



Foxground and Berry bypass

Princes Highway

Preliminary Environmental Assessment

DECEMBER 2010

Roads and Traffic Authority
Princes Highway upgrade
Foxground and Berry bypass
Preliminary Environmental Assessment
December 2010

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Abbreviations and Glossary

Term	Definition
AADT	Annual average daily traffic
AFG	Aboriginal Focus Group
AHD	Australian height datum
AHIMS	Aboriginal Heritage Information Management System
ANZECC	Australia, New Zealand Environment Conservation Council
ARI	Annual recurrence interval
ASS	Acid sulfate soils
BOM	Bureau of Meteorology
CEMP	Construction environmental management plan
CO	Carbon monoxide
CO ₂	Carbon dioxide
CSIRO	Commonwealth Scientific and Industrial Research Organisation
DEC	Department of Environment and Conservation (now DECCW)
DECC	Department of Environment and Climate Change (now DECCW)
DECCW	Department of Environment, Climate Change and Water
DEWHA	Department of Environment, Water, Heritage and the Arts
DoP	Department of Planning
DUAP	Department of Urban Affairs and Planning (now DoP)
EEC	Endangered ecological community
EP&A Act	NSW <i>Environmental Planning and Assessment Act 1979</i>
EP&A Regulation	NSW Environmental Planning and Assessment Regulation 2000
EPBC Act	Commonwealth <i>Environment Protection and Biodiversity Conservation Act 1999</i>
ESD	Ecologically sustainable development
FM Act	NSW <i>Fisheries Management Act 1994</i>
GHG	Greenhouse gas
HAZOP	Hazard and operability study
IPCC	Intergovernmental Panel on Climate Change
LEP	Local environmental plan
LGA	Local government area
LoS	Level of service is a qualitative measure describing operational conditions within a traffic stream. The desirable maximum capacity of each road section is determined from AUSTROAD's "Guide to Traffic Engineering Practice: Part 2 – Roadway Capacity". It is generally described in terms of such service measures as speed and travel time, freedom to manoeuvre, traffic interruptions, comfort and convenience, and road safety. There are six levels of service, designated LoS A (best – free flow) to LoS F (worst – break-down in flow).
MVKT	Million vehicle kilometres travelled
NES	National environmental significance
NPWS	National Parks and Wildlife Service
NO ₂	Nitrogen dioxide
NSW	New South Wales
O ₃	Ozone
PACHCI	Procedure for Aboriginal Cultural Heritage Consultation and Investigation
PHA	Preliminary hazard analysis
PM ₁₀	Particulate matter - specifically referring to fine, airborne particles with an aerodynamic diameter smaller than or equal to 10 micrometres

Term	Definition
ROTAP	Rare or threatened Australian plant species
RTA	Roads and Traffic Authority of NSW
'Sandtrack'	An alternative route to the winding, hilly section of Princes Highway between Gerringong and Berry (via Beach Road)
SCRS	South Coast Regional Strategy
SEPP	State Environmental Planning Policy
Study area	The study area is the area that was considered within each preliminary technical environmental assessment undertaken for the project. The study area may vary for the different environmental disciplines.
SO ₂	Sulphur dioxide
SoC	Statement of commitments
TSC Act	NSW <i>Threatened Species Conservation Act 1995</i>
WARR Act	NSW <i>Waste Avoidance and Resource Recovery Act 2001</i>
WRAPP	Waste Reduction and Purchasing Policy

I Introduction

I.1 Background

I.1.1 The project

The Roads and Traffic Authority of NSW (RTA) is proposing the Foxground and Berry bypass project as part of its overall upgrade of the Princes Highway to four lanes from Waterfall to the Jervis Bay Road junction to provide increased road safety and traffic efficiency in the south coast region.

The project would involve widening and realigning a section of the Princes Highway, located within the Kiama and Shoalhaven local government areas (LGAs), extending from approximately the junction of Toolijooa Road and the Princes Highway for some 11.6 kilometres to approximately the junction of Schofields Lane and the Princes Highway, south of Berry. It includes a bypass of Berry, and would provide a four lane divided carriageway.

The project would include the following key features:

- Widening the Princes Highway to a four lane divided carriageway, between Toolijooa Road and Schofields Lane.
- Grade-separated interchanges at Toolijooa Road, Austral Park Road, Tindalls Lane, the eastern end of Berry, and the western end of Berry, at Kangaroo Valley Road.
- Cutting up to 24 metres deep at Toolijooa Ridge.
- Bridge structures spanning Broughton Creek, Woodhill Mountain Road, Broughton Mill Creek and Bundewallah Creek.
- Bypass of Berry.
- Heavy vehicle rest area.

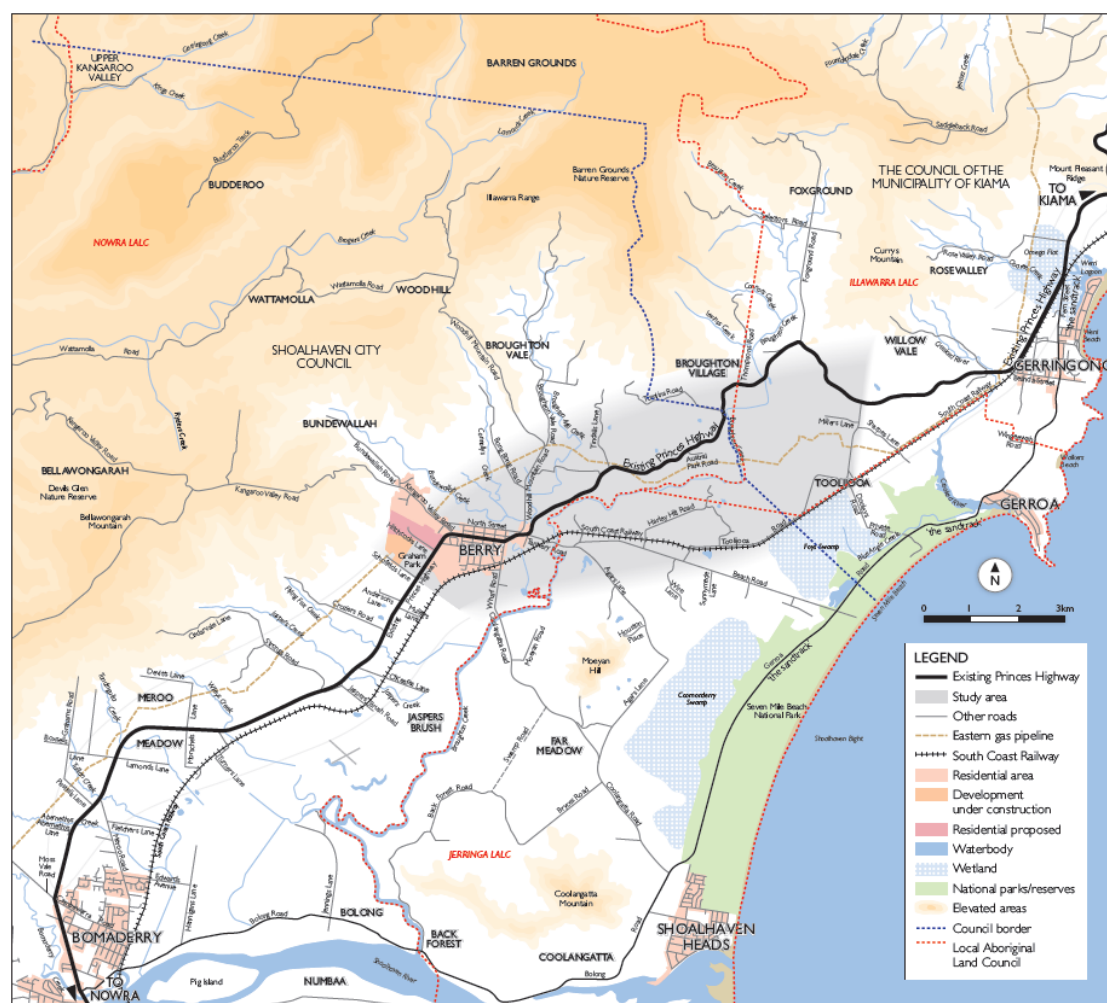
The project would also include all associated or ancillary works, activities, uses, structures, or facilities for the purposes of the project.

I.1.2 Location of the project

The project is located west of Gerringong, between the intersection of the Princes Highway and Toolijooa Road, and the intersection of the Princes Highway and Schofields Lane. The project traverses Toolijooa Ridge, Foxground, Broughton Creek and bypasses the town of Berry. The project lies partly within the Kiama local government area (LGA) and partly within the Shoalhaven LGA. The regional context of the project is shown in Figure I.1.

The immediate area of the project is referred to in this report as the project location. The broader area around the project location that would be assessed for environmental impacts is referred to in this report as the study area. The indicative study area is shown in Figure I.1. The project is shown in detail in Figure 4.1.

Figure 1.1: Regional context of the project showing the study area



1.1.3 Development of the project

The Foxground and Berry bypass project has been declared to be a project to which Part 3A of the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act) applies. Further details of the declaration are provided in Section 2.1 of this report.

The project would be funded by the NSW Government. Construction of the project is anticipated to commence in 2014 and is expected to take up to three years to complete.

Key benefits of the project would include:

- Improved traffic efficiency and overall safety for road users on this section of the Princes Highway.
- Generation of local employment opportunities.
- Support for the local and regional economy in the short and long-term.

The RTA has conducted a number of environmental studies and engineering investigations and has undertaken significant community consultation to inform the development of the concept design for the project. The preferred concept design was described and environmental, social and functional constraints were outlined in the *Gerringong to Bomaderry Princes Highway Upgrade Preferred Option Report* (RTA 2008), addendum one to the preferred option report, *Gerringong to Bomaderry Princes Highway Upgrade Toolijooa Ridge Preferred Option Report*

(RTA 2009), and associated technical working papers.

Prior to finalisation, each of these reports and working papers were made available to the public. Following the public display of the preferred option report and addendum one to the preferred option report, a preferred concept design was developed that addressed community and stakeholder input while taking into consideration all relevant constraints and design guidelines. Reports and technical papers prepared in relation to the project are available on the project website at www.princeshighwayupgrade.com.au.

1.2 Purpose of this document

This preliminary environmental assessment has been prepared to support a major project application under section 75E of the EP&A Act. The preliminary environmental assessment does the following:

- Describes the project.
- Outlines the findings of preliminary environmental assessments carried out and identifies key environmental issues.
- Identifies the proposed scope of the subsequent environmental assessment for the project.
- Aims to assist the formulation of environmental assessment requirements by the Director-General under section 75F(2) of the EP&A Act.

This preliminary environmental assessment represents the first stage of the planning process and the environmental assessment requirements issued by the Director-General of the Department of Planning (DoP) for the project would inform the environmental assessment.

2 Planning and assessment process

2.1 Approval process

The EP&A Act and the Environmental Planning and Assessment Regulation 2000 (EP&A Regulation) provide the statutory planning framework for environmental assessment of the project.

Under section 75B(2)(a) of the EP&A Act, the Minister for Planning may declare the following kind of development to be a project to which Part 3A applies:

“major infrastructure or other development that, in the opinion of the Minister, is of State or regional environmental planning significance”.

In accordance with the above provision, the Minister for Planning has declared by Order dated 10th September 2010 and published in NSW Government Gazette No. 114 that the Princes Highway upgrade between Toolijooa Road and Schofields Lane, known as the Foxground and Berry bypass, is a project to which Part 3A of the EP&A Act applies (refer to Appendix A).

2.2 Environmental Planning Instruments

This section describes the relevant environmental planning instruments that would apply to the project.

2.2.1 State environmental planning policies

Section 75R(2) of the EP&A Act states that State Environmental Planning Policies (SEPPs) apply to:

- (a) *The declaration of a project as a project to which this Part applies or as a critical infrastructure project; and*
- (b) *The carrying out of a project, but (in the case of a critical infrastructure project) only to the extent that the provisions of such a policy expressly provide that they apply to and in respect of the particular project.”*

The following SEPPs may have relevance to the project, and would be considered in the environmental assessment if applicable:

- *State Environmental Planning Policy (Infrastructure) 2007.*
- *State Environmental Planning Policy (Rural Lands) (2008).*
- *State Environmental Planning Policy No. 14 – Coastal Wetlands.*
- *State Environmental Planning Policy No. 26 Littoral Rainforests.*
- *State Environmental Planning Policy No. 33 – Hazardous and Offensive Development.*
- *State Environmental Planning Policy No. 44 – Koala Habitat Protection.*
- *State Environmental Planning Policy No. 71 – Coastal Protection.*
- *Illawarra Regional Environmental Plan No. 1¹.*

¹ From 1 July 2009 all Regional Environmental Plans are taken to be State Environmental Planning Policies (ref clause 120 of Schedule 6 to the EP&A Act)

2.2.2 Local environmental plans

Section 75R(3) of the EP&A Act states that:

“environmental planning instruments (other than State environmental planning policies) do not apply to or in respect of an approved project”.

As the project has been declared to be a project to which Part 3A applies, local environmental plans (LEPs) do not apply to the project. The Minister may, but need not consider these plans in the determination of the project. The following LEPs apply to land in the project location and would be reviewed where relevant as part of the environmental assessment:

- *Kiama Local Environmental Plan 1996.*
- *Draft Kiama Local Environmental Plan 2010.*
- *Shoalhaven Local Environment Plan 1985.*

2.3 Other State legislation

In addition to the EP&A Act, other NSW legislation contains requirements that may be relevant to the project. The application of certain legislation is limited by the provisions of Part 3A of the EP&A Act, however, the RTA would continue liaising with relevant agencies to identify and satisfy further requirements under NSW legislation prior to the commencement of works. The following NSW legislation may have relevance to the project and would be considered in the environmental assessment if applicable:

- *Contaminated Land Management Act 1997.*
- *Fisheries Management Act 1994.*
- *Heritage Act 1977.*
- *Land Acquisition (Just Terms Compensation) Act 1991.*
- *National Parks and Wildlife Act 1974.*
- *Protection of the Environment Operations Act 1997.*
- *Roads Act 1993.*
- *Rural Fires Act 1997.*
- *Threatened Species Conservation Act 1995.*
- *Water Act 1912.*
- *Water Management Act 2000.*
- *Waste Avoidance and Resource Recovery Act 2001.*

While certain legislation does not apply, or has limited application to the project, the relevant guidelines prepared by the DoP and other government agencies would be taken into account during the environmental assessment process.

2.4 Commonwealth legislation

The following Commonwealth legislation may have relevance to the project and would be addressed in the environmental assessment, if applicable:

- *Aboriginal and Torres Strait Islander Heritage Protection Act 1984.*
- *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).
- *Native Title Act 1993.*

Preliminary consideration has been given to the provisions of the EPBC Act, which provides controls for impacts on:

- Matters of national environmental significance (NES).
- The 'environment', where a proposed project would be carried out by the Commonwealth government or agency or on Commonwealth land.

At this stage it is considered unlikely that the project would have a significant impact on a matter of NES. In addition, the project would not be carried out by the Commonwealth or on Commonwealth land. Therefore, it is anticipated that a referral to the Federal Minister for Sustainability, Environment, Water, Population and Communities would not be required. If it becomes apparent during the course of the environmental assessment that the project may have potential to significantly impact a matter of NES, the need for a referral would be reconsidered at that time.

3 Strategic context and need for the project

3.1 Strategic context

3.1.1 The Princes Highway upgrade

The Princes Highway is the main north-south transport corridor linking Sydney, the Illawarra, the south coast of NSW and north-eastern Victoria. It is an important link as it provides the following:

- A commuter route between Sydney, Wollongong and Nowra.
- A local route for residents of surrounding smaller towns and rural residences.
- A major tourist route for key destinations including Berry, Nowra and the south coast with peak traffic on weekends and holiday periods.
- An important freight and bus route, particularly for the south coast and far south coast as the existing rail service currently terminates at Bomaderry.

This project forms part of the RTA's Princes Highway upgrade which aims to provide four lanes between Waterfall and Jervis Bay Road to improve road safety and traffic efficiency on the most heavily trafficked length of the Princes Highway outside metropolitan Sydney. This strategy includes the North Kiama bypass, and upgrades from Oak Flats to Dunmore and at South Nowra. With the recent opening of the Oak Flats to Dunmore upgrade, the section of highway from south of Mount Pleasant to Bomaderry will remain the only two lane section of the Princes Highway between Sydney and Nowra (refer to Figure 3.1 for the current status of the Princes Highway upgrade).

The NSW Government's commitment to the investigation and assessment of the Princes Highway upgrade is demonstrated by the recent announcement by the RTA of a final preferred option for the project in June 2009 and the NSW Treasurer's announcement in the 2010/11 budget, of a further allocation of \$10 million towards planning of the Foxground and Berry bypass section of the Princes Highway upgrade.

