Proposed Picton Road Truck Parking Area

Statement of Environmental Effects

December 2003

Document Controls

Business Unit	Environmental Technology Branch		
Project No.	H/41300/A		
Document description	SEE: Picton Road Truck Parking Area		
	Name	Signed	Date
Approving Manager	Lisa Brown		2/12/03
Reviewing Officer	David Corry		29/10/03

Person managing this document	**Person(s) writing this document**
Trent Williams	Trent Williams

Location	**File**
G:\Ops\Environ\Assessments_Section\Projects\0304\Picton Rd Truck Area\Picton Road Truck Parking Area SEE .doc	3M3189

Document Status	**Date**
Final	2 December 2003

Prepared by RTA Operations – Environmental Technology Branch

Prepared for:	**Prepared by:**
John Burns Wollongong PMS Southern Region State Office BLDG 84 Ph: 02 4221 2574 Email: John_Burns@rta.nsw.gov.au	Environmental Technology Branch RTA Operations Directorate Level 5 POD 99 Phillip Street PARRAMATTA NSW 2150 Ph: 02 8837 0593 Fax: 02 8837 0053 email: Trent_Williams@rta.nsw.gov.au

Statement of Environmental Effects – Criteria

The following table has been included to illustrate where this Statement of Environmental Effects (SEE) addresses criteria as set by Wollondilly Shire Council and State Environmental Planing Policy 58, Clause 10 in relation to environmental impacts as a result of the proposed Picton Road Truck Parking Area.

CRITERIA	SECTION IN SEE WHERE ADDRESSED
Wollondilly Shire Council	
Is the proposal consistent with Wollondilly Local Environmental Plan (LEP) 1991, any relevant State and Regional Planning Policies or Development Control Plans and justification for any departures from these documents.	**Section 4**
The relevant matters, under Section 79C of the Act, to the Proposal which include the suitability of the site for development, the impacts of the development including environmental impacts on both the natural and built environments and any social or economic impacts.	**Section 9**
Proposed days and hours of operation.	**Section 8.12**
Number of Staff.	**Section 8.12**
Estimation of traffic movements, carparking demand and access, manoeuvring and loading facilities.	**Section 8.6 & 8.7**
Details of the method of waste and wastewater disposal.	**Section 9.5 & 9.12**
Proposed means of stormwater drainage from site.	**Section 9.5**
Details of the previous uses of the subject land.	**Section 3.2**
Machinery/equipment to be used.	**Section 8.11**
Details of any chemicals to be used on the site and the technical and management controls employed.	**Section 9.6**
Signage.	**Section 9.5**
Details of all services/utilities, i.e. sewerage, water, telephone, electricity.	**N/A**
Vegetation to be removed.	**Section 9.6, Appendix E**
Details of any cut and fill and any retaining walls.	**Section 8.5**
The relationship of the proposed development to existing development in the locality (i.e. potential land use conflict, scale, character, etc)	Section 9.9
Details of any licensing, notices, etc. relating to onsite contamination.	**Section 4.5**
Details of any natural constraints to development such as flooding, bushfire, instability etc.	**Section 8.3**

CRITERIA	SECTION IN SEE WHERE ADDRESSED
State Environmental Planing Policy 58 Clause 10	
Whether the development or activity will have a neutral or beneficial effect on the water quality of rivers, streams or groundwater in the hydrological catchment, including during periods of wet weather.	**Section 8.10 & 9.5**
Whether the water quality management practices proposed to be carried out as part of the development or activity are sustainable over the long term.	**Section 8.10 & 9.5**
Whether the development or activity is compatible with relevant environmental objectives and water quality standards for the hydrological catchment when these objectives and standards are established by the Government.	**Section 8.10 & 9.5**
State Environmental Planing Policy 58 Clause 11(4)(a)	
A water cycle management study prepared in respect of the development that addresses the following matters:	
Pre-development and post-development run off volumes and pollutant loads from the site of the proposed development,	**Section 9.5**
The assessment of the proposed development against the matters for consideration specified in clause 10,	**Section 8.10 & 9.5**
The impacts of the development on receiving waters,	**Section 9.5**
The water cycle management strategies and best management practices proposed to be employed to address those impacts,	**Section 9.5**
The arrangements to be made for the ongoing maintenance and monitoring of the water cycle management system	**Section 9.5**

Contents

1 Proposal Identification 1

2 Introduction and Background 1
- 2.1 Introduction 1
- 2.2 Background 2
- 2.3 Methodology 2

3 Proposal Description 4
- 3.1 Location 4
- 3.2 General Description of Site and Surroundings 4
  - 3.2.1 Topography 4
  - 3.2.2 Soils 4
  - 3.2.3 Drainage and Water Courses 4
  - 3.2.4 Vegetation 4
  - 3.2.5 Land Uses and Sensitive Noise Sites 5
  - 3.2.6 Traffic Data 5
- 3.3 Description of the Proposal 5
  - 3.3.1 General Description of the Proposal 5
  - 3.3.2 Cost and Source of Funds 5
  - 3.3.3 Timing 5

4 Statutory Requirements 6
- 4.1 Local Environmental Plan 6
- 4.2 Regional Environmental Plans 6
- 4.3 State Environmental Planning Policies 6
- 4.4 Confirmation of Part 4 7
- 4.5 Licences and Approvals 7

5 Specialist Studies and Consultation 8
- 5.1 Specialist Studies 8
- 5.2 Consultation 8

6 Strategic Stage 10
- 6.1 General 10
- 6.2 Justification and Need for the Proposal 10

7 Concept Stage 11
- 7.1 Proposal Objectives 11
- 7.2 Constraints 11
- 7.3 Options Considered 11
  - 7.3.1 Option 1 'Do Nothing' 11
  - 7.3.2 Option 2 ' West of Air Strip' 11
  - 7.3.3 Option 3 'East of Air Strip' 11
  - 7.3.4 Preferred Option 11

8 Design Considerations 12
- 8.1 Existing Road 12
- 8.2 Existing and Forecast Traffic 12
- 8.3 Design Considerations 12
- 8.4 Urban and Regional Design 12
- 8.5 Additional Fill Material 12
- 8.6 Additional Truck Movements 13
- 8.7 Stockpile and Compound Sites 13
- 8.8 Design Parameters 13

8.9 Construction Activities 13
8.10 Stormwater Management 13
8.10.1 Oil & Sediment Separator 14
8.11 Toilet Block 14
8.12 Construction Equipment 14
8.13 Workforce and Working Hours 14

9 Environmental Assessment 15
9.1 General 15
9.2 Geology, Soils and Landform 15
9.3 Climate 16
9.4 Air Quality 16
9.5 Water Quality and Hydrology 17
9.6 Biodiversity 18
9.7 Socio-economic Considerations Including Landuse 21
9.8 Indigenous Heritage 21
9.9 Visual, Landscape and Urban Design 22
9.10 Noise and Vibration 23
9.11 Fire Hazard 23
9.12 Waste Minimisation and Management 24
9.13 Cumulative Environmental Effects 24
9.14 Principles of Ecologically Sustainable Development 25
9.14.1 Summary of Beneficial Effects 25
9.14.2 Summary of Adverse Effects 25

10 Implementation Stage 26
10.1 Summary of Proposed Safeguards 26

11 Consideration of Environmental Factors 30
11.1 79c Evaluation - Matters of Consideration (NSW Legislation) 30
11.2 Clause 228 Checklist (NSW Legislation) 31
11.3 EPBC Act 1999 (Commonwealth Legislation) 34

12 Certification 35

13 References 36

Appendix A Photographs of Site
Appendix B Concept Design
Appendix C Consultation
Appendix D Results of Database Searches
Appendix E Specialist Studies
Appendix F RTA's QA Specifications
- G35 Environmental Protection (Management Plan)
- G38 Soil and Water Management
- G39 Erosion and Sediment Control Plan
- G40 Clearing and Grubbing

1 Proposal Identification

Name of Proposed Activity
Picton Road Truck Parking Area

Local Government Area
Wollondilly

RTA Region
Southern Region

2 Introduction and Background

2.1 Introduction

The NSW Roads and Traffic Authority (RTA) proposes to construct a truck parking facility eastbound on Picton Road (MR95), approximately 2km west of the Cordeaux Dam turnoff.

This State of Environmental Effects (SEE) has been prepared by Environmental Technology Branch (RTA Operations Directorate) on behalf of RTA Southern Region.

For the purposes of these works, the RTA is the applicant and the Wollondilly Shire Council the consent authority under Part 4 of the *Environmental Planning and Assessment (EP&A) Act 1979*. For further statutory information, please refer to **Section 4.0** of this SEE

This SEE has been prepared to assist Wollondilly Shire Council in its consideration of the Proposal. It presents details of the Proposal, assesses the existing natural and social environments, describes the potential impacts on the environment and presents safeguards to minimise and/or remove identified impacts.

The description of the proposed works and the associated environmental impacts have been undertaken in the context of Section 79c of the *Environment Planning and Assessment Act 1979*, Clause 228 of the *Environment Planning and Assessment Regulation 2000*, the *Threatened Species Conservation* (TSC) *Act 1995*, the *Fisheries Management* (FM) *Act 1994*, and the (Commonwealth) *Environment Protection and Biodiversity Conservation* (EPBC) *Act 1999*.

It is acknowledged that Clause 228 is for the purpose of Part 5 assessment under the EP&A Act. The matters for consideration set out in this clause go over and above those required under Section 79c.

The findings of the SEE would be considered when assessing:

- Those matters set out in Clause 10 of SEPP No. 58 **Protecting Sydney's Water Supply** and those matters set out in Section 79c of the EP&A Act; and
- The potential for the Proposal to significantly impact a matter of national environmental significance or Commonwealth land and the need to make a referral to the Commonwealth Environment Minister in accordance with the EPBC Act.

2.2 Background

The RTA has produced a Rest Area Strategy aimed at providing major and minor vehicle rest areas and truck parks at strategic locations on the state road network. The strategy proposes a ten-year program of works for the installation of new facilities and the upgrade of existing facilities.

Driver fatigue for truck drivers present a significant road safety challenge on NSW road networks. Driver fatigue has been identified to lead to a loss of attentiveness, slower reaction times, poorer driving, and increased probability of losing control. In the most extreme cases it leads to falling asleep while driving. On average about 8% of heavy vehicle truck fatal crashes involve a fatigued heavy truck driver.

Heavy truck drivers are required to have at least a half hour break after every five hours driving. Short breaks help to alleviate fatigue due to boredom and monotony, and provide a break from driving. Truck rest areas provide places for drivers to stop so they can meet the strict requirements for driving hours and rest breaks, and take a break if they are getting tired.

Truck rest areas within NSW are located between commercial areas and towns and provide truck parking facilities and toilet facilities. In many cases, truck rest areas also cater for light vehicles.

2.3 Methodology

The method in which this document has been prepared is as follows:

1. A discussion was held with the Project Manager to consider the Proposal.

2. RTA representatives undertook a site visit on 5 August 2003 to provide an overview of the Proposal and discuss any issues relevant to the completion of the SEE.

3. Consultation was undertaken with the following agencies and RTA personnel:
   - Wollondilly Shire Council;
   - DIPNR;
   - NPWS;
   - NSW Fisheries;
   - Sydney Catchment Authority; and
   - RTA Aboriginal Programs Consultant, Southern Region;

4. A search was conducted on the following databases to identify any potential issues:
   - Australian Heritage Commission Register of the National Estate;
   - NSW Heritage Office State Heritage Register;
   - RTA Heritage and Conservation Register (s170);
   - Council Heritage Listings (LEP);
   - NPWS Aboriginal Heritage Information Management System (AHIMS);
   - National Native Title Claims Search;
   - NPWS Wildlife Atlas threatened flora records;
   - NPWS Wildlife Atlas threatened fauna records; and
   - Environment Australia (EPBC Act) Databases.

