbow lagoon. At Wetland 3, function and hydrology would be maintained by provision of the bridge crossing and underlining of the southern approach of the road with a permeable base. At Wetland 6, pipes and a permeable rock layer underneath the road crossing would maintain hydrologic flow. At Wetlands 7 and 8, permeable rock layers would be used to underlie the culvert construction.

ASS and Water Quality Management: PASS exposure at Reedys Creek would be reduced/avoided by:

- Driving the central piers of the bridge to avoid exposure of soils to air;
- Encasing the piles with metal sleeves (Wetland Evaluation. p13);
- Incorporating the ASS strategy in the Soil and Water Quality Management Plan for all sites;
- During construction, the ecosystem of Wetland 6 would be preserved as far as practicable, by isolating the construction site with Geotextile fabric (Wetland Evaluation, p15);
- Traps and screens could be used to prevent matter from being washed or blown into Wetland 6 (ibid., p15);
- At Reedys Creek, tree stumps would be left and the trunks removed carefully to minimise disturbance.

6.4 Compensatory Habitat

In consultation with NPWS and in response to representations from stakeholders, the RTA commissioned a discussion paper on compensatory habitat for this Proposal. The paper was developed by Biosis Research Pty Ltd in consultation with NPWS and a copy of the paper is provided in Appendix 4 of this Representations Report.

General agreement has been reached with NPWS regarding the principles of compensation and the availability of suitable land although some issues remain to be resolved. A copy of correspondence between the RTA and NPWS is provided in Appendix 11 of this Representations Report. It is intended that this process will not be advanced further until it has been decided whether or not the Proposal should proceed.

6.4.1 Results of the Compensatory Habitat Paper

The compensatory habitat paper identifies those elements of the Proposal for which mitigation/minimisation of impacts are not possible. These include:

- the impacts which fencing and underpasses may have on ground dwelling mammals and gliders
- the removal of key habitat.

Subsequent to the development of this paper, design modifications described in the accompanying Supplementary Route Selection and Design Report (summarised in Section 7 of this Representations Report) further mitigated impacts on wetlands, glider and koala population and ground dwelling mammal impacts. The remaining impacts relate to loss of key habitat and consultation with NPWS will continue in this regard.

6.5 Preliminary Field Investigation for Indigenous Cultural Heritage Report

This report provides information about preliminary field investigations undertaken to determine whether the modifications to the Proposal would impact on Indigenous cultural heritage sites. This work was undertaken by Mr Liam Dagg (NPWS – RTA Assessment Team) in consultation with the Coffs Harbour and District Local Aboriginal Land Council. A copy of the report is provided in Appendix 5 of this Representations Report.

6.5.1 Results of the Indigenous Heritage Report

If any Indigenous Heritage sites were located in the study area, they would most likely be

- isolated stone artefacts;
- stone artefact scatters (open campsites);
- scarred or carved trees; burials; and/or
- ceremonial sites (stone arrangements, bora rings).

In considering these:

- The presence of scarred or carved trees is considered unlikely, due primarily to the history of logging within the study area;
- Stone arrangements, bora rings or burials would be more likely to be present along the crest of ridges and spurs, particularly the main ridge and a large proportion of this land unit has been disturbed by previous land use practices such as logging, existing roads and trails and an optic fibre cable alignment;
- Isolated artefacts and/or stone artefact scatters (open camp sites) may be present anywhere across the landscape although these are most likely to be present on side slopes.
- If stone artefacts are present they are most likely to occur in low densities as the area does not contain the resources that would support long term of intensive occupation by Aboriginal groups.

In accordance with accepted survey practice, only a small part of the total study area (7.1%) was covered in the survey discussed by the current report. Consequently, in order to mitigate for the small area covered, a further check will be undertaken during the early construction phase, should the Proposal proceed.

6.5.2 Outcomes of the Indigenous Heritage Report

Of the four possible groups of Indigenous sites from the Proposal area, sites containing low density artefact scatters are the most likely. In terms of the area it was concluded that:

- No further investigation be undertaken of the study area for items of Indigenous cultural heritage, prior to commencement of the construction phase;
- On commencement of the construction phase, a representative of the Coffs Harbour and District LALC be engaged to monitor the clearing of vegetation within the study area, and following this, undertake a further inspection of the ground surface within the study area. In the event that cultural material is recovered, work should cease immediately in this area, pending the implementation of mitigation measures that are considered appropriate by the LALC and NPWS. (*The RTA will undertake to do this or institute such other protocols as may be agreed between RTA and NPWS during the licensing process for a 'consent to destroy'*).

6.6 Noise and Vibration Assessment Supplementary Information Report

Supplementary information relating to noise and vibration was commissioned by the RTA from Wilkinson Murray Acoustical Consultants through the principal consultant PPK Environment and Infrastructure Pty Ltd. The full report, Noise and Vibration Assessment Supplementary Information by Wilkinson Murray Pty Ltd (March 1999), is provided as Appendix 6 of this Representations Report.

Information provided includes a review of:

- **Treatment of residences:** for all affected residences and it includes the range of potential treatments to each property/residence.
- **General construction noise:** with a review of noise impacts expected and mitigation measures proposed in view of the predicted construction noise levels.
- **The Noise Management Plan:** for the construction phase.

6.6.1 Results of the Noise and Vibration Assessment Supplementary Information Report

Treatment of residences: For each residence a basic layout was obtained which identified living areas. Orientation of each building to the Proposal was considered in both plan and elevation and the degree of cut and fill and other noise mitigation measures were considered.

General construction noise: The EIS for the Proposal identified that there would be a substantial increase in noise levels for protracted periods during construction. To provide an indication of the likely noise levels, assumptions have been made about the likely construction methodology of the construction contractor. It was predicted that noise levels would exceed the EPA criteria by varying amounts when construction occurred at the closest locations to each residence. At some residences, predicted noise levels are higher than 70 dBA and more than 10-15 dBA above the EPA criteria.

Noise Management Plan: Prior to the construction phase commencing, it would be necessary for the construction contractor to prepare a noise management plan as part of an overall Construction Environmental Management Plan.

6.6.2 Outcomes of the Noise and Vibration Assessment Supplementary Information Report

Representations addressed: Concerns raised in the representations to the EIS regarding noise issues have been addressed.

EPA Approval and EMP: The RTA will obtain approval from the EPA prior to construction. This will include the preparation of a Construction Environmental Management Plan which will contain a Noise Management Plan. This Noise Management Plan will need to identify measures to minimise the impact of construction noise.

Mitigation Measures: Affected properties identified in the Noise and Vibration Assessment Supplementary Information Report are the subject of a number of mitigation options described in the report.

Noise Mitigation: In the areas of Gould Road, Archville Station Road, East Bonville Road and Williams Road barriers would be constructed as early as possible during the construction phase. The remaining residences that have been identified as requiring treatment would have individual residential treatments offered to the owners as part of the mitigation of traffic noise. It is recommended that these treatments would be installed prior to construction in order to provide a benefit during construction.

Residences where individual treatments would be offered are:
1509 Pacific Highway
50 Archville Station Road
55 Archville Station Road
65 Archville Station Road
69 Archville Station Road
75 Archville Station Road
8 Gould Road
20 Gould Road
36 Gould Road
45 Gould Road
47 Gould Road
110 East Bonville Road
128 East Bonville Road
136 East Bonville Road
142 East Bonville Road
158 East Bonville Road
159 East Bonville Road
189 East Bonville Road
59 Grandis Road
93 Grandis Road
157 Bonville Station Road
73 Williams Road
108 Williams Road
128 Williams Road
129 Williams Road
130 Williams Road
5 Herdegen Close
7 Herdegen Close.

Noise Management Plan: The Construction Contractor will prepare a Noise Management Plan. The following issues will be addressed in this plan:

- Installation of noise treatments at each residence would be undertaken by the RTA in advance of construction.
- Construction of roadside noise barriers, as soon as practical, within the construction programme.
- Use of the quietest appropriate construction plant available.

- Minimum noise requirements to be achieved for all plant items prior to their use on site.
- Continuing monitoring of noise levels from plant items to ensure continued compliance and maintenance of plant occurs
- Continuing attended monitoring of noise levels at the nearest residences.
- Review of construction methodology (based on noise monitoring results) to identify and implement recommend mitigation measures.
- Use of temporary screens around fixed plant where practicable.
- Notification of residents of significant changes in construction methodology or any evening or night time activities.
- Provision of a contact number for site personnel to enable them to receive and handle complaints.
- Commitment to deal with complaints promptly and to investigate measures to resolve them.
- Provision of necessary data and reporting to satisfy EPA requirements.

6.7 Construction Compounds/Temporary Batch Plants Report

A report which discussed the potential impacts and provided site option criteria for construction compounds and temporary batch plants associated with the Proposal was commissioned by the RTA. PPK Environment and Infrastructure Pty Ltd undertook this work a copy of which is provided in Appendix 7.

6.7.1 Results of Construction Compounds/Temporary Batch Plant Report

Potential impacts for both construction compounds and batch plants were identified as being related to:

- runoff;
- dust; and,
- noise and vibration.