3.1.2 Supporting Government plans and strategies

NSW State Plan

The NSW State Plan: Investing in a Better Future (March 2010) provides goals and targets focussing on areas such as strengthening regional economies, environmental protection, employment and improving the efficiency and safety of the road network. The development of safer and more efficient transport infrastructure, such as the project, would contribute to achieving many of these goals.

The Princes Highway is a major regional corridor, and the upgrade is nominated in the State Plan as a project to improve the road network and help traffic flow more smoothly on NSW roads. Specifically, the project would contribute to the road safety target identified in the State Plan of reducing fatalities to 0.7 per 100,000 million vehicle kilometres travelled (MVKT) by 2016.

Figure 3.1: Current status of the Princes Highway upgrade



NSW Metropolitan Transport Plan

The Metropolitan Transport Plan: Connecting the City of Cities (February 2010), is primarily concerned about transport in the Greater Sydney Metropolitan Area. The road program included in the plan identifies the importance of enhancing the Nation's Highway Network, linking important regional areas to Sydney. Enhancement of the Princes Highway is included in the road program as part of the ten year funding guarantee.

NSW State Infrastructure Strategy

The State Infrastructure Strategy – New South Wales 2008-09 to 2017-18 (2008) identifies infrastructure projects in the short-to-medium term that, among other things, support population growth and demographic change on the south coast. The strategy was first published in 2006 and is updated every two years.

The project is one of those identified as necessary to support population growth and demographic change on the south coast.

Shoalhaven – an Enterprising Alternative (An Economic Development Strategy) 2005

Shoalhaven – An Enterprising Alternative, an Economic Development Strategy (2005) was developed by Shoalhaven City Council, NSW Department of State and Regional Development, the Commonwealth Department of Transport and Regional Services and the Shoalhaven Area Consultative Committee.

A key transport focus area identified in the strategy is to “*significantly improve access between Shoalhaven, Sydney, Canberra and Wollongong with respect to movement of goods and people*”. The project would improve access on the Princes Highway for people travelling between Sydney and the Shoalhaven, and between Wollongong and the Shoalhaven.

A key tourism focus area identified in the strategy is to “*foster higher levels of visitation and increased visitor yield*”. The project would improve access to the region and reduce travel times which would have the effect of facilitating increased visitation rates.

Illawarra Regional Strategy

The Illawarra Regional Strategy 2006-2031 (DoP 2007) applies to the Kiama, Shellharbour and Wollongong LGA's and recognises the importance of the region's transport networks in supporting economic growth and maximising the efficiency of freight transport.

The primary purpose of the regional strategy is to ensure that land is appropriately utilised to accommodate projected housing and employment needs. The strategy represents an agreed NSW Government position on the future of the Illawarra region in relation to housing, water, energy and the natural environment.

The strategy includes regional transport objectives, highlighting the importance of the Princes Highway as the major north-south corridor linking the Illawarra region to Sydney and the south coast, and citing the upgrade of the highway as an important transport infrastructure project in the region.

South Coast Regional Strategy

The South Coast Regional Strategy (DoP 2007) applies to the Shoalhaven, Eurobodalla and Bega Valley LGAs. The strategy envisages a 36 per cent increase in the population of this area of the south coast over the next 23 years. The area encompassing Nowra and Bomaderry is identified as a major regional centre in the Shoalhaven LGA, which is expected to grow by an additional 34,000 people. Most of the growth will be in Nowra and Bomaderry, which will strengthen its role as the major residential, employment and administrative centre for the northern part of the south coast region.

There are transport and accessibility limitations within the south coast region, due to its dispersed settlement pattern. The Princes Highway and the Kings Highway play a pivotal role in connecting communities, enabling economic development and providing linkages to neighbouring regions.

3.2 Current road issues

The section of the existing Princes Highway between Toolijooa Road and Schofields Lane (refer to Figure 4.1) has a poor accident and safety record. The fatality rate for this section of the Princes Highway is about 1.3 fatalities per 100 MVKT, which is almost double the NSW State Plan target of 0.7 fatalities per 100 MVKT by 2016.

The horizontal (curves) and vertical (ascents and descents) alignments of the existing largely two lane highway between Toolijooa Road and Schofields Lane require upgrading to meet current design, safety and traffic efficiency requirements, particularly in the vicinity of Toolijooa Ridge and the section through the 'Foxground Bends' and Broughton Village. The highway has limited overtaking opportunities, many junctions with rural roads and private uncontrolled accesses. The existing road also passes through the centre of Berry.

Forecast traffic growth for the next 20 years would place substantial operational demands on this section of the highway, which currently operates at an unacceptable level of service (LoS) at peak times. The LoS is expected to deteriorate further in the future.

Following construction of the recently approved Gerringong upgrade, the highway immediately to the north of the project will be four lanes with median separation. This will require traffic to merge into two lanes at Toolijooa Road.

3.3 Statement of project need

The Princes Highway provides a critical link between Sydney and Victoria. The section of the existing highway in the project location is substandard relative to the majority of the remaining length of the Princes Highway between Waterfall and Jervis Bay Road as it:

- Is a two lane single carriageway which is inconsistent with the majority of the remainder of the highway which has been upgraded to four lanes.
- Does not comply with the RTA's current design and safety requirements.
- Passes through Berry, which generates unnecessary through traffic in the centre of town.

As a consequence, road safety and traffic efficiency are compromised on this section of the highway.

The project is needed as it would:

- Address the high crash history and poor road safety record of this section of the Princes Highway and deliver immediate road safety benefits.
- Ensure compliance with current RTA design, safety and traffic efficiency requirements.
- Remove unnecessary through traffic from the Berry town centre, improving the amenity of the town.
- Deliver improved traffic efficiency by catering for projected traffic volumes in the design year, which is typically 20 years after the project is completed and becomes operational.
- Upgrade the design of the highway in this location to be consistent with that of the majority of the remainder of the highway between Waterfall and Jervis Bay Road.

3.4 Project objectives

The objectives of the Foxground and Berry bypass project are to:

- Improve road safety.
- Improve efficiency of the Princes Highway between Toolijooa Road and Schofields Lane.
- Support regional and local economic development.
- Provide value for money.
- Enhance potential beneficial environmental effects and manage potential adverse environmental impacts.
- Optimise the benefits and minimise adverse impacts on the local social environment.
- Manage the upgrading of the route in accordance with ecologically sustainable development (ESD) principles.

The preferred option for the Foxground and Berry bypass was selected on the basis that it best met the project objectives.

Design principles used to inform the urban design framework for the project, include:

- Provide a highway alignment that is responsive and integrated with the natural landscape.
- Protect the natural systems and ecology of the corridor.
- Protect and enhance the heritage and cultural values of the corridor.
- Respect the communities and towns along the highway.
- Provide an enjoyable, interesting highway with strong visual connections to the ocean and coastline, immediate hinterland, and the mountains to the west.
- Develop a simple and unified palette of elements and details that are easily maintained.

The unifying philosophy behind these objectives is the goal to develop an upgraded highway that not only meets functional and engineering criteria, but one that respects the environment in which it is situated. A number of design principles are associated with each project objective, which would be addressed further in the environmental assessment.

4 Description of the project

The project would involve widening and realigning a section of the Princes Highway, located within the Kiama and Shoalhaven local government areas (LGAs), extending from approximately the junction of Toolijooa Road and the Princes Highway for some 11.6 kilometres to approximately the junction of Schofields Lane and the Princes Highway. It includes a bypass of Berry, and would provide a four lane divided carriageway. The project is outlined below and presented in Figure 4.1.

The project would generally follow the existing highway alignment from approximately the junction of Toolijooa Road for about 800 metres. At this point, the project would cut through the peak of Toolijooa Ridge before descending towards Broughton Creek in a long sweeping curve, crossing Broughton Creek three times and then rejoining the existing highway alignment at Austral Park Road. From this point the route would generally follow the existing highway for approximately 3.8 kilometres to the eastern end of Berry.

Proposed grade-separated interchanges at Toolijooa Road and Austral Park Road would maintain existing local road and property accesses along the remnant existing highway through Foxground and Broughton Village.

In the vicinity of the existing RTA stockpile site at the eastern end of Berry, the project would head south-west on a bridge structure spanning Woodhill Mountain Road, Broughton Mill Creek and Bundewallah Creek. The bridge structure would be approximately 600 metres long and 20 metres high at its highest point at the eastern end, sloping down to approximately 10 metres above Woodhill Mountain Road, reaching ground level to the west of Bundewallah Creek. The alignment would then turn towards North Street in the vicinity of Alexandra Street, where it would follow the gazetted road corridor along the northern side of North Street.

The preferred alignment for the bypass of Berry was identified during the RTA's value management workshop and developed in response to issues raised by the community regarding potential impacts on the Pulman Street heritage precinct, the community sports ground and recreational areas and the Camp Quality memorial area located at the eastern end of North Street.

In the vicinity of George Street, the project would begin to turn south-west, crossing under Kangaroo Valley Road in a cutting before rejoining the existing highway alignment opposite Mark Radium Park. Kangaroo Valley Road would cross the upgraded highway on an overbridge close to current ground surface, which would maintain the existing standard of connectivity between the main Berry township and development to the north-west along Kangaroo Valley Road.

Access to Berry would be provided at both ends of town. At the eastern end of town, access would be provided to and from Berry via a grade-separated interchange with on and off ramps utilising the existing highway alignment into town.

Access to and from Berry at the western end of town would be provided by a grade-separated interchange in the vicinity of Kangaroo Valley Road. The proposed interchange would cater for southbound access to the highway from Berry via the existing alignment adjacent to Mark Radium Park, northbound access to Berry via Huntingdale Park Road and Kangaroo Valley Road and northbound access to the highway from Berry via Kangaroo Valley Road. The alignment of Kangaroo Valley Road would remain the same as it is currently and would accommodate pedestrian access to and from Berry as it crosses the upgraded Princes Highway.

A second access into town for southbound traffic would be included by way of an off load ramp to the eastern end of Kangaroo Valley Road. This second access would cater for times when the primary southbound off load ramp is inaccessible due to flooding in the vicinity of Broughton Mill Creek.

Access to properties and local roads along the project would be modified. The inclusion of a median barrier would preclude right turns across traffic and access to and from properties and some local roads would be retained through left-in left-out arrangements only with u-turn facilities provided at grade-separated interchanges.

South of Kangaroo Valley Road, the remainder of the project would follow the existing highway alignment. New embankments and cuttings would be required in order to minimise ascents and descents to meet the RTA's current design and road safety standards.

The width of the corridor required for the project would vary depending on the terrain and the steepness of required embankments and cuttings. The expected minimum required width would be approximately 60 metres, where there would be no requirement for embankment or cutting. The expected maximum corridor width would be approximately 150 metres in the vicinity of the deep cutting through Toolijooa Ridge. The typical cross section that would be accommodated within the corridor would comprise:

- Two 3.5 metre wide traffic lanes in each direction.
- Additional 3.5 metre wide climbing lane both northbound and southbound through Toolijooa Ridge.
- Minimum 2.5 metre wide outside shoulder.
- One metre wide inside shoulder.
- Five metre wide central median with a wire rope barrier.

Provision would be made within the proposed corridor for widening to three lanes in each direction to cater for future traffic growth. In some locations, such as the proposed deep cut through Toolijooa Ridge this provision would be designed and constructed as part of the project to prevent the need for a complicated retrofit in the future. For example, the five metre wide central median would meet the design requirement for a six lane highway and additional lanes would be constructed on the outside of the highway. In the case of the cutting through Toolijooa Ridge, an additional climbing lane would be provided in each direction and this would ultimately become the third traffic lane in the future.

In other locations, where retrofit at a future date would be simpler, the land required for the ultimate corridor boundary to accommodate three lanes in each direction, would be acquired as part of the project, but construction of the additional lanes would be undertaken at a later date, as traffic growth dictates.

A heavy vehicle rest area would also be provided and would be accessed from Austral Park Road. The rest area may include cabin shading, a heavy vehicle enforcement facility and associated road infrastructure such as signage.

The project would also include all associated or ancillary works, activities, uses, structures, or facilities for the purposes of the project, including (but not limited to) the following:

- Construction of interchanges, intersections, bridges, overpasses, ramps, service roads, bus stops, roadside infrastructure and road modifications for the project.
- Construction and associated demolition works and operation (excluding maintenance) of the project.

- Access for construction and operation of the project, including access for pedestrians, public transport and vehicles.
- Environmental management and pollution control for the project.
- Any changes to the route of the existing carriageway or road for the project.
- Any realignment, modification, demolition, or replacement of the existing carriageway or road for the project.
- Winning or obtaining of extractive material as part of the construction work for the project.

Ancillary facilities would be required during construction including but not limited to sedimentation basins, batch plants, construction compounds and stockpile sites. Potential locations for these sites would be identified and considered in the environmental assessment.

Construction and operation of the project would be carried out in accordance with management and mitigation measures to be determined during the environmental assessment.

Figure 4.1: Foxground and Berry bypass project



5 Consultation

5.1 Consultation strategy

5.1.1 Background

The RTA seeks to have a meaningful and engaging community consultation program in place during the development and assessment of the project. A consultation program has been prepared in accordance with the RTA's *Community Involvement and Communications, Draft: A Resource Manual for Staff* (RTA 2008) and the *IAP2 Spectrum of Public Participation* (International Association for Public Participation 2007).

5.1.2 Communications strategy

Community involvement has been an integral component in the development of the project to date. At each stage, the consultation activities have proactively engaged the community and stakeholders of the project with the aim of increasing public understanding of and participation in the development of the project. This ensures that the project benefits from the input of local knowledge and priorities and the RTA gains greater insight into issues, potential mitigation strategies and opportunities to improve project outcomes.

In accordance with the *IAP2 Spectrum of Public Participation*, the consultation program has been designed to inform and engage the community and stakeholders in a constructive, transparent and fair process.

5.1.3 Consultation objectives

The consultation program aims to provide optimum opportunities for community and stakeholder involvement. Program objectives are to:

- Support and maintain the current RTA community involvement process.
- Ensure an open, accountable and transparent community involvement process.
- Ensure potentially directly affected property owners and interested stakeholders are provided with sufficient information about the project and the likely impacts so that they can provide informed input.
- Ensure appropriate and direct communication with property owners in relation to access to and investigations on landholdings within the project by study team members.
- Encourage community support and involvement in the project to facilitate better and more generally accepted outcomes through innovative communication methods such as: 3-D animations incorporating fly over and drive through of the proposal and use of local radio spots to advertise public display dates and locations.
- Provide a range of accessible opportunities for stakeholders, interested groups and the wider public to contribute to the project through issues identification, and information provision. Opportunities include, but are not limited to, staffed displays, community information sessions, workshops, print and web based information materials.
- Build an ongoing relationship between the RTA, its contractors and stakeholders in order to gain long-term support for the project.

5.1.4 Key activities for consultation

An overview of the key consultation activities carried out to date is summarised below in Table 5.1.

Table 5.1: Overview of consultation activities to date

Project phase	Activity
March 2006 to August 2007 Project familiarisation and route options development.	Consultation identified local priorities for the Princes Highway upgrade and what the community valued. Activities included: <ul style="list-style-type: none"> • Community update. • Workshops and displays. • Community information sessions. • Interest group workshops. • Specialist information sessions.
November 2007 to July 2008 Route options display and route options value management workshop.	Shortlisted route options were placed on display. The route options value management workshop recommended a direction for further investigation to progress the project's development.
October – November 2008 Access options display and value management workshop.	The preferred option for the project including the access for Berry was announced by the NSW Government and placed on public display. The access value management workshop was conducted.
June 2009 Preferred option and preferred access options announced.	The preferred option was finalised with the preferred access arrangements for Berry and publicly displayed.

Key issues raised during the consultation process include:

- Community
 - Convenience and efficiency of travel and access for local residents and tourists (eg Mark Radium Park).
 - Consideration of long-term safety benefits and future growth in assessment of costs.
 - Requirement for high quality impact mitigation and urban design for areas, in particular, Kangaroo Valley Road, Huntingdale Park Road, North Street, Alexandra Street and the existing highway.
 - Impacts on local scenery including the escarpment as well as regional views and the overall visual amenity.
 - Maintenance of wildlife corridors, wetlands and endangered ecological communities (EECs).
 - Visibility of Berry from highway and access options.
 - Process and timing for property acquisition.

