

***PROPOSED ALSTONVILLE
BYPASS***

***Director-General's Report Section
115C of the Environmental
Planning and Assessment Act
1979***

February 2003

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2003/005A

NSW Department of Planning

www.planning.nsw.gov.au

ISBN 0 7347 0247 7

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FOREWORD

The Roads and Traffic Authority of NSW (RTA) is proposing to upgrade a section of the Bruxner Highway in the vicinity of the towns of Alstonville and Wollongbar in Northern NSW between Lismore and Ballina. The proposal involves the construction of a new two lane road with overtaking opportunities. The proposal would be 6.0km in length and has been developed to meet future traffic demand and to address safety and congestion problems by separating local and through traffic. The proposal is being partly funded by the NSW State Government and Commonwealth Government.

The proposal is subject to assessment under Division 4, Part 5 of the *Environmental Planning and Assessment Act 1979* (the EP&A Act). As such, the approval of the Minister for Planning is required for the works. The RTA has sought the approval of the Minister under Section 115B of the EP&A Act.

This report has been prepared in accordance with Section 115C of the EP&A Act that requires that the Minister obtain a report from the Director-General of the Department of Planning prior to making a decision.

The purpose of this report is to review the Environmental Impact Statement (EIS), the issues raised in representations made in response to the public exhibition of the EIS, the additional information provided by the Proponent and other relevant matters pertaining to the potential environmental impacts of the proposed works. The report documents the outcome of an assessment of the proposal and concludes that the potential environmental impacts associated with the project can be mitigated to an acceptable level by adopting management measures referred to in this report and reflected in the recommended conditions of approval. On that basis, it is recommended that the proposal be approved subject to the recommended conditions.

Sue Holliday
Director-General

EXECUTIVE SUMMARY

The Proposal

The RTA is proposing to upgrade a section of the Bruxner Highway in the vicinity of the towns of Alstonville and Wollongbar at approximately the mid-point between Lismore and Ballina, on the NSW North Coast. The proposal is for a two lane road, with overtaking opportunities, over a total length of approximately 6.0km.

Three intersections are proposed to provide access from surrounding areas to the bypass. Two of these access points are effectively at each end of the proposal, with the eastern intersection located to the south-east of the existing intersection of the Bruxner Highway and Teven Road and in the west at Sneaths Road in the vicinity of the existing Bruxner Highway/Sneaths Road intersection. A third intersection with the proposal is proposed to the east of Kays Lane providing access to and from the proposal to the Russellton Industrial Estate.

The proposal is entirely within the Ballina Shire local government area.

The proposal is to be partly funded by the NSW State Government and Commonwealth Government at an estimated cost of \$36 million. It is estimated that the construction of the proposal would lead to the creation of 25-40 jobs during the approximate 18 month construction period.

EIS Exhibition and Approval Process

An Environmental Impact Statement (EIS) was prepared by the RTA for the proposal. The EIS was exhibited between 28 September and 27 November 1998. Forty-seven (47) representations were received in response to the EIS.

The key issues raised in the representations to the EIS related to:

- Intersection design and the need for improved access to the industrial estate.
- Bypass alignment and alternatives considered.
- The noise impacts of the proposal and adequacy of mitigation measures.
- The acquisition of agricultural land and the impacts on access to properties.
- Impacts on flora and fauna including riparian vegetation.
- Impacts on indigenous and non-indigenous heritage.

The proposal is subject to assessment under Division 4, Part 5 of the *Environmental Planning and Assessment (EP&A) Act 1979* and as such, the approval of the Minister for Planning is required. The RTA sought the approval of the Minister on 21 August 2001 as required by the EP&A Act.

This report has been prepared in accordance with Section 115C of the EP&A Act which requires the Director-General of the Department of Planning to assess and report to the Minister on the proposal.

Project Justification

The proposal has been developed primarily to reduce current and future conflicts between through and local traffic in Alstonville and Wollongbar which has resulted in a higher than average accident rate on this section of the Bruxner Highway. The proposal would accommodate predicted growth in

traffic volumes and improve travel times and traffic efficiency along the Highway. The bypass would also improve local amenity and improve pedestrian and cyclist safety through the towns.

Environmental Impact Assessment

The selection of the preferred route was undertaken in consultation with the community and key agencies to reduce environmental impacts to acceptable levels. This has assured avoidance of major environmental impacts. The key reasons for selection of the preferred bypass option were that:

- It is similar to the route which was gazetted in the LEP and is compatible with Ballina Shire Council's planning strategies;
- It allows for the continued growth of the Russellton Industrial Estate;
- It meets broad community expectations, having been planned over a period in excess of 20 years;
- It does not impact on the Duck Creek catchment, identified as being of significance;
- It has the least impact on prime agricultural land;
- It provides the greatest potential benefit for the lowest cost; and
- It has no impact on remnant 'Big Scrub' rainforest.

Notwithstanding, it is inevitable that the development of the bypass would have the potential for some environmental impacts. Where possible these impacts have been ameliorated through extensive proposed mitigation measures. Key issues identified were:

Intersection Design, Access to the Industrial Estate and Safety

A number of representations raised concerns in regard to the proposed EIS design including:

- There were an inadequate number of exits/entrances to the bypass proposed to accommodate the traffic flows;
- The bypass should begin at Sneaths Road including the provision of a new roundabout to separate local and through traffic in that section of the existing Bruxner Highway;
- A need for direct access to and from the bypass to the Russellton Industrial Estate;
- The proposed at grade intersections would create traffic build ups and delays and potential safety issues as right turning traffic would be forced to cross the paths of high speed through traffic. Some representations suggested the provision of roundabouts at intersections to the bypass to improve traffic efficiency and safety; and
- No account has been made in the design for the potential impacts of traffic as a result of a third village or an increase in population in Wollongbar.

In response to the representations received the RTA proposed in the Representations Report to modify the design of the bypass including:

- The provision of two new at grade intersections. The first provides a 'seagull type' intersection to a new link road to Kays Lane (the Russellton Industrial Estate). The second involves an extension of the proposal to Sneaths Road including a new link road connecting to the existing Bruxner Highway at Wollongbar.
- The deletion of the western intersection located close to the existing junction of the Bruxner Highway and Francis Avenue.

The proposed intersection and a link road to Kays Lane would provide direct access to the Russellton Industrial Estate and allow motorists from Alstonville and Wollongbar with westbound destinations to

make a left turn onto the bypass improving safety. The RTA also slightly modified the proposed bypass intersections to improve safety by including intersection lighting and making small changes to the design to allow for the easy installation of concrete medians at a later date should the need arise.

The RTA stated in the Representations Report that the traffic modelling had included traffic figures based on projected increases in the residential population in Alstonville and Wollongbar. It was further stated that the location of a third village in the area had not yet been determined and consequently it was not possible to predict traffic impacts on the proposal. The bypass was being designed so that the road and intersections could be easily upgraded in the future to accommodate increased traffic levels.

The Department endorses the proposed modifications in addressing the concerns expressed in the representations and does not believe at this stage that further measures are required. The Department has recommended that the Proponent prepare a detailed Traffic Management Sub-Plan to address in detail proposed operations.

Noise

During construction residences in proximity to locations requiring extensive cut and fill may be exposed to construction noise levels for extended periods of time. Adjacent to cut sections some shielding will be provided as roadworks progress with a maximum expected noise reduction of 10dBA. Residences adjacent to fill sections may be exposed to construction noise exceeding periods of four weeks. Construction of bridgeworks in the vicinity of Wardell Road and Kays Lane is expected to take 6 months.

The EIS found that potential noise impacts from the proposal could be significant, particularly for residents not previously affected by noise from traffic. Where it was predicted that noise impacts would be above the relevant EPA criteria levels the EIS and Representations Report recommended the installation of a combination of noise barriers (2-3m high), earth mounds and architectural treatment of dwellings to mitigate impacts. It was found that, with the installation of these measures, noise levels at all affected receptors would be below EPA noise criteria levels.

The Department has recommended a number of conditions including restricting construction hours, the preparation of detailed Construction Noise Management Sub Plan and the installation, where practicable, of operation noise mitigation measures prior to construction to reduce construction noise impacts. To ensure that the operational noise mitigation measures are in accordance with RTA commitments and the noise criteria levels a detailed Operational Noise Management Sub Plan is required to be prepared as part of the OEMP.

The Department is confident that given the implementation of suitable mitigation measures noise and vibration impacts during construction and operation would be reduced to acceptable levels.

Agricultural Impacts and Access to Properties

The main land use affected by the proposal would be agriculture. Most agricultural land is currently used for grazing although it is likely that these grazing areas could be converted into more intensive horticultural activities in the future. With the exception of drainage swales the Department of Agriculture has classified the Alstonville plateau as 'prime agricultural land'.

Concerns were raised in relation to impacts on agricultural properties including loss of access. In particular concerns were raised that the proposed EIS bypass alignment west of Kays Lane and parallel to the existing Bruxner Highway would affect a large area of prime agricultural land and should be moved further north.

The proposed modifications include the deletion of the realignment of Kays Lane, the deletion of the intersection near Francis Avenue and the shifting of the bypass 19m closer to the existing Highway at Wollongbar. These modifications reduce impacts on agricultural land. The RTA also stated that access to agricultural properties would in all cases be reinstated to at least the level present prior to the bypass.

The Department believes that the proposal is the best balance between noise impacts on residences and loss of prime agricultural land. The Department has proposed conditions requiring ongoing consultation with all affected property owners and that affected property access ways are reinstated to an equivalent standard.

Conclusions and Recommendations

The proposal is recognised as an important upgrade to ensure that the Bruxner Highway accommodates predicted traffic volume growth and addresses the poor quality and problems of safety on the existing route. The Department believes that the proposed option is the best alternative of those considered and provides an adequate trade-off between the proximity to and impacts on residential areas and loss of high value agricultural land. The provision of mounds, noise walls and extensive landscaping measures would help to minimise any adverse impacts on nearby residents.

The modifications made to the proposal by the RTA have largely addressed the concerns raised by individuals in relation to access, traffic efficiency and safety. The Department also recognises that the proposal has the potential to result in substantial benefits to the local community and wider population. At the local level, the proposal would result in improved safety and amenity within the towns of Alstonville and Wollongbar. More broadly the proposal would result in improved traffic efficiency and travel time savings for regional traffic movements.

The Department has undertaken an assessment of other likely environmental impacts of the proposal such as flora and fauna, indigenous and non-indigenous heritage, hydrology and water quality, visual, social, economic and business, air quality, construction traffic, public transport, cyclists and pedestrians, geology and soils and waste management, minimisation and recycling. The Departments review has indicated that, provided all comprehensive mitigation measures are implemented, the adverse impacts of the proposal would be reduced to an acceptable level.

The Department has also recommended that the Proponent prepare a comprehensive Environmental Management Plan (EMP) for the construction stages of the proposal which embody the mitigation measures contained in the EIS, Representations Report and the Recommended Conditions of Approval for the project. The key elements of the Recommended Conditions of Approval include the following:

- establishment of a Community Liaison Group to discuss measures to minimise impacts arising from the construction of the works;
- the completion of comprehensive Construction and Operational EMPs requiring the approval of the Director-General;
- the preparation of detailed Sub Plans as part of the EMPs for:

- flora and fauna;
- noise and vibration;
- soil and water quality;
- urban design and landscaping;
- indigenous heritage;
- construction stage air quality;
- spoil; and
- waste management and reuse.

The Department's assessment has concluded that, provided the Recommended Conditions of Approval contained in Section 9 of this report are adopted, the proposal could be approved by the Minister for Planning.

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All Figures in this Report have been reproduced from the EIS and Representations Report.

APPENDICES

Appendix A	Summary of Representations
Appendix B	Additional Flora and Fauna Report by SKM (March 2002)
Appendix C	Addendum Threatened Species Report by SKM (May 2002)

GLOSSARY AND ABBREVIATIONS

AADT	Annual Average Daily Traffic
AHD	Australian Height Datum
Acid Sulfate Soils (ASS)	Naturally acid clays, mud and other sediments usually found in swamps and estuaries. These may become extremely acidic when drained and exposed to oxygen, and may produce acidic leachate and runoff which can pollute receiving waters and liberate toxins
Ambient Noise	The background noise at a point being a composite of sounds from near and far
ANZECC	Australian and New Zealand Environment and Conservation Council
ASS	Acid Sulfate Soils
BSC	Ballina Shire Council
Department, the	Department of Planning
Director-General	Director-General of the Department of Planning
DLWC	Department of Land and Water Conservation
DoP	Department of Planning
EIS	Environmental Impact Statement
EMP	Environmental Management Plan
EPA	Environment Protection Authority (NSW)
EP&A Act	<i>Environmental Planning and Assessment Act 1979</i>
Floodplain	Flat large area of alluvium adjacent to a watercourse, characterised by frequent active erosion and aggregation by channelled and overbank stream flow
Grade separation	The separation of a road, rail or other traffic so that crossing of movements, which would otherwise conflict, are at different elevations
Interchange	A grade separation of two or more roads with one or more interconnecting carriageways
LALC	Local Aboriginal Land Council
Level of Services (LOS)	An indicator of performance of the road network
Median	A strip of road not normally intended for use by traffic, which separates carriageways for traffic in opposite directions
NPWS	National Parks and Wildlife Service
PAD	Potential Archaeological Deposit
RTA	Roads and Traffic Authority
SEPP 14	State Environmental Planning Policy 14 - Coastal Wetlands
Shoulder	The portion of the carriageway beyond the traffic lanes adjacent to the land flush with the surface of the pavement
SKM	Sinclair Knight Merz Pty Ltd
SIS	Species Impact Statement
TSC Act	Threatened Species Conservation Act 1995
Wetland	Land either permanently or temporarily covered by water, usually characterised by vegetation of moist-soil or aquatic type

1 INTRODUCTION

1.1 Nature of the Proposal

The Roads and Traffic Authority (RTA) is proposing to upgrade a section of the Bruxner Highway in the vicinity of the towns of Alstonville and Wollongbar. The proposal would be located approximately mid-way between Lismore and Ballina, on the NSW North Coast.

The total length of the proposed Alstonville Bypass (the 'proposal') is approximately 6.0km. The proposal extends from the existing Bruxner Highway junction with Sneaths Road at the western end, to just west of the Tropical Fruit Research Station at the eastern end.

The proposal is for a two lane road, with overtaking opportunities, which is expected to meet projected traffic demand for the next 20 years. Part of the proposal reserves a corridor to allow the proposed Alstonville Bypass to be extended to the south as a dual carriageway (four lane road) if required in the future.

The proposed two lane road comprises two 3.5m wide traffic lanes in conjunction with a 3.5m overtaking lane. This overtaking lane would be provided generally between Kays Lane and Wardell Road for eastbound traffic. Paved shoulders are also proposed providing for cyclists and vehicle breakdowns.

Three intersections are proposed to provide access from surrounding areas to the proposed Alstonville Bypass. Two of these access points are effectively at each end of the proposal, with the eastern intersection located to the south-east of the existing intersection of the Bruxner Highway and Teven Road and the western intersection at Sneaths Road in the vicinity of the existing Bruxner Highway/Sneaths Road intersection. A third intersection with the proposal is proposed to the east of Kays Lane providing access to and from the Russellton Industrial Estate.

Local road access would be maintained with grade separated crossings of the proposed bypass and the provision of roundabouts. The proposal also features the realignment and regrading of some local roads and the provision of local access roads.

The proposal is to be partly funded by the NSW State Government and partly funded by the Commonwealth Government. Based on recent advice from the RTA the estimated cost of the project is \$36 million and would lead to the creation of 25-40 jobs during the 18 month construction period.

The proposed Alstonville Bypass predominantly resumes agricultural land. Specifically, the proposal would directly affect 23 freehold properties and land owned by Ballina Shire Council. Most properties would require partial acquisition, with others requiring total acquisition or property adjustment. Maintenance of access to and within many affected properties is also required.

The proposed alignment and important features of the proposal are illustrated in Figure 1.1.

1.2 Preparation and Exhibition of the Environmental Impact Statement

The RTA (through their consultants Sinclair Knight Merz (SKM)) sought the requirements of the Director-General for an EIS for the above project on 19 July 1996. The requirements were issued on 15 August 1996 and reissued and confirmed on 21 October 1998.

An Environmental Impact Statement (EIS) for the proposal was subsequently prepared by the RTA (SKM, 1998) and exhibited between 28 September and 27 November 1998. The RTA in response to the EIS received forty-seven (47) representations. Copies of all representations were forwarded to the Department as required by the *Environmental Planning and Assessment (EP&A) Act 1979*.

1.3 Statutory Provisions and Assessment Process

The proposal is subject to Part 5 of the EP&A Act 1979. As the RTA is both the Proponent and determining authority for the proposal and an EIS was prepared, Division 4 of Part 5 of the EP&A Act applies. As such, the approval of the Minister for Planning is required for the proposal.

An assessment report for the proposal must be prepared by the Director-General of the Department of Planning before the Minister may make a decision. This report and the Minister's decision are to be made public.

The RTA concluded that the Proposal would not have the potential to have a significant effect on threatened species, populations or ecological communities. The Department independently reviewed these conclusions and requested further information from the Proponent. Following a review of the additional information supplied the Department is satisfied that a Species Impact Statement is not required.