On the basis of identified potential impacts, site option criteria identified a number of general areas which might be unlikely to satisfy requirements:

- In the northern section of the Proposal, areas proximal to wetlands, watercourses and houses;
- Areas identified as within 100 year flood limits.

In the southern section of the Proposal, potential areas would be limited to those where clearing would be restricted to the footprint required for the proposed works.

The following sites could be broadly suitable for a construction compound and/or a concrete batch plant:

- The proposed heavy vehicle inspection bay site;
- The existing heavy vehicle inspection bay;
- The south west corner of Archville Station Road Interchange at the approximate chainage 96.8km;
- The eastern side of the proposed Grandis Road cutting at the approximate chainage 99.0km (not suitable for compound);
- The eastern side of the proposed Highway between Bonville Station Road and Bonville Creek at the approximate chainage 99.5km;
- The eastern side of the proposed highway south of Lyons Road.

6.7.2 Outcomes of Construction Compounds/Temporary Batch Plant Report

Location of Batch Plant Sites: Areas of exclusion and six potential sites have been described. These six potential sites would not necessarily be used. Other sites may be used if the contractor can demonstrate that effective mitigation of impacts can be achieved.

Additional Environmental Assessment: The RTA would obtain and assess a site specific Review of Environmental Factors for the construction site(s) and batch plant(s).

Mitigation Measures: As part of the Review of Environmental Factors the environmental safeguards outlined in the Report (Construction Compounds/Temporary Batch Plant Report, p11-13) would be included, as appropriate, to minimise any adverse environmental impacts. The list covers the mitigation measures relating to:

- Water quality and runoff;
- Air quality;
- Nuisance;
- Noise and vibration;
- Waste.

6.8 Ecological Assessment of the Bellingen Environment Centre Inc. Alternative Route through Pine Creek State Forest

A representation by the Bellingen Environment Centre (BEC) outlined alternatives to the proposed route and to Pacific Highway planning in general. The BEC alternatives were proposed as having less environmental impact than the exhibited Proposal and included:

- A route 200 to 300 metres east of the proposed Highway through Pine Creek State Forest;
- A southern interchange to replace the proposed Mailmans Track interchange;
- A 150 metre long bored tunnel.

The RTA commissioned an ecological assessment of the BEC alternative route and this was undertaken by PPK Environment and Infrastructure Pty Ltd and Mr Chris Moon (independent consultant). Habitat value, in particular koala habitat values, were assessed for the BEC alternative route. As well, a further brief assessment of the RTA Proposal alignment was conducted at the same time by the same team members to provide a direct comparison between the modified Proposal and the BEC alternative route. A copy of the Ecological Assessment is provided in Appendix 8 of this Representations Report.

6.8.1 Results of the Ecological Assessment of the BEC Alternative Route in the BEC Representation

- The RTA Proposal and the route outlined in the BEC representation contained a similar number of total over storey trees;
- Over storey species composition is similar for the RTA Proposal and the BEC alternative route. It was found that the BEC alternative route ran through selectively logged regrowth with a greater diversity of species than indicated on existing NSW State Forests' maps;
- Age class distribution of trees within the surveyed (BEC) area was mainly uniform. Most sites exhibit an over storey tree population with less than 40% of all trees being small trees;

- Koala habitat value varies considerably throughout the forest along the BEC alternative route;
- Both the RTA Proposal and the BEC alternative route would impact on koala habitat. The RTA Proposal basically follows the existing Highway and thus avoids cutting through a completely untouched area not already impacted;
- There appears to be a larger proportion of habitat types such as hollows in large trees, dead trees, large hollow stumps and fallen logs in the RTA Proposal corridor than along the BEC alternative route;
- There are more rainforest elements along the RTA Proposal than along the BEC alternative route;
- The BEC alternative route exhibits a selection of ecosystems from dry ridge eucalypt woodland to moist *Ghania* habitat and gully systems with associated rainforest and eucalypt species. The extent of forest clearing for this route is greater (30 hectares) than the RTA Proposal (25 hectares);
- The BEC alternative route would result in further fragmentation of the forest and introduction of edge effects into an additional area.

6.8.2 Outcomes of the Ecological Assessment of the BEC Alternative Route

- An assessment of the ecological integrity of forest for both the Proposal and the BEC alternative indicate that forest along the former may be termed remnant forest but it is still marginally more intact and ecologically diverse than the eastern (BEC) side; however, the difference is not as great as initially expected from a review of the State Forests' Forest Maps.
- Forest along the BEC alternative route appears, to be remnant forest rather than mainly plantation forest.
- Vegetation along the RTA Proposal has a marginally higher ecological value than that along the BEC alternative route. Much of the latter exhibits substantial disturbance; however, many localised areas are relatively intact.
- The BEC alternative route would result in greater fragmentation and provide opportunities for edge effects in a completely new area. In contrast, the RTA Proposal lies close to the existing alignment and these impacts are minimised.
- Fragmentation of the forest away from the existing Highway could be expected to affect koala populations not currently affected by the area of the existing alignment.

6.9 Report on the Assessment of Bellingen Environment Centre Inc Submission

A representation from the Bellingen Environment Centre Inc (BEC) proposed alternatives to aspects of the exhibited RTA Proposal. As well as the ecological impacts discussed in Section 6.8 above, a number of other effects of the BEC alternatives have been identified. In order to assess the feasibility of the BEC alternative route, the RTA commissioned a review of the potential environmental impacts and the cost to the project. This was undertaken by PPK Environment and Infrastructure Pty Ltd. A copy of the full report is provided in Appendix 9 of this Representations Report.

6.9.1 Results – Engineering Assessment

Realigned Route

- The BEC representation would require the reconstruction of the northern end of the Rayleigh Deviation Project (rock cutting, pavement changes) and would include additional impacts on private property.

- There would be an increased accident risk associated with the interchange design suggested by the BEC.
- Four ramps would be required to provide access for an interchange and fauna underpass.
- The BEC option is of greater length (100 metres) and area (5 ha) than the Proposal and would lead to greater fragmentation of the forest and greater potential impact on koala populations.

Heavy Vehicle Inspection Bay
The BEC representation suggests placement of the vehicle inspection bay at Boambee, north of this project in order to reduce forest clearing and to ensure that trucks joining the Pacific Highway at Gleniffer Road and travelling north are tested. This would have the effect of having the potential to:

- Produce noise and other residential impacts;
- Minimally reduce the environmental impacts as the inspection bay for the Proposal is located within the existing highway;
- Reduce the possibility of intercepting northbound traffic using Lyons Road to Toormina, Sawtell and Coffs Harbour.

As well, the feasibility of the alternative site in terms of design, property and environmental issues would need to be assessed.

Bridges over 1 in 100 year Floodplain
The BEC representation includes bridging all areas below the 1 in 100 year flood level. The impacts would have the potential to reduce the widths of footprint clearing and property acquisition but to increase the noise impacts.

The bridge network suggested in the BEC representation would require approximately 1,8000 metres of additional bridging. The Response to the Bellingen Environment Centre Inc Representation Report considered that the additional bridges were feasible but would be at an additional cost of $50 million and this would be prohibitive.

Depth of Cuts
The BEC alternative route would raise the Highway to reduce the depths of several cuttings. As a consequence of this, the level of the road over low-lying areas would be raised between Archville Station Road and Bonville Station Road. Further raising of the levels in the Proposal was considered during the concept design stage and it was found that clearances beneath overbridges would become difficult to achieve and total land take would be increased.

Raising the Highway would:

- increase the impact of the road on properties adjoining the Highway through :
  - Noise impact both during construction and during operation of the Highway
  - Visual impact of embankments associated with raising the road level.
- increase the bridge costs.

Additional Noise Barriers
The BEC representation suggests replacing fauna exclusion fencing on the eastern side of the Highway between Bonville Creek and Lyons Road with a noise barrier.

There are no public facilities within the proposed National Park, but the NPWS has indicated that picnic facilities are planned for an area approximately 1.5 kilometres east of the Highway. The EPA noise criteria for passive recreational reserves would be met for the current Proposal outside a 250 metre wide strip adjoining the proposed Highway.

The BEC option would have the potential of reducing the visual amenity along the 1 kilometre frontage of the National Park.

Interchange at Southern End of Pine Creek State Forest / Underpasses within Pine Creek State Forest
An interchange at the southern end of Pine Creek State Forest was included in the BEC representation to replace the RTA Proposal of the Mailmans Track Interchange and underpasses were included in the BEC alternative at every gully and underpass within the Forest.

Generally the options were considered feasible, except at minor gullies but topographical constraints would make the position of the interchange undesirable. Impacts were recognised with regard to:

- the potential for fauna to be adversely impacted by shared usage with traffic on the highway interchange;
- the visual impact of the BEC suggestion would be greater than the RTA Proposal.

Tunnel Under Overhead Bridge Road
The BEC alternative route includes a 150 metre bored tunnel to minimise surface clearing. Bored construction is considered to be impracticable due to:
- the limited cover over the tunnel;
- the variable geology including weathered rock; and,
- the consequent problems with tunnelling equipment and methods.