5. As part of the environmental assessment undertaken for this SEE, a series of specialist studies were undertaken to identify constraints to the development and to provide environmental impact mitigative measures. Details and findings from the relevant investigations are further discussed in this SEE and a copy of each specialist study is included as an appendix to this SEE. Specialist investigation leading up to and during the SEE development phase include:
   - Indigenous Heritage Assessment; and
   - Flora and Fauna Assessment.
6. A literature review was undertaken to determine issues relating to:
   - Landform, geology and soils and Potential Acid Sulphate Soils;
   - Local Environmental Plan (zoning);
   - State Environmental Planning Policies; and
   - Regional Environmental Plans.

3 Proposal Description

3.1 Location

The Proposal site is located on Picton Road (MR 95) approximately 2km west of the Cordeaux Dam turnoff, or 16kms beyond the turnoff from Mt Ousley Road.

Refer to Appendix A for Site Location. Refer to Appendix B for photographs of site. Refer to Appendix C for the Concept Design.

3.2 General Description of Site and Surroundings

The study area is located in a forested, undeveloped area along Picton Road. The mixture of traffic includes local and regional. Picton Road is an essential link between the southern highlands of NSW and the city of Wollongong via the Hume Highway.

Previous land use in the study area has resulted in disturbance to the local landscape. Primary impacts relate to the construction of a now unused airstrip on the ridge top comprising a cleared and levelled strip approximately 1500 x 70 m, in a north east/south west alignment.

3.2.1 Topography

The Proposal site is part of gently undulating crests, ridges and plateau surfaces of the Mittagong Formation (alternating bands of shale and fine-grained sandstone), 200 – 1000m wide, with level to gently inclined slope gradients of <10%. Local relief typically of the area is <30m. Typically rock outcrops are absent from the study area.

3.2.2 Soils

Soil typical of the study area includes moderately deep (50-150cm), hard setting *Yellow Podzolic Soils* and *Yellow Soloths* on ridges and plateau surfaces. *Lateric Podzolic Soils* on crests; *Yellow Earths* on shoulders of plateaux and ridges. Characteristically the limitation of the soil within the Proposal site is stoniness, hard setting surface and low soil fertility.

3.2.3 Drainage and Water Courses

The study area constitutes part of a broad ridge feature separating the catchments of the Cordeaux River. Two ephemeral drainage lines cross the study area, and pass through culverts beneath Picton Road. Two small dam like structures are located approximately 200m-west north west of the study area. Lake Cataract (Pheasants Nest Weir) is located 8kms north west of the Proposal, while Cordeaux Dam lays 5.5km southeast, Wallandoola Creek 2.4kms east and Cordeaux River 1km south.

The study area is drained to the southwest into Wallandoola Creek. The upper reaches of Wallandoola Creek are located in the study area, however the stream at this location is small and ephemeral.

3.2.4 Vegetation

Vegetation present within the study area is broadly consistent with the description of Sydney Sandstone Ridgetop Woodland. Typical trees include Scribbly Gum, Red Bloodwood, Yellow Bloodwood, Smooth-barked Apple, Narrow-leaved Apple and Sydney Peppermint with a diverse understorey of shrubs and herbs including Banksias and Hakeas. Considerable variation can be seen in the structure and floristics of this bushland community. It varies from open forest to open woodland to open scrub and heathland.

3.2.5 Land Uses and Sensitive Noise Sites

The land surrounding the study area is designated road or land maintained by Sydney Catchment Authority. There are no sensitive noise receivers within 3 kms of the Proposal.

3.2.6 Traffic Data

The existing traffic volumes are 11500 AADT, approximately 23 percent of which is heavy vehicles (2645 heavy vehicles/day).

3.3 Description of the Proposal

3.3.1 General Description of the Proposal

The Proposal encompasses the development of a parking area to allow trucks to enter from the eastbound direction and exit in the same direction. The facility would not allow for trucks to enter from the westbound direction or for trucks to enter from the eastbound direction and exit in the opposite direction.

Vertical geometry of the Proposal closely follows that of the existing Picton Road, thereby reducing the volume of earth works required. The parking area has been designed to allow 6 B-Double trucks to park at any one time.

The parking area would be installed with an approved composting/pumpout toilet facility with approval sought from the Wollondilly Shire Council pursuant to *Section 68* of the *Local Government Act 1993*.

3.3.2 Cost and Source of Funds

The Proposal would cost approximately $0.6 million and funding allocation would be sourced from the RTA's Road Safety Directorate under the RELVS Program (Road Environment and Light Vehicle Safety Program).

3.3.3 Timing

It is anticipated that works would be completed approximately 12 weeks after commencement given ideal working conditions.

4 Statutory Requirements

4.1 Local Environmental Plan

The Proposal lies in the Wollondilly Shire Council Local Government Area. The study area and surroundings are zoned 5 (c1) Special Uses Water Catchment Zone under the Wollondilly Local Environmental Plan (1991).

The objective of this zone is to protect land which is designated as being part of a water catchment area from land uses which adversely affect, or are likely to adversely affect, the environmental quality of these areas. The proposed development is permissible with consent.

4.2 Regional Environmental Plans

The Proposal and the areas surrounding it fall within the boundary of the draft 'Regional Plan Sustaining the Catchments'. The regional plan focuses on strategies and actions that would improve and protect the water of the surrounding catchment. The revised regional plan will be placed on exhibition for further public comment. The objectives of the REP are:

- Water quality protection;
- Catchment protection; and
- Ecologically sustainable land use.
-

Section 9 of this SEE details how these objectives would be achieved during the construction and operation of the Proposal.

Until the new regional plan is finalised, proposed developments in Sydney's water catchment are assessed under the State Environmental Planning Policy No. 58.

REP No. 20 (Hawkesbury – Nepean River (No. 2 1997))

REP No. 20 is applicable to the Wollondilly LGA. The plan applies to all parts of the catchment in the Sydney Region, except for land covered by Sydney REP No. 11 – Penrith Lakes Scheme.

The REP aims to protect the water quality of the Hawkesbury – Nepean River and its tributaries and the environmental quality of the whole catchment. It is not anticipated that the Proposal would impact on the Hawkesbury – Nepean River due to distance.

4.3 State Environmental Planning Policies

State Environmental Planning Policy 58 – Protecting Sydney's Water Supply

The Wollondilly Shire Council is identified within the Schedules of SEPP No. 58 (Protecting Sydney's Water Supply) as a Local Government Area in which the policy applies to the whole or parts of the local government area. The policy aims:

- To ensure that development in the hydrological catchment from which Sydney draws its drinking water supply does not have a detrimental impact on water quality;
- To provide a concurrence or notification role for the Chief Executive of the Sydney Catchment Authority in relation to development in the hydrological catchment that is likely to have an impact on water quality, and
- To ensure that there is a consistent approach to the assessment and control of development in the hydrological catchment that is likely to impact on water quality.

Clause 6 of SEPP No. 58 specifically overrides any other environmental planning instrument made before or after, if any inconsistency applies. Clause 6 (1A) however preserves Sydney Water's rights under clause 11E of SEPP No. 4.

Clause 8 of SEPP No. 58 provides that a person must not carry out development specified in Schedule 1 or 2 except with consent of the consent authority.

Schedule 2 of SEPP No. 58 specifically captures transport facilities. Transport facilities are defined as follows: "being the construction of facilities such as truck stops, bus terminals .... major road works but not including the repair or maintenance of those facilities".

Therefore Wollondilly Shire Council under Part 4 of the Environmental Planning and Assessment Act 1979 would determine the Proposal. Wollondilly Shire Council would seek concurrence of the Chief Executive of Sydney Catchment Authority pursuant to Clause 11 of SEPP No. 58 for the Development Application.

State Environmental Planning Policy 44 – Koala Habitat Protection

The Wollondilly Shire Council is identified within the Schedules of SEPP No. 44 (Koala Habitat Protection) as a Local Government Area in which Koalas are known to occur. A criterion that applies to SEPP No. 44 relate to the percentages of feed tree cover, particularly trees listed under Schedule 2 - Known Feed Trees. The assessment criteria consider the percentage cover of known feed trees, and whether these are greater or less than 15% of the total tree canopy (refer to **Section 9.6** for discussion).

4.4 Confirmation of Part 4

All relevant statutory planning instruments have been examined for the proposed Picton Road Truck Parking Area. The proposed works are listed on Schedule 2 of SEPP 58 therefore Clause 8 of SEPP No. 58 captures the project. The Proposal would require a Development Application to be lodged with Wollondilly Council and assessment would be undertaken under Part 4 of the *Environmental Planning and Assessment Act 1979.*

4.5 Licences and Approvals

The PoEO Act requires an Environment Protection Licence to be obtained if development involves scheduled activities as listed in Schedule 1 of the PoEO Act. The Proposal is not a Scheduled Activity under the PoEO Act.

Approval would be sought from Wollondilly Shire Council for the installation of a composting/pumpout toilet facility. The facility approval would be pursuant to Section 68 of the *Local Government Act 1993.*

5 Specialist Studies and Consultation

5.1 Specialist Studies

Hayes Environmental in August/September 2003 undertook a Flora and Fauna Assessment. A summary of that study is given in **Section 9.5** of this SEE. The full report is included as Appendix E.

Navin Officer – Heritage Consultants in August/September 2003, undertook an Archaeological Survey for Indigenous Heritage. A summary of that study is given in Section 9.8 of this SEE. The full report is included as Appendix E.

5.2 Consultation

NSW Fisheries, NSW National Parkes and Wildlife Service (NPWS), Department of Infrastructure, Planning and Natural Resources (DIPNR) and Sydney Catchment Authority (SCA) were requested to provide written comments on the Proposal in July 2003. The issues raised, and the RTA response, is outlined in Table 5.1 below. A complete copy of all correspondence is provided in Appendix C.

Table 5.1: Summary of issues raised and RTA's response.

Issue	RTA Response
NSW Fisheries	
Assessment of impacts on any aquatic habitats in the proposed area would be considered in the REF/SEE. If there are no impacts on aquatic habitat then there will be no need to refer this matter to NSW Fisheries in the future.	No impact on aquatic habitat is likely to occur as a result of the Proposal.
SCA	
SCA expects that the SEE would address:	
SEPP 58. Clause 10;	
• Whether the development or activity will have a neutral or beneficial effect on the water quality of rivers, streams or groundwater in the hydrological catchment, including during periods of wet weather,	**Section 9.5**
• Whether the water quality management practices proposed to be carried out as part of the development or activity are sustainable over the long term,	**Section 9.5**
• Whether the development or activity is compatible with relevant environmental objectives and water quality standards for the hydrological catchment when these objectives and standards are established by the Government.	**Section 9.5**
A water cycle management study be prepared in accordance with clause 11(4)(a) of SEPP 58.	**Section 9.5**
Any consultation with either the EPA or DIPNR.	**Section 5.2**
The **Special Area Strategic Plan of Management** and the degree to which the Proposal would be consistent with the achievement of the objectives of the plan;	**Section 8.4**
Demonstrate how the Proposal would maintain or enhance ecosystem integrity; and	**Section 9**
Address the draft Regional Plan – *Sustaining the Catchments.*	**Section 4.2**

Issue	RTA Response
DIPNR	
Erosion and sediment control would be the only minor issue for this Department. The department acknowledged that the site selection would be a low inherent threat of erosion.	**Section 9.2**
NSW NPWS	
Recommend that guidelines titled "General Guidelines for Impact Assessment" be addressed in the assessment where appropriate.	**Section 8**
Wollondilly Council	See page ii of this SEE

6 Strategic Stage

6.1 General

The Proposal is part of an ongoing commitment by the RTA to address road safety in accordance with the RTA's responsibilities for ensuring a maximum level of service to road users and to maintain appropriate services for adjacent landholders.

The Proposal is in accordance with the RTA's mission to "manage road related transport infrastructure and provide safe and efficient access to the road network for the people of NSW". Further, the RTA's Environmental Policy (June 2001) states that:

"The RTA will demonstrate due diligence in the provision of its services, manage its work activities in a manner that is consistent with the principles of ecologically sustainable development, and will deliver continuous improvement in environmental performance."

As part of its Road Safety 2010 strategy the New South Wales Government through the RTA has developed a $17 million, 10 year plan to improve the network of rest areas throughout the State to make them more attractive and accessible to motorist.