The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) came into force on the 16 July 2000 and repealed a number of Commonwealth Acts including the *Environment Protection (Impact of Proposals) Act 1974* (EPIP Act). The EPBC Act is administered by Environment Australia and introduces a number of new environmental requirements and processes. The Proponent has determined that the proposal would not have an impact on a matter of National Environmental Significance and has decided it would not need to be referred to Environment Australia for determination as to whether it requires Commonwealth approval.

1.4 Request for the Approval of the Minister for Planning

In accordance with Section 115B of the EP&A Act the RTA sought the approval of the then Minister for Urban Affairs and Planning by way of letter received by the Department on 21 August 2001. The request for approval was accompanied by a Representations Report presenting the RTA's response to the issues raised in representations received during the public exhibition.

1.5 Purpose of this Report

The purpose of this report is to review the EIS for the proposal, the issues raised in representations to the public exhibition, submissions made by the Proponent and other matters pertinent to the potential environmental impact of the proposal.

This report has been prepared in accordance with Section 115C of the EP&A Act which requires the Director-General of the Department of Planning to assess and report to the Minister on the proposal.

The report documents the outcome of an independent environmental impact assessment by the Department accounting for all issues raised in representations to the EIS.



Figure1.1 – Key Features of the Proposed Alstonville Bypass

2 DISCUSSION OF PROPOSED WORKS AS DESCRIBED IN THE EIS

This section of the report provides a description of the proposal described in the EIS. The purpose is to provide an overview of the information presented in the EIS and does not necessarily represent the views of the Department. Section 5 provides a discussion of the proposed modifications to the proposal following exhibition of the EIS. The Department's consideration of the modified proposal is provided in Sections 6 and 7.

2.1 Introduction

The proposal described in the EIS involved the construction of a 5.8km Bruxner Highway bypass to the south of the towns of Alstonville and Wollongbar. The following sections provide details of the key elements of the proposal.

2.2 Proposed Alignment

The proposal commences in the east in the vicinity of the Tropical Fruit Research Station where the proposal deviates to the west of the existing Bruxner Highway. The intersection with the existing Bruxner Highway is proposed as a seagull type intersection with right turn slip lanes. The proposal would continue in a westerly direction, to the rear of the residential properties in the southernmost urban areas of Alstonville, predominantly along the Ballina LEP road reservation.

The proposed road would pass under Wardell Road and proceed in a north-westerly direction in cut. Where the proposal crosses Ellis Road that road would be closed to through traffic. It is proposed that Ellis Road west of the proposal be diverted to the south of the proposal to join Wardell Road at a roundabout.

To the north of Ellis Road the proposed road would continue to the north of Maple Drive on an embankment with a bridge crossing of Maguires Creek. The proposed road would continue in at first a northerly and then a north-westerly direction through agricultural land and within the road reservation corridor in the Ballina LEP. The road would pass Russellton Industrial Estate to the north crossing over Kays Lane which would be diverted slightly to the east to accommodate the proposal.

To the west of Kays Lane the proposed road would continue in a north-westerly direction running parallel and approximately 50m south of the existing Bruxner Highway. Approximately 100m to the east of the existing Bruxner Highway intersection with Francis Avenue the western intersection of the proposal was planned in the EIS. The intersection would be a similar 'seagull' design to that at the eastern end. The proposed road would eventually rejoin the existing Bruxner Highway alignment to the west of Rifle Range Road where the alignment veers to the north.

2.3 Carriageway Design

The proposal would be designed to comply with all relevant RTA design requirements. The proposal is designed for 100km/h single lane highway. The road would have a minimum radius of horizontal curves of 460m and the road corridor width would be typically between 50-60m extending to 80m at intersections.

The proposal would incorporate two 3.5m traffic lanes with sealed shoulders of 2.0m and 1.0-1.5m drainage verges. A 1.4km long overtaking lane would be provided for eastbound traffic generally between Kays Lane and Maquires Creek. There would be no physical separation of opposing traffic flows.

The carriageway pavement would be either rigid or flexible pavement to be surfaced with dense graded asphalt subject to noise design requirements.

2.4 Cut and Fill Requirements

The proposed road would generally be constructed with a close balance between cut and fill with a total of about 300,000m³ in earthworks. The EIS estimated that approximately 23,500m³ of select subgrade and 28,500m³ of pavement materials would need to be imported. Any excess material produced for the two lane configuration would be placed in fill areas to provide a wider formation and facilitate any future duplication.

To minimise the footprint, cut and fill batters would generally be 2:1 (horizontal to vertical) with fills less than 1.5m high flattened to 4:1. The height of the fill across floodplain areas or watercourses would be designed to accommodate the 100 year ARI flood event.

2.5 Junctions and Access Arrangements

Junctions

The proposal has two junctions that provide access to and from Alstonville and Wollongbar at both the eastern and western ends of the proposal. The eastern intersection is with the existing Bruxner Highway just east of Teven Road and the western intersection is also with the existing Bruxner Highway just to the east of Francis Avenue and Rifle Range Road. Both intersections have been designed as at grade seagull type configurations allowing for all movements to and from the proposal to the existing Bruxner Highway.

Dedicated right turn bays would be constructed at each intersection to shelter right turning traffic onto and off the proposed bypass. Left turn slip lanes would also be provided on the proposal to enable turning traffic to slow down safely prior to making a turn.

The eastern junction would be the primary access point from the proposal to Alstonville and the western junction the primary access point to Wollongbar and the Russellton Industrial Estate.

Local Road Modifications

As described earlier, Ellis Road would be closed and blocked to through traffic on the eastern side of the road. The western side of the road would be diverted to run to the south and parallel with the proposal joining with Wardell Road with a new roundabout forming the intersection.

The existing Bruxner Highway immediately to the west of the Rifle Range Road intersection would be closed to through traffic although a small driveway type arrangement would remain for access to properties.

Local Access

The Proposal has restricted local access. There would be no direct access from properties onto the proposal however several service roads would be constructed parallel and south of the proposal

providing indirect access from local roads and the bypass to these properties. Where necessary, service roads would be constructed to accommodate heavy vehicles.

Continuity of the local road system would be maintained through the provision of overpasses and underpasses. Wardell Road would pass over the proposal and Kays Lane would pass under the proposal and be slightly realigned to the east of existing.

Pedestrian and Cyclist Access

Cyclists would be provided for on the proposal through sealed road shoulders. Pedestrian access onto the highway would be restricted. Access for cyclists and pedestrians across the highway would be provided at the overpasses and underpasses.

2.6 Bridges and Culverts

It is proposed that a short bridge be constructed over Maguires Creek. Bridges would also be constructed for the underpass of Wardell Road and the overpass of Kays Lane. The EIS anticipated that these would be concrete structures. Culverts would be constructed for all of the minor waterway crossings of the proposal.

2.7 Drainage and Erosion Control

The EIS stated that drainage and water quality treatments would be an important component both during construction and operation of the proposed bypass. The most sensitive area would be that surrounding Maguires Creek. A number of temporary sedimentation basins and permanent constructed wetlands were proposed based on the environmental sensitivities of the site and surrounds. The constructed wetlands would incorporate trash racks and stormwater interceptors to capture floatables, large debris, coarser sediments and oil and grease.

The EIS committed to a detailed erosion and sediment control plan to be prepared during detailed design to minimise the erosion of exposed soil surfaces. The cross drainage for the road including culverts, bridges etc would be designed to accommodate 100 year ARI storm flows.

2.8 Noise Attenuation Measures

To meet the required criteria for road traffic noise, it would be necessary to construct noise attenuation measures along certain sections of the proposed bypass. Noise barriers are envisaged as a variety of earth mounding and constructed noise walls. To mitigate noise at isolated rural residences south of the proposal at house treatments such as double glazing windows and insulation are proposed. Further details of noise impacts and attenuation are discussed in Section 6.3.

2.9 Other Design Features

Other design features of the proposal include:

- landscaping works undertaken as part of the proposal at each stage of construction;
- fencing to prevent unauthorised access; and
- signage and possible gateway treatments in accordance with RTA practice and in consultation with Ballina Shire Council and the Chamber of Commerce.

2.10 Construction Issues

The RTA has identified that the main construction tasks as follows:

- site establishment;
- clearing and demolition;
- installation of temporary erosion and sediment controls;
- topsoil stripping and management;
- bulk earthworks;
- drainage construction including water quality measures;
- installation of roadside noise barriers or mounding;
- bridge construction;
- pavement construction;
- topsoiling and revegetation of batters and berms;
- landscaping;
- line marking and signposting; and
- finishing works (roadside furnishings such as guide posts and traffic barriers).

It is anticipated that, should the proposal be approved, the property acquisition and detailed design phase would be approximately 15 months while construction of the bypass is estimated to take 18 months. It is anticipated that up to 40 persons would be employed during the construction period.

The RTA proposed construction hours in accordance with the Environment Protection Authority (EPA) guidelines of 7am to 6pm Monday to Friday and 7am to 1pm Saturday (8am start time on Saturdays near houses) with no work on Sundays or public holidays.

The cost of the proposal was estimated in the EIS at approximately \$18.2 million (1998 dollars) excluding property acquisition and development costs.

3 JUSTIFICATION, ALTERNATIVES CONSIDERED AND IMPACTS IDENTIFIED IN THE EIS

This section discusses the proposal need and justification as described in the EIS and outlines the alternatives considered and the potential adverse and beneficial impacts of the proposal as identified in the EIS. This Section does not necessarily reflect the views of the Department. The Department's assessment of issues associated with the proposal is contained in Section 6.

3.1 Justification and Need for the Proposal

The upgrading of the Bruxner Highway including the bypass of the town of Alstonville was identified in the RTA's North Coast Road Strategy (RTA, 1992). The Bruxner Highway between Ballina and Lismore and further west to Tenterfield was identified as an important east-west route through the region. The RTA has also more recently completed the Richmond Valley Road Network Development Study (Travers Morgan, 1995) which predicted an increase in traffic volumes on the Bruxner Highway and a need to improve traffic conditions including the need for town bypasses.

The EIS stated that the bypass of Alstonville and Wollongbar was required to reduce current and future conflicts between through and local traffic in the towns. Such conflicts have resulted in a higher than average accident rate on this section of the Bruxner Highway with over 118 accidents per 100mvkt as compared to the state average of 46.7 accidents per 100mvkt. The bypass would improve local amenity and improve pedestrian and cyclist safety through the towns.

The EIS predicted that traffic volumes would increase on the Bruxner Highway in the vicinity of the towns from approximately 11,000 Average Annual Daily Traffic (AADT) in 1998 to 18,000 AADT in 2016. The proposed bypass would remove a significant proportion of this traffic (up to 55%) from the local traffic. The bypass would reduce travel times and improve traffic efficiency for tourist and commercial through traffic.

The Representations Report stated that the proposal was required to address the poor standard of the existing Bruxner Highway in this area including tight curves and poor pavement condition. The bypass would also provide benefits to local amenity from the reduced number of vehicles travelling through the towns in relation to noise, air quality, visual and access.

3.2 Consequences of Not Proceeding

The EIS identified the following consequences of the do-nothing option:

- The loss of opportunity to separate through and local traffic. This would result in potential adverse impacts on the viability of the regional road network if another route were not developed.
- The loss of opportunity to resolve existing traffic conflict, safety and congestion problems which occur within Alstonville, particularly during peak traffic periods.
- Continued use of the congested and in places, unsafe, Bruxner Highway through the area.
- The exacerbation of environmental problems such as high noise levels along the Bruxner Highway.
- The loss of opportunity to provide transport infrastructure needed to allow orderly development of urban release areas in the region.

The Department generally agrees with the EIS analysis in this regard.

3.3 Alternatives Considered

Proposals for the bypass of Alstonville have been on-going since the 1960s with a corridor for the bypass reserved for future road purposes under the Ballina Local Environmental Plan (LEP), 1987.

An options selection process began in 1996 as part of the current proposal investigations, with community and stakeholder consultation to identify the key issues to be considered. The options selection process coupled with the RTA objectives for the proposal led to the shortlisting of three alternative alignments and two minor variations. The three alignments included an inner, central and outer route all to the south of the towns of Alstonville and Wollongbar.

A Value Management Workshop was held in November 1996 with representatives of Ballina Shire Council, State Government agencies, business and community groups who recommended a slightly modified inner route option for the following reasons:

- It is similar to the route which was gazetted in the LEP and is compatible with Ballina Shire Council's planning strategies;
- It allows for the continued growth of the Russellton Industrial Estate;
- It meets broad community expectations, having been planned over a period in excess of 20 years;
- It does not impact on the Duck Creek catchment, identified as being of significance;
- It has the least impact on prime agricultural land;
- It provides the greatest potential benefit for the lowest cost; and
- It has no impact on remnant 'Big Scrub' rainforest.

The inner route was announced as the preferred option by the RTA in December 1996 and was the subject of the EIS.

3.4 Major Benefits and Adverse Impacts Identified in the EIS

The EIS identified that the proposal would result in:

- Reduced accidents;
- Transport efficiency savings;
- Reduced vehicle operating costs;
- Improved safety and amenity within the towns of Alstonville and Wollongbar; and
- Cater for future population and traffic growth in the region.

The EIS recognised that the proposal's construction and operation would create a range of adverse impacts including:

- The acquisition of areas of prime agricultural land;
- Noise impacts on residences in close proximity to the proposal;
- The loss of areas of vegetation containing threatened flora species;
- The destruction of areas of indigenous and non-indigenous cultural heritage value.

It is stated that the identified adverse impacts of the proposal can be managed to ensure that the environment is adequately protected.

4 SUMMARY OF REPRESENTATIONS

Forty seven (47) representations were received in response to the public exhibition of the EIS. Representations were received from the following groups:

- | | |
|---------------------------|----|
| • Commonwealth government | 1 |
| • State government | 10 |
| • local government | 1 |
| • interest groups | 4 |
| • business groups | 3 |
| • individuals | 28 |

The RTA indicated that approximately 30% of representations received were from respondents whose properties were directly affected by the proposal.

The Representations Report contained a summary of the issues raised in all of the representations and the RTA's response. The Department has undertaken its own examination of the representations and is satisfied that the RTA has identified all key issues for consideration.

The key issues raised in the representations were:

- Intersection design and the need for improved access to the industrial estate.
- Bypass alignment and alternatives considered.
- The noise impacts of the proposal and adequacy of mitigation measures.
- The acquisition of agricultural land and the impacts on access to properties.
- Impacts on flora and fauna including riparian vegetation.
- Impacts on indigenous and non-indigenous heritage.

The Department's summary of representations is contained in Appendix A.

5 MODIFICATIONS TO THE PROPOSAL FOLLOWING EIS EXHIBITION

This Section describes the proposal in the Representations Report for which the RTA has sought approval from the Minister for Planning. The modifications to the proposal described in this Section have been made by the RTA following exhibition of the Environmental Impact Statement in response to the issues raised in representations.

5.1 Changes to the Design of the Western Section of the Proposal

The RTA have amended the design of the western section of the proposal in response to a number of concerns raised in representations regarding the proposed location and safety of the EIS access on the bypass near Rifle Range Road and the lack of direct access to the Russellton Industrial Estate. The revised design includes:

- Modifications to Kays Lane;
- Extension of the Proposed Bypass to Sneaths Road and a new link road between Sneaths Road and Rifle Range Road; and
- Realignment of the Proposal closer to the existing Highway.

The changes are described in further detail below and illustrated in comparison to the EIS in Figure 5.1 reproduced from the Representations Report.

Kays Lane

Following the review of representations the RTA considered a number of alternative interchange designs for providing direct access between the bypass and Kays Lane (Russellton Industrial Estate). The preferred option is for the construction of a two-way access road connecting the bypass to Kays Lane running to the east of Kays Lane and intersecting at the southern end of the bypass. The modification proposed includes a 'seagull' type intersection at the bypass enabling all movements and an AUSTRROADS Type C junction at the access road and Kays Lane intersection.

The preferred option maintains the present alignment of Kays Lane between the Russellton Industrial Estate and the existing Bruxner Highway and therefore negates the need to reconstruct Kays Lane on a new alignment as proposed in the EIS.

The proposed changes are illustrated in Figure 5.2 reproduced from the Representations Report.

Extension of Bypass to Sneaths Road and new Link Road to Sneaths Road

A number of representations raised concerns that the EIS proposal to end the bypass at the existing Bruxner Highway just west of Rifle Range Road did not alleviate safety concerns of an existing curve to the west of Rifle Range Road. Residents in this area raised concerns about noise impacts and private access to the bypass.

The modification proposed by the RTA extends the bypass by approximately 200m to link at the existing intersection of Sneaths Road. A link/service road is also proposed for local access extending from the existing Bruxner Highway approximately 360m in a north-westerly direction and joining Sneaths Road at a proposed new roundabout

The proposed changes are illustrated in Figure 5.3 reproduced from the Representations Report.

Realignment of the Proposal closer to existing Bruxner Highway

The addition of the Kays Lane intersection and the extension of the bypass to Sneaths Road has enabled the elimination of the EIS intersection proposed near Francis Avenue/Rifle Range Road. The deletion of this intersection has allowed for the movement of the proposed bypass north closer to the existing Bruxner Highway (31m from the Highway compared to 50m in the EIS). The modified alignment has reduced the impacts upon agricultural land and kept a sufficient area between the bypass and existing highway for landscaping and screening.