Bridge on the existing Pacific Highway near Titans Close
The BEC alternative route suggested a bridge crossing on the existing Pacific Highway at Titans Close to provide for movement of fauna and humans and to provide a flood free access from Bonville to Coffs Harbour. This was considered feasible but was not considered necessary as:

- A fauna underpass would allow safe movement of the fauna north of Herdegen Close and reduced use on the existing Highway would provide safer crossing of both humans and fauna on the old road.
- A specifically designated slow zone would be provided on the old Highway near Titans Close.
- Flood modelling for a 1 in 100 year flood indicated that flood free access would be provided in the RTA Proposal.

6.9.2 Results – Environmental

Flora and Fauna
This is considered in more detail in Section 6.8.

South of Pine Creek:
- The BEC alternative route would extend through forest of only marginally less ecological value and which contains several different localised ecosystems.
- In terms of koala habitat values, evidence suggests that the BEC alternative route traverses marginally higher habitat value forest.
- The BEC alternative route would cause greater fragmentation of the forest.

North of Pine Creek:
- Additional fauna passage as suggested in the BEC representation is not in accordance with the findings of field studies which identified significant faunal corridors.

- Route alignment refinements, bridges, culverts, water quality facilities and use of permeable base layers are included in the Proposal and it would not be necessary to fully bridge all floodplain areas to achieved the required reduction in environmental impacts.
- The raised road design in the BEC representation would increase the footprint widths and the total amount of clearing.

Visual

Differences in the visual impact of the Proposal and BEC alternative route occur in two main areas:

- Within Pine Creek State Forest where the Proposal includes the Mailmans Track Interchange and the BEC alternative route lies to the east
- In the northern section of the BEC alternative route where the level of the highway would be raised to decrease the depth of cuttings.

For the former, the BEC alternative interchange would require both the northern and southern ramps to be extended into cuttings adjacent to the interchange with consequent additional footprint and visual impacts.

For the northern section of the project, visual impacts would be significantly increased.

Heritage

No indigenous nor non-indigenous cultural heritage sites are known at present from the route suggested by the BEC representation. Identification of any areas of possible heritage significance would rely on further detailed site studies.

Air and Water Quality

Air quality impacts would not be significant for either the RTA Proposal or the BEC suggestion.

For water quality:

- Overall, the BEC suggested design would not have significantly different impacts;
- Additional mitigation measures may be required around the Gahnia swamp located beside/under the route suggested in the BEC representation;
- The BEC suggested design may require additional water quality measures in the area of a catchment that flows directly into Pine Creek;
- The bridges suggested for areas below the flood level north of Pine Creek would reduce embankment construction in the floodplain and have a favourable impact on water quality during construction.

Noise

The following observations were made with respect to the likely impacts of the route outlined in the BEC representation:

- Properties adjacent to the northern section would experience increases in noise as fills would be higher and cuttings would be shallower than for the RTA Proposal, and therefore additional mitigation measures would be required;
- In the southern section of the route, the BEC design would increase road noise levels at one residence on the corner of the existing Highway and Perrys Road.

The Effects on Property and Land Use

- The modifications for the BEC alternative route would require additional acquisition of land in the northern section if bridges were not constructed over the floodplain.
- In the southern section, south of Pine Creek, the BEC alternative route would require an additional acquisition (about 37 hectares) in the area adjoining the southern limit of the State Forest. Approximately 2 hectares of this would be from a private property holder

some of whose property has already been acquired from the same holding for the Raleigh Deviation.

- If separate carriageways and a vegetated median similar to those of the RTA Proposal were included for the forest area, then 44 hectares would need to be acquired (compared with 37 hectares for the Proposal) and 32 hectares would need to be cleared (compared with about 30 hectares for the Proposal).
- Fragmentation of forested areas by the BEC alternative route would reduce the productive area available for forest harvesting and would impact on fire control and land management by State Forests.
- Weed infestation of the fragmented areas through the increase in edge effects would be a likely impact.

Compensatory Trust Funds

The BEC representation proposed that several trust funds be raised as environmental compensation for the project.

The development of trust funds by the RTA is not within the scope of this Proposal. The environmental impacts have been carefully assessed. Minimisation or mitigation of environmental impacts would be provided for the Proposal.

Cost

The BEC alternative route changes would increase the project cost by approximately $77 million (Response to the Bellingen Environment Centre Inc Representation, p20). Full details are provided in the report.

6.9.3 Outcomes of the Report on the Assessment of Bellingen Environment Centre Inc Submission

The BEC representation was considered in terms of engineering, environment and cost. An extensive and detailed summary of the suggested options is provided in terms of feasibility, impacts and costs in Section 4 of the Response to the Bellingen Centre Inc Representation.

In summary, the BEC alternative route appears to have additional impacts which include:

- Faunal impacts relating to greater fragmentation of habitat
- Edge effects in an area unaffected by roads previously
- Difficult topography in the forest area which would require adjustments such as long ramps and additional measures to reduce accident potential
- An additional cost of $77 million which would be prohibitive
- Exposure of residences to greater traffic noise through reducing the area of cuts
- New impacts on properties south of the State Forest in addition to the acquisition impact already experienced from the Raleigh Deviation.

7 Modifications to Proposal

7.1 Design Issues/Modifications - General

As a result of issues raised in the representations in response to exhibition of the EIS and in consultation with NSW NPWS and other stakeholders, a number of modifications have been incorporated into the Proposal. These are described in the accompanying Supplementary Route Selection and Design Report commissioned by the RTA from the principal consultant PPK Environment and Infrastructure Pty Ltd. The report also clearly demonstrates the reasons for selection of the alignment exhibited in the EIS and the steps which led up to this selection. A copy of this report is provided in Appendix 10.

In the following sections, the modifications are set out progressively from south to north along the Proposal.

7.2 Design Issues/Modifications – Highway Alignment and Cross Section

Location

The southern section of the Proposal between the northern end of the Raleigh Deviation and Pine Creek is considered here. It is located approximately from chainage 92300 to chainage 96200.

Design Development

The NPWS raised concerns about overall forest impacts and that the Proposal would provide a barrier to the Squirrel Glider population on this section of the Proposal. In consultation with NPWS, an on-site inspection was made on 12 November 1998 and various options were considered (Supplementary Route Selection and Design Report, p10, 11).

To provide more and safer opportunities for gliders to cross the Highway, modifications to the exhibited EIS include:

- vegetated medians associated with independent carriageways have been provided in the northern part of the forest;
- the alignment has been moved slightly to the east;
- the width of the carriageway has been reduced in the southern section;
- features such as steeper batters, regrading through the forest and wire rope safety barriers have been changed or incorporated into the design.

The forest buffer adjoining the Proposal is proposed to be protected from harvesting through negotiated changes to the Pine Creek State Forest Harvest Plan.

The modified alignment as shown in the Supplementary Route Selection and Design Report remains within the corridor which was described in the EIS as the preferred option and these design developments provide additional mitigation measures to those provided in the EIS.

Features	Overall Impacts
• The median opposite Mailmans Track in the southern section would be narrowed.	Loss of habitat would be reduced.
• A wide median in the northern part of the forest would be included in the Proposal.	Preservation of existing, mature vegetation in the median and revegetation including large trees would increase opportunities for crossing by gliders and birds.
• Additional trees would be planted in the median; however, overall vegetation loss would increase due to this revision from approximately 23 hectares (to approximately 25 hectares).	While the proposed medians would lead to an overall increase in vegetation loss, greater crossing opportunities for gliders would be provided. Overall, the inclusion of a wide median in the Proposal will benefit an additional faunal group.
• Regrading near the Mailmans Track interchange would reduce earthworks and hence width of clearing.	Habitat clearing would be reduced further through this feature.
• Two in one (2:1;Horizontal : Vertical) fill batters would be used throughout the forest.	This feature would consistently reduce clearing in line with the regrading and narrowing of the median, where appropriate. An overall benefit would accrue through habitat preservation.
• Mature vegetation would be located on both sides of the highway and in significant sections of the median.	Preservation of mature vegetation, where appropriate, supports the other features for minimising environmental impacts in Pine Creek State Forest.
• Visual amenity would be improved giving the appearance of a Forest Drive.	This was largely presented in the original EIS and would be reinforced by the design modifications to retain as much mature vegetation as possible.

7.3 Design Issues/Modifications – Service Road Alignment and Cross-Section

Location

The existing Pacific Highway would form a service road for the proposed Highway. In the modifications to the Proposal, the alignment of three sections of this service road would vary from the alignment shown in the EIS:

- between the northern end of the Raleigh Deviation and Pine Creek (southern section);
- a portion of service road adjacent to Titans Close and Herdegen Close (part of northern section);
- Strouds Road in the northern section of the Proposal.

Design Development

From a field inspection, areas of better vegetation were identified for preservation and design modifications to enable this preservation include the following:

Southern section: Regrading of the service road between Perrys Road in the south and the Sid Burke Rest Area in the north reduced the cleared width and height of embankments required. As well, local speed control measures would be provided by:

- Narrowing the width of the service road pavement
- Entry threshold treatments; and,
- Additional signs and linemarking leading up to the area.