6.2 Justification and Need for the Proposal

The Proposal would provide truck drivers the opportunity to break from driving, reducing the desire to travel long distances and the possibility of becoming fatigued. The proposed truck parking area would provide truck drivers with toilet facilities and a safe area to park off road and rest.

7 Concept Stage

7.1 Proposal Objectives

The objective of the Proposal is to provide an accessible driver truck parking area for east bound traffic along Picton Road (MR95).

The rest area would be pursuant to the RTA document '*Heavy vehicle safety – Issues and Countermeasures'* that identifies on average approximately 8% of heavy truck fatal crashes involve a fatigued heavy truck driver. A countermeasure to driver fatigue identified by the RTA includes 'improving the road environment through countermeasures such as safety barriers and rest areas'.

7.2 Constraints

The Proposal has the following constraints:

- Property acquisition required to complete the Proposal;
- Statutory environmental obligations; and
- A threaten flora species *Epacris Purpurascens* var *purpurascens* found within the study area.

7.3 Options Considered

7.3.1 Option 1 'Do Nothing'

This option does not address the RTA's responsibility to maintain and improve classified roads in accordance with the Proposal's objectives. Driver fatigue has been proven as a cause of truck related accidents and fatalities, coupled with the requirement for truck drivers to rest for 30 minutes after driving for five hours.

7.3.2 Option 2 ' West of Air Strip'

Under this option the truck parking area would extend west along Picton Road concluding at the existing disused airstrip. Vertical geometry closely follows that of the existing Picton Road, thereby reducing the volume of earth works required.

Preliminary investigation of the area identified a significant population of *Epacris purpurascens* var *purpurascens. Epacris* sp is listed as a "threatened" species on the TSC Act. The construction of the truck parking area would significantly impact on a large population of *Epacris purpurascens* var *purpurascens* requiring the preparation of a Species Impact Statement prior to lodging a Development Application with Council.

7.3.3 Option 3 'East of Air Strip'

Under this option the truck parking area would extend east along Picton Road commencing at the existing disused airstrip. Vertical geometry closely follows that of the existing Picton Road, thereby reducing the volume of earth works required.

Preliminary investigation of the area identified a small population of *Epacris purpurascens* var *purpurascens.*

7.3.4 Preferred Option

Option 3 is the Preferred Option. Flora assessments have identified that the Proposal would not significantly impact on the *Epacris purpurascens* var *purpurascens* under this option.

8 Design Considerations

8.1 Existing Road

The existing road is a two lane single carriageway, posted at a 100km/h speed limit. Approximately 500m east of the Proposal, the RTA maintains a westbound truck parking facility. Being in a rural, undeveloped area the study area is unlit with no footpaths or formally sealed shoulders or kerb and gutter. Drainage is via table drains and culverts.

8.2 Existing and Forecast Traffic

Traffic movements in the area of the Proposal include eastbound and westbound movements on Picton Road providing access to Wollongong to the Southern highlands. Existing traffic in the area of the Proposal consists of a mix of heavy and light vehicle traffic. The following statistics have been used as the basis for design considerations:

- 11500 AADT
- 23% Heavy
- 77% light vehicle

The Proposal is not expected to generate any new traffic.

8.3 Design Considerations

The following design parameters have been used to formulate the design for the proposed works:

- Protection of the natural environmental and biodiversity;
- Protection of water quality of rivers, streams and groundwater in the hydrological catchment;
- Minimising construction cost;
- Requirements as identified by SCA for boundary fence line;
- Based on 'corporate rest area strategy';
- Provide parking for 2 to 10 trucks;
- Provide shade/toilet facilities;
- Off-road facility;
- Adjacent to existing 2 lane through road - 100kph; and
- Rural location.

8.4 Urban and Regional Design

The Proposal would be designed to blend into the surrounding landscape, which includes relatively undisturbed sandstone ridgetop woodland. The study area would be suitably rehabilitated on completion of the works.

Management principles as set out in the 'Special Areas Strategic Plans of Management' as prepared by Sydney Catchment Authority and NSW National Parks and Wildlife Service have been considered and adopted during the preparation of this SEE. **Section 9** of this SEE responds to the criteria against which the Proposal in the Special Area would be assessed.

8.5 Additional Fill Material

Approximately 6,000m3 of fill would be required for the construction of the truck parking area. The fill material would consist of imported sandstone.

8.6 Additional Truck Movements

It is anticipated that at the height of the construction up to 10 additional heavy vehicle movements would be experienced per day, although typically an average of 5 extra movements per day would be expected.

8.7 Stockpile and Compound Sites

Ancillary items such as stockpiles and works compounds would be located onsite. On-site temporary works associated with the Proposal would include a site office (caravan); equipment/plant compound area and one stockpile site. The site would be located within the area as assessed in this SEE. Therefore no additional environmental assessment would be required.

8.8 Design Parameters

Based on the Strategic Concept Design report parameters, this Proposal would include the following:

- Road geometry - straight alignment on a 1% eastbound grade;
- Provide adequate stopping sight distance (S.S.D) & safe intersection sight distance S.I.S.D. for entry/exit;
- Passing of all pavement rainfall run-off through an Oil and Sediment Separator;
- Additional spill containment basin for major spills;
- Provide secure boundary fencing;
- Provide proper after construction facility maintenance; and
- Entry speed to facility based on 100kph

8.9 Construction Activities

The works would be undertaken by the RTA's own workforce, and would include the following activities:

- Implementation of mitigative measures as outlined in the Environmental Management Plan (EMP) and Erosion and Sedimentation Control Plan (ESCP);
- Establishment of site compounds, stockpile sites and working areas;
- Clearing and grubbing;
- Stripping of topsoil;
- Drainage works;
- Pavement construction;
- Wearing surface;
- Erection of toilet;
- Signposting and linemarking;
- Revegetation;
- Rehabilitation of surrounding areas.

8.10 Stormwater Management

Existing through road drains on Picton Road within the study area would not be impacted or altered as a result of the Proposal. Stormwater management for the proposed truck parking area would be managed through the installation of an Oil and Sediment Separator (OSS) unit, organic fibre mat lined channels, a 10,000-litre spill containment basin and an organic fibre mat lined outlet channel.

Stormwater captured on any impermeable surfaces of the parking area would be directed firstly into the OSS then the organic fibre mat lined channel and onto the sediment basin. The sediment basin would incorporate a shut off valve into the low flow pipe effectively allowing if required the valve to be shut off and the basin to fill allowing emergency crews response time to get to the site to contain any spills.

8.10.1 Oil & Sediment Separator

As part of the Proposal an oil and sediment separator would be installed as part of the integrated stormwater treatment of the truck parking area. The separator chosen would be an advanced hydrodynamic vortex separator, where rotary and shear forces are generated to augment gravitational forces and remove settleable solids using a much smaller area than sedimentation basins. The oil and sediment separator would have the ability to capture settable solids, floatables, oil and grease from stormwater runoff, and the capacity to handle 230L of flow per second.

With the addition of a spill tank, the separator provides an effective spill control system as well as removing sediments, fines and litter.

8.11 Toilet Block

The rest area design includes one toilet block located in the eastern portion of the study area adjacent to incoming traffic flow (refer to Appendix B). The uni-sex toilet block would consist of two cubicles with disabled facilities and access. A composting/pumpout toilet facility would be installed partially above ground as part of the Proposal.

A requirement for the installation of the composting/pumpout toilet would be that the chosen system be an accredited system and conform to NSW Department of Health guidelines. It is anticipated that the chosen facility would have the capacity to contain 10,000 litres of effluent. The tank system would be monitored and pumped out on a regular maintenance schedule.

It is not anticipated that the composting/pumpout toilet facility would require additional environmental assessment as it would conform to NSW Health guidelines and have formal accreditation. In addition, an application to Wollondilly Shire Council under **Section 68** of the *Local Government Act* 1993 would be logged for the sewage facility.

•

8.12 Construction Equipment

Plant and equipment required to undertake the proposed works include backhoe, excavator, roller, asphalt paver, water cart, trucks, graders and light vehicles.

8.13 Workforce and Working Hours

The workforce would comprise approximately 10 personnel.

Standard working hours:	
Monday-Friday:	7.00am to 6.00pm
Saturday:	8.00am to 1.00pm
Sunday and Public Holidays:	No work

However there would be no restrictions on work outside of the standard working hours.

9 Environmental Assessment

This section of the SEE identifies potential environmental impacts associated with proposed works and provides appropriate safeguards to mitigate these identified potential impacts. Measures to mitigate or prevent impacts would be implemented prior to construction, during construction and post-construction.

9.1 General

A Contractors Environmental Management Plan (CEMP) would be prepared prior to the commencement of works. All works would be contained within the area proposed (refer to Appendix B). Only those issues considered of relevance to the Proposal are discussed below.

A Contractor's Environmental Management Plan (CEMP) would be developed in accordance with the specifications set out in the RTA's Environmental Protection (Management Plan) – QA Specifications G35,38,39,40 (refer to **Appendix F**). The CEMP would incorporate additional site-specific requirements, outlined below, which are not covered by G35. The CEMP would be reviewed and certified by the RTA Environmental Adviser, Southern Region, prior to the commencement of any site works.

9.2 Geology, Soils and Landform

Existing Situation

The study area is situated within the raised and bisected sandstone plateau that forms part of the structural geological unit termed the Woronora Ramp. The plateau consists predominantly of Hawkesbury Sandstone and extends to the west of the Illawarra Range and escarpment, forming an elevated extension of the Illawarra coastal hinterland. The ramp dips gradually to the north and west and can be seen as a continuation of the coastal zone with a gradual decline in ridgetop elevation from the inland upper valleys to the coastal flats around Port Hacking.

The topography of the Ramp is typified by a low relief plateau landscape and broad ridgetop complexes intersected by narrow and steep sided downcut river valleys that drain to the northwest. The Hawkesbury Sandstone can sustain steep slopes and the combination of weaker bedding planes and continental uplift has created a deeply incised plateau.

Outcrops of massive sandstone are present on ridge tops and within river, creek and tributary corridors as cliff lines, blocks and horizontal outcrops. Quartz and laterite pebbles occur in some of the sandstone outcrops and in soil deposits derived from the Hawkesbury sandstone. Shale and ironstone lenses also occur within bedding plane disconformities in the sandstone.

The soils derived from the Hawkesbury Sandstone are sandy and relatively infertile (Walker 1960). Physiography as described by the NSW Soil and Land Information database (refer to **Appendix D**) a woodland shrub understorey on shale, sandstone-quartz lithology. Slope 2% (measured), elevation 312 m, aspect west. Surface condition is hard set, profile is imperfectly drained, erosion hazard is slight, and no salting evident.

At the local scale, the study area constitutes part of a broad ridge feature separating the catchments of the Cordeaux River and Wallandoola Creek. Local topography is generally amorphous, near level terrain exhibiting few sandstone outcrops. The ridge is drained to the southwest by a number of small tributary creeks to the Cordeaux River, and to the north and east by a series of creeks draining into Cascade and Wallandoola Creeks. The

upper reaches of one of these tributary streams is located in the study area, however the stream here is small and ephemeral.

Potential Impacts

During construction and post construction of the truck parking area there is potential for increased erosion and sedimentation due to exposed soils from earthworks and the removal of vegetation on slopes.

Construction activities also have the potential to result in accidental spilling of chemicals.

Mitigation Measures

- An Soil and Water Management Plan would be prepared as part of the Contractors Environmental Management Plan (CEMP) in accordance with *Managing Urban Stormwater – Soils and Construction* published by the NSW Department of Housing, 1998; and
- Should any spillage occur during the construction activity the Environmental Adviser, Southern Region, would be contacted immediately, and contaminants would be immediately contained, removed, treated (if necessary) and disposed of to the satisfaction of the EPA.

9.3 Climate

Existing Situation

The closest weather station to the Proposal is located at Picton Bowling Club, approximately 15km west of the Proposal. The climate of the region is characterised by hot summers and cool winters. The mean daily summer temperature is approximately 29.8°C and the average maximum winter temperature is approximately 17.4°C. Highest rainfall is during the month of February (http://www.bom.gov.au/).