5.2 Changes to the Water Quality/Quantity Measures Proposed in the EIS

A number of representations raised concerns regarding health, safety and cost of maintenance of the proposed constructed wetlands. Several representations also raised concerns that the proposal would increase flood problems in the vicinity of Mellis Circuit.

Stormwater Interceptors and Wetlands

The EIS proposed that a number of the sedimentation basins established during construction become permanent stormwater wetlands during operation to maintain and potentially improve water quality in the study area. A peer review of this 'wetland' approach was completed by WBM Oceanics Australia and included in the Representations Report. The review suggested that due to the small size of the proposed wetlands and the proximity of the wetlands to residential areas (causing a potential mosquito and safety problem) that this approach was inappropriate.

During operations it is now proposed to delete the wetlands and make use of 'dry' grassed basins and vegetated overland flow paths to direct stormwater runoff to and/or from periodic combined oil and grit separators and toxic spill traps. The precise location of these operational stormwater measures would be determined during detailed design.

Mellis Circuit Flooding

The RTA reviewed the potential flooding in the Mellis Circuit area. This review indicated that by increasing the size of a proposed stormwater basin and by increasing the diameter of a short length of Ballina Shire Council's existing drainage line, existing flooding characteristics would not be altered.

The location and scale of the detention basin at full capacity is shown in Figure 5.4 reproduced from the Representation Report.

Pipes and Culverts

The changes made to the proposal design, particularly the retention of Kays Lane has meant a reduction in the number of new culverts.

5.3 Other Modifications

A number of more minor modifications have been made to the proposal design including:

- Changes to the design of seagull type junctions of the bypass and the eastern section of the Bruxner Highway (near Teven Road), Kays Lane link road and Sneaths Road to easily accommodate the future installation of concrete medians for potential safety reasons.
- Additional installation of intersection lighting at the: Wardell Road and Ellis Road roundabout; junction of Kays Lane and Kays Lane link road; existing junction of Bruxner Highway and Kays Lane; and the Sneaths Road roundabout.
- Provision of bus stop and information bays on access roads at either end of the proposed bypass.

- Provision of bus turnaround areas (primarily for school buses) on all the link roads opposite intersections with the bypass.

5.4 Conclusions

The Representations Report provides a brief assessment of the environmental impacts of the proposed modifications to the proposal. The assessment concludes that the benefits of the modifications would substantially outweigh any negative impacts particularly with the inclusion of appropriate mitigation measures.

The result of the modified proposal is that the bypass would be 6.0km long, require the partial and full acquisition of 23 properties and cost approximately \$24.5 million (including acquisition and development costs). Recent advice from the RTA is that the proposal is now estimated to cost \$36 million to construct.

The Department generally concurs with the RTA's assessment in the Representations Report that the modifications are in accordance with Section 112 (4)(b)(i) of the EP&A Act and would generally have a beneficial impact considered both individually and also cumulatively.

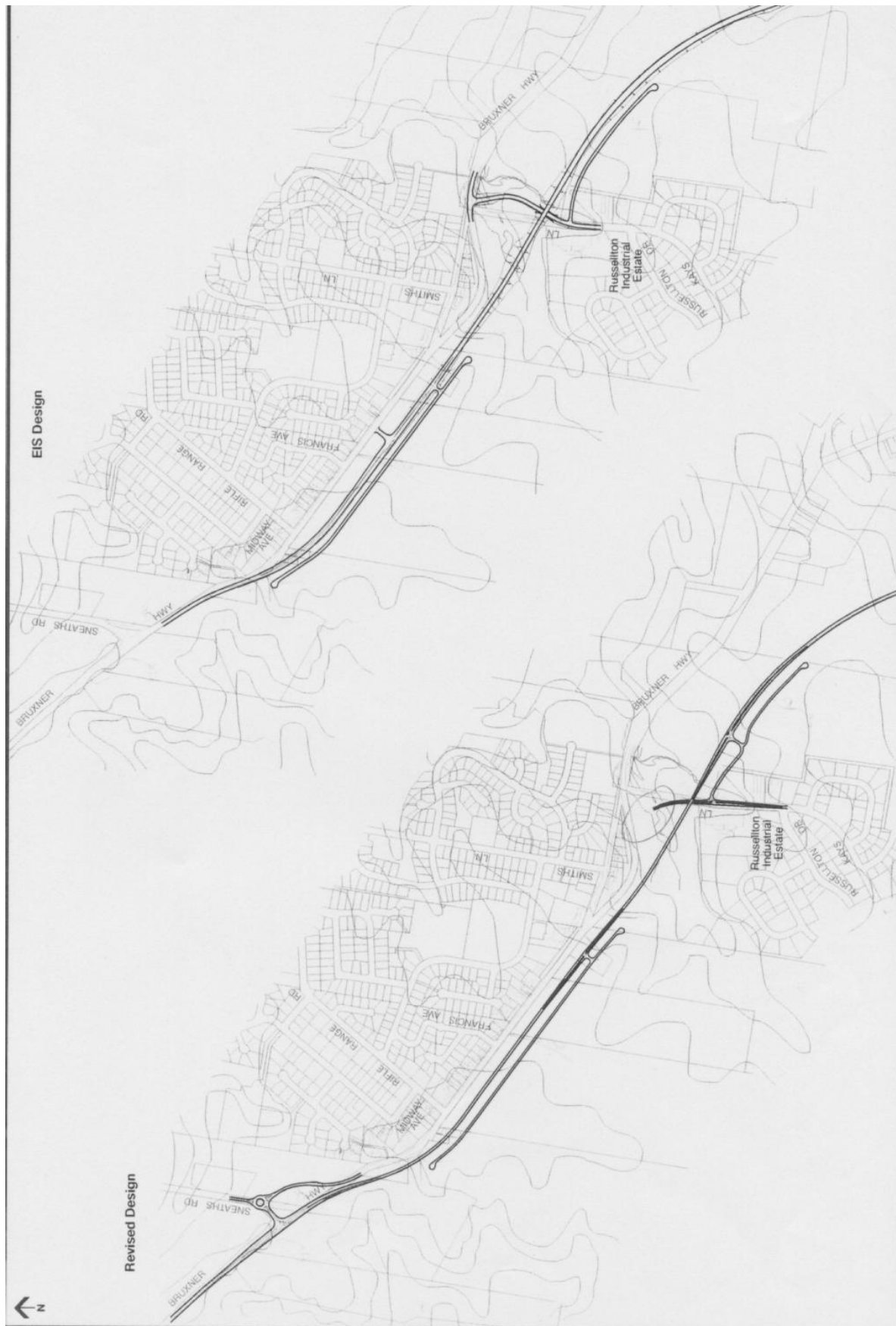


Figure 5.1 – Comparison between the EIS Design and the Revised Design for the Western Section of the Bypass

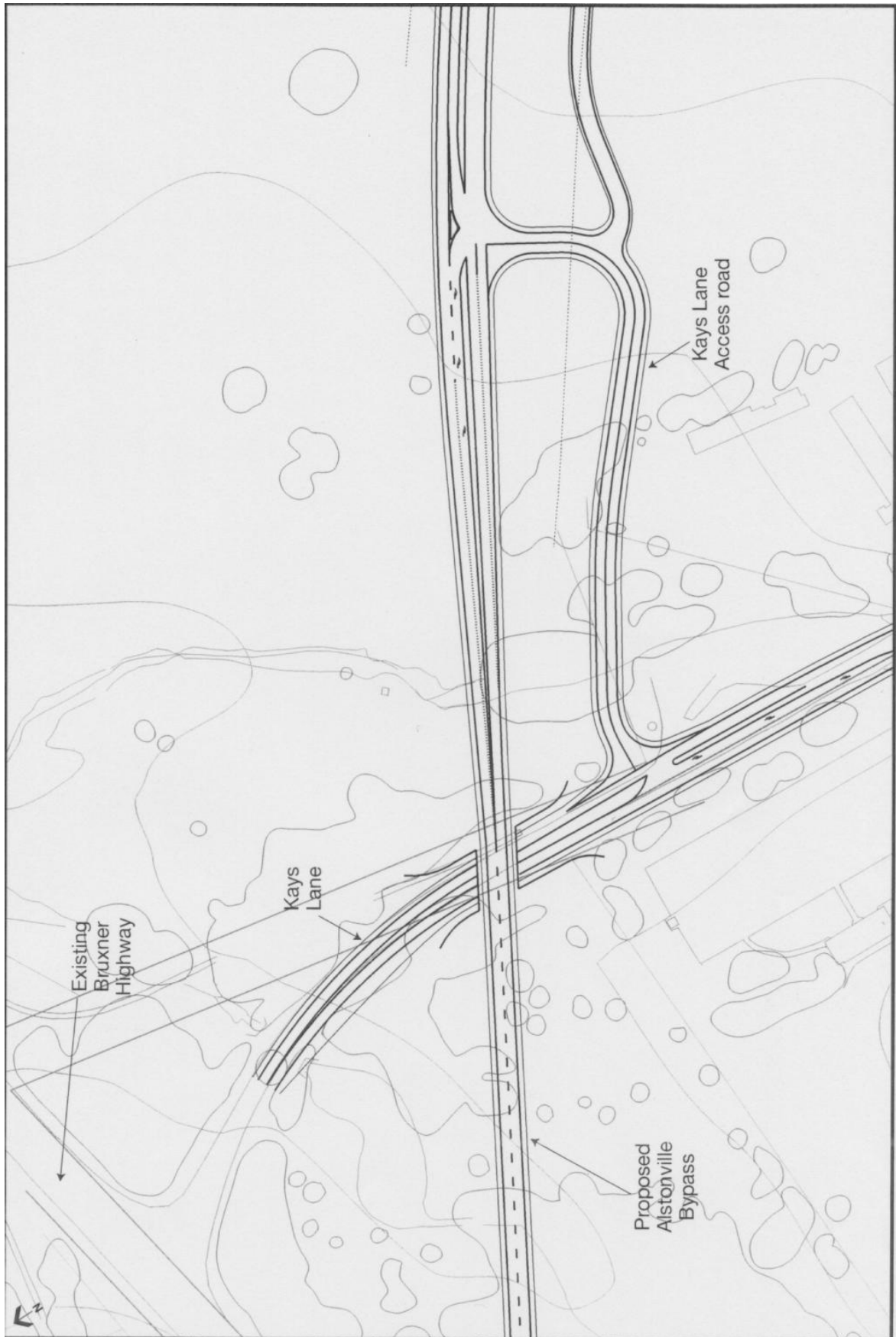


Figure 5.2 – Modified Kays Lane Interchange



Figure 5.3 – Modified Link / Service Road at Sneaths Road Interchange

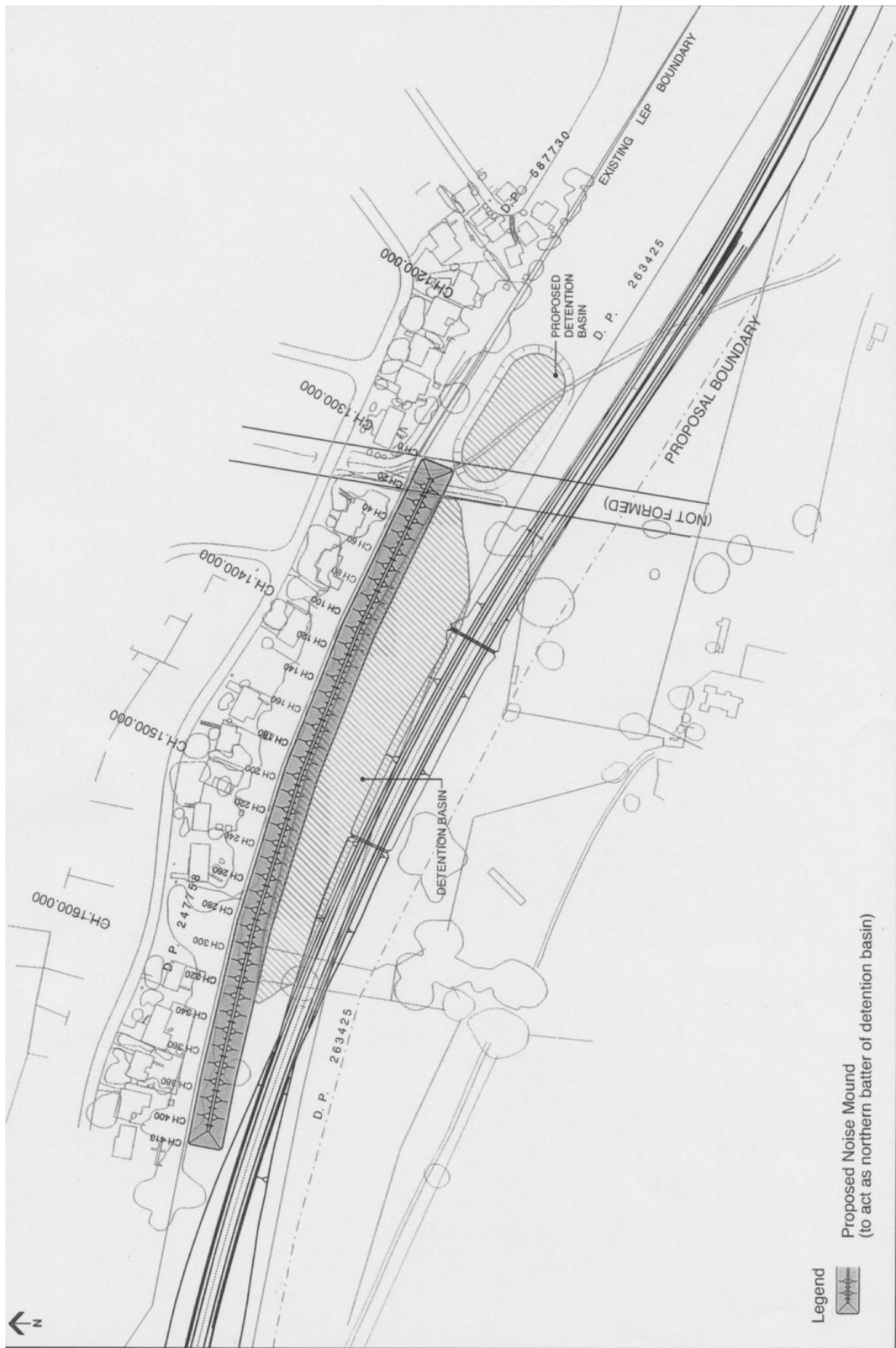


Figure 5.4 – Modified Detention Basin South of Mellis Circuit

6 ASSESSMENT OF KEY ISSUES RELATING TO THE MODIFIED PROPOSAL

This Section of the report provides an assessment of the key environmental impacts of the modified proposal based on an examination of the EIS, issues raised in representations during the exhibition period and the RTA's response to these issues in its Representations Report and during further consultation with the Department.

The RTA has also provided the Department with an assessment of all the issues raised in the representations in Appendix 1 of the RTA's Representations Report. The assessment has been reviewed by the Department and where required further assessment has been undertaken and discussed. It is therefore important that this section be read in conjunction with the RTA's Representations Report to understand how all issues raised in representations were addressed.

6.1 Intersection Design, Access to the Industrial Estate and Safety

6.1.1 Background

The proposed bypass described in the EIS included two at grade 'seagull' type intersections to the towns of Alstonville and Wollongbar. The eastern intersection, providing the main access to Alstonville, was provided close to the junction of the existing Bruxner Highway and Teven Road and the western intersection, providing the main access to Wollongbar, was provided just to the east of the existing junction of the Bruxner Highway and Francis Avenue. No direct access from the bypass was proposed to the Russellton Industrial Estate with Kays Lane to be re-routed and pass under the proposed bypass.

The traffic impact assessment reported that the current Bruxner Highway through Alstonville and Wollongbar had a number of deficiencies such as poor alignments, poor sight distances and severe congestion in the main street of Alstonville leading to potential conflicts with pedestrians. The deficiencies had led to higher than average accident rates in the study area.

The assessment estimated, based on number plate counts, that approximately 50% of traffic was 'through traffic', ie. traffic without an origin or destination in Alstonville and Wollongbar, and approximately 50% local traffic. It was therefore concluded that the proposed bypass would reduce traffic levels on the existing Highway within the study area by about half, with resulting significant potential improvements to safety.

Modelling done for the assessment indicated that the EIS proposed design, including the intersections, would have sufficient capacity to accommodate the estimated traffic flows with a sufficient level of service (LoS).

6.1.2 Key Issues

A number of representations raised concerns in regard to the proposed EIS design including:

- There were an inadequate number of exits/entrances to the bypass proposed to accommodate the traffic flows;
- The bypass should begin at Sneaths Road including the provision of a new roundabout to separate local and through traffic in that section of the existing Bruxner Highway;

- A need for direct access to and from the bypass to the Russellton Industrial Estate;
- The proposed at grade intersections would create traffic build-ups and delays and potential safety issues as right turning traffic would be forced to cross the paths of high speed through traffic. Some representations suggested the provision of roundabouts at intersections with the bypass to improve traffic efficiency and safety; and
- No account has been made in the design for the potential impacts of traffic as a result of a third village or an increase in population in Wollongbar.

6.1.3 Consideration of Key Issues

In response to the representations received the RTA proposed in the Representations Report to modify the design of the bypass. The modified design is described in detail in Chapter 5 of this report and includes:

- The provision of two new at grade 'seagull type' intersections to the bypass through a new link road from Kays Lane and the extension of the proposal to Sneaths Road.
- The deletion of the western intersection located in close proximity to the existing junction of the Bruxner Highway and Francis Avenue.