- Community and Shoalhaven City Council
 - Maintenance of local traffic patterns (eg Queen Street and Alexandra Street).
 - Impact of changed traffic patterns (eg Queen Street and Alexandra Street and Huntingdale Park).
 - Road safety for vehicles, pedestrians and cyclists.
 - Provision of local access for homes and farms.
 - Consideration of alternative access options designs.
 - Impact of traffic and road pavement noise.
 - Protection of the village character and heritage of the area.
 - Flooding impacts.
 - Impact of traffic changes and the bypass on local businesses.
 - Impact to individual farms and agricultural viability.
 - Impact on property values.
 - Construction staging and mitigation.
- Shoalhaven City Council
 - Construction impacts on local traffic patterns.
- Kiama State Emergency Services
 - Access for emergency service vehicles.

5.2 Aboriginal community involvement

In accordance with the requirements of the RTA's *Procedure for Aboriginal Cultural Heritage Consultation and Investigation* (PACHCI, June 2008) the RTA has undertaken Aboriginal community consultation and investigation consistent with the Department of Environment, Climate Change and Water (DECCW) *Interim Guidelines for Aboriginal Community Consultation* (DEC 2004).

Consultation and liaison with the Aboriginal community commenced at the beginning of the planning phase for the Princes Highway upgrade. Expressions of interest to attend an Aboriginal Focus Group (AFG) were issued on 23 June 2006 with initial meetings held in Nowra on 21 July 2006 and Wollongong on 24 July 2006.

In April 2010, DECCW published the *Aboriginal Cultural Heritage Consultation Requirements for Proponents* (DECCW 2010). These replaced the *Interim Guidelines for Aboriginal Community Consultation* (DEC 2004). Transitional arrangements are in place where Aboriginal consultation has already commenced. The transitional arrangement relevant to the project enables consultation to progress under the *Interim Guidelines for Aboriginal Community Consultation* given notification and consultation has commenced.

The AFG was formed to provide a forum to bring together the registered Aboriginal stakeholders to discuss the scope of the upgrade and the cultural heritage assessment process. The aim of the AFG was to identify Aboriginal cultural issues at an early stage of the project.

The group facilitates ongoing Aboriginal community involvement throughout the life of the project ensuring appropriate care and control of Aboriginal artefacts identified during the Aboriginal heritage investigations and to provide comment on the Aboriginal heritage management.

Liaison with the local Aboriginal community was also undertaken in the form of cultural knowledge holder interviews. Discussions were held with a selection of the local community nominated by the AFG within the open forum of the AFG meetings, which was considered the most appropriate forum to provide cultural knowledge about the project. The AFG forum also facilitated the nomination of community members to attend a project site walkover and a bus trip during the option selection process.

The key issues identified by the Aboriginal community through the AFG forum and through individual and group submissions in relation to the project to date include:

- Genealogy and the provision of cultural knowledge by the appropriate traditional owners of the land within the project location.
- The potential to encounter and impact Aboriginal burials, both generally, and within areas with archaeological potential or areas remembered as sensitive in this regard.
- Consideration of impacts to Toolijooa Ridge associated with the proposed deep cutting and ongoing consultation with the AFG regarding management of impacts.
- Avoidance of impacts to the Berry Encampment area located to the south of the existing highway at the eastern end of Berry.
- Ongoing consideration of Aboriginal participation and employment as the project develops.

5.3 Ongoing or future consultation

Community and stakeholder consultation would continue during the environmental assessment phase of the project. The focus of the consultation is to gather community and stakeholder input on potential impacts and measures to avoid, reduce or minimise those impacts for the project.

The RTA would continue to provide regular progress updates and information to residents and property holders about the project. The consultation process would continue to encourage public participation during the finalisation of the concept design and the environmental assessment, to ensure that identified issues can be addressed during detailed design, construction and operation of the project.

Ongoing consultation with the Aboriginal community would continue to be facilitated through the existing AFG forum. The aim of the ongoing consultation would be to identify Aboriginal cultural issues at an early stage and facilitate ongoing Aboriginal community involvement throughout the development of the project and provide opportunities for comment on aspects of Aboriginal heritage management associated with the project.

6 Preliminary environmental assessment

6.1 Overview

To the north and west of the project, the ridges and spurs at the southern end of the Illawarra Escarpment and the Cambewarra Range provide a natural border to the project, whilst to the east and south the border is formed by the low-lying coastal and flood plains beyond the south coast railway line.

The pastureland and rural settlement patterns define the features of the locality with the largest agricultural influence being from dairying activities. Within the pastoral landscape the major source of variation is the topography of the project. The character of the rural backdrop is markedly different between the undulating higher elevations associated with the foothills of the Illawarra Escarpment and Cambewarra Range and the coastal plain that occurs generally east of Broughton Creek.

The rural backdrop is slowly changing and the partial decline in the dairying industry has created a more complex landscape pattern. A wider variety of agricultural activities, including vineyards, is resulting in more areas under cultivation.

Preliminary environmental investigations have been undertaken during the development of the route options for the Princes Highway upgrade. This included desktop reviews of available information, predictive modelling and/or field verification, and targeted specialist investigations for many environmental aspects. Specialist investigations were undertaken in the following technical areas:

- Statutory planning and zoning.
- Urban and regional planning.
- Traffic.
- Noise and vibration.
- Socio-economic.
- Aboriginal and non-Aboriginal heritage.
- Terrestrial flora and fauna.
- Aquatic ecology and water quality management.
- Geotechnical.
- Flooding and drainage.
- Air quality.
- Land-use.
- Property impacts.
- Climatic assessment.
- Public utilities and services.
- Cumulative effects.

These investigations assisted in the development of the preferred route option and are presented in the *Gerringong to Bomaderry Princes Highway Upgrade Route Options Development Report* (RTA, 2007). Information presented in this preliminary environmental assessment is sourced from these investigations.

6.2 Key environmental issues

Key environmental issues have been identified by the RTA based on:

- Information gathered during preliminary environmental investigations.
- Technical feedback from consultation with the community, stakeholders and government agencies.
- Ability to manage potential environmental impacts in a way that minimises harm to the environment.

Key issues are those that may have high or moderate impacts (actual or perceived) and assessment is necessary to determine the level of potential impact and to develop appropriate measures to mitigate and manage the impacts.

The outcomes of the preliminary environmental investigations indicate that the following key environmental issues would require further detailed assessment and may require project specific impact mitigation measures:

- Traffic and transport.
- Noise and vibration.
- Landscape and visual amenity.
- Socio-economic (including land-use and property issues).
- Aboriginal cultural heritage.
- Biodiversity (including terrestrial and aquatic biodiversity issues).

A number of other environmental issues have also been identified in the preliminary environmental assessment. These issues are outlined in Chapter 7 and are generally considered to be common issues frequently encountered in road construction projects. The potential impact of these additional environmental issues would be mitigated during construction and/or operation, largely through the application of best practice impact mitigation and management measures.

6.3 Traffic and transport

6.3.1 Background

The Princes Highway is the main north-south road corridor between Sydney, the Illawarra and through the south coast of NSW to Victoria. It is a critical link for both passenger and freight transport, and is a major route for tourism with significant peak period travel demand during school holidays.

The existing highway which would be upgraded by the project is a two lane single carriageway section with substandard horizontal and vertical geometry, particularly in the vicinity of Toolijooa Ridge and the section through the 'Foxground Bends' and Broughton Village. The highway has occasional overtaking lanes, several junctions with local rural roads and many uncontrolled private accesses. Together with growing traffic volumes and the poor accident and safety record, it is likely that the already high fatality rate recorded for this section of the highway would increase. The Princes Highway also passes through Berry and a bypass is required to remove heavy vehicle through-traffic from the town centre, which would improve safety, efficiency and access for both local road users and pedestrians.

There are no footpaths along the Princes Highway within the project location and very few pedestrians walk or cycle along this route. Shoulders and verges provide a means for pedestrians to travel along the Princes Highway; however the speed of traffic on this route combined with significant travel distances from private properties to nearby towns (i.e. Berry) result in very little pedestrian activity.

Currently, the Princes Highway has various posted speed limits between Toolijooa Road and Schofields Lane ranging from 80 kilometres per hour on the section north of Berry, reducing to 50 kilometres per hour through the town and then increasing to 100 kilometres per hour on the southern section south of Berry.

The 'Sandtrack' offers an alternative route for light vehicles between Gerringong and Bomaderry enabling motorists to avoid the winding, hilly section of the Princes Highway between these two towns. As a consequence many private vehicles use this route, approaching Berry via Beach Road and on to Bomaderry, to avoid delays behind slow moving heavy vehicles (which are prevented from using the 'Sandtrack' by a five tonne load limit). The 'Sandtrack' is slightly longer than the highway with a posted speed limit of 90 kilometres per hour or 100 kilometres per hour for much of its length between Gerringong and Bomaderry. Fern Street is used to travel from the 'Sandtrack' into Gerringong and has a posted speed limit of 50 kilometres per hour.

In addition to the permanent RTA traffic count location on the Princes Highway north of Rose Valley Road, the RTA commissioned traffic surveys during May and June 2009 to measure traffic patterns in the study area. The section of the Princes Highway south of Berry recorded an annual average daily traffic (AADT) volume of 12,600 vehicles per day, of which about 1,400 heavy vehicles (11 per cent) travel through the centre of Berry on a daily basis. In comparison, the section of the 'Sandtrack' south of Beach Road carries about 8,300 vehicles per day.

Based on the latest data, the average fatality rate is 1.3 per 100 MVKM on the Princes Highway within the project location. The latest available RTA data (for the 12-month period ending June 2010) shows an average fatality rate across NSW of 0.7 per 100 MVKM, meaning that the project location has almost twice this rate.

Table 6.1 provides details of the percentage of daily trips travelled by mode of transport in the Kiama and Shoalhaven local government areas. The table shows a high car dependency in the project area with over 83 per cent of daily travel made by private vehicles. Public transport accounts for five per cent or less of the mode share in both local government areas, indicating extremely low levels of patronage compared to urban areas. For example, public transport accounts for 22 per cent of the mode share in the Sydney City Local Government Area.

Table 6.1: Kiama and Shoalhaven mode share (by number of trips made, 2007)

Local Government Area	% Mode Share				
	Private vehicle	Train	Bus	Walk	Other modes
Kiama	83%	1%	4%	9%	3%
Shoalhaven	86%	1%	2%	10%	1%

Source: Transport Data Centre - 2007 Household Travel Survey

Local school and regional bus and coach services utilise the Princes Highway route, although the frequency and location of services is limited; and dependent on school term dates and holidays.

The use of rail services in the project area is limited, with the south coast line terminating at Bomaderry, north of the Shoalhaven River. The south coast rail line links Sydney, Wollongong and North Nowra / Bomaderry. There is a station located in Berry. Gerringong and Bomaderry are the nearest stations to the north and south respectively. As there are no direct services from Gerringong to Sydney, passengers are required to change trains at Wollongong, Dapto or Kiama.

6.3.2 Summary of potential issues

The following potential issues have been identified for the project:

- Local and highway traffic disruptions during construction.
- Local and regional traffic and public transport network impacts.
- Changes to town access.

Disruptions during construction

Maintaining a safe environment for road users, including school buses, pedestrians and cyclists, would be a priority during construction. The potential for safety impacts, for instance due to temporary road arrangements or the close proximity of the construction activities to highway traffic and pedestrian activity would be assessed.

Some temporary disruptions and delays to local and highway traffic would be experienced during construction of the project due to the narrowing of lanes, speed reductions and temporary road closures. However, these are expected to be minimal as construction of the major sections, including the bypass of Berry and the section through Toolijooa Ridge, the 'Foxground Bends' and Broughton Village, would generally be independent of the existing Princes Highway.

The potential for a temporary shift of traffic from the highway to the 'Sandtrack' during construction is recognised. The 'Sandtrack' currently carries 40 per cent of traffic travelling between Gerringong and Bomaderry and it is likely that mainly local traffic would shift and slightly increase this percentage; particularly during holiday peak periods. The efficiency and safety performance of uncontrolled junctions in Gerringong and overtaking opportunities along the route may be compromised during construction of the project.

In addition, Toolijooa Road could potentially offer an alternative route during construction due to the location of the intersection between Toolijooa Road and the Princes Highway, in relation to the proposed start of construction at the northern extent of the project. However, few motorists currently use Toolijooa Road for this function and it is anticipated that it would continue be used as a local road during construction, based on the following:

- It is signposted as a local road and most motorists are unaware that it ultimately connects to Beach Road (and on to Berry).
- The road is of a much lower standard than both the Princes Highway and the 'Sandtrack'; and offers a lower quality road surface, narrow lanes and poor road alignment at a number of locations.
- The posted speed limit is 60 kilometres per hour.
- There is an unsealed section at the western end of Toolijooa Road, which is particularly narrow and undesirable for non-local traffic.

Operational impacts

Road network

The project would increase the capacity and safety of the Princes Highway and reduce travel times. Traffic currently using alternative local routes such as the 'Sandtrack', may shift to the upgraded highway to experience the travel time savings and safety benefits. This shift has the potential to alter traffic flows on the regional and local road network. The reduction in traffic on the 'Sandtrack' would improve its safety and efficiency, which would enhance the characteristic of this scenic coastal route.

The increase in highway traffic could put pressure on unimproved sections of the highway following the completion of the project. For example the Princes Highway between Schofields Lane and Cambewarra Road (Bomaderry) would still be awaiting upgrade and would likely experience an increase in traffic volumes as a result of traffic switching from the Sandtrack to the Princes Highway.

Both local school and regional bus routes would benefit from improved travel times and safety on the upgraded highway. Local school bus operators that currently stop at informal private accesses along the existing highway would be discouraged to do so by the provision of less frequent, but safer formal bus pick up and set down facilities. Whilst this would improve passenger safety, it could be a perceived inconvenience for local residents.

The south coast railway is remote from the existing Princes Highway alignment and would not be expected to be impacted by the project.

It is envisaged that cyclists would benefit from the introduction of a wider (2.5 metres) continuous shoulder along the project offering much greater separation between motorised and non-motorised road users.

Changes to access

The proposed bypass of Berry would remove through-traffic, including heavy vehicles, from the centre of town. As a result, the project would provide new access points to Berry at both the eastern and western ends of town. At the eastern end, access would be provided through a grade-separated interchange with on and off load ramps utilising the existing highway alignment into town. Access to and from Berry at the western end of town would be provided by way of a grade-separated interchange in the vicinity of Kangaroo Valley Road.

The location of the proposed second flood free off load ramp at Kangaroo Valley Road would have the potential to slightly alter existing traffic patterns on local roads in the town, such as Kangaroo Valley Road, Victoria Street, Queen Street and North Street.

6.3.3 Further assessments

A traffic and transport impact assessment would be undertaken. This assessment would identify potential impacts and nominate mitigation measures to minimise impacts. It would include:

- Assess construction impacts including potential impacts on Gerringong as traffic diverts down the 'Sandtrack' to avoid the construction zone.
- Forecast traffic volumes for the Princes Highway and the local road network.
- Assess the performance of key interchanges and intersections by undertaking a LoS analysis at key locations.

- Assess the impacts of the project on road users including motorists, public transport, freight, pedestrians and cyclists; on the local (within Berry) and regional (Princes Highway) road networks.
- Carry out a travel time analysis.
- Carry out a road safety analysis.

6.3.4 Brief scope of studies for the environmental assessment

Traffic and transport – including but not limited to:

- Detailed traffic modelling for the project and the local and regional road networks.
- An assessment of construction traffic impacts including route identification, number, frequency and size of construction related vehicles, the nature of existing traffic, and the need to close, divert or otherwise reconfigure elements of the road network associated with construction of the project.
- An assessment of operational traffic impacts including an assessment of existing local and regional traffic volumes and traffic patterns against forecast volumes and potential changes to traffic patterns associated with the project and public transport impacts.
- Recommendations for detailed traffic and transport mitigation measures.

6.4 Noise and vibration

6.4.1 Background

A noise assessment was prepared in November 2007 to inform the route selection process. The study area for the noise assessment was up to five kilometres wide. Unattended noise monitoring using automated noise loggers was carried out and short-term attended monitoring (using a hand held noise monitoring device) was also conducted. Noise monitoring locations were selected to enable the characterisation of the existing noise environment across the whole project, in locations both near and distant from the existing Princes Highway.

The noise environment of the area is characterised by that of the region's rural agricultural land-use and other than the Princes Highway, the only other existing, potentially significant noise source within the area is the south coast railway line.

The preliminary investigations identified a number of potentially sensitive noise receivers including individual rural residences adjacent to the project, places of worship in the vicinity of the project along North Street and the urban residential areas of Berry. In particular, the main areas of Berry that would most likely be affected by the project are along the North Street corridor and in the vicinity of Kangaroo Valley Road and Huntingdale Park Road. An aged care facility is currently under construction adjacent to the existing highway to the south-west of Berry, and would potentially be affected by the project.