Potential Impacts

There is no risk of the Proposal affecting the climate of the region. The lack of major clearing of vegetation, and the linear nature of the existing vegetation would also limit the potential risks to microclimates within stands of trees along the roadside.

9.4 Air Quality

Existing Situation

Air quality in the locality would be expected to be very good, given the rural nature of the region and the lack of any polluting industries in the region.

Potential Impacts

The Proposal has the potential to locally reduce air quality during the construction phase from increased dust levels and exhaust from machinery. However, these impacts would be highly localised and short in duration, and can be adequately ameliorated with appropriate controls.

Pollutants would include dust and emissions from vehicles during the construction phase, however this short-term impact would be mitigated with safeguards below and would likely to be accepted by the community given the short period of duration of the works.

Works during periods of high wind would result in impacts on air quality.

Mitigation Measures

- Trucks and all fuel powered equipment would be maintained in good working condition to minimise potential emissions;
- Stockpiles would be protected from wind erosion through dampening or covering;
- Unsealed access roads, compound areas and other areas with traffic would be regularly dampened using water sprays;
- When winds reach a velocity of 2.5 metres per second, the frequency of watering would be increased appropriately. Where possible, dust generating activities would be re-programmed to avoid periods of high wind velocity;
- Truck loads would be wet down or covered to suppress dust generation;
- Cleaning of debris from the road surface would be undertaken as soon as practicable;
- Tailgates would be secured during operation of trucks and utes;
- There would be no burning of timber; and
- If winds are high and works are creating high levels of dust that are likely to cause a safety hazard to traffic or work personnel, the works would be modified or stopped until the dust hazard is eliminated or has reduced to an acceptable level.

9.5 Water Quality and Hydrology

Existing Situation

The Proposal is located in the Sydney Water Catchment. Sydney Water Catchments provide drinking water to over 4 million people, including the cities of Sydney, Wollongong, Goulburn, Lithgow and Nowra (DUAP 2000).

Two ephemeral drainage lines cross the study area, and pass through culverts beneath Picton Road. Two small dam like structures are located approximately 200m northwest of the study area. Lake Cataract (Pheasants Nest Weir) is located 8kms north west of the Proposal, while Cordeaux Dam lays 5.5km southeast, Wallandoola Creek 2.4kms east and Cordeaux River 1km south.

The study area is drained to the southwest into Wallandoola Creek. The upper reaches of Wallandoola Creek are located in the study area, however the stream here is small and ephemeral.

Total run off predicted for the current area prior to construction of the parking is approximately 0.075 cubic metres per second (cumecs).

Potential Impacts

The main potential impacts on water quality from road construction works are likely to be through sediment laden waters entering Wallandoola Creek through the two ephemeral creek drainage lines within the study area, and pollutants from fuel and hydraulic fluid leaks, spills, pavement material and general litter. Spills during the refuelling of plant and equipment have the potential to cause localised contamination of waterways. Impacts associated with the introduction of new drainage works would also include potential pollution, erosion and sedimentation of waterways.

During operation of the rest area there is the potential for pollutants from fuel and hydraulic fluid leaks, spills and general material entering the nearby waterways through the rainstorm events.

Estimated total run-off post construction of the truck parking area is 0.10 cumecs, a difference of 0.025 cumecs between the pre and post construction. The Proposal would have a neutral effect on the water quality of rivers, streams or groundwater in the hydrological catchment, including during periods of wet weather through the implementation of measures in **Section 8.10** of this SEE and the following mitigation measures.

There would be potential for scouring in adjacent natural areas surrounding the Proposal. The implementation of measures in **Section 8.10** of this SEE and the following mitigation measure would ameliorate any potential.

Mitigation Measures

- Should any spillage occur during the construction activity the Environmental Adviser, Southern Region, would be contacted immediately, and contaminants would be immediately contained, removed, treated (if necessary) and disposed of to the satisfaction of the EPA;
- All stormwater from hard surfaces would be directed to concrete gutters which in turn would be directed to the gross pollutant trap and onto the sediment basin;
- Energy dissipaters would be incorporated into the design of concrete gutters to minimise erosion, slow velocity, permit sediment deposition and collection.
- A check of any drainage works would be undertaken promptly during and after heavy rain events during the construction of the parking area;
- Signage would be installed within the parking area alerting facility users that the area is within a Special Catchment Area emphasising the importance of protecting water quality;
- A Maintenance Management Plan would be prepared identifying best management practices and frequency of maintenance for the Oil and Sediment Separator and reviewed by the RTA Regional Environmental Advisor, Southern Region; and
- A Soil and Water Management Plan in accordance with **Section 9.2** of this SEE would be developed prior to construction commencing.

9.6 Biodiversity

Existing Situation

The proposed truck parking area would involve clearing of all vegetation and habitats present within the study area (approximately 11300sqm of land), to enable levelling and surfacing. This would have a direct impact upon the vegetation to be removed, and upon fauna species resident within this area. However, this impact is considered minimal given the extent of intact bushland present on conserved lands surrounding the study area.

The study area does not support unique features or species that would be lost as a result of the proposed clearing. All species recorded within the study area are also present in surrounding areas, and most are likely to be present throughout the conserved land.

16 vertebrate fauna species were recorded during field investigations conducted in the study area, including 11 native bird species, 3 native mammals species and 2 introduced mammal species (refer to Appendix E).

The fauna assemblage recorded is indicative of the nature of habitats and resources present within the study area and on surrounding conserved lands, but of lower diversity than would be expected given the variety and condition of habitats present within the study area. It is likely that many fauna species avoid the noise and disturbance associated with the Picton

Road corridor, particularly given that extensive tracts of 'quieter' intact bushland surround the study area.

No fauna species listed as *threatened*' under either the TSC Act or EPBC Act were recorded during flora and fauna surveys. However, it is likely that several of the threatened microchiropteran bat species known to occur in the locality would occur on occasions.

Potential Impacts

Flora

One plant species of conservation significance, *Epacris purpurascens* var *purpurascens*, was recorded in the study area and on adjacent lands during the field surveys. *Epacris purpurascens* var *purpurascens* is listed as a "*threatened*' species on the TSC Act. The proposed development is likely to involve removal of up to 20 individuals of this species. The population appears to be centred on land to the northwest of the study area, on the other side of the airstrip, where preliminary environmental investigations identified at least several hundred individuals.

The significance of potential impacts of the proposed works upon these species has been assessed pursuant to Section 5A of the EP&A Act (refer to Appendix E). Upon consideration of the assessment, it is not considered likely that the proposed truck parking area along Picton Road would impose "*a significant effect*' upon *Epacris purpurascens* var *purpurascens*.

A population of over 500 individuals of the threatened plant *Epacris purpurascens* var *purpurascens* was recorded on surrounding lands approximately 100m from the study area.

No other plant species listed as threatened under either the TSC Act or the EPBC Act were recorded in the study area.

No plant species being part of any "*endangered population*" listed under the TSC Act were recorded in the study area.

No "*ecological community*' listed as threatened under either the TSC Act or the EPBC Act was recorded in the study area.

One of the exotic weed species recorded in the study area (Blackberry *Rubus fruticosus* species aggregate) is listed as 'noxious' weed for the Wollondilly Local Government Area on the *NSW Noxious Weeds Act 1993* (refer to Appendix E, Flora and Fauna Assessment Appendix I). No 'notifiable' weeds as listed on the *NSW Noxious Weeds Act 1993* were recorded in the study area.

Fauna

It is likely that threatened microchiropteran bat species known to occur in the locality (the Eastern Freetail Bat *Mormopterus norfolkensis*, Eastern False Pipistrelle *Falsistrellus tasmaniensis*, Common Bent-wing Bat *Miniopterus schreibersii*, Large-footed Myotis *Myotis adversus* and Greater Broad-nosed Bat *Scoteanax rueppellii*) would utilise the study area on occasions. The significance of potential impacts of the proposed works upon these species has been assessed pursuant to Section 5A of the EP&A Act (refer to Appendix E).

It is not considered likely that the proposed truck parking area on Picton Road would impose "*a significant effect*' upon either the Eastern Freetail Bat *Mormopterus norfolkensis*,

Eastern False Pipistrelle *Falsistrellus tasmaniensis*, Common Bent-wing Bat *Miniopterus schreibersii*, Large-footed Myotis *Myotis adversus* and Greater Broad-nosed Bat *Scoteanax rueppellii*

One tree species listed on Schedule 2 of SEPP 44 Koala Habitat Protection – known feed trees occurs within the study area – Broad-leaved Scribbly Gum *Eucalyptus haemastoma*. This species is dominant within the study area, and does constitute more than 15% of the number of trees present. Therefore the study area does support 'potential koala habitat'.

'Core koala habitat' is land which has been classed as 'potential koala habitat', and which supports a resident population of Koalas, evidenced by breeding females, recent sightings and historical records.

No Koalas were recorded within the study area, nor any indirect evidence for Koalas (eg scats, scratchings, fur tufts). Only one record of the Koala occurring within several kilometres of the study area is listed on the NPWS Atlas of NSW Wildlife, from 1974, nearly 30 years ago.

There does not appear to be a resident population of Koalas within the study area. Therefore the study area does not support 'core koala habitat', and SEPP 44 no longer applies to the proposed works.

Potential impacts on native flora and fauna downstream of the site include increased nutrient loading of watercourses, the possible discharge of oils and other pollutants in watercourses, and increased erosion, soil loss and sedimentation. These impacts would be minimised through the implementation of appropriate pollution and sediment control measures, and careful management of construction and on-going wastes.

Mitigation Measures

- All weed material cleared from the works site would be removed and/or destroyed, having particular regard to the requirements for weed species listed as 'noxious' under the NSW Noxious Weeds Act 1993, during operation weed management would be a part of scheduled maintenance at the site;
- Large trees, particularly those containing hollows, would be removed relatively intact and placed on the ground in adjacent bushland, to provide additional habitat features for native fauna;
- Appropriate sediment control measures would be implemented during the clearing and construction phases of the project (eg silt fences, sediment traps), to protect terrestrial and aquatic habitats in the immediate vicinity and downstream. These would conform to relevant guidelines, would be maintained throughout the construction period and would be carefully removed following the completion of works;
- Appropriate management of wastes, to minimise the discharge of chemicals or contaminants (such as oils, detergents, concrete) into waterways and adjacent areas of native vegetation; and
- The use of locally indigenous plant species in any replanting schemes, to provide habitat features for native flora and fauna, and to maintain the local and regional genetic resource.

9.7 Socio-economic Considerations Including Landuse

Existing Situation

No private properties traverse the study area. Approximately 1.15ha of land owned and maintained by Sydney Catchment Authority would be acquired for the Proposal. No access gates would be obstructed by the Proposal.

Potential Impacts

Clearing and filling activities to construct the parking area would have a minor impact upon the visual scope of Picton Road.

Mitigation Measures

- In the construction phase the Proposal would delay through traffic during working hours, although appropriate traffic control measures would minimise the delays experienced along the road.

9.8 Indigenous Heritage

Existing Situation

The study area is located on the Woronora Plateau. Numerous Aboriginal archaeological sites have been recorded in this landscape unit, the majority by the Illawarra Prehistory Group (IPG). This amateur group has been systematically surveying and recording Aboriginal sites associated with rock surfaces along a number of major tributaries of the Cataract and Cordeaux Rivers since the late 1970s. These include Cascade Creek, Wallandoola Creek, Lizard Creek, Back Gully, Myrtle Creek, Cordeaux Creek and Wattalli Creek, as well as areas further to the north and south such Darkes Forest, the O'Hares Creek catchment and the Woronora River (Sefton 1980, 1988, 1989, 1990a).

At least 1400 Aboriginal sites have been recorded in the area of the Woronora Plateau encompassed by the Georges River, Cataract River, Avon River, Nepean River and Cordeaux River (932/km2). Both site numbers and site densities decrease from north to south. Site density is greatest in the Woronora (4.9/km2) and O'Hares (3.8/km2) catchments, while site density in the Cataract (1.4/km2), Cordeaux (0.9/km2) and Avon (1.9/km2) catchments is less.

Shelter sites containing art are the most frequent site types, followed by grinding groove sites. Open campsites, engraved art sites, stone arrangements and scarred trees are each of very low frequency.