The Representations Report stated that as the proposed modifications increased the number of accesses to the bypass it would improve intersection performance. The RTA stated that the extension of the bypass to Sneaths Road including the provision of a link road and new roundabout in this location would resolve concerns regarding separating local and through traffic in this area. The proposed intersection and a link road to Kays Lane would provide direct access to the Russellton Industrial Estate and allow motorists from Alstonville and Wollongbar with westbound destinations to make a left turn onto the bypass improving safety.

Additional traffic assessment undertaken in the Representations Report estimated that the proportions of traffic utilising the three intersections in the AM and PM peak periods combined would be approximately 60% at Sneaths Road intersection and approximately 20% at each of the other two intersections. The assessment also indicated that the intersection designs would operate at acceptable LoSs during peak periods.

The RTA also slightly modified the proposed bypass intersections to improve safety by including lighting and changes to the design to allow for the easy installation of concrete medians at a later date should the need arise. The RTA stated a reluctance to install concrete medians at the opening of the bypass as the proposed intersections were designed with sufficient sight distance and that the medians could potentially cause a traffic hazard particularly in a high speed environment. The RTA stated that the installation of roundabouts at these intersections were not an appropriate approach within a high speed traffic environment.

The RTA stated in the Representations Report that the traffic modelling had included traffic figures based on projected increases in the residential population in Alstonville and Wollongbar. It was further stated that the location of a third village in the area had not yet been determined and consequently it was not possible to predict traffic impacts on the proposal. The bypass was being designed so that the road and intersections could be easily upgraded in the future to accommodate increased traffic levels.

The Department endorses the proposed modifications in addressing the concerns expressed in the representations and does not believe at this stage that further measures are required. To ensure that these modifications achieve the traffic and safety benefits predicted, the Department recommends the inclusion of Condition of Approval No. 24 requiring the Proponent conduct a road safety audit

within 12 months of operations to review the need to install concrete medians or other improvements to safety at proposal intersections.

6.2 Alignment and Alternatives Considered

6.2.1 Background

The EIS reported on the process followed by the Proponent in selecting the preferred route of the bypass as described in Section 3.3 of this report. Three possible routes south of the settlements of Alstonville and Wollongbar were short listed in late 1996 including:

- Inner Route;
- Central Route (proceeding just to the south of the Russellton Industrial Area); and
- Outer Route (further south).

Following community and stakeholder involvement the Inner Route was chosen as the preferred option. The reasons for selection included that it closely followed the LEP corridor, allowed for growth of the Russellton Industrial Estate further south and provided the best balance between impacts on high value agricultural land and noise and other impacts on the nearest residences.

6.2.2 Key Issues

A number of representations from individuals were received raising concerns about the location of the proposed bypass and suggesting alternative alignments. Some representations raised concerns that the bypass was located too close to existing residences whereas others suggested that the impacts on high value agricultural land were too high.

Another representation suggested that the proposed bypass was a piecemeal solution and that the strategic context for the proposal had not been considered ie. no consideration of the need for road realignments and improvements over the entire length of the Bruxner Highway.

6.2.3 Consideration of Key Issues

In response to the issues raised in representations the RTA stated that the option selection process had followed 'best practice' and that the option selected as preferred had the greatest benefits for the least impacts out of all options considered. It was stated that the other potential options would have greater fragmentation impacts on agricultural land and be incompatible with LEP corridor preserved for the purposes of the bypass.

It was stated in the Representations Report that the proposed bypass had, in some areas, been shifted slightly south of the LEP corridor in order to find the best balance between minimising residential noise and agricultural land take.

In relation to the concerns raised that the bypass was a piecemeal solution to problems on the Bruxner Highway the RTA stated that the proposal was consistent with the strategic plan for the road network titled, 'Richmond Valley Road Network Development Study' (Travers Morgan, 1995). A bypass of Alstonville was given a high priority as part of this study.

The Department is satisfied that in the context of the option selection process the proposed bypass is the best solution balancing agricultural impacts and amenity and environmental impacts to the existing urban areas.

6.3 Noise

6.3.1 Background

The proposal would result in significant increases in noise during construction and increases in operational noise for some areas. A number of dwellings and other sensitive land uses are located along the proposed route for the bypass. Background noise measurements were taken along the route as part of the EIS at seventeen (17) locations representative of areas potentially affected by noise from the proposal.

The EIS found that potential noise impacts from the proposal could be significant, particularly for residents not previously affected by noise from traffic as the proposal would introduce a new noise source to such residents. The EIS analysed operational noise in accordance with the (then) draft EPA Environmental Criteria for Road Traffic Noise (ECRTN) guidelines. Construction noise and vibration were assessed according to guidelines contained in the 1994 EPA Environmental Noise Control Manual.

The 'New Freeway or Arterial Road Corridor' criteria from the ECRTN were applied to those locations affected by the proposal but not currently significantly affected by road traffic noise from the existing Highway. At the western end of the proposal the less stringent road noise criteria 'Redevelopment of Existing Freeway or Arterial Road' from the ECRTN were applied for residential areas in close proximity to the existing Highway.

6.3.2 Construction

The construction period is expected to be approximately 18-20 months in duration. Earthworks and drainage works are expected to have the longest duration and highest concentration of construction noise levels, with works estimated for a period of 14-16 months.

During construction, residences in proximity to locations requiring extensive cut and fill, may be exposed to construction noise levels for extended periods of time. Adjacent to cut sections, some shielding will be provided as roadworks progress, with a maximum expected noise reduction of 10dBA. Residences adjacent to fill sections may be exposed to construction noise exceeding periods of four weeks. Construction of bridgeworks in the vicinity of Wardell Road and Kays Lane is expected to take 6 months.

The closest residences are approximately 30m away from construction noise sources, however more typical distances are between 60 and 120m from noise sources. Possible mitigation includes: use of quiet plant; erection of earth mounds and noise barriers; construction hour restrictions; notification of residents; and noise/vibration monitoring.

Concerns were raised in representations about the level of construction noise impact on properties. It was suggested that noise barriers and other operational measures be put in place prior to construction.

The Department recommends the inclusion of Condition of Approval No. 38 requiring that the RTA prepare a detailed Noise and Vibration Management Sub Plan (NVMP) as part of the CEMP. The NVMP will need to identify the methods for minimising construction related noise and monitoring systems to ensure the noise is minimised.

The Department recommends that all construction activities be restricted to the hours between 7am and 6pm, Monday to Friday and 8am to 1pm Saturday with no work on Sundays or public holidays. This requirement is reflected in recommended Condition of Approval No. 41. In order to further minimise noise impacts during construction, the Department also recommends that where practicable the Proponent should erect operational noise mitigation measures prior to the commencement of construction. This requirement is reflected in recommended Condition of Approval No. 40.

Blasting and Vibration

The Proponent has stated that blasting as part of construction activities would be limited and would only be required where high to extremely high strength basalt is encountered (particularly in the cutting between chainage 2050 and chainage 2350). If not properly managed, blasting can have a significant impact on noise and vibration levels at nearby residences. As such the Department recommends a precautionary approach be taken to any blasting as part of the construction of the proposal and recommends the inclusion of Conditions of Approval Nos. 42 to 46. These conditions require that blasting is restricted to the hours of 9.00am and 3.00pm Monday to Friday and 9.00am to 12.00pm Saturday; that any blasting is carried out in accordance with relevant ANZECC guidelines; and that where blasting is within 500m of residences, occupants are informed at least 48 hours prior to the blast.

The construction of the proposal would generate vibration as a result of piling for bridgeworks and the use of vibratory compactors and rock breakers during earthworks. The majority of these works would be undertaken at a significant distance from the nearest residence. However, the Department recommends a precautionary approach is taken to potential vibration impacts. Recommended Condition of Approval No. 44 requires that the Proponent undertake piling activities and/or use vibratory compactors and rock breakers within 50m of residential buildings and in the case of blasting no closer than 300m. Should this not be practicable the condition requires that the Proponent prepare before and after building surveys to establish if any damage is caused by the activities. The Proponent is required to repair any damages that result from construction.

6.3.3 Traffic Noise Levels

The EIS estimated that the ECRTN criteria would be exceeded at many of the closest residences in areas of Alstonville adjacent to the proposed bypass (eg. residences at Cypress Gardens, Mellis Circuit, Ellis Road and Maple Drive). The criteria would typically be exceeded by 4-8dBA during operation. In addition, isolated residences within 200-300m of the proposed alignment, were likely to exceed EPA guidelines, although only marginally. The worst case is an isolated residence which is predicted to experience a 9 dBA increase in noise from the proposal, 8.5 dBA above the EPA noise level goal. Therefore, significant impact on this property is expected.

There were a number of representations from individuals that expressed concerns about noise impacts during operation. Specific requests were made in relation to mitigation measures including details of the types of noise barriers etc. In response the RTA stated that the traffic noise assessment in the EIS had identified those areas which would require mitigation and that that mitigation would be finalised in consultation with affected receptors during the detailed design phase.

The Representations Report included an additional investigation of noise as a result of the proposed modifications. The investigation found that in addition to the areas identified in the EIS the buildings at the United Protestant Association (near Sneaths Road) and eight residences in Acacia Avenue would be above the ECRTN criteria.

The EIS and Representations Report recommended the installation of a combination of noise barriers (2-3m high), earth mounds and architectural treatment of dwellings to mitigate impacts. It was found that with the installation of these measures, noise levels at all affected receptors could be reduced to below ECRTN criteria levels. The Proponent suggested that the most practical and cost-effective treatment for isolated residences to the south of the proposal would be architectural treatment to buildings such as double glazing subject to negotiations with landowners.

To ensure that the final operational noise mitigation measures are in accordance with RTA commitments and the criteria levels specified in the ECRTN the Department recommends the inclusion of Recommended Condition of Approval No. 39 requiring that a detailed Operational Noise Management Sub Plan be prepared as part of the OEMP. This condition requires that the Sub Plan detail all locations and types of noise mitigation measures.

Recommended Condition of Approval No. 47 requires that the RTA monitor the adequacy of the traffic noise mitigation measures and where necessary install additional measures to meet the relevant ECRTN criteria levels.

6.3.4 Conclusions

The Department is confident that given the implementation of suitable mitigation measures noise and vibration impacts during construction and operation would be reduced to acceptable levels. The Department's recommended conditions are based on a conservative approach and require the strict management of noise impacts and monitoring to ensure these impacts are maintained at acceptable levels.

6.4 Agricultural Impacts and Access to Properties

6.4.1 Background

The EIS recognised that the main land use affected by the proposal would be agriculture. With the exception of drainage swales, the Department of Agriculture has classified all of the Alstonville plateau as 'prime agricultural land'. The agricultural industries that exist in the study area include grazing (64%) and horticulture (26%) (macadamia nuts and citrus fruits). The EIS estimated that the main impacts would be on land currently used for grazing, although it was recognised that a number of these areas were likely to be converted into more intensive horticultural activities in the future.

The EIS estimated that nine agricultural properties would be affected by the proposal, six of the properties with the proposal close to their boundary and three with the proposal bisecting the properties (a total of 39 ha would need to be acquired).

The EIS recognised that a number of property accesses, particularly rural properties, would be severed by the proposed bypass. To mitigate these impacts service roads south of the bypass were proposed to enable individual property owners' access to properties. In some cases these service roads would directly access the bypass and in others they would connect to existing roads.

6.4.2 Key Issues

A number of individuals raised concerns in relation to impacts on agricultural properties including loss of access. Some of these representations suggested that the proposed alignment was located too far south affecting more good agricultural land than originally proposed (this issue is discussed in detail in Section 6.2).

A couple of representations raised concerns that the proposed alignment in the EIS west of Kays Lane and running parallel to the existing Bruxner Highway, would affect a large area of prime agricultural land and should be moved further north. However, NSW Agriculture in their representation supported the proposed alignment in minimising impacts on agricultural land and recommended that the RTA closely liaise with affected farmers in relation to access and compensation for impacts.

6.4.3 Consideration of Key Issues

The RTA stated in the Representations Report that the proposed modifications would reduce impacts on agricultural land. These modifications include the deletion of the need to realign Kays Lane, the deletion of the intersection near Francis Avenue and the shifting of the bypass 19m closer to the existing Highway at Wollongbar. The RTA also stated that access to agricultural properties would in all cases be reinstated to at least the level present prior to the bypass.

As stated previously the Department believes that the proposal provides a reasonable balance between noise impacts on residences and acquisition of prime agricultural land and endorses the proposed modifications in reducing these impacts. To ensure that the proposal minimises disturbance and impacts to landowners during construction Recommended Condition of Approval No. 19 requires ongoing consultation and liaison with all affected property owners. To ensure that the impacts on agricultural land are minimised Recommended Condition of Approval No. 21 requires that the Proponent provide funding in consultation with NSW Agriculture to engage an agricultural specialist to advise affected landowners.

Recommended Condition of Approval No. 18 requires that any access ways affected are reinstated to an equivalent standard or adequate compensation is negotiated with the landowner.

6.5 Flora and Fauna

6.5.1 Background

Specialist consultants, Gunninah Environmental Consultants undertook an assessment of terrestrial and aquatic flora and fauna as part of the EIS and in accordance with the requirements of the NSW *Threatened Species Conservation Act 1995* (TSC Act) and *Fisheries Management Act 1994* (FMA Act). The assessment conducted in February 1997 included a search of relevant registers and literature and ground truthing.

Ecological Communities

The assessment found that the majority of the proposed route was through cleared land generally avoiding the remnant patches of the high conservation significance 'Big Scrub' rainforest. It was found that vegetation along the majority of the proposal was essentially uniform, comprising cleared pasture with scattered indigenous rainforest trees and introduced Camphor Laurel (*Cinnamomum camphora*). At the time of the EIS, no Endangered Ecological Communities as defined in the TSC Act were found to be potentially impacted by the proposal.

Flora

The assessment found that several individual plants of threatened plant species on Schedules 1 and 2 of the TSC Act would be either directly impacted by the proposal or were close to the proposal including:

- Rough-leaved Queensland Nut (*Macadamia tetraphylla*)
- Red Lilly Pilly (*Syzygium hodgkinsoniae*)
- Coolamon Tree (*Syzygium moorei*).

Section 5A assessments (eight-part tests) under the EP&A Act were conducted for the threatened flora species. The eight-part tests determined that although the bypass would require the removal of specimens of the Queensland Nut and Coolamon Tree that substantial numbers of these species were located in planted vegetation and reserves close to the proposal. The EIS stated that the single mature Red Lilly Pilly in the vicinity of the bypass would be protected from construction works by fencing. It was concluded that no Species Impact Statement was therefore required.

Additionally one Rare or Threatened Australian Plant (ROTAP) species, Veiny Laceflower (*Archidendron muellerianum*), and one plant species considered rare in NSW, Milkbush (*Neisosperma poweri*), were also found in the vicinity of the proposal. The EIS estimated that three specimens of the Veiny Laceflower would be impacted by the proposal but the specimen of the Milkbush was south of the proposal and would not be impacted.

It was proposed to propagate the impacted flora species by collecting seeds prior to clearing. A number of other mitigation measures such as control of weeds were also proposed to minimise the impacts on flora and ecological communities.

Fauna

It was stated that the highly disturbed nature of the study area limited the potential habitat potential for many native fauna species. No threatened fauna species were found during fieldwork and it was determined that although threatened fauna are known to occur in the surrounding region they would only occur in the study area on a transitory and infrequent basis, if at all.

The EIS found that although Maguires Creek was in a disturbed and modified condition it was known to support Platypus and several species of native amphibians and wetland birds. It was stated in the EIS that careful controls to minimise erosion and sedimentation during construction would be required to minimise impacts on Maguires Creek.

Aquatic Flora and Fauna

The EIS only included a desktop standard assessment of aquatic flora and fauna. It stated that two threatened fish species under the FMA Act may be present in Maguires Creek (Oxleyan Pygmy Perch and the Eastern Freshwater Cod) and that additional fieldwork was required.

Subsequently, the Ecology Lab, in late 1998, conducted additional aquatic flora and fauna searches and determined that the Oxleyan Pygmy Perch and the Eastern Freshwater Cod would be the only threatened species that may be present. The assessment did not find either of the species and assessed that the habitat of Maguires Creek in the area was unlikely to support these species. Eight-part tests were conducted and determined that no significant impact was likely on either of these threatened aquatic species.

6.5.2 Key Issues

An individual representation suggested that the EIS had not adequately identified the impacts of the removal of a number of trees in the 'Waratah' driveway including their heritage significance. The trees included specimens of the threatened Rough-leaved Queensland Nut. The heritage significance of this driveway is addressed in Section 6.6.

NSW Fisheries in their representation to the EIS suggested that additional field assessment was required for aquatic flora and fauna. As stated earlier the Ecology Lab subsequently produced an additional aquatic flora and fauna report addressing these concerns. The Proponent reported in the Representations Report that NSW Fisheries had indicated satisfaction with the findings of the Ecology Lab report in a letter to the RTA dated January 1999.