Titans Close – Herdegen Close: A slow zone control area has been proposed near Herdegen Close and Titans Close in a known faunal corridor and this would support a proposed fauna underpass adjacent to this location.

Strouds Road: A minor realignment is proposed which would provide direct access to Strouds Road from one property.

Features	Overall Impacts
• In the southern section, for the service road between Perrys Road and Sid Burke Rest Area: • regrading has reduced the heights of fills.	Habitat clearing would be minimised through modification of the vertical alignment.

• For the service road link between Mailmans Track Interchange and the Sid Burke Rest Area:
  • lane and shoulder widths have been reduced;
  • a slower speed environment would be provided through Pine Creek State Forest where fauna are expected to cross the service road.
	Modifications to the service road have enhanced habitat preservation and the existing crossing opportunities for fauna have been made safer.

• In the northern section, for the road near Herdegen Close/Titans Close: • slow zones would be included.	Fauna crossing points identified in the EIS and SIS are supported by the inclusion of slow zones on the service road near Herdegen Close/Titans Close.
• Strouds Road alignment would be changed to provide direct access to one property with an associated repositioning of the access to two other properties.	The alignment change to Strouds Road would affect three properties with the most benefit accruing to the property (business) situated closest to the Highway.

7.4 Design Issues/Modifications – Wire Rope Safety Barriers

Location

Along the Proposal.

Design Development

In support of the modifications to the Proposal, a wire rope safety barrier has been adopted as the preferred safety barrier system except in narrow median sections and where guardrail and concrete barriers would be required.

Inclusion of wire rope safety barriers in the Proposal, has the advantage of providing greater retention of vegetation on the verges and medians and would be used on:

- Narrow median sections between six to ten metres wide (adjoining Overhead Bridge Road)
- Inner road shoulders on the independent carriageway section
- Outer road shoulders in fill sections.

Features	Overall Impacts
• Since the exhibition of the EIS, wire rope safety barriers have been adopted as the preferred barrier throughout the Proposal.	This would support the retention of vegetation where appropriate and would minimise habitat clearing; thereby providing an overall environmental benefit to the Proposal.
• Guard rail and concrete barriers would be used where wire rope would not be suitable.	This impact would be the same as that for the concrete barriers proposed in the EIS (p5-14).

7.5 Design Issues/Modifications – Fauna Crossings

Location

Along the proposal at chainages 92.7, 93.5, 94.0, 94.9, 96.2, 96.7, 97.5, 99.7, 101.3 (Supplementary Route Selection and Design Report, p17).

Design Development

A number of representations raised issues relating to the number and type of faunal crossings in the Proposal. In addressing these issues further studies have been undertaken (included in the SISSIR, Appendix 3) and the type and location of several of the fauna underpasses have been changed to support known crossing corridors. As well, arboreal animals have been considered by the inclusion of a wide median in Pine Creek State Forest and in the provision of a 60 metre wide overpass at chainage 94.0 at the approximate midway position through the forest section.

Bridges at chainages 94.9 (in Pine Creek State Forest) and 99.7 (at Bonville Creek) were lengthened to include 10-15 metres of crossing area beneath the bridge and a bridge

replaces the culvert at the Reedys Creek crossing (Supplementary Route Selection and Design Report, p17).

Features	Overall Impacts
• A 60 metre wide vegetated fauna overpass would be provided at chainage 94.0 in the approximate midway position along the route in Pine Creek State Forest (Section 7.7 below).	This feature, additional to underpasses proposed in the EIS, would provide additional mitigation for barrier effects.
• The proposed fauna underpass (twin bridges) at chainage 93.8 would be relocated to the gully further south to chainage 93.5 to improve spacing between various crossings. The arch crossing at 93.8 in the EIS (page 5-20) would not be included in the Proposal.	This adjustment to the position of the underpass described in the EIS would provide a better spacing of crossing opportunities and further minimise barrier effects. Provision of an underpass at 93.5 and an overpass at 94.0 would improve the overall opportunities for crossings.
• Twin two span 60 metre bridges replace the originally proposed culvert crossing of Reedys Creek (discussed in Section 7.6).	As described in Section 7.6, both instream and subsurface water flows would be improved with this modification to the Proposal.
• Speed control measures or slow zones would be provided on roads adjacent to the Highway near the fauna overpass in Pine Creek State Forest and near Titans Close / Herdegen Close.	Fauna crossing points identified in the EIS and SIS are supported by the inclusion of slow zones on the service road near Herdegen Close/Titans Close (see Section 7.2).
• Fauna fencing has been amended to accommodate the revised fauna crossings.	This modification would have the same impact as the fencing described in the EIS (p 6-34).

7.6 Design Issues/Modifications – Reedys Creek Crossing

Location

At Reedys Creek, on the alignment of the proposed route (chainage 96.7).

Design Development

Subsequent to exhibition of the EIS and SIS, additional Aquatic Ecological Assessment and Wetland Evaluation studies were undertaken. Impacts identified included:

- Direct footprint impact on wetland areas
- Potential effects on faunal passage along Reedys Creek
- Subsurface water movement.

To address these general issues and the specific issues of aquatic fauna and flora, wetlands habitat, potential acid sulphate soil disturbance, twin 60 metre, two-span bridge would replace the culvert option of the EIS. To further reduce environmental impacts, vertical abutments would be incorporated into the design at each end of the bridge and free draining material

would be used beneath the northern abutment to minimise ground water impacts. Modified water quality control measures would be incorporated into surrounding areas.

Features	Overall Impacts
• The culvert crossing at Reedys Creek is replaced by twin two-span 60 metre bridges thereby providing improved passage for terrestrial and aquatic fauna.	The addition of a bridge crossing at Reedys Creek would minimise any changes to flow at that point in the creek. Provision under the bridge structure for crossings by terrestrial fauna would be additional to the proposed underpasses of the EIS.
• Impact on Wetlands 1 and 2 adjacent to and downstream of the Proposal would be reduced.	The improved hydrologic flow provided by the inclusion of the Reedys Creek bridge, would reduce environmental impacts at this location. The provision of a bridge crossing would reduce the impact of the footprint.
• Potential ASS contamination of waterways would be minimised.	The bridge structure would span areas identified as having the potential to generate ASS thereby reducing the likelihood of disturbance to these areas.

7.7 Design Issues/Modifications – Highway Tunnels (Fauna Overpass)

Location

On the proposed Highway alignment approximately one kilometre south of the Sid Burke Rest Area (chainage 94.0).

Design Development

To provide a safe crossing for arboreal and ground dwelling fauna, a fauna overpass (twin highway tunnels) has been included at a locality in Pine Creek State Forest approximately mid way along the route through the forest. The placement of this structure takes advantage of the existing topography to minimise the elevation differential between the surrounding forest and the overpass.

Cut-and-cover construction would be used and the area backfilled and revegetated once construction is complete.

A risk analysis was undertaken to consider the risk arising from routing Highway traffic through tunnels and the risk posed by the alternative of redirecting *Dangerous Goods* vehicles to service roads (Section 7.17 of this Representations Report).

Features	Overall Impacts
• Although there is a slightly increased risk of an accident due to the Highway tunnels, there is a significant benefit to fauna by providing a major, vegetated crossing point at a key location within the	There is a small negative safety impact of the twin tunnels associated with the inclusion of the overpass in the Proposal. There is an additional benefit to faunal

Features	Overall Impacts

forest.
 	
• Accident frequency in the tunnels and consequences of these accidents have been considered and a range of options are suggested to provide choices as to how to deal with these. These include:
  • Careful design of tunnel approaches
  • Concrete barriers and an appropriate clearance envelope within the tunnels
  • A three metre breakdown lane to each carriageway
  • Lighting within the tunnels
  • A fire proof drainage system discharging to a basin
  • Emergency phones located at a safe distance at both ends of the tunnels
	communities with the reduction of barrier effects across the Highway (see Section 7.5).
	Although complete mitigation of negative safety effects is not possible, safeguards to minimise adverse effects have been included with this modification to the EIS.

7.8 Design Issues/Modifications – Bridge Screening

Location

Along the route.

Design Development

Following exhibition of the EIS, the RTA proposes to include bridge screening on all bridges over the proposed Highway. The screening would minimise the risk of objects being thrown from bridges onto the carriageways.

Features	Overall Impacts
• Bridge screening would be provided on all bridges over the Proposal. • Screening would improve roadway safety.	Bridge screening would eliminate a safety issue which was identified after the exhibition of the EIS. The inclusion of screening would be beneficial to all road users.

7.9 Design Issues/Modifications – Help Telephones

Location

Along the Proposal.

Design Development

Since the exhibition of the EIS, the RTA has revised its policy on Help Telephones to include them in this Proposal. Help Telephones would be provided on both north and southbound

carriageways at approximately 3 kilometre intervals. Telephones would be provided at each end of the Highway tunnels associated with the faunal overpass in Pine Creek State Forest.

Features	Overall Impacts
• Help Telephones would be provided to both carriageways along the length of the Proposal;	Provision of telephones would improve safety along the roadway.