Surveys in the general vicinity of the study area have been carried out by the Illawarra Prehistory Group, Sefton (1993a, 1993b), Kuskie, Navin & Officer (1995), Officer (1996), Saunders (1998b, 1998c) and Navin Officer Heritage Consultants (1999a, 1999b, 1999c, 2000, 2001).

Six Aboriginal site recordings are located within one kilometre of the subject area. They include an axe-grinding groove, a shelter with art, and four isolated finds (Table 1 and Figure 2). Five of the sites are listed on the NPWS Site Register. One of the isolated finds, Picton Road 1 (PR1), was located in the context of field survey for the area, which was initially being considered for the truck parking area on Picton Road. With the re-location of the preferred area the isolated find PR1 is no longer located in the proposed truck parking area.

The description of PR1 is included in this report for information purposes only (refer to Appendix E).

Native Title Claims

A search lodged with the National Native Title Tribunal reveals no existing claims within the study area. The nearest claims within Wollondilly LGA include Gundungurra Number 6 and four discontinued claims filed by the Cubbitch Barta Native Title Aboriginal Claimants Corporation (refer to Appendix E).

Potential Impacts

The archaeological sensitivity of the study area is rated as low. Local terrain constitutes amorphous, generally flat plateau topography with no natural 'routeways' or other landscape features conventionally associated with concentrated hunter-gatherer movement or other activities. Only one small ephemeral drainage line is present in the area. Soils in the area are thin and sandy, with appreciable disturbance from shallow grading and relocation of deposit evident across much of the area. The potential for undisturbed cultural material to occur within local deposits is therefore considered low.

No sandstone outcrops exhibiting requisite characteristics for other Aboriginal site types, such as habitable rock shelters, grooves or engravings, are apparent in the area.

The study area is located within the boundaries of the Tharawal Local Aboriginal Land Council (TLALC) and the area of custodial interest of the Cubbitch Barta Native Title Claimant's Corporation. These groups were contacted prior to the fieldwork and representatives were invited to participate in the survey.

Subsequently Mr Lance Syme, representing the TLALC, and Ms Rebecca Chalker, representing the Cubbitch Barta Native Title Claimant's Corporation, assisted in the field inspection of the truck parking area. No issues or recommendations were raised during their site visit

Mitigation Measures

- In the event that any indigenous artefacts or items are located during the works, all work would cease in the vicinity of the find, and the RTA's Environmental Adviser, Southern Region, Aboriginal Programs Consultant and NSW NPWS would be contacted.

9.9 Visual, Landscape and Urban Design

Existing Situation

The visual amenity of the area is characterised by a rural landscape. Visual amenity would be medium given the rural setting and the presence of relatively undisturbed forest. The Proposal footprint is relatively small encompassing an area previously disturbed (20%); road reserve (40%) and SCA acquired land (40%). As such, the Proposal would have a minimal visual impact on the environment, fitting into the existing road corridor of Picton Road.

Potential Impacts

Clearing and filling activities to construct the parking area would have a minor impact upon the visual scope of Picton Road.

Mitigation Measures

- The perimeter fence design would be selected in consultation with Sydney Catchment Authority (SCA);
- The number of trees removed would be kept to a minimum; and
- The re-establishment of shrub and ground vegetation would be part of a vegetation management plan.

9.10 Noise and Vibration

Existing Situation

The study area is located in an isolated rural location where the only noise disturbance is a result of the nearby Picton Road. The nearest resident is approximately 3 km from the Proposal.

Potential Impacts

Given the proximity of the Proposal to Picton Road noise levels would not likely increase as a result of the truck park area. As there are no residents within 3km of the Proposal construction and operation noise would not have an effect on the surrounding environment. Noise generated through truck refrigerator units during night would not likely impact on residents as vegetation and distance would act as a noise mediator and block any subsequent noise.

Mitigation Measures

Mitigation measures as outlined in section 6.7 "Noise Control" of the RTA QA Specification G35 Environmental Protection (Management System) would be undertaken.

9.11 Fire Hazard

Potential Impacts

The use of flammable materials and welding during the proposed works has the potential to be a fire hazard, particularly given the presence of vegetation within the study area and in the immediate vicinity. Whilst the potential for the Proposal to increase the risk of bushfires from occurring is considered to be medium to high depending on the season of construction, several mitigation measures would be in place to ensure a low risk of bushfire hazard prevails during the construction work. During operation there is the potential for the parking area to be impacted upon by a bushfire event and for bushfires to be started by users of the parking area.

Mitigation Measures

- During construction general purpose fire extinguishers would be kept on site at all times;
- A water cart with hose attachment would be used throughout the construction period; and
- A grade firebreak would be constructed around the proposed parking area site within the assessed study area. This firebreak would be approximately a single grader blade width. Overhanging trees would also be trimmed to ensure that SCA vehicles could travel along the firebreak.

9.12 Waste Minimisation and Management

Potential Impacts
Waste produced during construction would be comprised of vegetation, topsoil and concrete rubble; other waste that may be produced as a result of the activities includes general rubbish.

During operation the Proposal would potentially result in the illegal dumping of household rubbish.

Mitigation Measures

The principles of waste management are to minimise the amount of waste generated, recycle waste wherever possible and dispose of the remainder in a responsible manner in accordance with appropriate RTA policy. The RTA adopts the Resource Management Hierarchy principles embodied in the *Waste Avoidance & Resource Recovery Act 2001* (WARR Act).

Accordingly, the following waste minimisation and impact mitigation methods are proposed:

- The management of waste would be undertaken in accordance with Section 6.17 (Waste Management) of the RTA's QA Specification;
- The Resource Management Hierarchy principles of the WARR Act would be adopted. They are as follows:
    1. Avoid unnecessary resource consumption as a priority;
    2. Avoidance is followed by resource recovery (including reuse of materials, reprocessing recycling, and energy recovery); and
    3. Disposal is undertaken as a last resort.
- The RTA adopts the resource Management Hierarchy principles embodied in the Waste Avoidance & Resource Recovery Act 2001 (WARR Act). The following site specific mitigation measures would also be implemented:
    1. Waste generated would be disposed of in a licenced Waste Disposal Depot.
- Signage would be installed within the parking area alerting facility users to the fines/penalties of illegal dumping of rubbish
- Fence design selected in consultation with SCA would be a type to minimise possible illegal dumping of rubbish outside the boundaries of the parking area.

9.13 Cumulative Environmental Effects

There are currently no other developments in the vicinity of the Proposal. The main disturbance to the area has been a result of the existing Picton Road and the disused airstrip within the study area.

The removal of 20 individuals of the threatened species *Epacris Purpurascens* var *purpurascens* had been assessed under Part 5A of the EP&A Act and TSC Act. The cumulative effect for the removal of the species from the study area is predicted to be a minor negative impact.

9.14 Principles of Ecologically Sustainable Development

The National Strategy for Ecologically Sustainable Development (NSESD) has been formulated to ensure ESD is accounted for in all Proposals. There are three core objectives:

- To enhance individuals' and community well-being and welfare by following a path of economic development that safeguards the welfare of future generations;
- To provide for equity within and between generations; and
- To protect biological diversity and maintain essential ecological processes and life-support systems.

These objectives are complemented with a number of guiding principles that are considered below in Table 9.15 in terms of the Proposal.

Table 9.15: Principles of ESD Applied to the Proposal

Principle	Application to the Proposal
Precautionary Principle	Mitigation measures have been proposed which would minimise the impacts of the Proposal. None of the studies undertaken identified any serious or irreversible damage.
Intergenerational Equity	The Proposal would improve the level of supporting infrastructure required for a Classified Road and improve the safety and efficiency of the transport corridor. At the same time, the Proposal considers and minimises impacts on the local environment.
Conservation of Biological Diversity & Ecological Integrity	Mitigation measures have been included in this SEE to ensure the Proposal would not compromise biological diversity or ecological integrity.
Improved Valuation & Pricing of Environmental Resources	The integrity of the local environment is recognised as a valuable resource to the area in terms of its water resources for Sydney Water Catchment. To ensure that these resources remain, the Proposal addresses issues relevant to water quality and ecological integrity. Mitigation measures outlined in this SEE (**Section 10.1**) have been provided to ensure the value of these environmental resources is maintained.

9.14.1 Summary of Beneficial Effects

The Proposal would have a number of beneficial effects and would:

- Provide a rest facility for truck drivers transporting to the Wollongong area;
- Enhance the RTA road network vehicle rest area locations in accordance with RTA's policy; and
- Increase road safety through the provision of rest facilities for truck drivers and light vehicle drivers.

9.14.2 Summary of Adverse Effects

The Proposal would result in some adverse effects, which would include:

- A reduction in the visual amenity of the immediate locality; and
- Potential site contamination as a result of an oil/chemical spill.

10 Implementation Stage

10.1 Summary of Proposed Safeguards

A Contractor's Environmental Management Plan (CEMP) would be developed in accordance with the specifications set out in the RTA's *Environmental Protection (Management Plan) – QA Specifications G35*. The CEMP would incorporate additional site-specific requirements, outlined below, which are not covered by G35. The CEMP would be reviewed and certified by the RTA Environmental Adviser, Southern Region, prior to the commencement of any site works.

Geology, Soils and Landform

- A Soil and Water Management Plan would be prepared as part of the Contractors Environmental Management Plan (CEMP) in accordance with *Managing Urban Stormwater – Soils and Construction* published by the NSW Department of Housing, 1998; and
- should any spillage occur during the construction activity the Environmental Adviser, Southern Region, would be contacted immediately, and contaminants would be immediately contained, removed, treated (if necessary) and disposed of to the satisfaction of the EPA.

Air Quality

- Trucks and all fuel powered equipment would be maintained in good working condition to minimise potential emissions;
- Stockpiles would be protected from wind erosion through dampening or covering;
- Unsealed access roads, compound areas and other areas with traffic would be regularly dampened using water sprays;
- When winds reach a velocity of 2.5 metres per second, the frequency of watering would be increased appropriately. Where possible, dust generating activities would be re-programmed to avoid periods of high wind velocity;
- Truck loads would be wet down or covered to suppress dust generation;
- Cleaning of debris from the road surface would be undertaken as soon as practicable;
- Tailgates would be secured during operation of trucks and utes;
- There would be no burning of timber; and
- If winds are high and works are creating high levels of dust that are likely to cause a safety hazard to traffic or work personnel, the works would be modified or stopped until the dust hazard is eliminated or has reduced to an acceptable level.

Water Quality and Hydrology

- Should any spillage occur during the construction activity the Environmental Adviser, Southern Region, would be contacted immediately, and

contaminants would be immediately contained, removed, treated (if necessary) and disposed of to the satisfaction of the EPA;

- All stormwater from hard surfaces would be directed to concrete gutters which in turn would be directed to the gross pollutant trap and onto the sediment basin;
- Energy dissipaters would be incorporated into the design of concrete gutters to minimise erosion, slow velocity, permit sediment deposition and collection.
- A check of any drainage works would be undertaken promptly during and after heavy rain events during the construction of the parking area;
- Signage would be installed within the parking area alerting facility users that the area is within a Special Catchment Area emphasising the importance of protecting water quality;
- A Maintenance Management Plan would be prepared identifying best management practices and frequency of maintenance for the Oil and Sediment Separator and reviewed by the RTA Regional Environmental Advisor, Southern Region; and
- A Soil and Water Management Plan in accordance with **Section 9.2** of this SEE would be developed prior to construction commencing.

Biodiversity

- All weed material cleared from the works site would be removed and/or destroyed, having particular regard to the requirements for weed species listed as 'noxious' under the NSW Noxious Weeds Act 1993, during operation weed management would be a part of scheduled maintenance at the site;
- Large trees, particularly those containing hollows, would be removed relatively intact and placed on the ground in adjacent bushland, to provide additional habitat features for native fauna;
- Appropriate sediment control measures would be implemented during the clearing and construction phases of the project (eg silt fences, sediment traps), to protect terrestrial and aquatic habitats in the immediate vicinity and downstream. These would conform to relevant guidelines, would be maintained throughout the construction period and would be carefully removed following the completion of works;
- Appropriate management of wastes, to minimise the discharge of chemicals or contaminants (such as oils, detergents, concrete) into waterways and adjacent areas of native vegetation; and
- The use of locally indigenous plant species in any replanting schemes, to provide habitat features for

native flora and fauna, and to maintain the local and regional genetic resource.