In response to the 'Waratah' representation, the Representations Report contained an additional vegetation study assessing the potential impacts on the threatened Rough-leaved Queensland Nut. The assessment found that a total of 32 large (>5m) trees would be removed from the front of 'Waratah' including 17 specimens of the Rough-leaved Queensland Nut. A revised eight-part test was conducted which found that the removal of these Rough-leaved Queensland Nut would not result in a significant impact primarily because the trees were horticultural plantings and did not represent species in a natural habitat. To minimise impacts the RTA proposed to collect seeds from these Rough-leaved Queensland Nuts prior to removal and to transplant small plants and seedlings to a nearby site. The Department endorses these recommendations and has incorporated them into Recommended Condition of Approval No. 27.

Upon receipt of the Representations Report, the Department reviewed the flora and fauna assessments and found that, owing to the long length of time between the EIS exhibition (1998) and the request for approval, a number of threatened ecological communities and flora and fauna species known to occur in the area had become listed (or preliminary listed) on the TSC Act and FMA Act. Therefore, the Department requested that the RTA consider the potential impacts on:

- Lowland Rainforest on Floodplain in the NSW North Coast Bioregion – an Endangered Ecological Community under the TSC Act;
- Greater Broad-nosed Bat – a threatened fauna species under the TSC Act;
- Grey-headed Flying Fox – a preliminary listed threatened fauna species under the TSC Act;
- High Frequency Fires – a key threatening process under the TSC Act;
- Loss of biodiversity as a result of loss and/or degradation of habitat – a preliminary listed key threatening process under the TSC Act; and
- Silver Perch and the Western Population of the Purple-spotted Gudgeon – threatened aquatic species under the FMA Act.

6.5.3 Additional Investigations

In response to the issues raised by the Department, a report was prepared by Sinclair Knight Merz (SKM) on behalf of the RTA (dated March 2002). The report is reproduced as Appendix B of this Report. Additional fieldwork was undertaken as part of the report preparation and the report included several additional 'eight-part' tests for the identified threatened ecological communities and flora and fauna species. The fieldwork identified one threatened fauna species, the Grey-headed Flying-fox and three threatened flora species Rough-leaved Queensland Nut, Red Lilly Pilly (*Syzygium hodgkinsoniae*) and Coolamon Tree (*Syzygium moorei*). These flora species had been identified in the Gunninah report as part of the EIS.

The fieldwork also discovered a number of additional specimens of the threatened Rough-leaved Queensland Nut in close proximity to the proposed works including an apparently naturally occurring population at a location near Kays Lane and a several horticultural plantings in front of the 'Gilroy' property further to the west. Up to four mature Rough-leaved Queensland Nut trees were predicted to need removal in the naturally occurring community near Kays Lane. It was also found that a number of non-threatened large rainforest remnant trees such as Morton Bay Figs would be removed. The assessment recommended that to offset the local loss of Rough-leaved Queensland Nut and rainforest remnant specimens, collection of seed and tube stock should be propagated in nearby areas such as roadside easements. The Department endorses the assessments recommendations which are included in Recommended Conditions of Approval Nos. 27 and 28.

The assessment found that riparian vegetation associated with Maguires Creek is potential foraging habitat for the threatened Fishing Bat (or Large-footed Myotis). No roosting habitat was found for the Fishing Bat and therefore it was determined that no significant impact would result from the proposal. It was recommended that clearing of this riparian vegetation be minimised to reduce any impacts on the Fishing Bat. The Department endorses this recommendation.

Additionally, an area of the ROTAP species Veiny Laceflower was found in the vicinity of the proposal near the intersection with Kays Lane (approx. 5 specimens). The RTA has not been able to clearly state whether these specimens would need to be removed during construction. The Department has therefore taken a precautionary approach and recommends the inclusion of Condition of Approval No. 26 requiring that the area containing the Veiny Laceflower specimens is protected from construction by fencing unless otherwise agreed to by NPWS.

The SKM report concluded that with the inclusion of recommended mitigation measures, all eight-part tests concluded that there would not be a significant impact on any of these communities or species. Based on the information presented in the assessment the Department agrees with these conclusions.

An addendum report to the March 2002 updated threatened species assessment was also prepared by SKM on behalf of the RTA dated May 2002 and is contained in Appendix C. The report was prepared as a result of additional comments from the Department that the March 2002 assessment had not addressed the potential impacts on the threatened Greater Broad-nosed Bat and the endangered ecological community – Lowland Rainforest on Floodplain in the NSW North Coast Bioregion.

Eight part tests were conducted and it was found that the proposal would not result in a significant impact on the Greater Broad-nosed Bat due to the lack of potential roosting and foraging area within the study area. The assessment found that less than 2.5ha of rainforest remnants would be removed as part of the proposal and that there was uncertainty as to whether these remnants could be described as part of the endangered ecological community. A conservative approach was taken in that the entire area was assessed as Lowland Rainforest and the eight part test found that a significant impact would not result as a result of the proposal. To restrict the potential impacts on rainforest remnants within the immediate construction area the Department recommends the inclusion of Condition of Approval No. 30 requiring the fencing of the rainforest areas adjacent to construction activities to avoid disturbance on these areas.

6.5.4 Conclusion

The Department has assessed the likely impacts of the proposal on flora and fauna and their habitats. It has concluded that provided all identified mitigation measures identified in the EIS and

the additional flora and fauna investigations are implemented the impacts would be managed to an acceptable level. To further mitigate impacts, the Department has recommended a number of conditions including a requirement to prepare a detailed Flora and Fauna Management Sub Plan (Condition of Approval No. 25) as part of the Construction EMP.

6.6 Indigenous and Non-Indigenous Heritage

6.6.1 Background

Ms Robynne Mills undertook a specialist assessment of indigenous and non-indigenous heritage as part of the EIS. The assessment included a review of relevant literature and databases and field surveys.

Indigenous Heritage

The extent of clearing and disturbance of the study area by non-indigenous settlers limited the potential for finding indigenous archaeological material. A search of the National Parks and Wildlife Service (NPWS) site register identified no sites within the Alstonville/Wollongbar area.

Field surveys were undertaken in February 1997 with a representative of the Jali Local Aboriginal Land Council (LALC) and a representative of the NPWS. No indigenous heritage sites were identified during the surface surveys although three areas with potential archaeological deposits (PAD) were identified close to the proposed bypass. The PAD 1 site includes the raised terrace areas on both sides of Maguires Creek in the vicinity of Maple Drive, PAD 2 includes the raised creek bank and terrace area to the east of Kays Lane and PAD 3 covers the raised creek bank and terrace area to the west of the existing Kays Lane. At the time of the EIS all PAD areas would be directly impacted by the proposal.

PAD 1 was identified as an area of potentially medium to high archaeological significance and therefore limited sub-surface investigations were undertaken in August 1997 to determine significance. Two open scatter sites were identified within this PAD with artefacts concentrated on the western side of Maguires Creek. The assessment recommended applications for Consent to Destroy with salvage be lodged with NPWS for these sites assessed as having moderate scientific significance.

PAD 2 to the east of the tributary of Maguires Creek near Kays Lane was classified as of moderate significance and PAD 3 to the west as of low significance due to the high levels of disturbance in this area. The heritage assessment recommended that sub-surface investigations be undertaken at PAD 2 and that monitoring of PAD 3 by a member of the Jali LALC for the presence of indigenous heritage items during the removal of topsoil from the area as part of construction.

Non-Indigenous Heritage

The review of registers kept by the Australian Heritage Commission, NSW Heritage Council, National Trust and the Ballina Shire Council revealed that no non-indigenous heritage items were listed within the study area. The field investigations did locate five heritage items that would be impacted by the proposal, namely:

- Trees in the entrance way to 'Waratah' (AV-HS-1);
- A section of split rail fencing east of Wardell Road (AV-HS-2);
- Browns Hill House and Dairy (AV-HS-3);
- A section of the original route of the Rous Mill Tramway (AV-HS-4); and

- House located opposite the tavern on the Bruxner Highway, Wollongbar (AV-HS-5).

All of these items were assessed as having low heritage significance except for the Rous Mill Tramway. However, there was no physical evidence found of the Tramway within the vicinity of the bypass. It was recommended that recordings of all heritage items to be impacted by the bypass be undertaken prior to destruction.

6.6.2 Key Issues

Representations were received from the Australian Heritage Commission, NSW Heritage Office, NPWS and two individuals in regard to the indigenous and non-indigenous heritage impacts of the proposal.

Indigenous Heritage

The NPWS in their representation generally supported the findings of the indigenous heritage investigations. They requested that details of subsurface investigations at PAD 2 should be forwarded to NPWS. They also raised potential concerns that a bridge over Maguires Creek may impact upon nearby sandstone slabs with axe grinding grooves and that issue should be further discussed with NPWS.

Non-indigenous Heritage

The Australian Heritage Commission suggested that if other factors considered require a review of the proposed alignment then consideration should be given to avoiding the demolition of Browns Hill House and Dairy, the house in Wollongbar and minimise the loss of part of the Rous Mill Tramway. The NSW Heritage Office requested that further details of the impacts on the entrance to 'Waratah' be assessed and endorsed the proposed archival recording of heritage items prior to construction.

An individual representation also suggested that the social, aesthetic and heritage values of the removal of a number of trees in the 'Waratah' driveway had not been suitably assessed. Another individual suggested that the heritage significance of the removal of trees and land for the proposed Ellis / Wardell Road roundabout had not been properly assessed.

6.6.3 Consideration of Key Issues

Indigenous Heritage

The Representations Report included the findings of sub-surface investigations at PAD 2 completed by specialist heritage consultant Robynne Mills. A small amount of artefacts were uncovered and it was determined that the site had a low potential for further archaeological material to be found. It was recommended that the RTA seek a 'Consent to Destroy' permit for the site. NPWS endorsed the findings of the PAD 2 report.

The Department notes that the proposed modifications in the Representations Report delete the need to realign Kays Lane to the east reducing impacts on the PAD 2 site.

In response to the concerns raised about potential impacts on axe grinding grooves from the Maguires Creek bridge the RTA agreed to undertake further archaeological assessment during the detailed design stage. The RTA also committed to determining appropriate modifications to the bridge design and/or measures to protect any sites in consultation with NPWS and Jali LALC.

The Department acknowledges the commitments by the RTA in relation to the Maguires Creek bridge and has recommended Condition of Approval No. 57 requiring that where possible there be no physical disturbance to these axe grinding groove areas. The Department also recommends the

inclusion of Condition of Approval No. 56 requiring the preparation of an Indigenous Heritage Management Sub Plan as part of the CEMP.

Non-indigenous Heritage

The RTA in response to the representations stated that it was unlikely that the proposal alignment would be modified to avoid the sites identified by the Australian Heritage Commission. Further advice from the RTA's heritage consultant in relation to the 'Waratah' driveway suggested that the trees to be removed had low heritage significance, though they were of significance to the integrity of the property. The heritage consultant felt that through appropriate plantings and landscaping the impacts on this area could be appropriately mitigated in the long-term. The RTA confirmed that the existing Bruxner Highway in this location would be removed, rehabilitated and landscaped.

The Department endorses the commitments made by the RTA towards sympathetic landscaping in the vicinity of the 'Waratah' property and has recommended the inclusion of Condition of Approval No 35 requiring an overall Urban Design and Landscaping Sub-Plan be prepared as part of the CEMP.

In case of any unexpected heritage items or archaeological material being uncovered during construction the Department recommends the inclusion of Condition of Approval No. 58 requiring that work in the vicinity of the site cease and that NPWS, the Jali LALC or the Heritage Office be consulted to determine a course of action.

7 CONSIDERATION OF OTHER ISSUES

This section of the report provides an assessment of the environmental impacts of the modified proposal based on an examination of the EIS, issues raised in representations during the exhibition period and the RTA's response to these issues in its Representations Report and during further consultation with the Department.

The RTA has also provided the Department with an assessment of all the issues raised in the representations in Appendix 1 of the RTA's Representations Report. The assessment has been reviewed by the Department and where required further assessment has been undertaken and discussed. It is therefore important that this section be read in conjunction with the RTA's Representations Report to understand how all issues raised in representations were addressed.

7.1 Hydrology and Water Quality

7.1.1 Background

The proposal passes through the upper reaches of the Maguires Creek catchment.

Hydrology

The EIS stated that the proposal had been designed to have no significant affect on flood levels upstream or downstream of the proposal. It was stated that, as the Alstonville area was situated on a plateau, flooding problems were generally limited to 'flash' flooding from the drainage system. In the vicinity of the proposal, drainage problems had been previously experienced at an area near Mellis Circuit and a tributary of Maguires Creek near Kays Lane.

The proposal includes two detention basins and diversion of stormwater via upgraded stormwater and drainage lines to avoid additional flooding impacts at Mellis Circuit. It was recognised that the measures, whilst not exacerbating flooding impacts at Mellis Circuit from the proposal, would not resolve some of the existing flooding problems in the area.

Maguires Creek would be bridged and other watercourses crossed by the proposal by way of culverts. Modelling of these crossings indicated no significant impacts on flooding but due to high water velocities in flood situations, scour protection in the vicinity of crossings would be required.

Water Quality

The EIS recognised that the proposal had the potential to introduce contaminants to downstream watercourses both during construction and operation. It was proposed to introduce a system to capture these contaminants to mitigate water quality impacts on nearby watercourses.

To mitigate the potential impacts it was proposed to include a number of sedimentation basins within the road reserve during construction. A number of other controls would be in place during construction in accordance with an Erosion and Sediment Control Plan to be prepared during the detailed design stage.

During operations the EIS proposed inclusion of:

- Stormwater interceptors – to remove oil and sediments from stormwater used in conjunction with constructed wetlands and grass swales;

- Four constructed wetlands incorporating trash racks. The wetlands would incorporate macrophyte beds to accelerate the water purification process; and
- Grass swales to reduce runoff volumes to be constructed wherever practicable.

7.1.2 Key Issues

A number of representations including that from Ballina Shire Council raised concerns about the proposal to construct permanent wetlands adjacent to residential properties. The concerns related to the potential for the wetlands to create a mosquito hazard, safety issues including drowning hazards, the sterilisation of potential recreational land use and the need for ongoing and regular maintenance using heavy machinery. Ballina Shire Council indicated a preference for the provision of grass swales and dry basins in preference to permanent wetlands.

An individual suggested in their representation that the RTA implement adequate drainage to ensure that flooding in Mellis Circuit did not occur. Ballina Shire Council recommended that consideration be given to moving the proposed detention basins close to Mellis Circuit to the southern side of the proposal and that the approach to stormwater control for the proposal needed to be integrated with Ballina Shire Council systems to alleviate flooding problems in the area.

The Department of Land and Water Conservation (DLWC) raised concerns that the EIS had not addressed potential groundwater impacts.

7.1.3 Consideration of Key Issues

In response to the concerns raised by Ballina Shire Council about the permanent wetlands the RTA commissioned consultants to conduct a peer review of the proposed design as part of the Representations Report. As a result of this review it was determined to remove the proposed wetlands and to make maximum use of 'dry' grassed basins and vegetated overland flows to direct stormwater runoff to combined oil and grit separators and toxic spill traps.

To address the concerns of Mellis Circuit residents the RTA have modified the proposal to increase the size of the nearby stormwater detention basin from 4,500m³ in the EIS to 11,770m³. The RTA stated that locating the two detention basins to the south of the proposal was not preferred due to impacts upon agricultural land. The RTA also stated that they would discuss measures with BSC to ensure that their measures were incorporated into any BSC plans.

Further details of the proposed modifications to the stormwater and water quality systems are detailed in Section 5.2 of this report.

To address the DLWC concerns in relation to groundwater the RTA engaged specialist consultants to provide supplementary geotechnical advice. The advice, included in the Representations Report, suggested that the proposal would have minimal impacts on groundwater and that there could be mitigated through drainage and sediment controls.

The Department endorses the RTA's proposed stormwater and water quality controls in the EIS and modified in the Representations Report. The Department notes that much of the detail of the soil and water management controls would be determined during detailed design. As such, the Department recommends the inclusion of a number of conditions requiring the preparation of Soil and Water Quality Management Sub Plans and Erosion and Sediment Control Sub Plans as part of the CEMP.

To ensure that the RTA's commitments are met in relation to flooding at Mellis Circuit the Department recommends the inclusion of Condition of Approval No. 48 requiring that the proposal does not increase peak discharge into the stormwater drainage system.

7.2 Visual Impacts

7.2.1 Introduction

A visual impact assessment and a Landscape Structure Plan were developed as part of the EIS. The visual impact assessment divided the proposal into six visual units and determined that the visual impacts of the proposal would generally be moderate to high due to the gently undulating topography and the proximity of residential areas along the majority of the route. High visual impacts were expected to occur in the vicinity of Kays Lane and within the Ellis Road/Wardell Road area due to the extensive cutting and filling required.

To mitigate the high visual impacts the EIS included details of extensive landscape treatments including mounding, tree planting and establishment of gateways into the town. The treatments were primarily proposed to protect residential areas from visual disruption caused by the proposal. Proposed mounding would also act as a form of noise treatment. It was stated that further details of proposed landscaping would be determined during the detailed design stage.

7.2.2 Key Issues

Several individual representations raised concerns about the high visual impacts of the proposal and requested that tree planting for screening purposes should occur immediately and that trees be planted in all of the space remaining in the road corridor. It was also suggested that consideration should be given to transplanting some of the mature trees affected by the proposal to the eastern gateway of the proposal.