6.4.2 Summary of potential issues

Construction

A detailed program of construction activities is yet to be determined, however the project is considered likely to result in localised construction noise and vibration impacts. The actual level of intrusion would be influenced by the timing and duration of activities, especially with respect to noise levels above the existing background noise levels.

It is most likely that the following construction activities would occur in the vicinity of affected receivers as part of the project:

- Clearing and grubbing.
- Large and small scale earthworks.
- Some possible blasting during the construction of the cutting through Toolijooa Ridge.
- Paving and asphaltting.
- Delivery of construction materials and fill.
- General construction related activities and vehicle movements.

There is also potential that an increased number of vehicles would utilise the 'Sandtrack' during the construction period in order to avoid road works. This may cause an increase in traffic noise levels along the 'Sandtrack' route and potentially on the noise levels in Gerringong for a short period.

Operation

Wherever the project deviates from the existing highway alignment, additional noise sensitive receivers within the immediate area of the new alignment may be affected. This would affect the following main areas along the project:

- The proposed off line section through Toolijooa Ridge.
- The proposed bypass of Berry along the North Street corridor.
- The proposed northbound access to Berry via Huntingdale Park Road.
- The proposed second flood free access to Berry at Kangaroo Valley Road.

Toolijooa Ridge

The proposed straightening of the horizontal alignment of the highway in the vicinity of Toolijooa Ridge would have a beneficial impact on the existing noise environment along the current alignment. Traffic would shift from the current route to the proposed new route through Toolijooa Ridge. This has the potential to adversely impact a new group of noise affected receivers that would not have been previously impacted by the existing highway.

North Street corridor

The proposed bypass along the North Street corridor would have a beneficial impact on the existing noise environment in the town and in the vicinity of Queen Street by shifting through traffic, including heavy vehicles, to the project. However, the expected shift of through traffic to the project along North Street from the existing highway and from the 'Sandtrack' would create a new group of noise affected receivers along the North Street corridor that would not have been previously impacted by the existing highway.

There is potential for the generation of noise impacts associated with the Berry bridge in addition to those expected from additional traffic flow. Careful consideration would need to be given to the method of bridge construction and in particular the type of jointing and pavement used for the structure to minimise impacts on adjacent residences and the existing community sports and recreational facilities at the eastern end of North Street.

Huntingdale Park Road

The development of the proposed northbound access into Berry via Huntingdale Park Road would have a noise impact on residences in the Huntingdale Park development, particularly those that front on to Huntingdale Park Road and currently experience a low volume of traffic and a quiet noise environment. The second flood free access at Kangaroo Valley Road would potentially have a similar impact and would need to be considered in conjunction with the northbound access via Huntingdale Park Road.

Other key components of the project that may cause an increase in traffic noise levels during operation of the project include:

- Diversion of traffic from the 'Sandtrack'.
- The heavy vehicle rest area.

Diversion of traffic from the 'Sandtrack'

There is currently a proportion of traffic using the 'Sandtrack' to travel between Gerringong and Nowra to avoid congestion and delays associated with the existing Princes Highway. It would be expected that on completion of the project a large percentage of that traffic (possibly up to 90 per cent of the through traffic) would switch to the Princes Highway. This would potentially have an adverse impact on residences along the Princes Highway from Gerringong to the north and Bomaderry to the south of the project, where there would be an increase in noise levels at some locations due to the increased traffic volumes. There is also potential for operational traffic noise levels to decrease in Gerringong as a result of decreased volume of traffic accessing the 'Sandtrack'.

Heavy vehicle rest area

The proposed heavy vehicle rest area would be located in the vicinity of, and would be accessed from, Austral Park Road. The rest area may include cabin shading, a heavy vehicle enforcement facility and associated road infrastructure such as signage. Typical noise sources for truck rest areas include trucks moving on site, idling trucks, reverse beepers, air brake release and compressions brakes. These noise sources have the potential to increase noise levels at residences and other land uses in the surrounding area and would need to be considered in the environmental assessment

6.4.3 Further assessments

A detailed noise and vibration assessment would be prepared to assess the impacts and assist in the development of noise mitigation measures. The assessment would include the following:

- Identification of potentially affected noise sensitive receivers.
- An assessment of noise and vibration impacts from the construction and operational stages of the project on identified residences and other sensitive receivers.
- Recommendations for detailed noise and vibration mitigation measures both during construction and operation where required, including in Gerringong for a short period during construction.

Specific areas and issues that would require assessment include the following:

- Assessment of operational traffic noise resulting from potential traffic flow increases along Huntingdale Park Road and nearby environs.

- Assessment of operational traffic noise resulting from traffic flow increases along the North Street corridor.
- Assessment of the operational traffic noise impacts associated with the proposed second flood free access to Berry in the vicinity of Kangaroo Valley Road.
- Assessment of operational traffic noise impacts associated with the Berry bridge.
- Assessment of operational traffic noise impacts to residences and businesses along the Princes Highway to the north and south of the project resulting from the expected shift of traffic from the 'Sandtrack' to the project on completion.

6.4.4 Brief scope of studies for the environmental assessment

Noise and vibration – including but not limited to:

- Identification of nearby residences and other sensitive noise receivers.
- An assessment of noise and vibration impacts from the construction and operational stages of the project on all identified residences and sensitive receivers.
- Recommendations for reasonable and feasible noise and vibration mitigation measures, where required.

6.5 Landscape and visual amenity

6.5.1 Background

A preliminary urban design assessment was carried out as part of the route selection process. The assessment identified the built and natural context through which the project passes. Urban design principles were identified to guide the planning and design of the upgrade as discussed in Section 3.4 of this report.

The natural landscape setting of the study area sees the interaction of ocean and beach, ridgelines and escarpment and the historic township of Berry. The existing highway reveals all of this complex and harmonious landscape to the user as it traverses Toolijooa Ridge and passes through Berry. Creek lines are often engaged as the highway closely follows the varying topography and there are expansive lateral views of coastal lowlands to the east and vegetated mountains to the west.

Berry is largely contained within a historical street grid. The main street is lined with a series of shops, cafes and hotels. Many buildings are heritage listed, providing significant character to the town.

6.5.2 Summary of potential issues

The potential urban design, landscape character and visual amenity impacts would generally be incurred in steep areas in locations where the project would deviate from the existing highway alignment. A greater amount of cut and fill would be required wherever the terrain is steeper, therefore the project would generate a greater overall level of impact on the local landscape within steeper localities.

A substantial cut would be required through Toolijooa Ridge in an area of high visibility. The large cut would be up to 24 metres deep and 900 metres long which, in such an area, may appear quite a substantial visual intrusion within the natural landform from particular viewpoints. A second large cutting (300 metres long and up to 14 metres deep) would be required around the Austral Park Road junction due to the close proximity to the lower slopes of the escarpment. The alignment crosses Kangaroo Valley Road in a cutting then rejoins the existing

highway alignment opposite Mark Radium Park.

There is potential for the project to have some degree of visual impact and landscape character impact on Berry, particularly in relation to the approaches to, and the bypass of, Berry. Further assessment of the potential for visual impacts and landscape character impacts on North Street would need to be conducted as part of the environmental assessment.

Views of the project would be created as the new upgraded highway descends from the ridgeline at the eastern end of Berry over a 600 metre long bridge structure spanning Woodhill Mountain Road, Broughton Mill Creek and Bundewallah Creek to the north-west of the adjacent sports fields. These views would be apparent from locations on the northern edge of town and adjacent properties in the surrounding rural landscape. Design of the bridge would take into consideration its visibility and presence within its context to ensure an appropriate and elegant response which integrates with the existing landscape.

The proposed heavy vehicle rest area north of Austral Park Road may also result in some degree of visual impact. Further assessment would be carried out to determine the potential for and extent of visual impacts

6.5.3 Further assessments

Further assessment of the potential visual impacts and landscape character impacts of the project would be carried out with respect to function, form / character and visual issues. Issues to be considered include:

- Function
 - Relationship between the project and Berry, including appropriate integration of the bypass with the historic, current and future urban form, pattern, function and operation of Berry.
 - Town entry strategy.
- Form/character
 - Design of the project with respect to the qualities and characteristics of the region, including natural areas, built areas and rural areas.
- Visual issues
 - Visual quality, amenity and impacts of structures, road formations, cuts/fills, intersections and elements arising from the project, specifically:
 - o Design consideration for the eastern and western gateways to the town of Berry.
 - o Impacts on viewpoints in the vicinity of North Street as a result of noise abatement measures.
 - o Specific urban design consideration of the Berry bridge.
 - o Specific urban design consideration of the Kangaroo Valley Road overbridge with regard to maintaining the connectivity of Berry and existing and future development to the north-west of Berry along Kangaroo Valley Road.
 - o Overall level of impact on the local landscape in localities with steeper terrain.
 - o Level of impact of proposed substantial cuts and fills, especially in the vicinity of Toolijooa Ridge, the Austral Park Road interchange, other highly visible areas and areas that may be potentially culturally significant.
 - o Design of the heavy vehicle rest area north of Austral Park Road

6.5.4 Brief scope of studies for the environmental assessment

Landscape and visual amenity – including but not limited to:

- An assessment of visual impacts from the construction and operational stages of the project on all existing views and landscapes.
- An assessment of the urban design elements of the project.
- Recommendations for detailed urban design mitigation measures, where required.

6.6 Socio-economic

6.6.1 Background

A preliminary socio-economic impact report (Maunsell 2008) was prepared as part of the selection of the preferred option for the project. Key findings of the preliminary assessment are summarised below.

The existing Princes Highway through Berry is named Queen Street, the main street and commercial heart of the town. Side streets off Queen Street namely Alexandra St and Albany Street have in recent years also attracted a range of retail and commercial uses.

Land-uses in, outside and adjacent to the Berry township include light industry situated between Berry and the South Coast Railway and residential areas and a sportsground to the north. The township is surrounded by agricultural lands in a largely pastoral landscape. Recently, the urban area has expanded to the south of Kangaroo Valley Road.

Given the distance from Sydney and the picturesque nature of the town and its local setting, Berry represents an ideal stopping off point for through traffic as a rest and refreshment point. It also attracts a significant number of day trippers as a destination town. Consequently, the town has numerous bed and breakfasts, restaurants, cafes, craft and antique shops which rely to a large degree on highway traffic related trade.

As at 2006, Berry had a total population of 1,484 persons, of these 45.7 per cent were male and 54.3 per cent were female. Of this total population, 84.8 per cent were 15 and over and 28.3 per cent were 65 and over.

The total Berry labour force in 2006 was 665, of which 31 (4.7 per cent) were unemployed. The main employment sources include manufacturing (6 per cent), construction (8 per cent), retail (15 per cent), health (14 per cent), accommodation and restaurants (11 per cent), and education industries (10 per cent), which provide nearly 64 per cent of all jobs. Many of these employment sectors service the tourist market in the region and approximately 84 per cent of the population that left home to go to work on Census day travelled by car (ABS 2006 Community Profile for Berry Urban Centre).

Rural localities in the area between the junction of the Princes Highway and Toolijooa Road and Berry include: Toolijooa, Foxground, Broughton and Broughton Village. These localities predominantly consist of large lot agricultural holdings (classified as Class 2 or Class 2 land suitable for productive agriculture by the Department of Primary Industries) including dairy farming, crop farming and vineyards, as well as designated environmental protection areas. Many of the farms and dwelling houses on these agricultural land holdings are located close to, and currently have direct access to the highway.

6.6.2 Summary of potential issues

The potential socio-economic issues of the project are primarily associated with the proposed bypass of Berry but there are also wider issues that have been identified through the preliminary environmental assessment and by the community. A summary of the key potential socio-economic issues is presented below.

Social issues

Social issues likely to affect the community include land acquisition, access arrangements, impact on existing and future planned land-use and agricultural land, amenity, and severance.

- Land acquisitions and property impacts.

The existing RTA road corridor would be used as much as possible to minimise the need for land acquisition and the design of the project has been maintained as close to the existing alignment as possible to minimise the required land take. However, some land acquisition would be required for the project.

Strip acquisition of a number of small lot rural and rural residential properties fronting the existing highway would also be necessary. Whole or partial acquisition of several rural properties would be required where the project diverges away from the existing highway and travels through greenfield areas such as Toolijooa Ridge.

A number of residential dwellings at the eastern and western ends of Berry would be directly impacted as a result of the proposed interchanges which are required for the adequate provision of access to the town. Full property acquisitions would be required around the southern interchange, including the proposed second flood free access into Berry at the eastern end of Kangaroo Valley Road.

Any property impacts as a result of required land acquisitions would be identified during the environmental assessment phase of the project but it is expected that they would include potential impacts to farm infrastructure, possible modifications to internal operation patterns resulting from modified land size and internal access to residual land where severance of lots has occurred.

Property impacts resulting from land acquisitions is a key issue at Toolijooa Ridge, the eastern and western ends of Berry and Kangaroo Valley Road where full and partial acquisitions would be required. Strip acquisition and related property impacts would be experienced along the length of the project.

- Town access arrangements.

The township of Berry would be bypassed by the project and potential social issues are generally associated with accessing the town centre. The provision of safe and efficient access arrangements at both ends of the Berry township (as well as the proposed second flood free access at Kangaroo Valley Road) is required to cater for the needs of the community, emergency services and tourist traffic.

The maintenance of existing vehicle and pedestrian access to Berry is an issue for the residential areas of Kangaroo Valley Road and Huntingdale Park Estate. Whilst the safety and ease of pedestrian movement on Queen Street would be improved as a result of reduced through traffic volumes, access to cafes, restaurants and car parks in the centre of town would need to be retained along the existing Kangaroo Valley Road alignment. This would be achieved via the over bridge over the upgrade.

The access arrangements and interchange locations have been designed to retain existing vehicular and pedestrian access arrangements and local connectivity between areas. It is not anticipated that the location of the proposed interchanges would physically restrict social networking in the local area.

Access arrangements are a key issue at both ends of Berry, Kangaroo Valley Road and Huntingdale Park Estate.

- Local road and property access.

The existing Princes Highway includes several junctions with local rural roads and many uncontrolled private accesses. The project would incorporate a median safety barrier to prevent right turn movements across oncoming traffic, which would result in significant road safety benefits. Access to local roads and private properties would be retained through left-in left-out arrangements only with u-turn facilities provided at grade-separated interchanges. Whilst this would improve road safety and traffic efficiency, it would be an inconvenience for local residents along the length of the project associated with additional travel time and cost.

Modifications to local road and property accesses would be an issue along the length of the project.

- Impacts on land-use including agricultural land

Property acquisitions and severances could result in a decrease in the future subdivision potential for some properties and may threaten the viability of residual land and agricultural productivity or a change in the type of agricultural focus.

Where full property acquisition is required, the RTA would retain the land required for the project and sell the residual land when it is no longer required for the project. The ongoing use of this land would be at the discretion of the new property owner. Where full property acquisition would result in severed residual blocks, the RTA would sell this land with the expectation that they would be used for a different purpose.

Impacts on land-use including agricultural land is a key issue at Toolijooa Ridge and at Kangaroo Valley Road.

- Amenity

Changes to traffic arrangements could potentially impact the amenity of Berry and its heritage precinct as well as the Huntingdale Park Estate residential area. Noise impacts generated by the project would also be experienced along the project and further afield. This is discussed further in Section 6.4 of this report.

Huntingdale Park Estate (particularly existing houses fronting Huntingdale Park Road) residences along North Street and Alexandra Street would experience amenity issues (such as noise and air quality impacts) due to altered traffic flows from low to high volume. The village character of Queen Street may be altered and improved as a result of reduced traffic flows.

Amenity would be a key issue in Berry, in areas adjacent to North Street and Huntingdale Park Road as well as Toolijooa ridge but would have a degree of impact along the length of the project.

- **Severance**
Severance refers to the extent to which the project has the potential to physically divide a community or a property.

Agricultural land to the east of the existing Princes Highway would be severed internally by the new off line section of the highway through Toolijooa Ridge.

The Berry bypass and the proposed interchange in the vicinity of Kangaroo Valley Road would be located between Berry proper (the 'old town') and newer development to the north-west along Kangaroo Valley Road potentially severing these two areas.

Severance is a key issue at Toolijooa Ridge and at Huntingdale Park Estate.

Economic issues

- **Tourism**
Berry is a tourist destination and is highly dependent on business derived from tourists and through traffic. The proposed bypass of Berry has the potential to enhance the attractiveness of the town centre for tourists through the reduction of through traffic. The centre of town would experience a reduction in noise and air pollution associated with light and heavy vehicles that currently pass along Queen Street.