Socio-economic Considerations including Landuse

- In the construction phase the Proposal would delay through traffic during working hours, although appropriate traffic control measures would minimise the delays experienced along the road.

Indigenous Heritage

- In the event that any indigenous artefacts or items are located during the works, all work would cease in the vicinity of the find, and the RTA's Environmental Adviser, Southern Region, Aboriginal Programs Consultant and NSW NPWS would be contacted.

Visual, Landscape and Urban Design

- The perimeter fence design would be selected in consultation with Sydney Catchment Authority (SCA);
- The number of trees removed would be kept to a minimum; and
- The re-establishment of shrub and ground vegetation would be part of a vegetation management plan.

Noise and Vibration

- Mitigation measures as outlined in section 6.7 "Noise Control" of the RTA QA Specification G35 Environmental Protection (Management System) would be undertaken.

Fire Management

- During construction general purpose fire extinguishers would be kept on site at all times;
- A water cart with hose attachment would be used throughout the construction period; and
- A grade firebreak would be constructed around the proposed parking area site within the assessed study area. This firebreak would be approximately a single grader blade width. Overhanging trees would also be trimmed to ensure that SCA vehicles could travel along the firebreak.

Waste Minimisation and Management

- The management of waste would be undertaken in accordance with Section 6.17 (Waste Management) of the RTA's QA Specification;
- The Resource Management Hierarchy principles of the WARR Act would be adopted. They are as follows:
    1. Avoid unnecessary resource consumption as a priority;
    2. Avoidance is followed by resource recovery (including reuse of materials, reprocessing recycling, and energy recovery); and
    3. Disposal is undertaken as a last resort.
- The RTA adopts the resource Management Hierarchy principles embodied in the Waste Avoidance & Resource Recovery Act 2001 (WARR Act). The following site specific mitigation measures would also be implemented: and
- Waste generated would be disposed of in a

licenced Waste Disposal Depot.

- Signage would be installed within the parking area alerting facility users to the fines/penalties of illegal dumping of rubbish
- Fence design selected in consultation with SCA would be a type to minimise possible illegal dumping of rubbish outside the boundaries of the parking area.

11 Consideration of Environmental Factors

11.1 79c Evaluation - Matters of Consideration (NSW Legislation)

Factor		Section in SEE where addressed
a)	The provisions of -	
	I. Any environmental planning instruments;	**Section 4**
	II. Any draft environmental planning instrument;	**Section 4**
	III. Any development control plan;	**Section 4**
	IV. Any matters prescribed by regulation.	**Section 4**
b)	The likely impacts of that development	**Section 9**
c)	The suitability of the site for the development	**Section 3**
d)	Any submission made in accordance with this Act or the regulations	**Nil**
e)	The public interest	**Section 9.7**

11.2 Clause 228 Checklist (NSW Legislation)

Factor	Impact
a) Any environmental impact on a community? **Comments:** Short-term negative impacts include the disruption to vehicular traffic for periods during construction and visual impact of the works during construction. However, these would be minimised through the implementation of controls and measures detailed in **Section 9** of this document. In the long term, installation of the truck parking area would benefit the community by providing a facility for driver recuperation.	Short term –ve Long term +ve
b) Any transformation of a locality? **Comments:** The Proposal would generally transform the locality in a positive manner by allowing for improved road safety.	Long term +ve
c) Any environmental impact on the ecosystems of the locality? **Comments:** Works would be minimal in extent with minimal risks to ecosystems. All risks associated with the Proposal would be mitigated against. There would be no long-term environmental impacts on the ecosystems of the locality.	Short term –ve Long term nil
d) Any reduction of the aesthetic, recreational, scientific or other environmental quality or value of a locality? **Comments:** There would be a short-term reduction of the aesthetic and recreational quality and value of the locality during construction. There would be no long-term reduction of scientific or other environmental quality or value of a locality as a result of this Proposal.	Short term –ve Long term nil
e) Any effect on a locality, place or building having aesthetic, anthropological, archaeological, architectural, cultural, historical, scientific or social significance or other special value for present or future generations? **Comments:** There would be no negative effects on any items of historical significance through the undertaking of the Proposal.	Nil
f) Any impact on the habitat of any protected or endangered fauna (within the meaning of the National Parks and Wildlife Act 1974? **Comments:** The Proposal would not impact on the habitat of any protected or endangered fauna species.	Nil
g) Any endangering of any species of animal, plant or other form of life, whether living on land, in water or in the air? **Comments:**	

Factor	Impact
The Proposal would not endanger any species of animal, plant or other form of life living on land, in the water or in the air.	Nil
h) Any long-term effects on the environment? **Comments:** The Proposal would not have any long-term effects on the environment.	Nil
i) Any degradation of the quality of the environment? **Comments:** There would be short-term potential impacts on the environment as a result of the proposed works, including traffic delays and potential for oil spills. These would be minimised through the implementation of safeguards outlined in **Section 9** of this SEE.	Short term –ve Long term nil
j) Any risk to the safety of the environment? **Comments:** The Proposal would not cause any risk to the safety of the environment in the long term. In the construction period there would be no risk to the safety of the environment due to the mitigation measures to be introduced as part of the EMP to ensure no chemical or other spills occur in the waterways. Hazardous materials would not be stored at the site.	Short term –ve Long term nil
k) Any reduction in the range of beneficial uses of the environment? **Comments:** The Proposal would not result in a reduction of beneficial uses of the environment.	Nil
l) Any pollution of the environment? **Comments:** Water pollution through spillage and emissions from the works site has the potential to occur. However, the risk is low and any potential impacts would be minimised through the implementation of safeguards outlined in **Section 9** of this SEE.	Nil to Minor Short term -ve
m) Any environmental problems associated with the disposal of waste? **Comments:** Waste would be generated as a result of the Proposal. All waste would be disposed of in accordance with relevant legislation and guidelines detailed in **Section 9** of this SEE.	Nil
n) Any increased demands on resources, natural or otherwise which are, or are likely to become in short supply? **Comments:** There would be no increased demand on resources, natural or otherwise which are, or are likely to become in short supply.	Nil
o) Any cumulative environmental effect with other existing or likely future activities? **Comments:**	

Factor	Impact
RTA activities within NSW involve standard small jobs that have the potential to have cumulative effects, however safeguards such as reuse, recycle and substitution would be implemented to reduce any cumulative impacts. There would be not likely cumulative impacts from the Proposal.	Nil

11.3 EPBC Act 1999 (Commonwealth Legislation)

The EPBC Act requires that the following matters of National Environmental Significance (NES) be considered:

Factor	Impact
a) Any environmental impact on a World Heritage property?	
Comments:	
The Proposal is not located within and would not have an impact on a World Heritage Property.	Nil
b) Any environmental impact on wetlands of international importance?	
Comments:	
The Proposal would not have any impact on RAMSAR wetlands.	Nil
c) Any environmental impact on Commonwealth listed threatened species or ecological communities?	
Comments:	
Potential impacts of the proposal on Commonwealth listed species and ecological communities have been investigated. No impacts would occur as a result of the Proposal.	Nil
d) Any environmental impact on Commonwealth listed migratory species?	
Comments:	
Potential impacts of the proposal on Commonwealth listed migratory species have been investigated. No impacts would occur as a result of the Proposal.	Nil
e) Does any part of the proposal involve a nuclear action?	
Comments:	Nil
No part of the Proposal involves a nuclear action.	
f) Any environmental impact on a Commonwealth marine area?	
Comments:	
There would be no impact on Commonwealth Marine Areas.	Nil
In addition; Any impact on Commonwealth Land?	
The Proposal would not be located on or near Commonwealth Land.	Nil

12 Certification

This Statement of Environmental Effects provides a true and fair review of the Proposal in relation to its potential effects on the environment. It addresses to the fullest extent possible all matters affecting or likely to affect the environment as a result of the Proposal.

Trent Williams
Environmental Officer
2 December 2003

I have examined this Statement of Environmental Effects and the certification by Trent Williams and accept the Statement of Environmental Effects on behalf of the RTA.

John Burns
Project Manager

Date:

13 References

Bureau of Meteorology website - www.bom.gov.au

DIPNR 1992 *NSW Urban Erosion and Sediment Control Handbook No.2*

DIPNR 2003 *Soil Essentials Report*, DPNR website.

DUAP 1999 *Discussion Paper: Sydney and Regional Centres Drinking Water Catchments Regional Environmental Plan.*

DUAP 2000 *Sustaining the Catchments; a draft regional plan for the drinking water catchments of Sydney and adjacent regional centres.*

RTA 1998 *Traffic Control at Work Sites Manual.*

RTA 2001 *Stockpile Site Management Procedures*, RTA Sydney.

SCA & NPWS 2001 *Special Areas Strategic Plan of Management.*

Wollondilly Shire Council Local Environmental Plan 1991

Appendix A

Photographs of Site

Photo 1 & Photo 2: Vegetation present within the study area. Typical trees include Scribbly Gum, Red Bloodwood, Yellow Bloodwood, Smooth-barked Apple, Narrow-leaved Apple and Sydney Peppermint with a diverse understorey of shrubs and herbs including Banksias and Hakeas.

Photo 3 & Photo 4: Proposed Picton Truck Parking Area location – looking east.

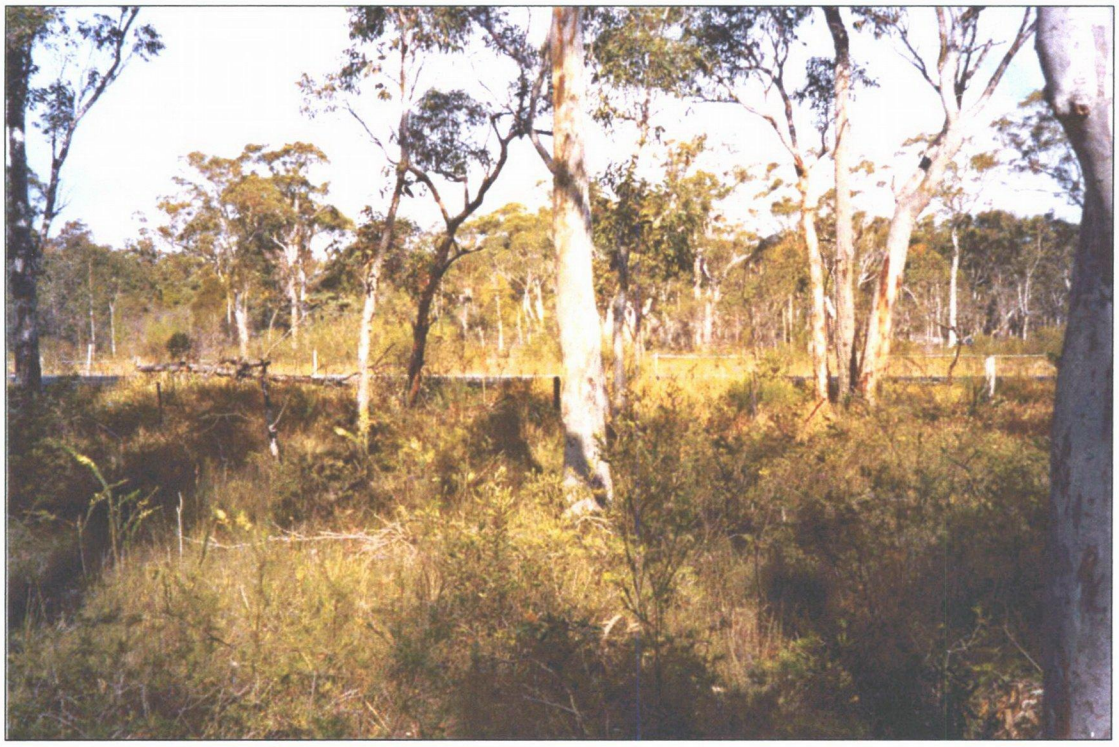
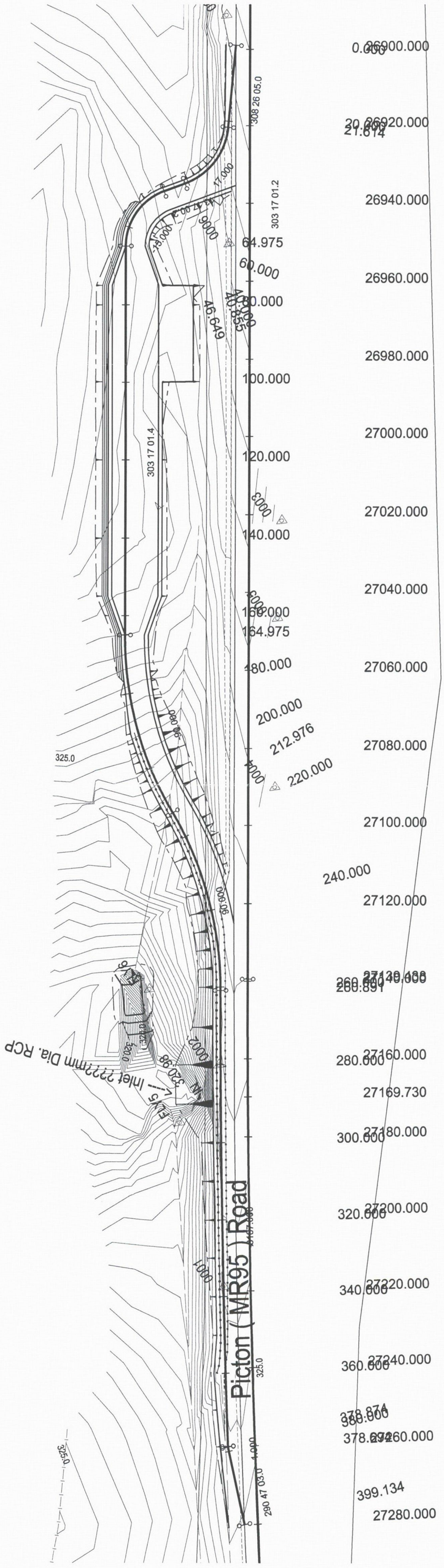