The DLWC cautioned the RTA from using exotic species of Japanese millet or rye corn as part of initial seeding of batters in preference for using winter cover crops such as oat and ryegrass.

7.2.3 Consideration of Key Issues

In response to the representations the RTA stated that screen tree planting would take place as soon as practicable in the construction process but subject to detailed landscape plans to be developed as part of the detailed design stage in consultation with the local community. It was stated that it was not proposed to 'plant out' the entire road corridor, however, if the proposed screen planting did not adequately mitigate views of the road development consideration would be given to selective planting for individual framing homesteads.

The RTA stated that expert advice had suggested that transplanting of old trees was unlikely to be successful but that transplanting smaller specimens would be possible. The RTA committed to transplanting smaller specimens during construction in consultation with the landowner.

The RTA took note of the seeding advice from DLWC and stated that final details for revegetation would be confirmed in the CEMP.

To ensure that the landscaping measures are appropriate for the proposal the Department recommends the inclusion of Condition of Approval No. 35 requiring the Proponent prepare a detailed Urban Design and Landscape Sub Plan in consultation with Ballina Shire Council, DLWC and all

affected landowners. To ensure the success of the establishment of landscaping measures the Department recommends the inclusion of Condition of Approval No. 36 requiring the monitoring and maintenance of all landscaping works by a suitably qualified landscape specialist at the Proponent's expense for a period of not less than three years.

7.3 Social, Economic and Business Impacts

7.3.1 Introduction

The EIS recognised that social impacts from the proposal included potential impacts on property, activities, public and private amenity and on the health and psychology of individuals (often manifested through stress). It was suggested that the highest potential social impacts were those on amenity including noise, air quality and visual impacts. The EIS stated that these impacts were being adequately addressed with the inclusion of extensive mitigation measures that would also mitigate any potential social impacts.

A road user cost benefit analysis was undertaken for the proposal as part of the EIS and found that the benefits outweighed costs by a ratio of 2:1. The key project benefits assessed were due to expected improvements in travel times, lower vehicle operating costs and improvements in road safety. The EIS did not include an assessment of the impacts of the bypass on businesses in town particularly any that were reliant on passing trade.

7.3.2 Key Issues

Several individual representations expressed concerns that the bypass would greatly impact upon their amenity through high noise and air pollution and high adverse visual impacts. Concerns were also raised about impacts on privacy.

Ballina Shire Council in their submission suggested that signage at either end of the proposal should be in the form of a 'gateway treatment' with layby areas and giving directional and tourist information. The Department recommended that the RTA undertake a more detailed assessment of the business impacts of the proposal in accordance with the RTA's own research paper *Evaluation of the Economic Impacts of Bypass Roads on Country Towns – A Guide to Good Practice* (Parolin and Garner, 1996).

7.3.3 Consideration of Key Issues

In response to the amenity issues raised by individuals, the RTA reiterated that detailed mitigation measures for visual, noise and air quality impacts would be undertaken as part of the proposal. Issues including privacy would be discussed with landowners as part of the landscaping process. The Department concurs with the RTA that measures for these individual impacts would be adequate to ensure that impacts on residential amenity would be reduced as far as practicable. The Department has also recommended a number of conditions requiring the establishment of a Community Liaison Group (CLG) and regular project updates and consultation during construction reducing project uncertainty.

In response to Ballina Shire Council's request for the 'gateway treatments' the RTA confirmed that it proposed to install roadside laybys at either end of the proposal allowing businesses and attractions to advertise. The RTA stated that these laybys could be developed by Ballina Shire Council to provide a 'gateway' treatment. The Department endorses this RTA commitment and recommends

the inclusion of Condition of Approval No. 17 requiring the RTA consult with Ballina Shire Council and the Community Liaison Group to develop appropriate signage and 'gateway' treatments.

In response to the concerns the Department raised regarding potential business impacts, the RTA stated in the Representations Report that they had reviewed the Parolin and Garner guidelines and determined that the commercial businesses in town were fairly standard for a town of Alstonville's size. It was recognised that some of the businesses would have a level of reliance on passing trade including two service stations and fast food businesses and cafes, although no estimate of impacts was included.

Based on the low level of businesses with passing trade reliance in Alstonville, the Department believes that the negative impacts of the bypass are likely to be small. Anecdotal evidence suggests that most of the traffic passing through town is generally on a fairly short journey ie. Ballina to Lismore and vice versa limiting the numbers and value of passing motorists stopping in town. Additionally, the Department believes that overall positive impacts on the business environment in Alstonville would result from the proposal due to reduced traffic through the main street leading to a safer and more attractive shopping environment.

7.4 Air Quality

7.4.1 Introduction

Construction

The EIS identified that the main source of potential air quality impact during construction was dust associated with earthworks. Dust generation was estimated in the EIS based on typical construction activities and estimates of wind erosion. The EIS suggested that with the inclusion of appropriate mitigation measures, such as using water carts, covering of trucks and spoil stockpiles and the ceasing of construction works during extreme wind conditions, the impacts of dust during construction would be minimised.

Operations

Modelling was undertaken to determine the proposal's operational impacts on local and regional air quality. The modelling indicated that due to improved vehicle travel speeds the bypass would have benefits to the regional air shed. The modelling also indicated that the EPA's air quality goals for relevant pollutants would not be exceeded at the kerbside or nearest residences to the bypass. As the bypass would lead to lower traffic volumes along the existing Bruxner Highway, air quality during operations would improve.

7.4.2 Key Issues

Individual representations raised concerns that the proposal would result in significant dust impacts and that increased exhaust fumes would have impacts including potential health effects on the nearest residences.

7.4.3 Consideration of Key Issues

In response to the concerns raised in representations about dust the RTA stated that an Air Quality Management Plan and a Dust Monitoring Program would be determined following consultation with the EPA prior to construction works. It was further stated that the EPA goal for maximum dust deposition of four grams per square metre per month would need to be met as part of any construction contract. To further ensure that dust impacts during construction are minimised the

Department recommends the inclusion of Condition of Approval No. 59 requiring the preparation of a specific Air Quality Sub Plan as part of the CEMP. Recommended Condition of Approval No. 61 prevents the open burning or incineration of materials and vegetation generated during construction.

In relation to operational air quality the RTA reiterated that findings of the EIS modelling. These were that the bypass would generally improve air quality in the area and that even at the closest residences pollutants would be well below the relevant air quality goals.

No specific assessment of the impacts of the proposal on greenhouse gas production was undertaken. The Department's experience with similar road proposals is that greenhouse gases produced during construction are often offset by reduced emissions due to improved travel speeds during operation, although it is noted that this does not account for induced traffic.

7.5 Construction Traffic

7.5.1 Introduction

The EIS contained very little information about the generation of construction traffic. It was estimated in the EIS that construction activities would take approximately 18 months and have an average workforce of around 25 persons. It was also estimated that earthworks generated during the proposal construction would largely be balanced across the proposal. The main materials that would need to be transported to the site would include up to 100,000m³ of pavement material. The EIS suggested that these materials would be sourced from local quarries and local suppliers of pre-mixed concrete, gravel/aggregate and asphalt.

The EIS stated that consultation with Ballina Shire Council would be held to determine which local roads could be used by construction traffic.

7.5.2 Key Issues

The Department notes that no representations raised the issue of construction traffic.

7.5.3 Consideration of Key Issues

To ensure that construction traffic impacts on local roads and the community are minimised the Department recommends the inclusion of Condition of Approval No. 22 requiring the Proponent to prepare a Traffic Management Sub Plan as part of the CEMP including a requirement to consult with Ballina Shire Council in designating local roads for construction traffic and monitoring the use of these roads. Additionally, recommended Condition of Approval No. 23 requires that a road dilapidation report be prepared to assess any damage of construction traffic on these roads and that where damage has occurred the Proponent shall repair the damage at its cost.

7.6 Public Transport, Cyclists and Pedestrians

7.6.1 Introduction

The EIS identified that three bus companies operated services through Alstonville mainly associated with school pick-up and set-downs. All services utilise the Bruxner Highway. The EIS stated that it was likely that intra-regional bus services would utilise the bypass, whereas those services making more local trips would use the existing Highway.

The EIS suggested that the high levels of existing traffic along the Bruxner Highway particularly through the main street shopping area in Alstonville creates an unsafe environment for cyclists and pedestrians. The proposed bypass would allow cyclists to use the bypass within the sealed road shoulders. The RTA stated that they would work with Ballina Shire Council as to how the proposal could be augmented into any local bikeplans.

Pedestrian access onto the bypass would not be permitted. Pedestrian access would be provided on all overpass and underpass road crossings of the proposal.

7.6.2 Key Issues

The Department of Transport in their representation raised concerns that there was little discussion of the impact of the bypass on bus services, particularly school buses.

7.6.3 Consideration of Key Issues

In response to the concerns raised by the Department of Transport the RTA stated that access to all local bus services would be maintained during construction and that reconstructed local road crossings and proposed intersections would all be designed to allow for bus movements. It was also stated that following additional studies the RTA proposed to modify the bypass to include bus turnaround and stops for school children on each of the local access roads on the southern side of the bypass (discussed further in Section 5.3 of this report).

The Department endorses the proposed measures by the RTA in relation to school buses, cyclists and pedestrians.

7.7 Geology and Soils

The EIS included an assessment of the geology and soils in the study area based on preliminary geotechnical investigations. It was found that the study area soils could be described as highly acidic as a result of a number of factors including natural mineralisation. Despite the presence of high acidity in the soils they could not be classified as acid sulfate, lying well above the normal estuarine conditions required.

The soils present in the vicinity of the main cut batters were classified as having a low dispersion potential. There was no evidence of any contaminated soils along the length of the proposal.

The EIS stated that to protect against impacts on local waterways from erosion of disturbed areas during construction a number of safeguard measures such as sedimentation basins, catch drains, silt fences and hay bales would be installed. The precise configuration of these measures would be determined during the detailed design stage.

To ensure that erosion and sedimentation controls are sufficient the Department recommends the inclusion of Condition of Approval No. 50 requiring, as part of the preparation of the Soil and Water Management Sub Plan, details of erosion and sedimentation controls including evidence of consultation with relevant authorities.

7.8 Waste Management, Minimisation and Recycling

The following measures were proposed in the EIS to reduce waste and recycle:

- The balancing of earthworks so that earth and rock excavated for cuttings is equal to and reused for embankments and associated works;
- Any earth and soils generated that is unsuitable for road embankments should be used for noise and visual mounding wherever possible;
- The reuse of chipped and mulched vegetation for landscaping and revegetation;
- Recycling on-site of waste paper, metals and glass;
- Recycling of bricks, timber, tiles and other items from demolished buildings;
- Reuse of weed free topsoil for road batters as part of landscaping strategy;
- Investigate the availability of treated wastewater from the Ballina Sewage Treatment Plant for dust minimisation and for landscaping; and
- The use of a proportion of recycled materials in concrete, road base, asphalt and other construction materials.

The EIS stated that the CEMP would detail the precise measures to manage, minimise and recycle waste.

Consistent with the RTA commitments the Department recommends the inclusion of several conditions requiring the preparation of a Spoil Management Sub Plan and a Waste Management and Reuse Sub Plan as part of the CEMP.

8 CONCLUSIONS AND RECOMMENDATIONS

The RTA is proposing to upgrade a section of the Bruxner Highway in the vicinity of the towns of Alstonville and Wollongbar. The total length of the proposed Alstonville Bypass is approximately 6.0km and extends from the existing Bruxner Highway junction with Sneaths Road at the western end, to just west of the Tropical Fruit Research Station at the eastern end.

The proposal has been developed to address traffic capacity and efficiency problems for this section of the Highway and importantly to separate the through traffic from local traffic and pedestrian movements with resultant improvements in safety and amenity. The proposal would generally closely follow the Ballina LEP, 1987 alignment for the bypass skirting an area immediately south of the existing built-up areas of Alstonville and Wollongbar. In most cases the bypass would also go through the northern boundary of a number of rural properties containing high value agricultural land.

Forty seven (47) representations were received to the EIS exhibition with the majority (28) coming from individuals with an interest in the proposal. The main issues raised by individuals included suggestions that:

- the proposal design provided an insufficient number of intersections and should provide direct access to Russellton Industrial Estate;
- alternative alignments should be considered;
- construction and traffic noise from the proposal would be too high for the nearest residences; and
- impacts on high value agricultural land would be too high.

In response to the concerns raised the RTA modified the design of the proposal, particularly in the western section. The modifications include extending the bypass to the junction with Sneaths Road, increasing the number of intersections with access to and from the bypass from two to three and the provision of direct access via an access road from Kays Lane to and from the proposal to the Russellton Industrial Estate.

The Department believes that the proposed option is the best alternative of those considered and provides an adequate trade-off between the proximity to and impacts on residential areas and destruction of high value agricultural land. The provision of mounds, noise walls and extensive landscaping measures would help to minimise any adverse impacts on nearby residents.

The Department also recognises that the proposal has the potential to result in substantial benefits to the local community and wider population. At the local level the proposal would result in improved safety and amenity within the towns of Alstonville and Wollongbar. More broadly the proposal would result in improved traffic efficiency and travel time savings and help cater for predicted population and traffic growth in the region.

The Department has undertaken an assessment of other likely environmental impacts of the proposal such as flora and fauna, indigenous and non-indigenous heritage, hydrology and water quality, visual, social, economic and business, air quality, construction traffic, public transport, cyclists and pedestrians, geology and soils and waste management, minimisation and recycling. The Department's review has indicated that, provided all comprehensive mitigation measures are implemented, the adverse impacts of the proposal would be reduced to an acceptable level.

The Department has also recommended that the Proponent prepare comprehensive Environmental Management Plans for the construction and operational stages of the proposal which embody the mitigation measures contained in the EIS, Representations Report and the Recommended Conditions of Approval for the project.

The Department's assessment has concluded that, provided the Recommended Conditions of Approval contained in Section 9 of this report are adopted, the proposal could be approved by the Minister for Planning.

9 RECOMMENDED CONDITIONS OF APPROVAL

This Section provides the Department's recommended conditions of approval for the project under Section 115B(2) of the EP&A Act. These are based on the Department's assessment of the EIS, the representations made to the Department and supplementary information and advice provided.

It is noted that the EIS and Representations Report contain extensive information on procedures and mitigation strategies to be implemented to ameliorate impacts of the proposal. The recommended conditions of approval should therefore be implemented in conjunction with those procedures and mitigation measures specified in the EIS and the Representations Report. Where there is an inconsistency with the recommendations in the EIS or Representations Report, the recommended conditions will prevail.

The following acronyms and abbreviations are used in this section:

ANZECC	Australian and New Zealand Environment and Conservation Council
ARI	Average Recurrence Interval – refers to the average or expected period between exceedances of a flood of a given size
BSC	Ballina Shire Council
CEMP	Construction Environmental Management Plan
CLG	Community Liaison Group
Department, the	Department of Planning
Director-General, the	Director-General of the Department of Planning or delegate
DLWC	Department of Land and Water Conservation
DoP	Department of Planning
EIS	Environmental Impact Statement
EMP	Environmental Management Plan
EMR	Environmental Management Representative
EP&A Act	<i>Environmental Planning and Assessment Act 1979</i>
EPA	Environment Protection Authority
LALC	Local Aboriginal Land Council
L _{Aeq} 9hour	Equivalent continuous (constant) sound level over 9 hour period from 10pm to 7am
L _{Aeq} 15 hour	Equivalent continuous (constant) sound level over 15 hour period from 7am to 10pm
Minister, the	Minister for Planning
NPWS	National Parks and Wildlife Service
OEMP	Operational Environmental Management Plan
Proponent	Roads and Traffic Authority
RTA	Roads and Traffic Authority

General

1. The Project shall be carried out in accordance with:
 - (i) the proposal contained in the Environmental Impact Statement (EIS) '*Proposed Alstonville Bypass - Environmental Impact Statement*' prepared for the Roads and Traffic Authority (RTA) by Sinclair Knight Merz and dated August 1998 and the Representations

- Report 'Alstonville Bypass - Representations Report' prepared by RTA Technology for the RTA and dated 9 October 2000;
- (ii) all identified Sub Plans, safeguards and mitigation measures identified in the EIS and Representations Report;
 - (iii) the conditions of approval granted by the Minister.

Despite the above, in the event of any inconsistency with the proposal as described in the EIS and Representations Report, the conditions of approval granted by the Minister shall prevail.

These conditions do not relieve the Proponent of the obligation to obtain all other approvals and licences from all relevant authorities required under any other Act. Without affecting the generality of the foregoing, the Proponent shall comply with the terms and conditions of such approvals and licences.

It shall be the ultimate responsibility of the RTA to ensure compliance with all conditions of approval granted by the Minister.

Compliance

General

- 2. The Proponent shall comply with, or ensure compliance with, all requirements of the Director-General in respect of the implementation of any measures arising from the conditions of this approval. The Proponent shall bring to the attention of the Director-General any matter that may require further investigation and the issuing of instructions from the Director-General. The Proponent shall ensure that these instructions are implemented to the satisfaction of the Director-General within such time that the Director-General may specify.

Pre-Construction Compliance Report

- 3. At least one month prior to commencement of substantial construction (or within any other period agreed by the Director-General) the Proponent shall submit for approval of the Director-General a compliance report detailing compliance with all relevant conditions that apply prior to commencement of substantial construction and shall address:
 - i. the dates of submissions of the various studies and/or requirements of various relevant conditions, and their approval and terms of approval; and
 - ii. action taken or proposed to implement the recommendations made in terms of approvals and/or studies.