7.10 Design Issues/Modifications – Heavy Vehicle Inspection Bay

Location

In Pine Creek State Forest (chainage 94.7).

Design Development

Since the exhibition of the EIS, the RTA has revised the preferred design for heavy vehicle inspection facilities. As other design modifications have impacted upon the location of the inspection bay proposed in the EIS, the preferred design revisions have been included where possible.

As the Proposal has been moved slightly to the east, it has been possible to reposition the Heavy Vehicle Inspection Bay mainly on the old highway reserve. Clearing for the new position is limited mainly to areas identified as poorer quality vegetation east on the existing Highway.

Features	Overall Impacts

• The revised design of the Heavy Vehicle Inspection Bay includes:
  • An improved design with an increased inspection area length of 200 metres and a full acceleration lane for 325 metres;
  • Utilisation of the existing Pacific Highway road reserve so that less than 0.1 hectares of clearing would be required west of the existing Highway;
  • A total clearing requirement similar to the original Proposal but clearing would be mainly in poorer quality vegetation to the east of the Highway.
	The increased safety of the extended acceleration lanes and inspection area length.
	The slight change in siting (to the east) has provided an improved outcome with minimal clearing (less than 0.1 hectares) west of the Highway.
	Overall the modification is of positive benefit to the Proposal.

7.11 Design Issues/Modifications – Cross Highway Drainage

Location

Along the Proposed route.

Design Development

In conjunction with the alignment and design modifications and as a result of studies undertaken in wetland areas, improvements in cross Highway drainage include:

- Replacement of a single large multipipe culvert with 1200mm diameter reinforced concrete pipes for drainage into the dam behind Grandis Road. These concrete pipes would be divided into four culverts and these culverts would be spaced evenly across the width of the waterway (about 70 metres) to improve flow and circulation of water within the dam.

- In addition to the revised culvert design, provision of a permeable base layer beneath the roadway embankment would preserve existing ground water flows in the following areas:

    - Reedys Creek (chainage 96.7);
    - North of Gould Road (chainage 97.6);
    - Behind Grandis Roads (chainage 98.5);
    - Bongil Bongil National Park (chainage 100.5 and 100.7); and,
    - North of Herdegen Close (chainage 101.3).

- South of Pine Creek, culverts have been repositioned in response to the revised design and these modifications are summarised in Table 3.2 of the Supplementary Route Selection and Design Report.

Features	Overall Impacts
• The single multi-cell culvert behind Grandis Road has been replaced with four twin cell culverts.	The proposed modification to the type of culvert provided would enhance groundwater flow and improve the circulation of surface waters thereby minimising impacts.
• Permeable base layers would be included in the low lying areas where structures are being provided from Reedys Creek to north of Herdegen Close.	These base layers would enhance the flow of groundwater.
• South of Pine Creek culverts in the southern part of the Proposal have been repositioned in response to the revised alignment.	This modification would have no further impact on the Proposal.

7.12 Design Issues/Modifications – Water Quality Treatment

Location

Along the proposed route.

Design Development

The Water Quality Control Measures were reviewed for the southern section of the route following design modifications for that part of the Proposal:

- In Pine Creek State Forest, the vegetated median and buffer area between the proposed route and the service road would act as swales removing dissolved and suspended materials prior to dispersal.
- On the western side of the Highway, runoff from the Heavy Vehicle Inspection Bay would, firstly, be contained within the verge then, secondly, be treated in a water quality pond prior to discharge.
- At Reedys Creek and the Archville Station Road interchange, catch drains would be incorporated to divert storm water before it reaches the road pavement. Three water quality control ponds would be constructed on the banks of Reedys Creek.
- Treatments would be incorporated in areas where runoff would discharge into Pine and Bonville Creeks, Bongil Bongil National Park and the wetland areas east of Gould and Grandis Roads. Water quality treatment ponds are shown in Figure 3.10 of the Supplementary Route Selection and Design Report.
- Removal of the water quality control pond adjacent to the osprey nesting trees.

Features	Overall Impacts
• Highway runoff would be treated by vegetated medians and buffers acting as swales in Pine Creek State Forest prior to dispersal of water.	Measures for dealing with Highway runoff were given in the EIS (p6-40) and mitigation measures were proposed. No additional impacts have been identified and these features give further details of those originally proposed.
• Runoff from the Heavy Vehicle Inspection Bay area would be contained in the adjacent highway verge and subsequently in a water quality pond.	This impact was also identified and mitigation was proposed in the EIS (p5-23) of which this feature is a part.
• Drains and water quality control ponds at the Archville Station Road interchange and Reedys Creek would protect downstream wetland areas.	Since the exhibition of the EIS and SIS, additional studies (Aquatic Ecological Assessment and Wetland Evaluation) have identified areas of potential impact. Drains and water quality control ponds at Archville Station Road interchange and Reedys Creek would minimise impacts.
• Relocation of the water quality control pond adjacent to the osprey nesting trees would be included in detailed design plans	This relocation would reduce the potential effect on nesting osprey.
• Water quality control measures would be designed so as to minimise disturbance and maximise their effectiveness.	Mitigation for impacts was included in the EIS.

Features	Overall Impacts
• Facilities would be designed in accordance with The Constructed Wetland Manual (Department of Land and Water Conservation New South Wales, 1998) the RTA Road Design Guide Section 7, Stormwater Management and Drainage Design (RTA, 1998) and other relevant references.	Since exhibition of the EIS, additional information has become available in the form of guides and these would be used to provide the best possible outcome.

7.13 Design Issues/Modifications – Pavement

Location

Along the proposed route.

Design Development

The choice of pavement was made in accordance with the RTA's Pacific Highway Schedule of Design Policies and Specifications for the Construction of New Sections of Dual Carriageway and other pavement design guidelines appropriate to highways.

Key criteria for the pavement would be:

- High strength and long life
- Low maintenance
- High skid resistance
- Adequate texture for pavement drainage; and,
- Low noise.

Both concrete and deep lift asphalt were considered appropriate for these criteria and the selection of the highway pavement would be undertaken by the Construction Contractor through the detailed design of the project. At this stage of the project, for the purposes of impact assessment, a concrete pavement has been assumed for the carriageways. A length of 200 metres of open graded asphalt surfacing would be provided on the Bonville Creek bridge and its approaches (chainage 99.68 to 99.88) to reduce noise impacts on Williams Road properties.

Features	Overall Impacts
• For impact assessment, a concrete pavement has been assumed for the majority of the highway, with open grade asphalt over 200 metres across Bonville Creek Bridge and its approaches (chainage 99.68 to 99.88).	The selection of 200 metres of open graded asphalt surface on Bonville Creek bridge and its approaches would mitigate noise impacts on Williams Road properties. If asphalt surfacing is used throughout then typical noise levels would be slightly less than predicted.

7.14 Design Issues/Modifications – Noise Mitigation

Location

Along the proposed route, north of Pine Creek.

Design Development

Since the display of the EIS, consultation has been undertaken with all property owners identified as potentially affected by operational noise in excess of guidelines provided by the EPA Environmental Criteria for Road Traffic Noise. Possible treatment options to mitigate road noise impact are provided in detail in the Bonville Project Noise and Vibration Assessment Supplementary Report summarised in Section 6.6 of this Representations Report. Further consultation would be undertaken with affected property owners before actual treatments for each property were adopted.

Some omissions and errors in detail were identified in reviewing the EIS in relation to the location and type of noise mitigation measures proposed. These have been corrected and are summarised in Table 3.4 and Figure 3.11 of the Supplementary Route Selection and Design Report which accompanies this Representations Report (Appendix 10).

Features	Overall Impacts
• In addition to information available in the EIS, details of suggested treatments are provided in the accompanying Bonville Project Noise and Vibration Assessment Supplementary Report (Appendix 6 of this Representations Report) for all properties where exceedence of EPA goals was predicted.	Proposed noise mitigation measures have been amended since the exhibition of the EIS and mitigation measures have been identified for individual residences.
• Consultation is continuing in order to satisfy noise and vibration requirements during construction and operational phases.	Mitigation measures as outcomes of this consultation process would minimise impacts for these phases of the works.
• Noise impacts and mitigation options are more clearly defined.	Property owners are assured of adequate protection.

7.15 Design Issues/Modifications – Earthworks

Location

Along the proposed route.

Design Development

Earthworks volumes for the Proposal were re-calculated following the incorporation of other design modifications. The recalculated volumes were of the order of:

- Cut: about 1.6 million cubic metres; and,
- Fill: about 0.85 million cubic metres.

Allowing for compaction and other minor losses, a surplus of approximately 550,000 cubic metres would be expected. Based on limited geotechnical information, it is likely that a surplus of 400,000 cubic metres or more would require either disposal on-site or removal from the site.

Further design refinements were examined to reduce the volume of material spoiled. Options included:

- Flattening selected batters to four (horizontal) in one(vertical) slopes north of Pine Creek;
- Narrowing the cutting adjacent to Grandis Road, south of Bonville Station Road;
- Raising the road profile through the cut and fill sections adjacent to Grandis Road between East Bonville Road and Bonville Station Road; and,
- Raising the road profile to the north of Williams Road.