Berry is known as an accessible historic town and tourist destination and the proposed bypass would be expected to enhance the ongoing economic viability of the town through the associated amenity and safety improvements along Queen Street, with associated increased visitation increasing the status of Berry as a destination town.

The project also presents an opportunity to create a signature entrance into town at the eastern end in the vicinity of the existing Berry entrance feature. The entrance could be developed to tie into the rural and heritage values of the town and the close proximity of the Mananga Homestead and the Pulman Street heritage precinct.

Maintenance of access for tourists during construction and during operation is a key issue for Berry township.

- **Agriculture**
The project has been designed to follow the existing highway alignment where possible and minimise potential impacts on class 2 and class 3 productive agricultural landholdings in the study area. However, some fragmentation of agricultural and farm land would occur where the proposed alignment is required to divert away from the existing highway as it cuts through Toolijooa Ridge. This may impact on the future agricultural viability and productivity, or the type of agribusiness carried out on these landholdings.

Viability of agricultural land is a key issue in Toolijooa Ridge.

- **Business**
The proposed bypass of Berry would have the potential to reduce the viability of some businesses in town that rely on passing through traffic as the volume of traffic using Queen Street is reduced. There may also be a change in business types on Queen Street as the reduced traffic encourages new development of vacant lots or changes to land uses of existing development, for example from a car park to small

scale tourist accommodation.. There would be a need to maintain the visibility of Berry from the bypass and provide appropriate signage for the town in order to minimise potential impacts.

There would be a short term increase in employment opportunities in the region during construction of the project and trade would increase for businesses in Berry, especially in the goods and services sectors as the workforce employed during construction would use the facilities offered in town. This would increase expenditure in the local area and provide an opportunity for local businesses to diversify and capitalise on the temporary increase in trade associated with the construction period.

Business viability is a key issue in Berry township.

6.6.3 Further assessments

A socio-economic impact assessment would be prepared as part of the environmental assessment addressing the matters raised above.

6.6.4 Brief scope of studies for the environmental assessment

Socio- economic – including but not limited to:

- An assessment of socio-economic impacts from the construction and operational stages of the project with a particular focus on:
 - The proposed bypass of Berry.
 - The location of the proposed interchanges to Berry and the resulting function of the town for the local community.
 - The location of the proposed interchanges to Berry and the resulting function of the town as a tourist destination.
 - Changes to property and local road accesses.
 - Land-use, property and amenity changes.
 - Fragmentation and potential loss of agricultural and farm viability.
- Recommendations for detailed socio-economic mitigation measures, where required.

6.7 Aboriginal cultural heritage

6.7.1 Background

A preliminary Aboriginal heritage assessment was undertaken during the development of the preferred option for the project. The assessment covered the study area and included a literature and database review of relevant statutory and non-statutory heritage registers and schedules.

Literature and database review

As part of the preliminary Aboriginal heritage assessment, the following desktop searches were undertaken:

- Statutory listings
 - The Commonwealth Heritage List (Australian Heritage Council).
 - The National Heritage List (Australian Heritage Council).
 - Aboriginal Heritage Information Management System (AHIMS) (NSW DECCW).

- The State Heritage Register (NSW Heritage Branch).
- Section 170 Heritage and Conservation Register(s) compiled by the RTA.
- Heritage Schedule(s) from the Shoalhaven and Kiama LEPs.
- Non-statutory listings
 - The Register of the National Estate (Australian Heritage Council).
 - The State Heritage Inventory (NSW Heritage Office).
 - Register of the National Trust of Australia (NSW).

The study area for the Aboriginal cultural heritage assessment contains four places of known or reported historical and cultural Aboriginal significance. These sites include:

- The historical encampment at Berry.
- The historical encampment at Brookside (Broughton Village).
- The 'Little Mountain' or 'Dicky Wood's Meadow' battleground.
- Toolijooa Ridge.

These sites have been identified as possessing historical and/or cultural significance for the local Aboriginal community.

A search of the AHIMS was undertaken as part of the preliminary Aboriginal impact assessment (May 2007). The AHIMS search identified seven registered sites within the study area. These sites include six subsurface artefacts which indicate the possible presence of potential archaeological deposits and one isolated find.

Consultation with the AFG has been undertaken for the AHIMS sites and places of known or reported historical and cultural Aboriginal significance. The AFG raised the following issues about the project and potential impacts on Aboriginal heritage sites:

- Genealogy and the provision of cultural knowledge by the appropriate traditional owners of the land within the study area.
- Concerns regarding the potential for encountering and impacting Aboriginal burials, both generally, and within areas with archaeological potential or areas remembered as sensitive in this regard.
- Consideration of impacts to Toolijooa Ridge associated with the proposed deep cutting and ongoing consultation with the AFG regarding management of impacts.
- Avoidance of impacts to the Berry Encampment area located to the south of the existing highway at the eastern end of Berry.
- Ongoing consideration of Aboriginal participation and employment as the project develops.

6.7.2 Summary of potential issues

The project would be in close proximity to three of the four Aboriginal cultural heritage sites described above. Of particular concern is the large cutting through Toolijooa Ridge. Feedback from the AFG, and a site walkover conducted in 2008, confirms the significant cultural value attached to Toolijooa Ridge and the other sites in the vicinity of the highway upgrade. The Berry encampment is located to the south of the project and is unlikely to be directly impacted. However, ongoing management of downstream impacts during construction would need to be considered in the environmental assessment.

It has not been determined whether any of the seven registered AIHMS sites that were identified in the preliminary assessment would be impacted by the project. This would be determined during the preparation of the environmental assessment.

There is also potential for unknown Aboriginal sites and/or artifacts to be impacted by the project and this would be taken into consideration during the preparation of the environmental assessment.

6.7.3 Further assessments

An Aboriginal cultural heritage assessment report will assess the significance of known and potential Aboriginal objects, places and cultural values within the study area, and the significance of any impacts that may result from the construction and/or implementation of the project:

The cultural heritage assessment report will be prepared in accordance with the following policy documents and heritage guidelines:

- RTA Procedure for Aboriginal Cultural Heritage Consultation and Investigation, (PACHCI) 2008 (currently under review).
- DECCW's Aboriginal Cultural Heritage Consultation Requirements for Proponents, 2010.
- DECCW's Code of practice for archaeological investigation of Aboriginal Objects in NSW 2010.

The assessment report would also include:

- Relevant plans or diagrams of the location of the project in relation to known and potential Aboriginal objects, places or cultural values, as well as survey routes and relevant sampling details.
- Records of consultation with the Aboriginal parties including minutes and outcomes from the AFG meetings.
- A description of survey/sampling methods adopted for the survey, and the archaeological investigations, if required by the methodology.
- Results of survey/sampling, and archaeological investigations, if required by the methodology.

Further consultation with the local Aboriginal community would be ongoing throughout the environmental assessment process through the existing AFG forum in order to ensure that the Aboriginal parties' interests have been addressed.

6.7.4 Brief scope of studies for the environmental assessment

The Aboriginal cultural heritage assessment report would include but not be limited to:

- A comprehensive survey assessment of the project area to identify known and potential Aboriginal objects, places and cultural values.
- A comprehensive assessment of significance of known and potential Aboriginal objects, places and cultural values, including archaeological test excavations, if required.
- An assessment of known and potential impacts to Aboriginal objects, places and cultural values resulting from the construction and implementation of the project.

- Evidence of Aboriginal community consultation in the development of the cultural heritage assessment report.
- Recommendations for detailed mitigation measures to minimise the impacts of the project on Aboriginal cultural heritage, where required.

6.8 Biodiversity

6.8.1 Background

Preliminary terrestrial and aquatic ecology investigations were undertaken in 2007 to assist with the selection of the preferred option and in identifying potential issues for the purpose of the preliminary environmental assessment. Existing vegetation mapping provided background information, and the desktop study was followed by an on-site ground survey.

Terrestrial flora

The majority of the study area for the biodiversity assessment comprises grazed paddocks and other cleared areas that contain little remaining native vegetation that has either been mapped or otherwise described as a native plant community. Areas disturbed by grazing or clearing are frequently infested with weed species including, but not limited to, Narrow-leaf Privet *Ligustrum sinense*, Broad-leaved Privet *Ligustrum lucidum*, Lantana *Lantana camara*, Wild Tobacco *Solanum mauritianum*, Mistflower *Ageratina riparia*, Blackberry *Rubus fruticosus*, Fireweed *Senescio madagascariensis* and Wandering Creeper *Tradescantia fluminescens*.

The preliminary biodiversity investigations undertaken for the Gerringong to Bomaderry route selection study found that a total of 26 plant communities have been mapped as occurring within a five kilometre radius of the project. Fifteen of these are likely to form part of a community listed under Schedule 2 of the *Threatened Species Conservation Act 1995* (TSC Act), and eight are part of an EEC listed under Schedule 1 of the TSC Act.

One of these plant communities, Riverbank Forest, is located within the study area. This community generally meets the criteria for the community listed under the TSC Act as River-flat Eucalypt Forest on Coastal Floodplains of the North Coast, Sydney Basin and South East Corner Bioregions. The preliminary assessment undertaken in 2007 for this community has determined that it is unlikely that the project would have a significant impact on this community.

The following four mapped plant communities occur within the project area:

- Constructed Wetland.
- Illawarra Gully Wet Forest.
- Riverbank Forest.
- Warm Temperate Layered Forest.

There are no plant communities present within the study area that form part of an EEC listed under the EPBC Act.

Subtropical Complex Rainforest, was mapped about 0.25 kilometres from the project and is known to occur in association with Warm Temperate Layered Forest. Subtropical Complex Rainforest is considered to meet the criteria for the community listed under the TSC Act as Illawarra Subtropical Rainforest in the Sydney Basin Bioregion. The project would avoid locations where impacts on this community would require further consideration.

A total of 500 vascular plant species are recorded within the study area and adjoining areas, 80 per cent of these are locally indigenous species, with the remainder being exotic weed species. Twenty plant species listed under the TSC Act and/or the EPBC Act have been identified as likely to occur within 10 kilometres of the project.

The preferred option was selected so that no threatened plant species would be directly impacted by the project. The following two threatened species were recorded in close proximity to, but not within, the project location:

- Illawarra Socketwood, *Daphnandra sp. Illawarra*.
- Hill Zieria, *Zieria granulata*.

These species are listed as endangered under both the TSC Act and the EPBC Act. The closest record for *Daphnandra sp. Illawarra* is approximately 600 metres south of the project and the closest record for *Zieria granulata* is approximately 200 metres south of the project. The population of *Zieria granulata* may represent the southern-most occurrence of this species and therefore would be considered to be highly significant and of high conservation value. The preliminary ecological assessment (2007) identified that other locations within two kilometres of the project appear to support relatively small numbers of these plants, the maximum being approximately 27 individuals.

Terrestrial fauna

Threatened fauna including migratory and/or preliminarily listed species, or their habitat, have been previously recorded within a 10 kilometre radius of the project (DECCW Atlas of NSW Wildlife and DEWHA online EPBC database). The following listings apply to these species:

- Sixty-four animal species are listed under the TSC Act (including six listed as preliminary determinations).
- Sixty-two animal species are listed under the EPBC Act (including 16 threatened and 48 migratory species).

Fauna species recorded within the study area include the following:

- 123 birds species (including nine introduced species).
- 34 mammal species (including five introduced species).
- Nine frog species.
- Nine reptile species.

The following threatened species were recorded during the field surveys conducted in 2007 as part of the preliminary ecological assessment for this project:

- Gang-gang Cockatoo, *Callocephalon fimbriatum*.
- Powerful Owl, *Ninox strenua*.
- Yellow-bellied Sheathtail Bat, *Saccolaimus flaviventris*.
- Eastern Freetail Bat, *Mormopterus norfolkensis*.
- Grey-headed Flying-fox, *Pteropus poliocephalus*.
- Eastern Bentwing-bat, *Miniopterus schreibersii oceanensis*.
- Eastern False Pipistrelle, *Falsistrellus tasmaniensis*.
- Large-footed Myotis, *Myotis macropus*.

- Greater Broad-nosed Bat, *Scoteanax rueppellii*.

Previous studies have also recorded the following three threatened species:

- Black Bittern, *Ixobrychus flavicollis*.
- Square-tailed Kite, *Lophoictinia isura*.
- Yellow-bellied Glider, *Petaurus australis*.

The following migratory species were also recorded during the field surveys:

- White-bellied Sea-eagle, *Haliaeetus leucogaster*.
- Fork-tailed Swift, *Apus pacific*.
- Cattle Egret, *Ardea ibis*.
- Black-faced Monarch, *Monarcha melanopsis*.
- Rufous Fantail, *Rhipidura rufifrons*.
- Clamorous Reed-warbler, *Acrocephalus stentoreus*.

Potential habitat for an additional 53 species is also considered to be present within the project. Potential impacts on these habitat areas would therefore need to be considered in more detail during the environmental assessment process to determine the type and degree of impact associated with the project on habitat of conservation significance.

Threatened populations

No endangered fauna or flora populations (as distinct from communities) listed under Schedule 1 of the TSC Act are identified within the study area.

Critical habitat

No areas of critical habitat for flora or fauna have been declared within the study area under either the TSC Act or the EPBC Act.

Bomaderry bushland, to the south of the study area, contains an area of critical habitat for the plant species *Zieria baeuerlenii*. This area of critical habitat has been recommended for listing under the TSC Act. A total of 54 hectares of the 230 hectares remnant has been recommended for listing as critical habitat. This habitat remnant would be unaffected by the project.

Wildlife corridors

The main corridor linkages within the study area are:

- Forest remnants extending from the escarpment into lower foothills along the western margin of the project. These forest components are not part of a corridor across the project, but they are the edges of a major regional corridor to the west of the project and are likely to provide habitat for a wide assemblage of native species. These include the Yellow-bellied Glider, Olive Whistler, Sooty Owl, Spotted-tailed Quoll, Long-nosed Potaroo and Grey-headed Flying Fox.
- A potential corridor comprising patches of distinct or isolated vegetation along Toolijooa Ridge and Harley Hill, which is linked to some extent with vegetation along Broughton Creek.

- Broughton Creek which flows from north to south and enters the project near Foxground, passing east of Berry and enters the Shoalhaven River between Bolong and Back Forest. This is the only functional, albeit fragmented, north-south corridor within the study area. The vegetation comprises Illawarra Gully Forest on the lower slopes to the north and Floodplain Swamp Forest and Coastal Sand Swamp Forest on the flatter lowlands.
- Beach Road which provides a narrow roadside corridor between Broughton Creek, east of Berry, and Seven Mile Beach national park, east of the study area.

These habitat corridors are likely to influence the movement and distribution of some species at the local scale, particularly species that have restricted habitat components (eg rainforest) within and surrounding the study area.

Aquatic habitats

The study area is located in the far north-eastern section of the Shoalhaven River Catchment (Environmental Protection Agency 1997). Extensive areas have been cleared for agricultural uses such as grazing and dairy farming, resulting in considerable reduction of riparian vegetation.

South-west of Currys Mountain the study area is dominated by the drainage of Broughton Creek, which provides the most important aquatic habitat within the study area. It is classified as a Class 1 waterway, as defined by the NSW Fisheries' Policy and Guidelines for Aquatic Habitat, Management and Fish Conservation (1999).

Broughton Creek is fed by a number of smaller watercourses that drain off the Illawarra ranges and a series of smaller landforms to the east that separate the drainage from Foys Swamp and Coomonderry Swamp. Many of the low lying watercourses around the tidal section of Broughton Creek have been modified for flood mitigation.

Downstream of the project at the confluence of Broughton Creek and the Shoalhaven River there are a variety of important estuarine wetland habitats such as seagrass beds; tidal flats; saltmarsh and mangroves which are extremely important for seabirds and migratory waders. There are a number of SEPP 14 wetlands in this locality, including the Comerong Island Nature Reserve and Coomonderry Swamp.

Coomonderry Swamp to the south of the study area is a freshwater coastal wetland protected under *SEPP No. 14 – Coastal Wetland* and represents one third of all semi-permanent coastal freshwater wetland habitat in NSW (NSW NPWS 1998). It provides habitat for a diverse array of flora and fauna, including many threatened species such as the Green and Golden Bell Frog (*Litoria aurea*).

Aquatic fauna

Previous studies identified 36 fish species that could potentially exist within the study area. Of these, 33 are native species and three are exotic species. Two native species are listed as threatened (the Macquarie Perch, *Macquarie australasica* and the Australian Grayling, *Prototroctes maraena*).

The *Fisheries Management Act 1994* (FM Act) lists the Macquarie Perch as an endangered species. The Macquarie Perch and the Australian Grayling are also listed under the EPBC Act as endangered and vulnerable, respectively.