Pre-Operation Compliance Report

- 4. At least one month prior to commissioning of the Project (or discrete sections of the Project as agreed by the Director-General), the Proponent shall submit for approval of the Director-General a compliance report detailing compliance with all relevant conditions that apply prior to commencement of operation and shall address:
 - i. the dates of submissions of the various studies and/or requirements of various relevant conditions, and their approval and terms of approval; and
 - ii. action taken or proposed to implement the recommendations made in terms of approvals and/or studies.

The Period of one month referred to in this condition above may be altered as agreed by the Director-General.

Note: The Director-General shall provide a response to Conditions 3 and 4 within 1 month of receipt of all relevant information from the Proponent. If a request is made by the Director-General for additional information the period of time that elapses between the date on which the Proponent receives the request and the date on which the additional information is provided to the Director-General shall not be taken into account in the 1 month period referred to. Any requests for additional information shall be made by the Director-General within 1 week of receipt of all relevant information from the Proponent.

Dispute Resolution

5. The Proponent shall endeavour to resolve any dispute with relevant public authorities arising out of the implementation of the conditions of this approval. Should this not be possible, the matter shall be referred firstly to the Chief Executives/Directors of the agencies involved and if the matter cannot be resolved then to the Minister for resolution. The Minister's determination of the disagreement shall be final and binding on all parties.

Contact Telephone Number

6. Prior to the commencement of construction, the Proponent shall institute, publicise and list with a telephone company a 24 hour complaints contact telephone number, which would enable any member of the general public to reach a person who can arrange appropriate response action to the complaint.

Complaints Register

7. The Proponent shall record details of all complaints received during construction and ensure that an initial response to the complaint is provided within 24 hours and a detailed response within 10 days. Information on all complaints received shall be made available on request to the Director-General and all relevant government agencies. The Proponent shall nominate an appropriate person(s) to receive, log, track and respond to complaints within the specified timeframe. The name and contact details of this person(s) shall be provided to the relevant Council(s) and the Director-General upon appointment or upon any changes to that appointment.

Project Commencement

8. The Proponent shall notify the Director-General and all relevant authorities in writing of the project commencement both in terms of construction and operation (ie commissioning).

Advertisement of Activities

9. Prior to the commencement of construction, and then at three-monthly intervals, the Proponent shall advertise in relevant local newspapers the nature of the works proposed for the forthcoming three months, the areas in which these works are proposed to occur, the hours of operation and a contact telephone number.

The Proponent shall ensure that the local community and businesses are kept informed (by way of means such as: local newsletters, leaflets, newspaper advertisements, community noticeboards, etc.) of the progress of the Project, including any traffic disruptions and controls, construction of temporary detours and work required outside the nominated working hours, prior to such works being undertaken.

The Proponent shall establish a Project internet site prior to the commencement of construction and maintain the internet site until 6 months after commencement of operation of the Project. The internet site shall contain monthly updates of work progress and consultation activities.

Community Liaison Group

10. A Community Liaison Group (CLG) shall be formed prior to the completion of detailed design of the project or commencement of construction (whichever is the sooner) to discuss detailed design issues and methods for minimising the impact on the local community and businesses during the construction stage. The Group shall include the Environmental Management Representative (during construction), representatives from the RTA, the contractor, relevant local community and business groups, and Ballina Shire Council unless otherwise agreed by the Director-General.

Issues for discussion shall include, but not be limited to flora and fauna controls, noise control measures, access arrangements, air and water quality, landscaping requirements and any other issues considered relevant by the CLG.

Appropriate facilities and information shall be provided by the Proponent to assist the Group in carrying out its functions.

The Group may make comments and recommendations about the design and implementation of the Project, which shall be considered by the Proponent. In the event of any dispute between the Group and the Proponent, the Proponent's decision shall be considered final so long as it is not inconsistent with these conditions.

Environmental Management Representative

11. Prior to the commencement of construction, the Director- General shall approve the appointment of the person nominated to serve as the Environmental Management Representative (EMR). In considering the appointment, the Director- General shall take into account:
 - (a) the qualifications and experience of the EMR including demonstration of general compliance with the principles of AS/NZS ISO 14012:1996 Guidelines for Environmental Auditing : Qualification Criteria for Environmental Auditors;
 - (b) the role and responsibility of the EMR; and
 - (c) the authority and independence of the EMR including details of the Proponent's internal reporting structure.

The EMR shall have responsibility for:

- (a) considering and advising on matters specified in the conditions of approval and compliance with such;
- (b) certifying the environmental/community impacts as minor for all activities defined by the

- Proponent as not constituting substantial construction;
- (c) requiring the Proponent to take all steps necessary to avoid or minimise an unacceptable impact on the environment such as an immediate halt to work in the vicinity of the impact and/or the implementation of mitigation measures;
 - (d) reviewing the Proponent's induction and training program for persons involved in the construction activities and monitor implementation;
 - (e) periodically monitoring the Proponent's environmental activities to evaluate the implementation, effectiveness and level of compliance of on-site construction activities with the CEMP and associated plans and procedures, including carrying out site inspections at least fortnightly;
 - (f) reporting three monthly to the Department and providing a copy of the report to the Proponent;
 - (g) recording and providing a written report to the Proponent of non-conformances with the CEMP, mitigation measures undertaken to avoid or minimise any adverse impacts on the environment and/or required changes to the CEMP;
 - (h) reviewing corrective and preventative actions arising from recommendations made in audits and site inspections;
 - (i) reviewing and approving minor revisions to the CEMP;
 - (j) providing reports to the Department on matters relevant to the carrying out of the EMR role as necessary including notifying the Director-General of any stop work notices; and
 - (k) endorse the Construction and Operational EMPs in accordance with Conditions of Approval Nos.13 and 15.

The EMR shall immediately advise the Proponent and the Director-General concurrently of any major issues resulting from the construction of the Project that have not been dealt with expediently or adequately by the Proponent.

The EMR shall be available at 24 hrs notice during construction activities at the site and shall be present on-site during any critical construction activities as defined in the CEMP.

Environmental Management System

12. The Proponent shall ensure the appointment of contractors that have a demonstrated capability and experience in the implementation of an Environmental Management System prepared in accordance with the AS/NZS ISO 14000 series or BS7750-1994 certified by an accredited certifier and/or have a proven environmental management performance record.

Environmental Management Plan (Construction Stage)

13. Prior to the commencement of construction, a Construction Environmental Management Plan (CEMP) shall be prepared in consultation with the EPA, DLWC, NSW Fisheries and BSC. Where construction activities may be undertaken in discrete stages, the Proponent may prepare individual EMPs relating to specific stages of construction. An outline of any proposed staging of EMPs, their linkages to one another and the CEMP itself, potential environmental risks and indicative timing shall be detailed.

The CEMP shall be prepared in accordance with the conditions of this approval, all relevant Acts and Regulations and accepted best practice management Sub Plans. The CEMP shall require approval by the Director-General prior to substantial construction works or within such time as

otherwise agreed by the Director-General. The EMP shall be certified as being in accordance with the conditions of approval by the EMR prior to seeking approval of the Director-General.

The Director-General shall provide a response to the CEMP within 1 month of receipt of all relevant information from the Proponent assuming receipt of adequate and sufficient information. If a request is made by the Director-General for additional information the period of time that elapses between the date on which the Proponent receives the request and the date on which the additional information is provided to the Director-General shall not be taken into account in the 1 month period referred to.

The CEMP shall:

- a) address construction activities associated with all key construction sites, including staging and timing of the proposed works;
- b) cover specific environmental management objectives and strategies for the main environmental system elements and include, but not be limited to: noise and vibration; air quality; water quality; erosion and sedimentation; access and traffic; heritage and archaeology; groundwater; spoil stockpiling and disposal; waste/resource management; flora and fauna; weed management; flooding and stormwater control; geotechnical issues; visual screening, landscaping and rehabilitation; hazards and risks; energy use, resource use and recycling; and utilities; and
- c) address, but not be limited to:
 - i) identification of the statutory and other obligations which the Proponent is required to fulfil during project construction, including all approvals and consultations/agreements required from other authorities and stakeholders, and key legislation and policies which control the Proponent's construction of the project;
 - ii) definition of the role, responsibility, authority, accountability and reporting of personnel relevant to compliance with the CEMP;
 - iii) measures to avoid and/or control the occurrence of environmental impacts;
 - iv) measures (where practicable and cost effective) to provide positive environmental offsets to unavoidable environmental impacts;
 - v) the role of the EMR;
 - vi) environmental management procedures for all construction processes which are important for the quality of the environment in respect of permanent and/or temporary works;
 - vii) monitoring, inspection and test plans for all activities and environmental qualities which are important to the environmental management of the project, including performance criteria, specific tests, protocols (eg. frequency and location) and procedures to follow;
 - viii) environmental management instructions for all complex environmental control processes which do not follow common practice or where the absence of such instructions could be potentially detrimental to the environment;
 - ix) steps the Proponent intends to take to ensure that all plans and procedures are being complied with;
 - x) consultation requirements with relevant government agencies; and
 - xi) community consultation and notification strategy (including local community, relevant government agencies, and BSC), and complaint handling procedures.

Specific requirements for some of the main environmental system elements referred to in (b) shall be as required under the conditions of this approval and/or as required under any licence or approval.

The CEMP shall be made publicly available.

Environmental Monitoring - Construction

14. The Proponent shall submit to the Director-General a report(s) in respect of the environmental performance of the construction works and compliance with the CEMP and any other relevant conditions of this approval. The reports shall be prepared six months after the start of substantial construction and thereafter at six monthly intervals or at other such periods as requested by the Director-General to ensure adequate environmental performance over the duration of the construction works. The report(s) shall include, but not be limited to, information on:

- a) applications for consents, licences and approvals, and responses from relevant authorities;
- b) implementation and effectiveness of environmental controls and conditions relating to the work undertaken;
- c) identification of construction impact predictions made in the EIS and any supplementary studies and details of the extent to which actual impacts reflected the predictions;
- d) details and analysis of results of environmental monitoring;
- e) number and details of any complaints, including summary of main areas of complaint, action taken, response given and intended strategies to reduce complaints of a similar nature; and
- f) any other matter relating to the compliance by the Proponent with the conditions of this approval or as requested by the Director-General.

The report(s) shall be provided to the EPA, DLWC, NSW Fisheries and BSC, and any other government agency nominated by the Director-General. The report(s) shall also be made publicly available.

Environmental Management Plan (Operation Stage)

15. An Operational Environmental Management Plan (OEMP) shall be prepared prior to the commencement of operation. The Plan shall be prepared in consultation with the EPA, DLWC, NSW Fisheries, BSC and any other government agency nominated by the Director-General. The OEMP shall be prepared in accordance with the conditions of this approval, all relevant Acts and Regulations and accepted best practice management Sub Plans. The OEMP shall require approval by the Director-General prior to commissioning or within such time as otherwise agreed to by the Director-General. The OEMP shall be certified as being in accordance with the conditions of approval by the EMR prior to seeking approval of the Director-General.

The Director-General shall provide a response to the OEMP within 1 month of receipt of all relevant information from the Proponent assuming receipt of adequate and sufficient information. If a request is made by the Director-General for additional information the period of time that elapses between the date on which the Proponent receives the request and the date on which the additional information is provided to the Director-General shall not be taken into account in the 1 month period referred to.

The OEMP shall include but not be limited to:

- a) identification of the statutory and other obligations which the Proponent is required to fulfil, including all licences/approvals and consultations/agreements required from authorities and

- other stakeholders, and key legislation and policies which control the Proponent's operation of the project;
- b) sampling strategies and protocols to ensure the quality of the monitoring program, including the specific requirements of the EPA and DLWC;
 - c) monitoring, inspection and test plans for all activities and environmental qualities which are important to the environmental performance of the project during its operation, including description of potential site impacts, performance criteria, specific tests and monitoring requirements, protocols (eg. frequency and location) and procedures to follow;
 - d) steps the Proponent intends to take to ensure compliance with all plans and procedures;
 - e) consultation requirements, including relevant government agencies, the local community and BSC, and complaints handling procedures; and
 - f) strategies for the main environmental system elements and including, but not limited to: noise; water quality; erosion and sedimentation; access and traffic; groundwater; settlement; waste/resource management/removal/disposal; aquatic and terrestrial flora and fauna; hydrology and flooding; visual screening, landscaping and rehabilitation and hazards and risks.

Specific requirements for some of the main environmental system elements referred to in (f) shall be as detailed under the conditions of this approval and/or as required under any licence or approval.

The OEMP shall be made publicly available.

All sampling strategies and protocols undertaken as part of the OEMP shall include a quality plan and shall be approved by the relevant regulatory agencies to ensure the effectiveness and quality of the monitoring program. Only accredited laboratories can be used for laboratory analysis.

Compliance with this condition may be waived with the approval of the Director-General on the proviso that the RTA has an operational maintenance and monitoring program which addresses the key issues relating to this activity and provided that the results of this program are made publicly available.

Environmental Impact Audit Report

16. An Environmental Impact Audit Report shall be submitted to the Director-General, and the EPA and upon request by the Director-General to any other government authority 12 months and 5 years after commissioning of the project. An independent person at the Proponent's expense shall prepare the Report. The Report shall assess the key impact predictions made in the EIS and any supplementary studies and detail the extent to which actual impacts reflect the predictions. In particular, the Report shall provide details on actual versus predicted impacts for all key issues identified in the EIS. The suitability of implemented mitigation measures and safeguards shall also be assessed. The Report shall also assess compliance with the OEMP.

The Report shall discuss results of consultation with the local community in terms of feedback/complaints on the construction and operation phases of the project and any issues of concern raised. The Proponent shall comply with all requirements of the Director-General, EPA and other relevant authorities with respect to any reasonable measure arising from, or recommendations in, the Report.

The Report shall be made publicly available.

Economic Impacts

17. Prior to the commencement of construction, the Proponent shall undertake consultation with BSC and the CLG to develop appropriate signage and 'gateway' treatment for Bruxner Highway traffic on the approaches to Alstonville and Wollongbar. The signage shall indicate the range of services available in the towns and that the route through the towns may be used as an alternative route to the bypass, taking into account RTA's standard signposting policy. The "Gateway Treatments" shall consist of a roadside layby on both the eastern and western exits from the bypass providing the opportunity for the provision of directional and tourist information and appropriate landscaping to provide a "sense of arrival".

Property and Land Use

18. The Proponent shall ensure that any legal access way affected by the Project is reinstated to an equivalent standard or that adequate compensation is negotiated with the relevant landowner(s)
19. The Proponent shall consult with all directly affected landowners regarding any practical and cost-effective measures to minimise impacts which may be implemented prior to the commencement of construction or within such time as agreed with the relevant landowner(s).
20. If requested by any affected landowner during the property acquisition process, the Proponent shall consider the consolidation of severed parcels of land as part of any compensation package if practical and cost-effective.
21. When requested to do so by rural producers directly affected by the project the RTA, in consultation with NSW Agriculture and as part of the acquisition process, is to engage agricultural specialist(s) to provide advice to landowners on measures to minimise the effects of the proposal on agricultural activities. The RTA shall notify all affected landowners of the availability of the agricultural specialist(s) as soon as practicable and prior to commencement of substantial construction activities likely to affect agricultural activities.

Traffic and Roadworks

22. The Proponent shall prepare a Traffic Management Sub Plan as part of the CEMP for traffic arrangements during the construction period. The Traffic Management Sub Plan shall be prepared in consultation with BSC and shall include:
 - a) measures to manage traffic flows through and surrounding the Project, including regulatory and direction signposting, line marking and variable message signs;
 - b) techniques for the management of construction traffic including minimisation of the use of local roads by heavy construction vehicles and access arrangements to construction sites;
 - c) impacts on all existing traffic (including pedestrians, school bus services, cyclists and disabled persons) including arrangements to minimise the need for road closures or major delays; and
 - d) monitoring of local roads for any damage by construction vehicles.
23. A road dilapidation report shall be prepared prior to the commencement of construction and after construction is complete for all non-arterial roads likely to be used by construction traffic. Copies

of the report shall be provided to BSC. Any damage resulting from the construction of the Project, aside from that resulting from normal wear and tear, shall be repaired at the cost of the Proponent.

Note: Nothing in Conditions 22 nor 23 shall be taken as restricting the Proponent from negotiating an alternative payment for damage arrangements with BSC subject to the agreement of BSC.

24. Within 12 months of opening the Project, the Proponent shall conduct a detailed Road Safety Audit to determine the need for the installation of concrete medians or other required safety measures at the Sneaths Road, Kays Lane and Teven Road intersections with the Project. The details of this audit shall be incorporated into the Environmental Impact Audit Report.