These modifications have been incorporated into the Proposal and bulk earthworks quantities were recalculated to be in the order of:

- Cut: approximately 1.25 million cubic metres; and,
- Fill: approximately 1.0 million cubic metres.

The design refinements were assessed to ensure that no adverse environmental impacts would occur overall. Impacts were considered which relate to:

- Clearing areas;
- Land requirements;
- Visual;
- Water quality; and,
- Noise.

On the basis of the minor changes, the cuts would be reduced and the fills would be increased. Impacts related to clearing areas, land requirements, visual impacts and water quality would not vary substantially from those identified for the EIS as the footprint of the works would vary very little (maximum of 1-3 metres) at any site.

Possible off-site disposal locations for surplus material were identified as:

- Coffs Harbour City Council Landfill Waste Disposal Depot at Englands Road;
- Proposed Coffs Harbour City Council playing fields at North Boambee Road.

These sites might account for 200,000 cubic metres and approval to use these sites would rely on current approvals for the landfill and playing fields.

With regard to noise impacts, shielding would be provided to adjacent properties by noise barriers in areas of fill, or by the natural shielding of the various cuts. An assessment of the effect of the new levels found that for all residents except one (73 Williams Road), noise levels would be slightly lower (0.5dBA). At 73 Williams Road there would be a slight increase in noise levels (up to about 0.5dBA) and this small increase would not be perceptible by the resident. As this property previously exceeded the noise criteria for this project and required individual treatment for compliance, no additional noise mitigation would be required to maintain satisfactory noise levels.

Features	Overall Impacts

• Modifications would lead to:
  • Cut: approximately 1.25 million cubic metres; and,
  • Fill: approximately 1.0 million cubic metres.
	Impacts with respect to cut and fill have been identified and details of mitigation would be finalised once detailed design plans have been finalised.

• A surplus of approximately 100,000 cubic metres would be subject to detailed design and additional geotechnical investigations.	As above.
• On site disposal of surplus material would be by constructing additional mounds and these would be landscaped.	As above.
• Haulage off-site (if necessary) would be included in the Construction EMP.	Haulage off-site (if necessary) would be undertaken with measures to mitigate, where possible, for adverse effects.
• No bulk haulage of earthworks would be required on local roads.	The impact on local residents would be minimised.
• Noise impacts would be of the order of 0.5dBA increase at one property and decrease at all other properties. Mitigation for the negatively affected property has been proposed previously.	Noise impacts would be slightly reduced at all but one property.

7.16 Design Issues/Modifications – Property Acquisitions and Adjustments

Location

Along the proposed route.

Design Development

Modifications to the Proposal have been developed to address various issues. To address these issues, boundaries have been reviewed and the area of land required has increased overall. The significant additions are required in:

- Pine Creek State Forest increasing from 34 to 39 hectares;
- Property of Mr S.R. Wood and Mr J.G. Wood increasing from 5 to 6.5 hectares.

In some areas along the Proposal the property requirement has been reviewed by the careful consideration of the extent of earthworks and features of the proposed design. Suitable areas for the construction of side tracks and temporary erosion and water quality ponds have been identified and these areas would be rehabilitated once these features were no longer required.

Features and Impacts

Features	Overall Impacts
• An overall increase of approximately 5 hectares in Pine Creek State Forest and 1.6 hectares in Mr S.R. Wood and Mr J.G. Wood property would be required to provide for the revised design.	The increases would have a negative impact on the property of Mr S.R Wood and Mr J.G. Wood. While there would be an overall increase in the footprint in Pine Creek State Forest, the design modifications were made to provide additional crossing opportunities for fauna.
• Temporary property requirements for sidetracks and temporary erosion and water quality basins have been identified in the Supplementary Route Selection and Design Report (Table 3.5).	Property acquisitions were reviewed and minimised where possible.

7.17 Risk Assessment of Twin Tunnels in Pine Creek State Forest

A risk assessment was commissioned by the RTA to assess the inclusion of twin vehicular tunnels forming the faunal overpass. PPK Environment and Infrastructure Pty Ltd undertook this study. A copy of the study is provided in Appendix 10 of this Representations Report at the end of the Supplementary Route Selection and Design Report.

A road safety analysis modelled future traffic uses of both the existing Pacific Highway route and the Proposal route. Hazard identification included determining all those conditions and events which are considered feasible and which have a sufficiently high frequency or probability and sufficiently serious consequences to add significantly to the general risk associated with highway use.

7.17.1 Results of the Risk Assessment

Two issues were recognised which were related to the inclusion of the twin tunnels:

- the increased risk to highway users specific to the use of the twin tunnels;
- the increased risk to the users of alternative routes, to local residents and others as a result of the possible associated redirection of selected traffic or diverting traffic in the event of the necessity of closing one or both of the tunnels temporarily.

The estimated frequency of accidents in above ground sections of the route, accidents in the tunnels involving private passenger vehicles and those involving commercial vehicles were considered. Risk Quantification involved estimating the frequency of hazards using statistics for road volumes on the Pacific Highway over the period 1970-95. and the use of statistics from the Yelgun to Chinderah project (Risk Assessment of Twin Tunnels in Pine Creek State Forest, p10).

7.17.2 Outcomes of the Risk Assessment Report

Risk estimates provided in the study indicate that:

- For the Proposal, the estimated risks are reduced to 3 times the planning guide (Environmental Risk Guidelines, Department of Urban Affairs and Planning, 1994) in the year 2000 and 5 times in 2016 for residences within 50 metres of the highway.
- For the existing highway, after construction of the Proposal, the estimated risks for the residential areas and the caravan park exceed the guidelines marginally in 2000 and by about 3 times in 2016.
- For redirection of dangerous goods with traffic around either tunnel, it is estimated that the guidelines for residential areas would be exceeded by more than 3 times in the year 2000 and by almost 6 times in 2016.
- The risk posed by either of the vehicular tunnel to the most exposed persons is estimated to be less than the risk to which local residents would be exposed by redirecting dangerous goods traffic (around the tunnels). However there is a small risk of a dangerous goods accident in either tunnel resulting in a large number of fatalities, which would be somewhat higher than for an equivalent length of above-ground road. This risk does not exist if the dangerous goods traffic is redirected provided there is a good compliance with the redirection, by drivers carrying these goods. Good compliance is considered unlikely.

The report recommended that the preferred option would be to ensure that the accident frequency in the tunnel and the likely consequences of an accident involving dangerous goods is as small as reasonably practicable and to place no restriction on the use of the tunnel. Minimisation of accident frequency and consequences can be achieved through a mix of options which may include:

- Careful design of tunnel approaches, with adequate warning and lead-in;
- Appropriate levels of lighting to ensure that drivers can see ahead into each tunnel in daylight and can see ahead in either tunnel against the light from the exit and avoiding exposure to sudden changes in light levels;
- Appropriate drainage along the length of each tunnel to collect and quickly remove any spills of dangerous goods via fully enclosed drains with flame traps, to give the minimum opportunity for evaporation of flammable or toxic materials, and to minimise the risk and consequences of fire and explosion. The drains should discharge to holding structures which minimise the exposure of road users, and prevent uncontrolled discharge to the environment; and,
- Emergency phones in both tunnels and at either end of each tunnel at a safe distance in the event of a fire or toxic gas escape.

Features	Overall Impacts
• The addition to the Proposal of twin vehicular tunnels associated with the fauna overpass was assessed for risk to the community.	Overall there is an increase in risk associated with the use of the twin tunnels. However, mitigation measures to improve safety outcomes would be included in the detailed design.

7.18 Updated Information

The following information has been added or updated to the exhibited EIS:

- Proposed noise mitigation measures have been updated and corrected and are summarised in Table 3.4 and Figure 3.11 (Supplementary Route Selection and Design Report, p30).
- Figure 5.1c in the EIS has been corrected in Figure 3.1c of the Supplementary Route Selection and Design Report and the correction noted (Supplementary Route Selection and Design Report, p12).

A table of amendments has been inserted in the Species Impact Statement Supplementary Information Report (SISSIR, Table A3, pages xx to xxx).

8 Correspondence

Since the exhibition of the Bonville EIS and SIS, a number of letters have been sent to government authorities regarding matters which have arisen subsequent to receipt of representations made to the Proposal. These letters and responses to matters raised in them and in meetings are listed in the following sections.

8.1 Correspondence to Government Authorities from the RTA

Letters sent by the RTA to government authorities are:

- NPWS (dated 23 December 1998);
- NPWS (dated 1 April 1999);
- NPWS (dated 27 May 1999);
- NSW Fisheries (dated 5 March 1999);
- NSW Fisheries (dated 26 March 1999);
- EPA (Dangerous Goods, 6 April 1999);
- EPA (Regional Operations – North Coast, 6 April 1999);
- NSW Fire Brigades (dated 6 April 1999).

Copies of these letters, together with a summary of undertakings by the RTA, are provided in Appendix 11.