Given the relatively small size and low elevation of the drainage systems and degraded nature of the habitat, it is unlikely that viable populations of either Macquarie Perch or Australian Grayling are present within the study area.

6.8.2 Summary of potential issues

The project has the potential to impact on biodiversity, including threatened and protected species, populations and communities. The mechanisms by which these impacts could occur include:

- Vegetation clearance/habitat loss.
- Edge effects.
- Habitat fragmentation.
- Loss of connectivity between habitat areas.
- Mortality of individuals during both the construction and operations phases.
- Introduction and/or spread of noxious weeds and other invasive species.
- Installation of instream drainage structures affecting fish passage.
- Mobilisation of sediments into waterways and potential pollution from materials used in the process of road construction.
- Potential changes to hydrology.
- Degradation of riparian vegetation and removal of large woody debris.

Potential impacts on terrestrial ecology

Issues with respect to specific locations are discussed below.

- North of Berry

There are likely to be ecological impacts associated with the project as it passes across Toolijooa Ridge. A number of areas have been identified as potential wildlife corridors within the study area and it is considered likely that the project would impact on the movement of fauna species across Toolijooa Ridge. Potential impacts of the project would therefore require further evaluation and assessment as part of the environmental assessment.

The project includes three bridge crossings of Broughton Creek. These crossings would require careful design and the implementation of best practice environmental management procedures.

The environmental assessment would identify need, location and design of fauna connectivity measures, and where reasonable and feasible, these would be incorporated into the project.

- Berry bypass

The proposed bypass of Berry would have a marginal impact on a small area of vegetation of moderate significance, located along the western side of the existing highway near Tindalls Lane.

Potential impacts on aquatic ecology

There are a number of wetlands downstream of watercourses that pass through or originate in the study area, and the project would include some major waterway crossings as it approaches Berry from the north. Waterway crossings have the potential to impact on aquatic ecology and/or riparian vegetation and road construction may give rise to increased turbidity, reduced water quality and changes to existing hydrology.

No listed threatened or protected species were observed in freshwater habitats within the study area. Provided appropriate mitigation measures are adopted as part of the project, it is unlikely that the works and structures associated with the construction and operation of the project would have long-term impacts on threatened or protected species or the wider aquatic ecology of the project.

6.8.3 Further assessments

The environmental assessment would consider the type and degree of flora and fauna impacts associated with the project, including an assessment of protected flora and fauna (as listed under the relevant legislation), critical habitat, threatened species, populations and ecological communities, rare or threatened Australian plant species (ROTAP), wildlife corridors and connectivity and other flora and fauna and vegetation communities of conservation significance.

The environmental assessment would propose mitigation measures that would reduce the intensity and extent of impacts on flora and fauna, particularly threatened flora and fauna, critical habitat, threatened species, populations and ecological communities.

6.8.4 Brief scope of studies for the environmental assessment

Biodiversity – including but not limited to:

- An assessment of threatened terrestrial and aquatic species, populations and ecological communities.
- Targeted surveys for terrestrial and aquatic threatened flora and fauna species.
- Assessment of habitat including native vegetation loss, habitat fragmentation, wildlife corridors, loss of ecological connectivity, riparian habitat and weed infestation.
- Identification and management of key threatening processes.
- Recommendations for detailed biodiversity mitigation measures, where required.

7 Other environmental issues

Other environmental issues listed below are considered to be of lesser consequence than key issues, taking into account the scope of the project, the existing environment and the implementation of standard and best practice management and mitigation measures.

The potential environmental issues and the proposed management and mitigation measures listed below would be reviewed further during the preparation of the detailed environmental assessment. Environmental safeguards required to minimise and mitigate impacts would be documented in a Statement of Commitments (SoC), in accordance with section 75F(6) of the EP&A Act, as part of the environmental assessment.

7.1 Landform, geology and soils

7.1.1 Background

Topography

The study area within which landform, geology and soils were investigated includes the following two, main topographic groups:

- The undulating hills and their associated foothills, to the north-west of the south coast railway line.
- The Shoalhaven lowland plain, extending south-east beyond Coolangatta towards the Shoalhaven Bight.

The elevated north-western portion is influenced by the Cambewarra Mountain Range (north-west of Berry). Compared with the Illawarra Range (north of Mount Pleasant at Kiama), the Cambewarra Range is a narrow low range that runs roughly parallel with the coastline. The lower slopes of this range extend into the study area as the ridge lines approach Berry. Harley Hill and Toolijooa Ridge are situated towards the eastern part of the study area and are disjointed from the Cambewarra Range.

A ridge of moderate elevation, from Foxground to Toolijooa Hill and a flatter ridge to the south-west of Toolijooa Ridge, separate the Broughton Creek floodplain from the Crooked River floodplain.

Geology

The geology of the study area corresponds to the Permian Shoalhaven Group, which may be sub-divided into two subgroups, the Gerringong Volcanics and the Berry Formation (Rose, 1966).

The younger Gerringong Volcanics subgroup comprises Broughton Tuff and Kiama Tuff, which are found following ridgelines through Toolijooa Ridge and high points to Harley Hill. The Berry Formation comprises Budgong sandstone, siltstone and interbedded shale and occurs south-east of the Crooked River.

Fluvial, estuarine and marine sediments of the Shoalhaven lowland plain overlay the sedimentary rocks of the Shoalhaven Group. Generally the sediments comprise thin, recent floodplain sediments (mud, silt, sands and local gravels) overlying estuarine muds, sands and clays. These are generally found underlain by alluvium and associated transported soils.

Acid sulfate soils and soft soils

Acid sulfate soils (ASS) are a naturally occurring soil and sediment which contain iron sulfides and when exposed to air can generate sulfuric acid. This can have major environmental impacts and constrain development and construction in affected areas if not properly managed. Areas identified as 'high risk' of encountering ASS are generally indicative of areas underlain by soft, compressible soils. There is a high probability that ASS are present in the Broughton Creek floodplain to the east of Berry and this area would be disturbed during construction of the project. This would be subject to further assessment as part of the environmental assessment.

7.1.2 Summary of potential issues

The project would require the formation of cuttings, from which relatively good quality earthwork materials would be sourced, and embankments. The project passes Toolijooa and Foxground in a combination of substantial embankments and cuttings. Based on the current concept design, it is expected that the project would be able to be constructed with an overall balance of earthworks, where the amount of cut material excavated from the cuttings would equal the amount of fill material required for the embankments along the project.

Potential issues arising from the project would be largely associated with the earthworks required to enable construction of the project and would include the erosion of exposed soils and stockpiles. During operation, there would be potential for ongoing erosion and instability of exposed cut faces and embankments.

Climate change impacts, such as increased frequency, duration and intensity of rainfall and storms, increased temperatures, changes in water content of soils and changes in wind speed all have the potential to increase surface water runoff, both from the project and generally in the project location, and increase the impacts of erosion.

As discussed in Section 7.1.1, there is a high probability that ASS are present in the Broughton Creek floodplain and would be disturbed during construction. Better ground conditions are encountered along the bottom of the ridges heading south.

7.1.3 Management and mitigation measures

Construction and operational soil issues are commonly encountered on road projects and are generally effectively managed through the development of project specific construction management plans. Appropriate consideration during the detailed design process is also required. The following measures would adequately address the soil issues arising from the project:

- Best practice measures would be implemented in the construction phase of the project to manage erosion and sedimentation control in *accordance with Landcom's Managing Urban Stormwater – Soils and Construction Volume 1* (Landcom 2004) and DECCW's *Managing Urban Stormwater - Soils and Construction, Volume 2D – Main Road Construction* (DECCW 2008).
- The design of the project would follow the RTA's *Procedure for Erosion and Sedimentation Management* (2008), including assessment of sedimentation basin sizing criteria.
- Predicated effects of climate change would be taken into consideration when designing erosion and sedimentation management measures.

- If necessary, an appropriately qualified soil conservation officer would be appointed to the project during detailed design and construction to advise on the appropriate treatments to minimise erosion and sedimentation.
- Best practice measures would be implemented in the construction phase of the project to manage ASS in accordance with the RTA's *Guidelines for the Management of Acid Sulphate materials: Acid Sulphate Soils, Acid Sulfate Rock and Monosulfidic Black Ooze* (RTA 2005).

Landform, geology and soils is not considered to be a key issue as potential impacts of erosion, sedimentation and ASS are able to be mitigated through the application of best practice mitigation and management measures.

7.2 Flooding and groundwater

7.2.1 Background

Many secondary streams and creeks migrate from higher elevations within the Cambewarra Range. These secondary streams and creeks generally flow to the south-east where they merge with either the Crooked River to the north of the study area or Broughton Creek east of Berry. The Shoalhaven lowland plain, with a surface elevation of generally less than five metres, incorporates the Broughton Creek floodplain.

Broughton Creek (upper catchment)

Broughton Creek (upper catchment) upstream of Berry traverses the study area in a southerly then westerly direction. The catchment consists predominately of rural pastures below steeper forested hillside with the dominating land-use being agriculture. The creek's catchment area upstream of Berry is predicted to produce a 1 in 100 year annual recurrence interval (ARI) discharge of approximately 760 cubic metres per second.

Broughton Creek floodplain and tributary valleys

The Broughton Creek floodplain and tributary valley floor areas, occupy a large portion of the study area to the south and south-east of Berry and tributary valleys to the north and north-east of Berry. Broughton Creek flows across a broad floodplain in a southerly direction, flowing into the Shoalhaven River about five kilometres west of Shoalhaven Heads.

Berry floodplain area

Berry is located on floodplain land adjacent to the confluence of two major creek systems, Broughton Mill Creek and Bundewallah Creek. The catchment consists predominately of rural pastures below steeper forested hillsides. The area downstream of the town of Berry is flat and swampy and is generally below the level of the Broughton Creek levees.

Bundewallah Creek, located to the north of Berry flows eastwards under a bridge at Woodhill Mountain Road to join Broughton Mill Creek. From the confluence with Bundewallah Creek, Broughton Mill Creek flows southwards under an existing bridge at the Princes Highway, then under a second bridge at the South Coast railway line before running to the south of Berry. Downstream and to the east of Berry, Broughton Mill Creek flows into Broughton Creek, which in turn flows southward into the Shoalhaven River (refer to Figure 4.1).

Connollys Creek enters Bundewallah Creek upstream of the confluence with Broughton Mill Creek. Two unnamed creeks flow through Berry before joining Broughton Mill Creek. Town Creek (or Princess Creek) meanders eastwards through the Berry town centre, adjacent to Princess Street, before joining Broughton Mill Creek.

At the north of Berry, Town Creek has a catchment of approximately 68 hectares which increases to some 116 hectares at the confluence with Broughton Mill Creek. Bundewallah Creek and Connollys Creek have catchments of approximately 1500 hectares and 630 hectares respectively. Broughton Mill Creek has a catchment of approximately 2000 hectares immediately upstream of the confluence with Bundewallah Creek. At the railway bridge, approximately 500 metres downstream of the Princes Highway, the total catchment is around 4400 hectares.

The Berry floodplain area has an elevation generally between one metre and two metres Australian Height Datum (AHD). The tidal influence of this floodplain extends approximately 12 kilometres upstream of the Broughton Creek and Shoalhaven River confluence to the vicinity of the Coolangatta Road Bridge, to the south of the study area. Broughton Mill Creek, Connollys Creek, Bundewallah Creek and Town Creek are the main sources of flooding in Berry.

Within this floodplain, floods inundate substantial areas of Berry and the surrounding rural lands. Major flood flows arise in the high ground to the north of Berry with flood flows rising in Broughton Mill Creek and Bundewallah Creek. The creek flows are contained within the natural embankments except for an embankment opening to the north of Berry. This overflow travels parallel to the Princes Highway before entering Town Creek through Berry.

The predicted 1 in 100 year ARI discharge at the Broughton Mill Creek and Bundewallah Creek confluence is approximately 1100 cubic metres per second. Broughton Creek at the railway bridge has a predicted 1 in 100 year ARI discharge of approximately 1880 cubic metres per second.

Groundwater

From the limited piezometric data and variable geographical formations found in the study area, it is not possible to accurately determine groundwater divides and aquifer geometry. However, based on the available borehole data and geological mapping, it can be assumed that the study area is characterised by relatively shallow unconfined groundwater which would be expected to closely mimic the natural topography. Due to undulating terrain, a number of sub-basins would be expected, superimposed on the regional system. This unconfined groundwater profile may include some areas of perched water table. Several boreholes indicate possibly confining layers below the unconfined aquifers comprising clays or hard sandstones.

Below this are several different confined or semi-confined water bearing layers, mainly within fractured shales and sandstones within areas of the Berry formation, and within fractured tuff and basalt in areas characterised by Gerringong volcanics. These deeper aquifers are accessed by the majority of licensed bores within the study area generally at depths ranging between 15 metres and up to 50 metres below ground level.

Areas of shallow groundwater identified from the piezometer monitoring data generally coincide with the occurrence of soft soils. However, shallow groundwater was also identified further upstream in the Broughton Creek floodplain and in the area immediately north of Berry, where a number of watercourses converge. In these areas, groundwater levels are typically between approximately 0.37 metres and 2.5 metres below ground level.

In the areas north of Berry, and in the upper reaches of the Broughton Creek floodplain, road construction in cutting would need to provide adequate cut off drains to collect groundwater seepage.

7.2.2 Summary of potential issues

The low lying areas within the study area are flood prone and each of the watercourses encountered would require bridges or culverts to meet flood mitigation requirements. Consideration would also be given to the potential for flooding to be exacerbated by the predicted effects of climate change.

Climate change impacts such as increased frequency, duration and intensity of rainfall and storms have the potential to exacerbate the impacts of flooding and allowances for the effects of climate change would need to be included in the detailed design flood modelling for the project.

There is no potential for the crossing of the Broughton Mill and Bundewallah Creek floodplains to impact on flooding and drainage through these areas. The design of the Berry bridge that crosses these waterways is constrained by the height of the ridge to the north of town and also by the requirement to span Woodhill Mountain Road at 5.3 metres to accommodate general traffic flow along Woodhill Mountain Road. The bridge design by default accommodates the expected maximum flood flows, including future flood flow increases resulting from climate change and predicted sea level rise, in Broughton Mill Creek and Bundewallah Creek. In the northern section of the study area, the project is located on a ridgeline and would be unaffected by flooding.

Consideration would be given to the potential for introducing flood detention measures that would provide some protection to the town of Berry from high flood flows during flood events. Drainage structures may be sized to control the flow from upstream while managing the rate of flooding downstream, reducing the probability of creeks overtopping. The project has the potential to provide this benefit to Town Creek and Bundewallah Creek, which would be examined as part of the environmental assessment process.

There is potential for the earthworks associated with the project to interrupt existing groundwater flows, particularly as a result of the substantial cutting through Toolijooa Ridge. Road construction in cutting would need to provide adequate cut off drains to collect any groundwater seepage, and the potential groundwater impacts associated with the project would be subject to further assessment as part of the environmental assessment.

7.2.3 Management and mitigation measures

A hydrology and hydraulics impact assessment would be prepared as part of the environmental assessment, which would detail the recommended management and mitigation measures. The following measures would also be implemented during design development and construction:

- Best practice management measures would be implemented during construction of the project and the desired outcomes of these measures would be incorporated into the SoC. These measures would be in accordance with applicable RTA QA specifications and Landcom's *Managing Urban Stormwater- Soils and Construction Volume 1* (Landcom 2004) and DECCW's *Managing Urban Stormwater: Soils and Construction, Volume 2D – Main Road Construction* (DECCW 2008)
- Road drainage infrastructure including bridges and culverts would be designed to accommodate the 1 in 100 year ARI for new structures and a minimum of 1 in 20 year ARI if an existing structure can be utilised. New infrastructure would be required to demonstrate that the adoption of a structure with a 1 in 20 year flood capacity does not exacerbate flooding and that it has adequate structural capacity for the new design life.

- Design standards of particular components of infrastructure would allow for changes in the range of extreme climatic events expected as a result of climate change.
- The environmental assessment would describe how construction activities would be managed and monitored to minimise and mitigate impacts on groundwater and include a description and identification of groundwater resources affected by the project, groundwater dependant ecosystems and proposed groundwater management and monitoring measures. This would include issues related to groundwater seepage and potential aquifer severance through major bedrock cuttings.

Flooding and groundwater are not considered to be a key issue as potential impacts would be able to be mitigated through the application of best practice design and management measures during the design and construction of the project.

7.3 Water quality

7.3.1 Background

A previous study undertaken for the route selection process indicated that land-uses including agriculture and grazing have had a detrimental impact on water quality within the study area. Nearly all creeks lie adjacent to cleared land used for agricultural purposes and most recorded values of total phosphorus and dissolved oxygen exceed ANZECC threshold values for the protection of aquatic ecosystems.