Photo 5 & 6: Proposed Picton Road Parking Area – looking towards road (top), threatened species *Epacris purpurascens* var *purpurascens* (bottom).

Photo 7 & 8: Weed invasion resulting from previous site disturbance (top), disused airstrip to be removed and area suitably rehabilitated as part of the truck parking area works (bottom).

Appendix B

Concept Design


0.000
26900.000
20.400
26920.000
21.674
26940.000
64.975
60.000
26960.000
80.000
40.855
46.649
26980.000
100.000
27000.000
120.000
27020.000
140.000
27040.000
160.000
164.975
180.000
27060.000
200.000
212.976
27080.000
220.000
27100.000
240.000
27120.000
260.000
260.891
280.000
27160.000
27169.730
300.000
27180.000
320.000
27200.000
340.000
27220.000
360.000
27240.000
380.000
378.874
378.874
27260.000
399.134
27280.000
Picton (MR95) Road
308 26 05.0
303 17 01.2
303 17 01.4
290 47 03.0
325.0

Appendix C

Consultation

WOLLONDILLY SHIRE COUNCIL

RECEIVED
2 3 JUL 2003
BY:.....

Our Reference: RTA RL

RTA Operations
Level 5, Pod D
99 Phillips Street
PARRAMATTA NSW 2124

Attention: Trent Williams – Environmental Officer

18 July 2003

Dear Sir

PROPOSED TRUCK PARKING AREA – PICTON ROAD
YOUR REF: 3M3189

Reference is made to your enquiry with Council regarding the proposed truck parking area on Picton Road.

You are advised that under the provisions of Part 5 of the Environmental Planning & Assessment Act 1979 Council's Consent is not required for any part of the truck parking area that is located within the road reserve. However, under the provisions of Part 4 of the Act and the provisions of Wollondilly Local Environmental Plan 1991, Council's Consent is required for any works to be undertaken within the area of land to be acquired from Sydney Catchment Authority.

In this regard, the truck parking area, as described in your letter dated 7 July 2003, is permissible subject to a Development Application being submitted to and approved by Council.

Should you wish to discuss this matter further please contact the undersigned on 0246 771172.

Yours faithfully

Rebecca Lett
Town Planner
DEVELOPMENT & ENVIRONMENT.

Development & Environment Fax No.: (02) 46771 831
62-64 Menangle Street Picton NSW 2571
PO Box 21 Picton **DX:** 26052 Picton **Phone:** 02 4677 1100 **Fax:** 02 4677 2339
Email: council@wollondilly.nsw.gov.au **Web:** www.wollondilly.nsw.gov.au **ABN:** 93 723 245 808

SYDNEY CATCHMENT AUTHORITY

PO Box 323 Penrith NSW 2751
Level 2, 311 High Street
Penrith NSW 2750
Tel 1300 722 468 Fax 02 4732 3666
Email info@sca.nsw.gov.au
Website www.sca.nsw.gov.au

Ref: D2003/04649

Mr Trent Williams
Environmental Officer
Roads and Traffic Authority
Level 5, Pod D
99 Phillip St
PARRAMATTA NSW 2124

Dear Mr Williams

I refer to your letter dated 7 July 2003 regarding the proposed truck parking area, Picton Road. The Sydney Catchment Authority (SCA) appreciates the opportunity to provide comments at this stage.

The SCA understands that the Roads and Traffic Authority (RTA) will now be lodging a development application and accompanying Statement of Environmental Effects with Wollondilly Shire Council. Council will need to obtain the concurrence of the SCA pursuant to clause 11 of State Environmental Planning Policy No.58-Protecting Sydney's Water Supply (SEPP 58).

The purpose of this letter is to provide advice on those issues that the SCA would like addressed in the development application.

The proposed works are located within the Metropolitan Special Area and within the area covered by State Environmental Planning Policy No.58-Protecting Sydney's Water Supply (SEPP 58). In particular the works are located in close proximity to Pheasants Nest Weir and considerable attention will need to be given to managing stormwater and other wastewaters during construction and operation to prevent adverse environmental impacts.

Specifically the SCA expects the Statement of Environmental Effects will address:

- **SEPP 58.** Clause 10 of SEPP 58 states consent authorities and the SCA when assessing the proposal must consider the following:
    - whether the development or activity will have a neutral or beneficial effect on the water quality of rivers, streams or groundwater in the hydrological catchment, including during periods of wet weather,
    - whether the water quality management practices proposed to be carried out as part of the development or activity are sustainable over the long term,

- whether the development or activity is compatible with relevant environmental objectives and water quality standards for the hydrological catchment when these objectives and standards are established by the Government.

In this circumstance the SCA would expect the Statement of Environmental Effects to include a water cycle management study prepared in accordance with clause 11(4)(a) of SEPP 58. In addition the Statement of Environmental Effects should include results of any consultations with the Environment Protection Authority and Department of Infrastructure, Planning and Natural Resources.

A guide to SEPP 58 has been published by the Department of Infrastructure, Planning and Natural Resources and is available on their website.

- **Special Areas Strategic Plan of Management.** This plan was approved by the Minister for the Environment in May 2001 and a copy is available on the SCA's website (www.sca.nsw.gov.au). The Statement of Environmental Effects should assess the degree to which the proposal will be consistent with the achievement of the objectives of the plan. In particular the Statement of Environmental Effects should demonstrate how the proposal would maintain or enhance ecosystem integrity.

The Statement of Environmental Effects will also need to address the draft Regional Plan – *Sustaining the Catchments.*

Regarding the requirement for the landowner to give consent to lodge the development application and the acquisition of land, please correspond directly with the SCA's General Manager Corporate and Property Services at the above address.

If you wish to discuss any matter raised in this letter please do not hesitate to contact Malcolm Hughes on 47252139.

Yours sincerely

LEE MORGAN
Manager Statutory Planning

1/9/03

Our ref: WD3-10-2338
Your ref: 3M3189

NSW Fisheries

17th July 2003

Mr Trent Williams
RTA Operations
PO Box 3035
Parramatta NSW 2124

Dear Trent

Re: Truck Parking Area Picton Road

Officers from NSW Fisheries have assessed the proposal and have no objection to the development, as described in the information provided.

Subject to the following conditions being considered in the REF

1. Assessment of impacts on any aquatic habitats in the proposed area. If there are no impacts on aquatic habitat then there will be no need to refer this matter to NSW Fisheries in the future.

N.B. It is an offence to *dredge/reclaim in any waters and/or affect marine vegetation* without permits from NSW Fisheries. Penalties of up to $55,000 for an individual and/or up to $110,000 for a company or LGA can apply plus full site remediation costs.

For further information, please contact me on 94929432

Yours faithfully

Sarah McGirr
Conservation Manager

HEAD OFFICE
202 Nicholson Parade ~ PO Box 21 CRONULLA NSW 2230
Telephone: (02) 9527 8411 Facsimile: (02) 9527 8576
Website: www.fisheries.nsw.gov.au
ABN 56 287 047 871

Our Ref. ERM03/2394
Your Ref. 3M3189

RECEIVED
BY:.....

Department of Infrastructure, Planning and Natural Resources

Roads and Traffic Authority
Level 5, Pod D
99 Phillip Street
PARRAMATTA NSW 2124

Attention: Trent Williams

Dear Sir

Re: REF Proposed Truck Parking Area - Picton Road

Reference is made to your facsimile dated 7 October 2003 seeking comments from the Department of Infrastructure, Planning and Natural Resources (DIPNR) in relation to the above mentioned proposal.

Erosion and sediment control would be the only minor issue for this Department

The Department acknowledges the appropriate site selection with minimal road and earth works required where the parking area is placed along the old road alignment. Thus there should be a low inherent threat of erosion.

Broad principles of erosion and sediment control should be observed in order to mitigate against potential erosion, sedimentation and other soil landscape related impacts. Erosion and sediment control measures are aimed at minimising the area and length of time that soil is exposed to erosion, conveying run-on and run-off in a non-erosive manner and providing for the collection and containment of sediment. All measures must be properly monitored for their effectiveness and maintained throughout their entire functional life.

The Department includes the former Land and Water Conservation brochure "*Preparing an Erosion and Sediment Control Plan*" outlining land management strategies and engineering structures.

Any queries on any matters raised above should be directed to the Environmental Review Coordinator in Wollongong office on ph: 4224 9612.

Yours sincerely

Marwan El-Chamy
Resource Access Manager
Sydney/South Coast Region
20 October 2003

Appendix D

Results of Database Searches

Register of the National Estate Database

[RNE search | AHC Home | Disclaimer | ©]

Sites within or near 'picton'

Found 12 records:

- **Abbotsford Homestead and Curtilage**, Abbotsford Rd, Picton, NSW (Registered)
- **CBC Bank (former)**, Argyle St, Picton, NSW (Registered)
- **Jarvisfield Group**, Remembrance Dr, Picton, NSW (Registered)
- **Jarvisfield and Stone Barn**, Remembrance Dr, Picton, NSW (Registered)
- **Maldon Bridge**, Wilton Park Rd, Maldon, NSW (Registered)
- **Picton Courthouse**, Argyle St, Picton, NSW (Registered)
- **Picton Post Office (former)**, Argyle St, Picton, NSW (Registered)
- **Picton Railway Station Group**, Station St, Picton, NSW (Indicative Place)
- **Queen Victoria Memorial Hospital**, Thirlmere Way, Thirlmere, NSW (Indicative Place)
- **Razorback Inn**, Remembrance Dr, Picton, NSW (Registered)
- **Stonequarry Creek Railway Viaduct**, Station St, Picton, NSW (Registered)
- **Wilton Park Stables Group**, Wilton Park Rd, Picton, NSW (Registered)

The Register of the National Estate has been compiled since 1976. The Commission is in the process of developing and/or upgrading official statements of significance for places listed prior to 1991.