8.2 Correspondence from Government Authorities

Letters received from government authorities in reply to matters raised in correspondence listed in Section 8.2 or as the outcome of meetings are the following:

- Australian Heritage Commission (reference 1/18/131/11, dated 19 April 1999;
- NPWS (reference DB:db3048-4, dated 23 October 1998);
- NPWS (reference 99/469 jrt.3048-4, dated 17 May 1999);
- NSW Fisheries (reference 10/110.1699, dated 20 April 1999);
- EPA Regional programs Unit (reference:IJP:IJP/GR1629/03, received 14 May 1999);
- NSW Fire Brigades (reference 10/110-1660(14.7)RCK:IJW \ FSD/HAZ/132107, dated 16 April 1999).

Copies of these letters are provided in Appendix 11.

9 Recommendation and Conditions of Approval

9.1 Project Approval

The Bonville Representations Report is prepared in compliance with the *Environmental Planning and Assessment Act* 1979.

This Representations Report has addressed all outcomes of the consultative process undertaken with all stakeholders both during and subsequent to the exhibition of the EIS and SIS for the Bonville Project.

In addressing the outcomes of both compliance with legislative requirements and of the consultative process, this Representations Report demonstrates that:

- statutory obligations have been met (Section 3);
- the RTA has considered all issues arising from the representations and provided written responses to the issues (Section 5.3);
- in responding to these issues, additional studies have been undertaken which provided a more detailed assessment of likely impacts and the measures which might be used to mitigate these impacts (Section 6);
- on the basis of these studies, design modifications were undertaken within the original study corridor which eliminate or reduce the identified impacts (Section 7);
- the impacts of the modifications have, themselves, been assessed and it has been determined that no further environmental impacts of a significant nature exist as a consequence of these design modifications (Sections 6 and 7);
- where it has not been possible to fully mitigate for environmental impacts, compensation is to be provided for certain impacts. This is outlined in responses to individual representations in Section 5.3 and in the summary of additional studies (Section 6).

In consideration of the above, it is recommended that the proposed Bonville Project as described in the EIS and Section 2 of this Representations Report should proceed subject to the modifications in Section 7 of this Representations Report and conditions of approval as outlined in Section 9.2.

9.2 Conditions of Approval

9.2.1 EIS, SIS, Representations, Supplementary Correspondence and Additional Studies

General: The Proposal is the Bonville Project described in the EIS (July, 1998) as modified within this Representations Report in response to issues raised in representations, the outcomes of additional studies, and undertakings given in supplementary correspondence.

The Proposal shall be planned, designed, constructed and operated as described in the EIS except as modified by the following parts of this section.

Modifications to EIS and SIS: The project design and environmental safeguards and mitigation measures in the EIS and SIS have been added to or modified to ameliorate, further, the environmental impacts identified in the EIA process. The design modifications are as set out in Section 7 of this Report, and the additions and modifications to safeguards and

mitigation measures are as contained in the responses to submissions (Section 5.3), supplementary correspondence (Section 8) and reports of additional studies (Section 6).

To the extent that these modifications are inconsistent with the original design, safeguards and mitigation measures as described in the EIS and SIS, the modifications shall add to or supersede the EIS and SIS. The safeguards and mitigation measures from the original EIS and SIS which have been superseded are highlighted in italics in Appendix 12 .

Representations: The undertakings given by the RTA in the responses to issues (Section 5.3) will be fulfilled.

Supplementary Correspondence: Undertakings given by the RTA, in correspondence with government authorities, will be fulfilled. A summary of undertakings in these letters is provided in Appendix 11.

Additional Studies: The reports of additional studies have recommended further safeguards and mitigation measures. The relevant reports are:

- Species Impact Statement Supplementary Information Report by Biosis Research Pty Ltd (Section 6.1); which includes:
  - Aquatic Ecological Assessment by W.S. Rooney and Associates Pty Ltd (Section 6.2);
  - Wetlands Evaluation by Biosis Research Pty Ltd (Section 6.3);
- Compensatory Habitat Paper by Biosis Research Pty Ltd (Section 6.4);
- Preliminary Field Investigation for Indigenous Heritage Report by Mr Liam Dagg (NPWS – RTA Assessment Team) in consultation with the Coffs Harbour and District Local Aboriginal Land Council (Section 6.5);
- Noise and Vibration Assessment Supplementary Information by Wilkinson Murray Acoustical Consultants (Section 6.6);
- Construction Compounds/Temporary Batch Plants Report by PPK Environment and Infrastructure Pty Ltd (Section 6.7); and,
- Report on a Representation provided in confidence (separate cover).

The safeguards and mitigation measures arising from these studies are listed in Appendix 13 of this Representations Report. Those safeguards and mitigation measures indicated within that Appendix as being accepted by the RTA will be implemented.

9.2.2 Statutory Compliance

All statutory obligations shall be met and all licences and approvals/permits necessary for the undertaking of the works shall be obtained.

9.2.3 Consultation

The RTA shall ensure that all relevant stakeholders are consulted at appropriate times during implementation of the project. Specific actions shall include consultation with:

State Government:

- NPWS, DUAP, EPA, DLWC and NSW Fisheries, as appropriate, during the preparation of the Project Environmental Management Plan (PEMP), the Construction Environmental Management Plan (CEMP) and the Operational Environmental Management Plan (OEMP);

- NSW Fisheries regarding the undertaking of fish surveys;
- NPWS concerning the detailed design of fauna and flora mitigation measures (including vegetation management plans), the proposed Koala Study, relocation and/or propagation/planting of scheduled flora species and negotiation of an environmental compensation proposal;
- NPWS and State Forests regarding forestry operation restrictions that may be required adjacent to the new road and around fauna crossing structures, and design and management of the proposed Mailmans Track Rest Area.

Local Government:

- Bellingen Shire Council and Coffs Harbour City Council concerning:
  - preparation of the PEMP, CEMP and OEMP;
  - design and management of realigned and new local roads including pavement design;
  - local road use by construction traffic (condition surveys and traffic management plans);
  - future status and management of sections of disused highway.

Other Groups:

- Coffs Harbour Local Aboriginal Land Council regarding monitoring for the presence of artefacts during initial earthworks stripping;
- Relevant local environmental interest groups concerning details of proposed management measures, and in particular, the future management of overpasses and underpasses.

General Community through:

- Formation of a Community Liaison Committee;
- Issuing of Information Sheets;
- Advertising of activity timetables;
- Making EMPs publicly available;
- Publicising a general project contact number prior to construction;
- Establishing a publicised contractor's hotline during construction, with associated procedures ensuring that responses to all enquiries and complaints are prompt and that complaints are properly addressed.

Affected Residents and Landowners as described for the general community and:

- Continued negotiations with directly affected landowners during the acquisition process to minimise, mitigate and compensate for impacts on properties including impacts on improvements and disruption to use and management of property;
- Personal contact to advise of scheduling of activities which may affect the resident or owner, especially where changed or disrupted access arrangements will be necessary;
- Continuation of negotiations at individual properties where individual noise mitigation measures, roof water first flush divertors, or negotiated replacement or relocation of structures (eg dams) have been proposed.

9.2.4 Environmental Management

The RTA will institute systems of management to ensure that all procedures, safeguards and mitigation measures necessary to address conditions of approval and legislative requirements are in place for both the implementation and operational stages of the Proposal.

Key elements of these systems of management will be:

- environmental management plans;
- environmental specification;

- contractor's environmental management system (EMS);
- appointment of an environmental management representative (EMR);
- compliance auditing and reporting.

9.2.4.1 Environmental Management Plans

Three Environmental Management Plans will be prepared and implemented:

- for the overall project – Project Environmental Management Plan (PEMP);
- for the construction phase – Construction Environmental Management Plan (CEMP);
- for the operational phase – Operational Environmental Management Plan (OEMP).

Each EMP will be prepared and implemented in accordance with the following requirements:

Project Environmental Management Plan: The PEMP will be used by the RTA to ensure all environmental obligations, undertakings and responsibilities relevant to the project are fulfilled. The PEMP will provide details of the overall management of the project from its inception to its completion and will include all the proposed actions, safeguards and mitigation measures from the total EIA process relevant to the environmental performance of the project. It will include all pre-construction, construction and operation environmental aspects of the project and define RTA/contractor relationships and responsibilities. The PEMP will be the parent document from which the CEMP and OEMP will be developed. The PEMP will:

- specify all statutory obligations and requirements for licences and permits;
- refer to relevant policies and specifications;
- specify administrative and supervisory requirements;
- specify training and communication requirements;
- specify auditing requirements and hold points;
- specify reporting requirements relevant to compliance;
- specify the conditions under and process by which variations to EMPs would be made;
- specify all environmental requirements for management plans for specific impacts;
- require that the selected contractor(s) undertake all environmental management under an environmental management system (EMS) specified in Section 9.2.4.3;
- outline the minimum content of CEMPs and the OEMP;
- specify all environmental requirements to be included in design processes and design plans;
- specify the mechanism for continual improvement and revision of the CEMP and OEMP having regard to a mechanism for ensuring an approval process for acceptance of any changes.