An analysis of water samples collected as part of the preliminary investigations during the Gerringong to Bomaderry route selection study revealed similar patterns.

All sites had levels of organochlorine pesticides and trace elements that were below ANZECC thresholds. Values for suspended solids, oil and grease were also high. The in situ water testing revealed most waterways had pH and salinity levels within acceptable limits, but dissolved oxygen values were almost universally less than the ANZECC lower threshold for the protection of ecosystems.

7.3.2 Summary of potential issues

There are numerous water quality issues facing watercourses within the greater Shoalhaven catchment due to past and present land-use practices. These include elevated nutrient levels, heavy metal contamination, suspended sediment from erosion, low dissolved oxygen, bacterial pollution and drainage of acid sulfate soils (Environmental Protection Authority of NSW, 1997).

North of Berry the project crosses Broughton Creek three times. A significant structure would be required for the project to cross Broughton Mill Creek and Woodhill Mountain Road as it descends from the ridgeline to the north of Berry and continues across Bundewallah Creek to the north-west of the sports fields.

Potential water quality impacts would be those expected with normal bridge construction and would be limited to the construction phase. The bridge span is not dictated by the flood regime but rather by the height required to clear Woodhill Mountain Road so it is not expected that there would be any ongoing water quality issues post construction.

Elsewhere in the study area potential water quality impacts could arise as a result of sedimentation and erosion during construction earthworks and accidental spills.

The project is expected to have a relatively minor impact on water quality through careful design and best practice environmental management.

7.3.3 Management and mitigation measures

Best practice management measures (particularly sediment and erosion control measures) would be implemented during construction of the project and detailed in the SoC. Management measures would be in accordance with RTA Quality Assurance Specifications. The following would be addressed or assessed further as part of the environmental assessment:

- Drainage channels within the study area would be described and the frequency of flow and the potential for erosion identified. The water quality of drainage channels would also be described and assessed in the environmental assessment.
- The operational stormwater quality objectives would be further defined in the environmental assessment with consideration given to relevant guidelines. Consideration would be given to the potential impact of spills on the receiving environment.
- Where feasible, operational runoff should be treated using non point source or dispersed techniques. For example, the use of table drains, grass buffer strips, grass swales, edge drains and grassed median strips. In sensitive environmental locations and where required, sedimentation basins installed for the construction phase would be converted to water quality treatment basins for the operational phase.
- Energy dissipaters or scour protection methods would be used to prevent erosion at outlets and to protect natural watercourses.

Additional management and mitigation measures would be documented in the environmental assessment and incorporated into the concept design wherever appropriate.

Water quality is not considered to be a key issue as potential impacts to water quality would be able to be mitigated through the application of best practice management and mitigation measures during the design and construction of the project.

7.4 Air quality

7.4.1 Background

Local air quality

The closest Bureau of Meteorology (BOM) monitoring station was located at Croom Road in Albion Park, approximately 15 kilometres north of Gerringong. This site was decommissioned in 2005 and a new station was commissioned at Terry Reserve, Albion Park South, in December 2005. No data was available from the Albion Park South site at the time the preliminary air quality report was written. Pollutants monitored at the Croom Road site were nitrogen dioxide (NO₂), ozone (O₃), sulphur dioxide (SO₂) and particulate matter (PM₁₀ – specifically referring to fine, airborne particles with an aerodynamic diameter smaller than or equal to 10 micrometres).

Maximum one hour and four hour average O₃ concentrations occasionally exceed the air quality goals which can generally be attributed to variations in meteorological conditions and bushfires. NO₂ concentrations are well below the air quality goal. Annual average concentrations of PM₁₀ are below the DECCW air quality goal of 30 µg/m³, except in 2003 when there were a number of major dust storms.

The closest site that monitors carbon monoxide (CO) concentrations is located at Wollongong, approximately 40 kilometres north of Gerringong. The maximum CO concentrations recorded at this site are below the air quality goal.

Wind speed and direction

Wind speed data was collected at two locations in the vicinity of the Princes Highway, a site located at the Gerroa tip and from a location on Beimfels Road (located five kilometres and three kilometres south-west of Gerringong respectively).

On an annual basis, at both locations, the most common winds were from the west and north-east. In summer the winds were predominantly from the north-east while in spring winds were predominantly from the west, west-north-west and north-east. In autumn and winter winds were mainly from the west and west-north-west. In autumn there were also winds from the north-east. The average annual wind speed at Gerroa tip was 2.4 metres per second.

Atmospheric stability

The most common stability occurrences suggest that emissions would disperse quickly for a large proportion of the time.

7.4.2 Summary of potential issues

The Caline series of dispersion models has been utilised to estimate the concentration of NO₂, CO and PM₁₀ that are likely to occur in the vicinity of the existing Princes Highway. The section chosen for assessment was that closest to the residential town of Berry.

No exceedence of air quality criteria was recorded from the existing Princes Highway in the vicinity of Berry. Any bypass of Berry would move traffic away from the majority of the residences and schools in Berry. It would therefore be expected that the impacts from an air quality perspective would be mostly beneficial within the town itself. Notwithstanding there would be a potential decrease in air quality along North Street due to increased traffic.

A temporary increase in dust during construction is likely. In particular, demolition works, civil engineering works, road upgrades and construction traffic are activities that would be likely to generate dust and other emissions that would result in temporary reductions in air quality.

7.4.3 Management and mitigation measures

Best practice management measures (particularly dust suppression measures) would be implemented during construction of the project and would be detailed in the SoC. These measures would be in accordance with RTA QA Specifications.

An air quality assessment would be undertaken as part of the environmental assessment.

Air quality is not considered to be a key issue as potential impacts would be able to be mitigated through the application of best practice design and management measures during the construction and operation of the project.

7.5 Non-Aboriginal heritage

7.5.1 Background

A preliminary non-Aboriginal heritage assessment was undertaken during the development of the preferred option for the project. The assessment included the study area.

The non-Aboriginal heritage assessment included:

- An overview of local history.
- A search of all relevant statutory and non-statutory heritage registers.
- Review of the Shoalhaven City Council heritage study 1995-1995.
- Review of the Kiama draft LEP amendment for heritage items.

Literature and database review

As part of the preliminary non-Aboriginal heritage assessment, the following desktop searches were undertaken:

- Statutory listings
 - NSW Heritage Register.
 - RailCorp's s.170 Heritage and Conservation Register.
 - RTA's s.170 Heritage and Conservation Register.
 - Kiama Local Environmental Plan 1996.
 - Shoalhaven Local Environmental Plan 1985.
- Non-statutory listings
 - Register of the National Estate.
 - NSW Heritage Inventory.
 - Royal Australian Institute of Architects 20th Century Register of Significant Buildings.
 - National Trust of Australia (NSW).

Twenty-nine recorded heritage items were identified within the study area. Of these, 11 were listed on statutory registers and 18 were listed on non-statutory registers.

A review of the Shoalhaven City Council Heritage Study 1995-1998 (Peter Freeman P/L, 1998) also identified 124 other historical heritage items that warrant heritage recognition. Of these items:

- Four have regional heritage significance.
- 115 have local heritage significance.
- Five are shown as provisional listings that require further research to ratify their level of heritage significance.

Additionally, seven non-Aboriginal potential archaeological deposits have been identified to date in the vicinity of Berry.

There is a lack of detailed information for a number of the heritage items identified in the desktop review and the results described above would require confirmation through ground truthing in the field.

7.5.2 Summary of potential issues

Where possible, impacts to items of non-Aboriginal heritage have been avoided or minimised in two ways:

- Through the route selection process.
- Through the development of the concept design.

In particular, impact to the following properties has been avoided through the route selection and concept design process:

- The Berry Pulman Street Group, Pulman Street Berry.
- Sedgeford House, Austral Park Road, Broughton.
- “Mananga” Estate, Princes Highway, Berry.

There is the potential however, for non-Aboriginal heritage items to be identified during the construction process.

7.5.3 Management and mitigation measures

Best practice management measures would be implemented during construction of the project and would be detailed in the SoC. Management and mitigation measures would include the following:

- The potential for heritage items to occur within the study area would be further verified in the environmental assessment phase. Additional searches of Department of Land’s records, parish maps, historical aerial photography and historic plans would assist in this process. Chronological mapping of settlement activities would enable prediction of archaeological risk.
- A comprehensive site survey would be conducted to ground truth heritage items identified from further research outlined above. This survey would also identify previously unknown heritage features that may exist within the study area.
- If a relic or potential heritage item is discovered in the course of construction, a heritage consultant would be notified to assess the significance of the find, and determine whether further mitigation measures are required.

The project is not expected to impact on known items of non-Aboriginal heritage significance and is not considered to be a key issue.

7.6 Greenhouse gas

7.6.1 Background

Greenhouse gases

Greenhouse gases (GHG) are one of the causes of climate change and the associated 'greenhouse effect'. Solar radiation passes through the atmosphere, warming both the earth and the atmosphere and whilst some of this radiation is reflected by the earth, some is trapped by atmospheric GHG. The principal GHG are water vapour, carbon dioxide, methane and nitrous oxide. Increases in atmospheric GHG are primarily a result of human actions, most notably the burning of fossil fuels, which results in higher atmospheric temperatures, i.e. climate change.

Greenhouse gases relevant to the project can be assigned as scope 1, scope 2, or scope 3.

- Scope 1 emissions are direct emissions generated on-site, such as those from plant and equipment and land clearing.
- Scope 2 includes use of energy where emissions are generated off-site, such as electricity.
- Scope 3 includes emissions in the supply chain, or those from the use of a product. These include embodied energy in construction materials and vehicles travelling on the completed project.

Reducing GHG emissions is a major public concern and transport is a substantial contributor to GHG emissions in Australia. GHG emissions would be generated during the construction and operation of the project.

Ecologically sustainable development

One of the objects of the EP&A Act is to encourage ESD. The NSW *Protection of the Environment Administration Act 1991* defines ESD as including four principles:

- Precautionary principle.
- Inter-generational equity.
- Conservation of biological diversity and ecological integrity.
- Improved valuation, pricing and incentive mechanisms.

GHG emissions, and associated climate change, are issues central to the principals of ESD, therefore their consideration during the early development stages of the project would help to ensure that the objects of the EP&A Act are met.

An ESD workshop was held in December 2007 and a Sustainability Factors, Climate Change and Economic Appraisal Report (ESD Report) was developed. The purpose of this report was to provide information on GHG emissions, climate change vulnerability and the economic repercussions of these to assist in the selection of a preferred option.

7.6.2 Summary of potential issues

Construction

The total volume of GHG emissions emitted during construction of the project would be dependent on the amount of vegetation cleared and the quantity of energy consumed, particularly through fuel consumption for vehicles and construction plant. The majority of these emissions would be indirect upstream emissions (scope 3 emissions) including fuel use, land clearing and embodied energy in materials (concrete 37 per cent and asphalt 29.5 per cent).

Operation

GHG emissions during operation of the project would include fuel use in road maintenance, embodied energy in maintenance materials and electricity use for lighting. Vehicles travelling on the completed project would also use various fuels.

Although there is expected to be a slight increase in GHG emissions resulting from the project, these would be minimised through the addition of lanes, the changes in the horizontal and vertical alignments which would enable more consistent speed, and the reduction of congestion.

7.6.3 Management and mitigation measures

Construction

GHG emissions would be reduced in the construction phase of the project by setting goals, managing planned objectives and implementing sustainable construction techniques, including:

- Consideration would be given to the procurement process and the preferential selection of materials with higher recycled content (eg recycled aggregate in concrete) and lower embodied energy.
- The whole life cycle of materials would be considered including extraction, manufacture, transport to site, related waste and tipping.
- Materials would be selected based on availability of local resources in order to minimise the energy requirements over the life of these materials.
- The construction fleet would be comprised of vehicles and construction plant and equipment with high fuel efficiency and low GHG intensive fuel such as biofuels (eg biodiesel and ethanol) would be used where feasible.
- Construction plant and equipment would be maintained to reduce energy efficiency losses associated with damaged or unmaintained equipment.
- Green site offices would be installed, considering passive design strategies such as orientation, natural ventilation and user-operable environments (eg shading and operable windows) to reduce energy loads.
- Purchase of green power would be considered for project related activities.

Operation

Reductions in operational emissions would be achieved by developing an optimal design, including the vertical and horizontal alignments and reduction of stop start driving. These reductions would be cumulative over the design life of the project. Innovative technologies would also be considered for integration into the design to power traffic management systems or lighting (eg photovoltaic panels where appropriate).

Increased emissions of greenhouse gas would largely be restricted to the construction period and would be minimised through the standard management and mitigation measures outlined above. Consequently, greenhouse gas is not considered to be a key issue.

7.7 Existing utilities

7.7.1 Background

Eastern Gas Pipeline

The most significant gas asset in the study area is the Eastern Gas Pipeline owned and operated by Jemena. The Eastern Gas Pipeline was constructed in 2000 and runs from northern Victoria to western Sydney. It is a 450 millimetre diameter 15 MPa main buried at a depth between 0.9 metres and 1.2 metres. The main traverses almost the entire project location and crosses the existing highway once in the vicinity of Tindalls Lane, to the north of Berry.

Electrical transmission lines

Integral Energy operates a number of transmission lines in the study area including:

- An overhead 132 kV transmission line that traverses the study area on the western side of Berry.
- A 33 kV transmission line that generally follows the south coast railway line from the northern extent of the study area to Berry.
- An overhead 11 kV network and local low voltage distribution network which corresponds to the local road network over the entire study area.

Sewer and water

Shoalhaven Water operates a sewer and water network in the Shoalhaven LGA, which includes Berry. Water is provided to Berry from reservoirs located on Kangaroo Valley Road, approximately 400 metres west of the intersection with Bundewallah Road. Two asbestos cement mains leave the reservoir and run along Kangaroo Valley Road to the intersection with North Street and then along North Street to the intersection with George Street.

The sewer network in Berry extends as far east as Pulman Street, as far north as North Street, and up Kangaroo Valley Road. The network culminates at the Berry Wastewater Treatment Plant off Wharf Road, south of Berry. The Berry Wastewater Treatment Plant discharges to Broughton Creek.

Telecommunications

Optus operates a fibre optic cable between Sydney and Melbourne. South of Berry, this cable traverses the project on a similar alignment to the Eastern Gas Pipeline and Integral Energy's 132 kV transmission line. North of Berry, the cable alignment is similar to the Eastern Gas Pipeline alignment.

The major Telstra asset located in the vicinity of the project is a fibre optic cable that runs between Sydney and Melbourne. This cable follows the southern side of the railway line through the study area.

Telstra also owns and operates fibre optic inter-exchange network cables between telephone exchanges which carry high volumes of data between Berry and Kangaroo Valley and Berry and Nowra.

7.7.2 Summary of potential issues

The project crosses the following underground services:

- The Optus fibre optic cable in the vicinity of Tindalls Lane to the north of Berry.
- The Eastern Gas Pipeline in the vicinity of an existing crossing just north of Tindalls Lane.
- The Telstra fibre optic cables in the vicinity of Kangaroo Valley Road.
- The Shoalhaven Council water mains servicing Berry in the vicinity of Kangaroo Valley Road.

Construction of the project would require the area around these crossings to be either cut or filled and therefore existing utilities may need to be either relocated and/or protected.

7.7.3 Management and mitigation measures

Appropriate mitigation measures, including adjustment and protection measures would be incorporated into the developing concept design.

Impacts on utilities would be managed through standard management and mitigation measures such as relocation and/or protection. Consequently, existing utilities are not considered to be a key issue.

7.8 Hazard and risks

7.8.1 Background

Hazards and corresponding risks to human health and the environment could arise as a result of incidents during construction or operation of the project. The main potential incident of concern for the project would be the accidental release of toxic, flammable or explosive material during storage, use or transport of hazardous substances.

7.8.2 Summary of potential issues

Construction

During the construction period, hazardous substances such as fuels and explosives (if required), would be transported to and from work sites. This activity poses a potential risk to people and the environment in the event of a traffic accident resulting in the release of hazardous material.

The transportation and unloading of hazardous substances would be undertaken in accordance with the *Road and Rail Transport (Dangerous Goods) (Road) Regulation 1998* and the *Australian Code for the Transport of Dangerous Goods by Road and Rail* (National Transport Commission 2008).

All hazardous substance transport would be undertaken in accordance with relevant legislation and codes, therefore the overall risk associated with hazardous substances transport during construction would be minimal.

A number of hazardous substances required for construction would be stored and used within defined work areas for the project. The majority of these substances would be stored within the major construction site compound areas.

The handling and storage of hazardous substances would be undertaken in accordance with the DoP's HAZOP Guidelines.