Flora and Fauna

Construction

25. As part of the CEMP the Proponent shall prepare, in consultation with the NPWS, a detailed Flora and Fauna Management Sub Plan. The Sub Plan shall be prepared prior to construction and include but not be limited to:
- (a) strategies for seed collection and revegetation;
 - (b) strategies for minimising vegetation clearance;
 - (c) mitigation measures to be implemented;
 - (d) weed management strategy; and
 - (e) identification of measures proposed to be taken to protect vegetated areas outside the direct impact zone, controlling impacts due to spills, spread of debris and refuse and movement and storage of materials and equipment.
26. Prior to construction, the area of Veiny Laceflower (*Archidendron muellerianum*) near Kays Lane shall be fenced to prevent impacts from the Project unless otherwise agreed by NPWS.
27. Prior to construction all areas of Rough-leaved Queensland Nut (*Macadamia tetraphylla*) that may be affected both directly and indirectly during construction shall be identified and included in the Flora and Fauna Management Sub Plan. All areas that will not need to be removed shall be fenced and protected from construction activities. Small plants and seedlings of the Rough-leaved Queensland Nut that would be affected by the Project are to be collected prior to construction and transplanted to an appropriate area to be reused as part of the landscaping works.
28. Where possible seed of locally native species, including all rainforest trees to be removed, shall be collected prior to the commencement of and/or during construction to provide seed stock for revegetation purposes to the satisfaction of a qualified bushland regeneration officer. Topsoil and leaf mulch shall be stripped and stored for placement back in the vegetation zone from where it was removed.
29. The Flora and Fauna Management Sub Plan shall provide for a qualified ecologist to: be consulted on the location of individual rare or threatened plants or communities; ensure minimal disturbance to native vegetation; provide direction on methods for relocation and/or replacement

plantings; and initiate and undertake rehabilitation works as soon as practicable. The qualified ecologist shall also be consulted to identify potentially affected tree hollows including the detection and removal of any roosting fauna in these hollows prior to construction.

30. Rainforest remnants and their habitat adjacent to, but not directly affected by the Project shall be fenced off from construction areas to avoid disturbance. All construction personnel shall receive training prior to construction to become familiar with rainforest remnant vegetation types.
31. Topsoil infested with proclaimed noxious weeds as identified by a qualified ecologist shall not be used in the rehabilitation works unless it is to be sterilised or treated in an appropriate manner.
32. If, during the course of construction, the Proponent becomes aware of the presence of any threatened species which are likely to be significantly affected and are not recognised in the flora and fauna studies as part of the EIS, Representations Report or CEMP, then the Proponent shall immediately advise the NPWS. No activity which places any of these species at risk shall be undertaken until advice has been received from the NPWS. All recommendations by the NPWS shall be complied with prior to the recommencement of any works likely to affect these threatened species.
33. Where practicable the Proponent shall salvage trees with hollows and relocate these trees to adjacent areas of vegetation. These trees shall be identified in accordance with Condition No. 29 and following identification by a qualified ecologist.
34. Cleared vegetation must be reused or recycled to the greatest extent practicable. Reuse options include removing millable logs, recovering fence posts and mulching or chipping unusable vegetation waste for on-site use. All reasonable measures to use any surplus vegetation shall be undertaken including donation to community groups, distribution to the local community, etc.

Urban Design, Landscaping and Revegetation

35. As part of the CEMP, the Proponent shall prepare a detailed Urban Design and Landscape Sub-Plan in consultation with BSC, all affected landowners and the CLG. The Sub Plan shall include, but not be limited to the following:
 - (a) sections and perspective sketches;
 - (b) methodology of landscaping works;
 - (c) location and identification of existing and proposed vegetation including use of locally native species;
 - (d) location of mounds, bunds, structures or other proposed treatments, finishes of exposed surfaces (including paved areas), ramps, interchanges, colours and specifications, staging of works, methodology of landscaping;
 - (e) progressive landscape strategies incorporating other environmental controls such as erosion and sedimentation controls, drainage and noise mitigation;
 - (f) lighting, particularly around interchanges; and
 - (g) monitoring and maintenance procedures.
36. All revegetation and landscaping works (including the control of weeds) shall be monitored and maintained by a suitably qualified person at the Proponent's expense for a period of not less than three years.

37. The proposed lighting at junctions and elsewhere nominated by the RTA shall be in accordance the RTA design guidelines and AUSTRROADS 'Roadway Lighting Guide'.

Noise and Vibration

Management Sub Plans

38. A detailed Noise and Vibration Management Sub Plan (NVMP Construction) shall be prepared as part of the CEMP in consultation with the EPA. The Sub Plan shall include, but not be limited to:
- a) compliance standards;
 - b) community consultation;
 - c) complaints handling monitoring/system;
 - d) site contact person to follow up complaints;
 - e) mitigation measures;
 - f) the design/orientation of the proposed mitigation methods demonstrating best practice;
 - g) construction times;
 - h) contingency measures where noise complaints are received; and
 - i) monitoring methods and program.
39. A detailed Operational Noise Management Sub Plan (ONMP) shall be prepared as part of the OEMP in consultation with the EPA. The ONMP shall include, but not be limited to:
- a) details of the EPA noise criteria and any project specified noise goals;
 - b) details of noise mitigation measures (including structural and/or non structural measures) implemented for the operation stage sufficient to address the technical requirements of the EPA's guideline – 'Environmental Criteria for Road Traffic Noise' and the RTA's 'Environmental Noise Management Manual';
 - c) location and type of any permanent noise barriers;
 - d) noise monitoring, reporting and response procedures; and
 - e) the urban design issues relating to noise control measures.
40. The Proponent shall install, where practicable, operational stage noise mitigation measures prior to construction to reduce construction noise impacts.

Construction Hours

41. All construction activities, including entry and departure of heavy vehicles, but apart from blasting are restricted to the hours of 7.00am to 6.00pm (Monday to Friday), 8.00am to 1.00pm (Saturday) and at no time on Sundays and public holidays.

Works outside these hours that may be permitted include:

- (a) any works which do not cause noise emissions to be audible at any nearby residential property;
- (b) the delivery of materials which is required outside these hours as requested by police or other authorities for safety reasons;

- (c) emergency work to avoid the loss of lives, property and/or to prevent environmental harm (including the suppression of dust); and
- (d) any other work as agreed through negotiation between the RTA and potentially affected noise receivers or as otherwise agreed by the EPA through the NVMP process or any EPA licence process.

Blasting and Vibration

- 42. Blasting shall only be undertaken between the hours of 9.00am and 3.00pm, Monday to Friday, and 9.00am to 12.00pm on Saturday.
- 43. Any blasting as part of the construction works shall be carried out in accordance the Guideline “*Technical Basis for Guidelines to Minimise Annoyance due to Blasting Overpressure and Ground Vibration*” prepared by ANZECC.
- 44. As far as practicable, piling activities, vibratory compactors and rock breakers shall not be used closer than 50m from residential buildings and any blasting activities no closer than 300m from residential buildings. Should major vibration causing equipment or blasting occur within these limits, building condition surveys shall be undertaken before and after use of this type of equipment or blasting and in reference to the vibration limits specified in Condition No. 45. The Proponent shall be responsible for rectifying any damages occurring as a result of the construction with the cost to be borne by the Proponent.
- 45. Vibration resulting from construction of the Project shall be limited to:
 - (a) For structural damage vibration - German Standard DIN 4150 and BS 7385: Part 2 – 1993; and,
 - (b) For human exposure to vibration - the evaluation criteria presented in British Standard BS6472 for low probability of adverse comment,

unless otherwise agreed by the EPA through the NVMP Construction.

- 46. The Proponent shall make all reasonable attempts to notify the occupants at least 48 hours in advance, including a schedule of times, should blasting take place within 500 metres of residences.

Operation Noise

- 47. Monitoring of the noise when operational shall be undertaken as stated in the ONMP and in accordance with the NSW Government guideline *Environmental Criteria for Road Traffic Noise*. The Proponent shall review the monitoring results, and assess the adequacy of the traffic noise mitigation measures in accordance with the “Post Construction Noise Monitoring Practice Note viii” contained in the RTA’s *Environmental Noise Management Manual*.

Flooding and Hydrology

Inundation levels

- 48. The Project shall be designed with a goal of causing no increase in the peak discharge in BSC’s stormwater drainage system in the vicinity of the Mellis Circuit area.

Flood Design Criteria

49. Minimum design criteria for the Project shall be –

- (a) cross drainage - 1 in 100 year ARI; and
- (b) road drainage - 1 in 5 year ARI.

Soil and Water Management

Soil and Water Quality Management Sub Plan

50. As part of the CEMP and OEMP, a detailed Soil and Water Quality Management Sub Plan shall be prepared in consultation with the EPA, DLWC, NSW Fisheries and BSC. The Sub Plan shall be prepared in accordance with the Department of Housing's guideline *Managing Urban Stormwater - Soils and Construction*. The Sub Plan(s) shall be prepared prior to construction or operation as appropriate.

The Soil and Water Quality Management Sub Plan shall contain, but not be limited to:

- (a) management of the cumulative impacts of the development on the quality and quantity of surface and groundwater, including stormwater in storage, sedimentation dams and flooding impacts;
- (b) details of short and long term measures to be employed to minimise soil erosion and the discharge of sediment to land and/or waters including the locations of suitably sized sedimentation basins;
- (c) management of the impacts of the development on watercourse crossings including Maguires Creek and any other nearby creeks and water bodies;
- (d) identification of all potential sources of water pollution and a detailed description of the remedial action to be taken or management systems to be implemented to minimise discharges of these pollutants from all sources within the subject site;
- (e) detailed description of water quality monitoring to be undertaken during the pre-construction, construction and operation stages of the Project including identification of locations where monitoring would be carried out;
- (f) contingency plans to be implemented in the event of fuel and other spills;
- (g) a program for reporting on the effectiveness of the sediment and erosion control system against performance goals; and
- (h) a program for the DLWC, or other appropriately qualified soil conservationist, to undertake inspections of temporary and permanent erosion and sedimentation control devices to ensure that the most appropriate controls are being implemented and that they are being maintained in an efficient condition at all times.

Erosion and Sediment Control Works

51. The Soil and Water Management Sub Plan shall incorporate detailed erosion and sedimentation controls including a strategy to manage the extent of exposed ground surface during construction and progressive site rehabilitation requirements (in accordance with the Urban Design and Landscape Sub Plan and Air Quality Sub Plan).

52. All stormwater runoff collected on-site during construction which is likely to be contaminated, shall be tested, handled and disposed of in accordance with the provisions of the *Protection of the Environment Operations Act 1997*.
53. Sediment basin(s) must be designed (stability, location, type and size), constructed, operated and maintained in accordance with the guideline "*Managing Urban Stormwater – Soils and Construction, 3rd edition, 1998*" produced by the NSW Department of Housing. The Proponent shall consult with landowners in the immediate vicinity of the basins, regarding their location.

Operation Stage Control Measures

54. All stormwater drainage, erosion, sedimentation and water pollution control systems and facilities of the Project shall be located, designed, constructed operated and maintained to meet the requirements of DLWC and any Environment Protection Licence issued by the EPA for the Project. All facilities including wetland filters, grass filter strips, gross pollutant traps and operational sedimentation basins shall be inspected as stated in the OEMP and maintained in a functional condition for the life of the project. Construction stage water quality structures shall be maintained until revegetation has provided groundcover to at least 70% of the exposed surfaces.
55. The Proponent shall provide appropriate detention systems for containment of spills and materials arising from accidents that are consistent with the RTA's "*Code of Practice for Water Management – Road Development and Management*".

Heritage and Archaeology

56. As part of the CEMP, the Proponent shall prepare an Indigenous Heritage Management Sub Plan in consultation with NPWS and Jali LALC. The Sub Plan shall include, but not be limited to, the following:
 - (a) details of licences/approvals to be obtained in relation to indigenous heritage issues including those required under the *National Parks and Wildlife Act 1974*; and
 - (b) procedures for monitoring of areas of potential archaeological sensitivity identified in the EIS during initial clearing and construction activities with the involvement of the Jali LALC.
57. During the detailed design stage of the Project, the Proponent shall, in consultation with NPWS and Jali LALC, identify the extent of indigenous axe grinding grooves in the vicinity of the bridge over the Maguires Creek. Where possible, the bridge shall be designed to avoid affecting any identified indigenous axe grinding grooves. If a potential to affect the axe grinding grooves is identified then the Proponent shall undertake further studies in consultation with NPWS and/or obtain appropriate licences/approvals from NPWS.

Unexpected items

58. If during the course of construction the Proponent becomes aware of any heritage items or archaeological material, all work likely to affect the site(s) shall cease immediately and the relevant authorities, including NPWS and the relevant Local Aboriginal Land Council or the NSW Heritage Office, shall be consulted to determine an appropriate course of action prior to the recommencement of work at that site. Appropriate supporting documentation would need to accompany any application for required permit/consent(s).

Air Quality

Construction Air Quality Sub Plan

59. As part of the CEMP a specific Construction Stage Air Quality Sub Plan shall be prepared in consultation with the EPA. The Sub Plan shall provide details of all dust control measures to be implemented during the construction stage. The Sub Plan shall include, but not be limited to:
- (a) pro-active measures to reduce dust from stockpiles and cleared areas and other exposed surfaces; and
 - (b) progressive revegetation strategies for exposed surfaces in accordance with the Soil and Water management Sub Plan and the Urban Design and Landscape Sub Plan.
60. Where there is a risk of losing material, construction vehicles using public roads shall be maintained and covered to prevent any loss of load, whether in the form of dust, liquid or solids. Construction vehicles shall be maintained to minimise any mud, dirt or other material tracked onto any street which is opened and accessible to the public. The Proponent shall install measures such as wheel wash facilities and/or wheel shakers at exits from construction sites to public roads. In the event of any spill, the Proponent is required to remove the spilt material within 24 hours.
61. In accordance with the *Protection of Environment Operations (Control of Burning) Regulation 2000*, no open burning or incineration shall be permitted on the Project site unless otherwise approved by the EPA.

Spoil Disposal and Waste Management

Spoil Management Sub Plan

62. As part of the CEMP, the Proponent shall prepare a Spoil Management Sub Plan. This Sub Plan shall identify how spoil would be handled, stockpiled, reused and disposed. The Sub Plan shall be prepared in consultation with the EPA and BSC before the commencement of construction at relevant sites.
63. All clean and/or treated spoil shall be reused or recycled where possible and cost effective to do so. Wherever possible, the Proponent shall ensure that spoil generated from construction activities is maximised in preference to any import of fill.

Waste Management and Recycling Sub Plan

64. As part of the CEMP, a detailed Waste Management and Reuse Sub Plan shall be prepared. The Sub Plan shall address the management of wastes during the construction stage in accordance with the Government's *Waste Reduction and Purchasing Policy* and shall identify requirements for:
- a) waste avoidance;
 - b) reduction;
 - c) reuse; and
 - d) recycling,

and details of requirements for:

- e) handling;
- f) stockpiling;
- g) disposal of wastes: specifically contaminated soil or water, concrete, demolition material, cleared vegetation, oils, grease, lubricants, sanitary wastes, timber, glass, metal, etc.;
- h) implementation of best practice energy conservation;
- i) identifying any site for final disposal of any material and any remedial works required at the disposal site before accepting the material.

65. Any waste material that is unable to be reused, reprocessed or recycled shall be disposed at a landfill licensed by the EPA to receive that type of waste.

Utilities and Services

66. As part of the CEMP a Utilities Services Sub Plan shall be prepared. In the Sub Plan the Proponent shall identify the services potentially affected by construction activities to determine requirements for diversion, protection and/or support. This shall be undertaken in consultation with the relevant service provider(s). Any alterations to utilities and services shall be carried out to the satisfaction of the relevant service provider(s), and unless otherwise agreed to, at no cost to the service/utility provider(s).

Note: Nothing in Condition 66 shall be taken as requiring the Proponent to meet the cost of any alterations should any prior agreements or protocols be in place between the Proponent and service provider(s) for such alterations.

67. The Proponent shall ensure that disruptions to services resulting from the Project are minimised and shall be responsible for ensuring that local residents and businesses affected are advised prior to any disruption of service.

Batching Plants and Construction Compounds

68. The Proponent shall only construct batching plants and construction compounds under this approval in those locations that satisfy the following criteria:
- (a) sites to be located within the road reserve wherever feasible;
 - (b) if the sites are located outside the road reserve, the area is to be restored to its original condition following removal of the plant or compound;
 - (c) sites to be located with ready access to the local road network;
 - (d) sites on relatively level land;
 - (e) sites to be separated from nearest residences by at least 200m unless it can be demonstrated to the satisfaction of the Director-General that there would be no adverse impacts on noise, visual and air quality impacts;
 - (f) sites are not to be located within 100m of waterways unless adequate erosion and sediment controls are implemented to protect water quality;
 - (g) sites above the 100 ARI flood level;

- (h) sites are to have low conservation significance for flora, fauna or heritage and they are not to require any clearing of native vegetation beyond that which must be cleared for the Project in any case; and
- (i) sites are to be selected so that the operation of the plants does not impact on the land use of adjacent properties.

The location of any construction compounds, concrete and/or asphalt batching plants shall be detailed in the CEMP which shall include demonstration that the above criteria have been met.

10 REFERENCES

Roads and Traffic Authority (2000). Representations Report – Alstonville Bypass.

Sinclair Knight Merz (1998). Proposed Alstonville Bypass - Environmental Impact Statement. Prepared for the Roads and Traffic Authority.

Sinclair Knight Merz (2002) Updated Threatened Species Impact Assessment for the Proposed Alstonville Bypass. Prepared for the Roads and Traffic Authority.

APPENDIX A

Summary of Representations

APPENDIX B

Additional Flora and Fauna Report by SKM (March 2002)

APPENDIX C

Addendum Threatened Species Report by SKM (May 2002)