Some of the actions, safeguards and mitigation measures provided through the EIA process would, of necessity, be incorporated into the project at the detailed design stage. To ensure that these actions, safeguards and mitigation measures are translated into the design processes and plans, the PEMP shall also include those elements of a CEMP relevant to these activities. The PEMP shall provide for the incorporation of best practice urban design principles into the design and construction of the project.

Construction Environmental Management Plan(s): The CEMP(s) shall be prepared by the contractor and shall encompass all works under (each) contract. The CEMP(s) shall be used by the contractor(s) to ensure all the environmental obligations, undertakings and responsibilities, relevant to the contractor's involvement with the project, are fulfilled. The CEMP(s) shall be written and used in such a way as to ensure that all works under contract are undertaken in the manner outlined in the PEMP, that is, all environmental impacts of the particular works, including but not limited to those in the PEMP, shall be identified, and addressed by listing the actions, safeguards and mitigation measures to be used and the

responsibilities and the time frames for implementation. The CEMP(s) shall address the environmental relationships and responsibilities between the contractor(s) and subcontractors.

Each CEMP shall, as a minimum:

- specify all statutory obligations and requirements for licences and permits;
- define the role and responsibilities of personnel;
- define reporting procedures;
- provide communication pathways between government agencies, the contractor and the RTA;
- ensure an effective mechanism for consultation with the community as approved by the RTA;
- outline an approved mechanism which would ensure continued assessment improvement of the CEMP through revision, where necessary;
- indicate construction activities and the staging and timing of works;
- conform with requirements set out in the PEMP;
- provide details of the environmental training to be given to all staff;
- include details as to how and when internal auditing will occur;
- include details of the response times and type to external and internal auditing;
- provide environmental plans for work appropriate for all aspects of the works and consistent with the outcomes identified through the EIA process. Plans shall as a minimum, as appropriate, include:

    - Community Involvement and Complaint Response;
    - Flora and Fauna;
    - Local and Regional Design;
    - Landscaping and Revegetation;
    - Traffic Management;
    - Soil and Water;
    - Noise and Vibration;
    - Air Quality;
    - Indigenous and European Heritage;
    - Waste, Resource Use Minimisation and Recycling;
    - Acid Sulphate Soils; and,
    - Spoil, Material Stockpiling and Disposal.

The CEMP(s) shall also contain a requirement to ensure that works, which continue into the operational phase or which have been identified to be undertaken in the operational phase, are reported for inclusion in the Operational EMP (OEMP).

Operational Environmental Management Plan: The OEMP shall be prepared for the operational phase by the RTA or the contractor whom the RTA appoints to manage the operation of the project. The OEMP shall be used by the RTA and the contractor to ensure that all the environmental obligations, undertakings and responsibilities relevant to the continuing operation of the project are fulfilled. The OEMP will cover the operational works in such a manner as to conform with all requirements set out in the PEMP. It will:

- specify all statutory obligations and requirements for licences and permits;
- define the role and responsibilities of personnel;
- specify sampling, monitoring and inspection protocols and plans;
- define consultation and reporting procedures;
- define training for all personnel;
- define both internal and external auditing procedures;
- include relevant environmental plans for the operational works identified in the CEMP above;
- ensure that these environmental plans are consistent with those provided in the CEMP above;

- indicate contacts and relationships with other government agencies and between the RTA and the contractor;
- provide procedures for dealing with environmental incidents;
- provide a mechanism for continual improvement but which would only permit revision of the OEMP in consultation with relevant government agencies and the RTA.

9.2.4.2 Environmental Specification

The RTA will ensure its relevant contract environmental specification current at the time of preparing tender documentation, currently G36 – Environmental Protection (Management System), is appropriately customised to fully address the environmental requirements of the project approval and is applied to the principal contract for project construction.

9.2.4.3 Environmental Management System (EMS)

Contractors for major works associated with this Project shall have an environmental management system (EMS) which shall comply with environmental management systems provided in Environmental Management Systems Guidelines (NSW Construction Policy Steering Committee, 1998) and RTA requirements at the stage at which contracts are let.

For minor works carried out in advance of the main contract, the requirement for an EMS and appointment of an EMR (Section 9.2.4.4) may not be applied. However, the contractor for any such works shall be required to prepare a CEMP which complies with the requirements of Section 9.2.4.1 to the extent which is relevant to the work to be undertaken.

9.2.4.4 Environmental Management Representative (EMR)

As part of the management system and in support of the consultative and reporting process during the construction phase, the position of Environmental Management Representative shall be included in the contractor's management structure for the construction contract. The contractor shall be required to demonstrate that the position of EMR has the necessary degree of autonomy within its management structure to ensure independence in the exercise of the duties of the EMR. The contractor shall ensure that the EMR has appropriate resources, responsibilities and authorities to carry out the specified duties of the position. A suitably qualified person shall be appointed to the position and shall be available on site during critical activities identified in the CEMP. The Environmental Management Representative shall:

- advise on matters specified in the conditions of approval;
- advise and report on matters of compliance;
- ensure that the contractor's CEMP (and if applicable, OEMP) is established, implemented and maintained;
- facilitate induction and training programs for all site personnel;
- hold authority sufficient to ensure that contractor's works are carried out in accordance with the PEMP and CEMP;
- hold specific authority to stop work on any activity where the EMR deems this necessary to prevent non-compliance with the PEMP or CEMP.

The role and responsibilities of the EMR and the critical activities requiring the presence of the EMR shall be included in the CEMP.

9.2.5 Compliance Auditing and Reporting

The RTA will ensure that a program of auditing and compliance reporting is undertaken at all stages of project implementation and operation.

This program shall be designed to provide assurance at all stages that statutory obligations and all other conditions of project approval are being complied with, and that where non-compliances have occurred that these have been identified, rectified, and necessary measures to prevent recurrence have been implemented.

APPENDIX 1 – Summary of Representations Made to the EIS Exhibition

Appendix 1. Summary of Representations made to EIS Exhibition

Rep No*	Name	Group type	Property affected*
1	Mr James E. Cassidy	Individual	Yes
2	Optus	Utility	No but assets may be affected
3	NSW Department of Mineral Resources	State government	N/A
4	Mr William O'Donnell	Individual	No
5	Department of Transport	State government	N/A
6	Kim Anderson	Individual	No
7	Mr Graham Bull	Individual	Yes
8	Mr Keith J. Macpherson	Individual	Yes
9	Mr W. Manning	Individual	Yes
10	Toormina High School	Interest group	N/A
11	Mr Alan Melbourne	Individual	No
12	L.J. & L.L. Hardwick	Individual	Yes
13	Ms Isabel Haran	Individual	No
14	Jesse Haran	Individual	No
15	Chris Battle	Individual	No
16	Mr Jim Cassidy	Individual	Yes
17	Bonville United Residents Group	Interest group	N/A
18	Mr Jack & Mrs Melba Burke	Individual	Yes
19	Mr & Mrs J.T.P. Burke	Individual	Yes
20	Ms Janelle V. Huxley	Individual	No
21	Mr William Huxley	Individual	No
22	Mr Peter Horton	Individual	No
23	NSW Department of Land and Water Conservation	State government	N/A
24	Mr David Pike	Individual	Yes
25	S.D. Cook & L.K.Wood	Individual	No
26	L.J. & L.L. Hardwick	Individual	Yes
27	Mr David Bell	State government	N/A
28	Waterways Authority	State government	N/A
29	NSW National Parks and Wildlife Service	State government	Yes
30	R.A. & M.A. Stokes	Individual	Yes
31	R.A. & M.A. Stokes	Individual	Yes
32	Ms Ann Coyle	Individual	No
33	NSW Agriculture	State government	N/A
34	Mr E. J. Goodhand	Individual	Yes
35	Pine Creek Koala Support Group	Interest group	No
36	NSW Fisheries	State government	N/A
37	M.V. Sharpe	Individual	No
38	Raine Sharpe	Individual	No
39	G.M. Aspinall	Individual	No
40	Aspinall	Individual	No
41	Ms Anna Bloemhard	Individual	No
42	Bundagen Co-operative Limited	Interest group	No
43	Aloka Reeves	Individual	No
44	Ulitarra Conservation Society	Interest group	No
45	Anonymous	Business	Yes
46	Australian Heritage	Cth government	No
47	Ms Maree T. Howell	Individual	No
48	G. Lambeth	Individual	No

Rep No*	Name	Group type	Property affected*
49	W., R. & M. Manning	Individual	Yes
50	Bellingen Environment Centre Inc.	Interest group	No
51	North Coast Environment Council Inc.	Interest group	No
52	Telstra	Cth government	No but assets may be affected
53	Environment Protection Authority	State government	N/A
54	Ms Poppy Spencer	Individual	No
55	Cr Mark Spencer	Individual	No
56	Mr Paul Lucas	Individual	No
57	Heike Lucas	Individual	No
58	Ms Mary E. Stephenson	Individual	No
59	NSW National Parks and Wildlife Service	State government	Yes
60	Idyll Spaces Consultants	Business	No
61	NSW Heritage Office	State government	No
62	Coffs Harbour City Council	Local government	No
63	NRMA Limited	Business/Interest Group	No

*Representation Number refers to the number assigned to each representation on receipt at the Pacific Highway Development Office.