The quantities of hazardous substances that would be stored at construction compounds and sites are anticipated to be relatively small and where applicable, less than the 'screening thresholds' set out in *Applying SEPP 33: Hazardous and Offensive Development Application Guidelines* (DUAP 1994) and *Draft Applying SEPP 33 Guidelines* (DoP 2008). This would be further assessed, if necessary, through the preparation of a Preliminary Hazard Analysis (PHA) in accordance with the guidelines, should any hazardous substances unexpectedly exceed threshold levels.

In the event of an incident leading to a spill of a hazardous substance during construction, standard incident control measures would be deployed. Additionally, containment of spills would be achieved in a series of sediment control basins to be installed.

Operation

The potential for a spill of hazardous substances from a vehicle transporting dangerous goods along the project is considered to be very low in view of the following factors:

- Dangerous goods vehicle movements along the project are expected to account for a very minor proportion of total daily traffic movements and the likelihood of an accident involving a truck containing dangerous goods is very low.
- The high road design standard of the project would reduce the potential for road accidents relative to the existing situation.
- The existing stringent legislative controls on the transport of dangerous goods.
- In the event of a traffic accident involving a vehicle carrying hazardous substances, any spills would typically be contained to the roadway area by the appropriate incident and emergency response teams.

A PHA would be prepared during the preparation of the environmental assessment, if the quantities of hazardous substances exceed threshold levels. It is not anticipated that hazardous substances would be used during operation of the project.

7.8.3 Management and mitigation measures

The following measures would be implemented in addition to the management and mitigation measures recommended by the further assessment:

- Occupational health and safety risks associated with construction would be managed through the implementation of an occupational health and safety plan.
- Specific risks associated with the transport of hazardous substances to and from work sites, including the risks associated with temporary changes in local traffic conditions during the construction period, would be managed through the implementation of standard environmental management measures detailed in the CEMP for the project.
- The risks associated with the use and storage of hazardous materials during construction would be mitigated through appropriate design and establishment of bunded areas within construction sites.
- The final locations of construction site compounds where hazardous substances would be stored would be determined during detailed design based on specific environmental criteria.

- Construction stormwater control basins and operational water quality control basins designed to reduce the environmental effects of pollutant runoff from the road surface and to contain spills of chemicals and hazardous substances, would be installed in strategic locations.

Risks associated with the transport and storage of hazardous substances can be managed using standard management and mitigation measures. Consequently, hazard and risk is not considered to be a key issue.

7.9 Waste management

7.9.1 Background

Various waste streams would be generated during the construction and operation of the project, including construction and demolition waste, vegetation waste, packaging materials and liquid wastes.

7.9.2 Summary of potential issues

The following potential waste streams have been identified for the project:

- Demolition wastes from existing structures that require demolition, pipe work, and pavements.
- Excavation wastes, although the project would be designed with the aim of achieving a cut/fill balance. Some excavation material may be produced which would not be able to be reused within the project.
- Vegetation from removal of shrubs and trees; however, where possible this would be mulched for reuse on-site as part of the landscaping works.
- Packaging materials associated with items delivered to site such as pallets, crates, cartons, plastics and wrapping materials, all of which need to be disposed of once the product has been used. Minimisation of packaging of raw materials would be strongly encouraged. Components of this waste stream could be recycled or reused.
- Wastes produced from the maintenance of various heavy construction equipment including liquid wastes from cleaning, repairing and maintenance. Likewise leakage or spillage of fuels / oils during construction would need to be managed and disposed of appropriately. Sewage wastes would be generated from site amenities.
- General office wastes such as paper, cardboard, beverage containers and food wastes.

7.9.3 Management and mitigation measures

The following waste management measures would be implemented.

- All wastes would be managed and disposed of in accordance with relevant state legislation and government policies including the *Waste Avoidance and Resource Recovery Act 2001* (WARR Act), the *Waste Avoidance and Resource Recovery Strategy 2007* and the RTA's *Waste Reduction and Purchasing Policy* (WRAPP).
- Appropriate waste identification, handling, storage and disposal would be undertaken in accordance with the DECCW's Waste Classification Guidelines (DECC 2008).

Avoidance of waste can be accomplished for the project by providing realistic predictions on the quantities of resources such as construction materials. The potential to reuse waste materials either on-site or off-site including reuse of topsoil and fill material would be identified during detailed design. Trees and plant material could be mulched or chipped on-site and used for landscaping. Where possible, waste would be segregated and recycled and recycling facilities would be provided for paper, plastic, glass, aluminium cans and other recyclable materials.

Waste disposal would only occur where there are no other options for waste avoidance, reuse and recycling.

Waste management would be undertaken in accordance with approved processes. Waste would be minimised and where necessary, disposed of at approved facilities, and is therefore not considered to be a key issue.

8 Proposed scope of environmental assessment

Table 8.1 outlines the proposed scope of the environmental assessment for the project. The proposed scope of the environmental assessment is based on the preliminary assessment of key issues discussed in Chapter 6 of this report. On the basis of information gathered to date, the RTA considers that other issues discussed in Chapter 7 of this report can be managed through the detailed design stage and with the application of standard environmental management measures and site-specific safeguards.

Table 8.1: Scope of the environmental assessment

Issue	Scope of studies for the environmental assessment
General	<ul style="list-style-type: none"> • Consideration of planning and statutory requirements. • Strategic justification for the project. • Description of the project. • Discussion of project options and alternatives. • Outline of construction activities and operation of the project. • Consideration of the principles of ESD in the context of the project.
Stakeholder consultation	<ul style="list-style-type: none"> • Description of consultation activities conducted to date and issues identified. • Outline of stakeholder consultation and communication strategy.
Environmental risk analysis	<ul style="list-style-type: none"> • Identification of potential environmental impacts associated with the project, proposed mitigation measures and potentially significant residual impacts after the application of proposed mitigation measures. • Should any additional key environmental impacts be identified, an appropriately detailed impact assessment would be included in the environmental assessment.
Traffic and Transport	<ul style="list-style-type: none"> • Detailed traffic modelling for the project and the local and regional road networks. • An assessment of construction traffic impacts including route identification, number, frequency and size of construction related vehicles, the nature of existing traffic, and the need to close, divert or otherwise reconfigure elements of the road network associated with construction of the project. • An assessment of operational traffic impacts including an assessment of existing local and regional traffic volumes and traffic patterns against forecast volumes and potential changes to traffic patterns associated with the project and public transport impacts. • Recommendations for detailed traffic and transport mitigation measures.
Noise and Vibration	<ul style="list-style-type: none"> • Identification of nearby residences and other sensitive noise receivers. • An assessment of noise and vibration impacts from the construction and operational stages of the project on identified residences and sensitive receivers.

Issue	Scope of studies for the environmental assessment
Noise and Vibration	<ul style="list-style-type: none"> • Recommendations for reasonable and feasible noise and vibration mitigation measures, where required.
Landscape and visual amenity	<ul style="list-style-type: none"> • An assessment of visual impacts from the construction and operational stages of the project on all existing views and landscapes. • An assessment of the urban design elements of the project. • Recommendations for detailed urban design mitigation measures, where required.
Socio-economic	<ul style="list-style-type: none"> • An assessment of socio economic impacts from the construction and operational stages of the project with a particular focus on: <ul style="list-style-type: none"> - The proposed bypass of Berry. - The location of the proposed interchanges to Berry and the resulting function of the town for the local community. - The location of the proposed interchanges to Berry and the resulting function of the town as a tourist destination. - Land-use, property and amenity changes. - Changes to property and local road accesses. - Fragmentation and potential loss of agricultural and farm viability. • Recommendations for detailed socio-economic mitigation measures, where required.
Aboriginal cultural heritage	<ul style="list-style-type: none"> • A comprehensive survey assessment of the project area to identify known and potential Aboriginal objects, places and cultural values. • A comprehensive assessment of significance of known and potential Aboriginal objects, places and cultural values, including archaeological test excavations, if required. • An assessment of known and potential impacts to Aboriginal objects, places and cultural values resulting from the construction and implementation of the project. • Evidence of Aboriginal community consultation in the development of the cultural heritage assessment report. • Recommendations for detailed mitigation measures to minimise the impacts of the project on Aboriginal cultural heritage, where required.
Biodiversity	<ul style="list-style-type: none"> • An assessment of threatened terrestrial and aquatic species, populations and ecological communities. • Targeted surveys for terrestrial and aquatic threatened flora and fauna species. • Assessment of habitat including native vegetation loss, habitat fragmentation, wildlife corridors, loss of ecological connectivity, riparian habitat and weed infestation. • Identification and management of key threatening processes. • Recommendations for detailed biodiversity mitigation measures where required

Issue	Scope of studies for the environmental assessment
Other environmental issues	<ul style="list-style-type: none"> • Detailed consideration of the following other environmental issues: <ul style="list-style-type: none"> - Landform, geology and soils. - Surface water and groundwater. - Water quality. - Climate and air quality. - Non-Aboriginal heritage. - Greenhouse gas. - Existing utilities. - Hazards and risks. - Waste management.
Draft Statement of Commitments	<ul style="list-style-type: none"> • A draft list of the measures to avoid, minimise, manage, mitigate, offset and/or monitor impacts.

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Appendix A

Part 3A declaration

COMPANION ANIMALS REGULATION 2008**ORDER**

Organisations Approved by the Chief Executive, Local Government under Clause 16(d) of the Companion Animals Regulation 2008

PURSUANT to Clause 16(d) of the Companion Animals Regulation 2008, the organisation listed in Schedule 1 is hereby approved, subject to the conditions contained in Schedule 2.

SCHEDULE 1

<i>Name of Organisation</i>	<i>Address of Organisation</i>	<i>Name of Contact Officer for Organisation</i>
No Kill Pet Rescue.	71 Darvall Road, West Ryde NSW 2114.	Ms Nora ALEXANIAN.

SCHEDULE 2

1. The exemption under clause 16(d) of the Companion Animals Regulation 2008 from the requirements of section 9 of the Companion Animals Act 1998 only applies to an animal in the custody of an organisation listed in Schedule 1 if the organisation is holding that animal for the sole purpose of re-housing the animal with a new owner.
2. The exemption under clause 16(d) of the Companion Animals Regulation 2008 from the requirements of section 9 of the Companion Animals Act 1998 only applies to an animal in the custody of an organisation listed in Schedule 1 if the organisation maintains appropriate records that show compliance with the Companion Animals Act 1998, Companion Animals Regulation 2008 and the Guidelines for Approval to be an Organisation Exempt from Companion Animal Registration under clause 16(d) of the Companion Animals Regulation 2008.
3. The exemption under clause 16(d) of the Companion Animals Regulation 2008 from the requirements of section 9 of the Companion Animals Act 1998 only applies to an animal in the custody of an organisation listed in Schedule 1 if the organisation maintains a register that is made available to the relevant local council and the Division of Local Government, Department of Premier and Cabinet as requested. The Register must list the names of all carers involved in the rehoming of animals and the locations of all animals received under the exemption while in the custody of the organisation.
4. The exemption under clause 16(d) of the Companion Animals Regulation 2008 from the requirements of section 9 of the Companion Animals Act 1998 expires five years from the date of this order, unless revoked or varied at an earlier time.

Dated: 7 September 2010.

ROSS WOODWARD,
Chief Executive,
Local Government,
Delegate of the Director General,
Department of Premier and Cabinet

ELECTRICITY SUPPLY ACT 1995**Electricity Supply (General) Regulation 2001****Accredited Service Provider scheme**

IN accordance with clause 88 (1) of the Electricity Supply (General) Regulation 2001, I, Paul Gerard Lynch, M.P., Minister for Energy, make the following Order to take effect from 20 September 2010:

- The scheme titled Accredited Service Provider (ASP) scheme for contestable services in electricity as described in the NSW Code of Practice: Contestable Works is recognised as an accreditation scheme for the purposes of the Regulation; and
- Industry & Investment NSW is recognised as the accrediting agency in relation to that scheme.

Dated at Sydney, this 2nd day of September 2010.

PAUL LYNCH, M.P.,
Minister for Energy

ENVIRONMENTAL PLANNING AND ASSESSMENT ACT 1979**Order Declaring Development to be a Project Under Part 3A**

I, the Minister for Planning, in pursuance of section 75B (1) of the Environmental Planning and Assessment Act 1979 (the Act), do, by this Order declare that the development described in Schedule 1 is a project to which Part 3A of the Act applies.

In my opinion, the development described in Schedule 1 is of Regional environmental planning significance.

Dated, this 27th day of August 2010.

TONY KELLY, M.L.C.,
Minister for Planning,
Sydney

SCHEDULE 1

Development for the purposes of widening and realigning the Princes Highway, located within the Kiama and Shoalhaven local government areas, extending from approximately the junction of Toolijooa Road and the Princes Highway for approximately 11.6 kilometres to approximately the junction of Schofields Lane and the Princes Highway including a bypass of Berry, to achieve four lanes of divided carriageway ('the Project').

The development includes all associated or ancillary works, activities, uses, structures, or facilities for the purposes of the Project, including (but not limited to) the following:

- (a) Construction and associated demolition works and operation (excluding maintenance) of the Project;
- (b) Access for construction and operation of the Project, including access for pedestrians, public transport and vehicles;
- (c) Environmental management and pollution control for the Project;
- (d) Associated interchanges, intersections, bridges, overpasses, ramps, service roads and road modifications for the Project;
- (e) Any changes to the route of the existing carriageway or road for the Project;

- (f) Any realignment, modification, demolition, or replacement of the existing carriageway or road for the Project; and
- (g) Any winning or obtaining of extractive material as part of the construction work for the Project.

The development does not include: utility adjustments and relocations; and preliminary works (such as surveys, test drilling, test excavations, preliminary geotechnical investigations, contamination investigations, utility identification and location and pavement investigations) associated with the design and/or environmental assessment of the Project occurring prior to the commencement of construction.

GEOGRAPHICAL NAMES ACT 1966

PURSUANT to the provisions of section 10 of the Geographical Names Act 1966, the Geographical Names Board has this day assigned the name 'Bathurst Town Square' for an historic area bounded by William, Russell, George and Howick Streets in Bathurst.

The position and the extent for this feature is recorded and shown within the Geographical Names Register of New South Wales. This information can be accessed through the Board's Web Site at www.gnb.nsw.gov.au.

WARWICK WATKINS, AM,
Chairperson

Geographical Names Board,
PO Box 143, Bathurst NSW 2795.

GEOGRAPHICAL NAMES ACT 1966

PURSUANT to the provisions of section 14 and section 10 of the Geographical Names Act 1966, the Geographical Names Board has this day discontinued the name 'The Overflow' and in its place assigned the name 'Cathy Freeman Park' for a reserve bounded on the north by Grand Parade, on the east by Showground Road, on the south by the westerly extension of Murray Rose Avenue and on the west by Olympic Boulevard at Sydney Olympic Park.

The position and the extent for this feature is recorded and shown within the Geographical Names Register of New South Wales. This information can be accessed through the Board's Web Site at www.gnb.nsw.gov.au.

WARWICK WATKINS, AM,
Chairperson

Geographical Names Board,
PO Box 143, Bathurst NSW 2795.

LEGAL PROFESSION ADMISSION RULES 2005

Third Schedule – Amendments

	<i>Fee until 30/9/2010 \$</i>	<i>Fee from 1/10/2010 \$</i>
Student Registration Application	180	180
Rule 67 Application	60	60

Student Course Application	60	60
Rule 71 review	60	60
Academic Transcript	50	50
Interview with Examiner	100	110
Examination	140	150
Additional fees examination in unscheduled location in a single examination period, where permitted:		
NSW first subject / additional subject	200/150	250/150
Elsewhere in Australia first subject / addition subject	300/200	350/200
Overseas first subject / addition subject	500/350	600/350
Section 26 Application	300	300
Academic Exemptions Application	200	200
Legal Practical Training Exempt.	200	200
Admission Application	400	400
Re-Admission Application	950	950
Certificate of Admission	50	50
Original Diplomas/Certificates	120	120
Other Application/Certificate	50	50
Late Fee Admission	100	100
Late Application-Other	60	60
Dishonored Cheque Fee	35	35
Photocopying – up to two pages	1	1
Duplicate Receipts	10	10
For services not listed in the schedule	50	50

NATIONAL PARKS AND WILDLIFE ACT 1974

I, LISA CORBYN, Director General of the Department of Environment, Climate Change and Water, in accordance with section 87(6) of the National Parks and Wildlife Act 1974, set the following minimum standards for requirements specified in the regulations or in a code of practice adopted or prescribed by the regulations under section 87(3) of the National Parks and Wildlife Act 1974.

Date signed: 3 September 2010.

LISA CORBYN,
Director General