Report produced : 30/6/2003
RNEDB URL : http://www.ahc.gov.au/register/easydatabase/database.html

[RNE search | AHC Home | Disclaimer | ©]

Listing Heritage Items

State Heritage Inventory Search Results

Statutory Listed Items

Information and items listed in the State Heritage Inventory come from a number of sources. This mean several entries for the same heritage item in the database. For clarity, the search results have been divic

- The first section contains items listed on the State Heritage Register, covered by an Interim Herita under section 130 of the NSW Heritage Act. This information is provided by the NSW Heritage Offi
- The second section contains items listed by Local Councils & Shires and State Government Agenci also contain additional information on some of the items listed in the first section.

Section 1. Items listed under the NSW Heritage Act.

The search results can be resorted by clicking on the **(sort)** option at the top of each column.

Item Name (sort)	Address (sort)	Suburb (sort)	LGA (sort)
Abbotsford	Oaks Road	Picton	Wollondilly
Bargo Railway Viaduct	Main Southern railway	Bargo	Wollondilly
Brownlow Hill Estate	Brownlow Hill Loop Road	Camden	Wollondilly
Cataract Dam	Cataract Dam Road	Cataract Dam	Wollondilly
Cordeaux Dam	Cordeaux River	Cordeaux	Wollondilly
Couridjah Railway Station	Main Southern railway	Couridjah	Wollondilly
Jarvisfield	Hume Hwy Deviation	Picton	Wollondilly
Megarritys Bridge	Warragamba Dam	Warragamba	Wollondilly
Menangle rail bridge over Nepean River	Main Southern railway	Menangle	Wollondilly
Menangle Railway Station group	Main Southern railway	Menangle	Wollondilly
Nepean Dam - Wall & Valve House	Avon Dam Road	Bargo	Wollondilly
Picton Railway Station group	Main Southern railway	Picton	Wollondilly
Picton railway viaduct over Stonequarry Creek	Main Southern railway	Picton	Wollondilly
Tahmoor Railway Station group	Main Southern railway	Tahmoor	Wollondilly
Upper Canal System	From Prospect to Wollondilly		Wollondilly
Victoria Bridge over Stonequarry Creek	Prince Street	Picton	Wollondilly
Warragamba Dam - Haviland Park	Warragamba Dam	Warragamba	Wollondilly
Warragamba Emergency Scheme	Warragamba Dam	Warragamba	Wollondilly

Wilton Park	Wilton Park Road	Maldon	Wollondilly
Wirrimbirra Sanctuary	Hume Highway	Bargo	Wollondilly

There were **20** records in this section matching your search criteria.

Section 2. Items listed by Local Government and State agencies.

Item Name (sort)	Address (sort)	Suburb (sort)	LGA (sort)
Abbotsford Group	Oaks Rd	Picton	Wollondilly
Anglican Church (Former): Cawdor Village Group	Cawdor Rd	Cawdor	Wollondilly
Anglican Rectory	99-103 Argyle St	Picton	Wollondilly
Bellefield	33 Pitt St	Tahmoor	Wollondilly
Blaxlands Crossing; Nepean River		Wallacia	Wollondilly
Blaxlands Farm	Silverdale Rd	Wallacia	Wollondilly
Broughtons Pass Weir		Appin	Wollondilly
Brownlow Hill Aviary	Brownlow Hill Loop Rd	Camden / Brownlow Hill	Wollondilly
Brownlow Hill Garden and Trees	Brownlow Hill Loop Rd	Camden / Brownlow Hill	Wollondilly
Brownlow Hill Group	Brownlow Hill Loop Rd	Camden / Brownlow Hill	Wollondilly
Brownlow Hill Homestead	Brownlow Hill Loop Rd	Camden / Brownlow Hill	Wollondilly
Brownlow Hill Homestead	Brownlow Hill Loop Rd	Camden / Brownlow Hill	Wollondilly
Brownlow Hill Round House	Brownlow Hill Loop Rd	Camden / Brownlow Hill	Wollondilly
Brownlow Hill Stables	Brownlow Hill Loop Rd	Camden / Brownlow Hill	Wollondilly
Bunya Pine	Remembrance Driveway	Tahmoor	Wollondilly
Buxton house	57-59 East Pde	Buxton	Wollondilly
Buxton Primary School	Wallaroo Rd and Norwood Rd	Buxton	Wollondilly
Camden Park Estate Central Creamery	Station St	Menangle	Wollondilly
Camden Park Estate Group	Camden Park Estate	Camden	Wollondilly
Camden Park Garden	Camden Park Estate Rd	Camden	Wollondilly
Camden Park Mansion (The)	Camden Park Estate	Camden	Wollondilly
Camden Park Rotolactor	Station St	Menangle	Wollondilly
Camden Valley Inn	Remembrance Driveway	Camden	Wollondilly
Cataract Dam		(not given)	Wollondilly
Cemetery	Old Southern Rd	Bargo	Wollondilly
Cemetery and Trees	Station St	Thirlmere	Wollondilly

Central Creamery		Menangle	Wollondilly
Charleville	Bents Basin Rd	Wallacia	Wollondilly
Cordeaux Dam and Pumping Station		(not given)	Wollondilly
Cottages (3) on ridge above the orchard	Camden Park Estate	Camden	Wollondilly
Cottages (3) on slope above the orchard	Camden Park Estate Rd	Camden	Wollondilly
Courthouse (Former)	62 Main St	Appin	Wollondilly
Courthouse (former): East Yerranderie Group		Yerranderie	Wollondilly
Courthouse: Commercial & Civic Group	Old Hume Hwy	Picton	Wollondilly
Creamery Site	Cawdor Rd	Cawdor	Wollondilly
Dairy No.4	Camden Park Estate	Camden	Wollondilly
Dairy No.8	Remembrance Dr	Camden	Wollondilly
Dairy No.9	Camden Park Estate	Camden	Wollondilly
Darcy's House (Site of)	Main St	Appin	Wollondilly
Denfield Villa	Old Hume Hwy	Tahmoor	Wollondilly
Elladale	Elladale Rd	Appin	Wollondilly
Fairley Residence (Former)	426 Old Hume Hwy	Picton	Wollondilly
Furniture Store: Commercial & Civic Group	Menangle Rd	Picton	Wollondilly
Gatehouse (former) and Tollkeeper's Cottage	236 Argyle St	Picton	Wollondilly
George IV Inn	Hume Hwy	Picton	Wollondilly
Gilbulla (Anglican Conference Centre)	Moreton Park Rd	Menangle	Wollondilly
Glendiver	Glendiver Rd	The Oaks	Wollondilly
Glenmore House: Glenmore Group	Moores Way	Glenmore	Wollondilly
Hawthorne	Hawthorne Rd	Bargo	Wollondilly
Hermitage Group	Hermitage Rd	The Oaks	Wollondilly
Hotel Bargo	Southern Rd	Bargo	Wollondilly
Hotel Picton (former)	Argyle St	Picton	Wollondilly
House	42 Argyle St	Picton	Wollondilly
House	53 Argyle St	Picton	Wollondilly
House	51 Argyle St	Picton	Wollondilly
House	49 Argyle St	Picton	Wollondilly
House, Slab House and Hayshed	Cawdor Rd	Cawdor	Wollondilly
James Cottage	404 Hume Hwy	Picton	Wollondilly
Jarvisfield Group	Off Rememberance Drive	Picton	Wollondilly
Koorana Homestead & Outbuildings: Koorana Group	Old Hume Hwy	Picton	Wollondilly
Koorana Trees: Koorana Group	off Old Hume Hwy	Picton	Wollondilly

Larkin Cottage	1 Elizabeth St	Picton	Wollondilly
Larkin Cottage	5 Elizabeth St	Picton	Wollondilly
Macquarie House	55 Argyle St	Picton	Wollondilly
Macquarie Monument near Barragal Lagoon	Camden Park Estate	Camden	Wollondilly
Menangle Gate Lodge (Former)	46 Woodbridge Rd	Menangle	Wollondilly
Menangle Store	57 Menangle St	Menangle	Wollondilly
Methodist Church Group	Cawdor Rd	Cawdor	Wollondilly
Mountbatten Garden Building: Mountbatten Group	Duggan St	Douglas Park	Wollondilly
Mountbatten House: Mountbatten Group	Duggan St	Douglas Park	Wollondilly
Mountbatten Stone Chapel: Mountbatten Group	Duggan ST	Douglas Park	Wollondilly
Mowbray Park Group: gatehouse, group of buildings	Barkers Lodge Rd	Mowbray Park	Wollondilly
Mt Hercules Group	Mt Hercules Rd	Razorback	Wollondilly
Mt Hunter Creamery	Burragorang Rd	Mt Hunter	Wollondilly
Myrtle Creek Bridge	Old Hume Hwy	Tahmoor	Wollondilly
National Australia Bank & Coachhouse: Commercial & Civic Grp	23 Menangle St	Picton	Wollondilly
Nepean River Weir		Maldon	Wollondilly
Noakes Store	John St	The Oaks	Wollondilly
Northamptondale Group	Brooks Point Rd	Appin	Wollondilly
Oakdale Timber Mill	Mill Rd	Oakdale	Wollondilly
Oakdale Winery Cottage	Burragorang Rd	Oakdale	Wollondilly
Oaks Schoolhouse (The)	John St/Burragorang St	The Oaks	Wollondilly
Old Coomeroo Homestead: Old Coomeroo Group	Old Southern Rd	Bargo	Wollondilly
Orchard Site including Camellia Garden, trees, piggery and storage shed	Camden Park Estate	Camden	Wollondilly
Pheasants Nest Weir (Nepean River)		Wilton	Wollondilly
Picton cottage	87 Menangle St	Picton	Wollondilly
Picton Loopline Level Crossing Site	Hume Hwy	Picton	Wollondilly
Picton Mainline Railway Loop and Tunnel		Picton	Wollondilly
Picton Urban Conservation Area		Picton	Wollondilly
Picton-Mittagong Loopline & Railway Museum		Thirlmere [via]	Wollondilly
Police Station (former): East Yerranderie Group		Yerranderie	Wollondilly
Post Office: Commercial & Civic Group		Picton	Wollondilly
Queen Victoria Hospital	Thirlmere Way	Thirlmere	Wollondilly

Railway Bridge (hole in the wall)	Argyle St	Picton	Wollondilly
Railway Bridge North of Railway Station	Wellers Rd	Bargo	Wollondilly
Railway Bridge South of Railway Station	Tylers Rd	Bargo	Wollondilly
Railway Station		Menangle	Wollondilly
Railway Station	Bargo St	Couridjah	Wollondilly
Railway Station Complex	Southern Rd	Bargo	Wollondilly
Railway Viaduct	Menangle Rd	Menangle	Wollondilly
Railway Viaduct		Bargo	Wollondilly
Ravenswood	Bents Basin Rd	Wallacia	Wollondilly
Razorback Inn	Hume Hwy/Remembrance Driveway	Picton	Wollondilly
Redbank Range Railway Tunnel		Picton	Wollondilly
Redbank Uniting Church	Hume Hwy	Picton (Redbank)	Wollondilly
Robert Moore's House: Glenmore Group	Moores Way	Glenmore	Wollondilly
Rockford Crossing	Remembrance Dr	Picton	Wollondilly
Rogers Stone Cottage	402 Old Hume Hwy	Picton (Redbank)	Wollondilly
Roman Catholic Church: East Yerranderie Group		Yerranderie	Wollondilly
Sarahville	Bents Basin Rd	Wallacia	Wollondilly
Schoolmasters Residence	Main Rd	Appin	Wollondilly
Silky Oaks: Glenmore Uniting Church Group	Lot 21 Moores Way	Glenmore	Wollondilly
Slab Hut & Trees	470 Cawdor Rd	Cawdor	Wollondilly
St Aloysius Church	Merlin St	The Oaks	Wollondilly
St Aloysius Presbytery	Merlin St	The Oaks	Wollondilly
St Aloysius Presbytery (Old)	Merlin St	The Oaks	Wollondilly
St Aloysius Roman Catholic Church Group	Merlin St	The Oaks	Wollondilly
St Aloysius Schoolhouse	Merlin St	The Oaks	Wollondilly
St Bedes Roman Catholic Church and graveyard	King St	Appin	Wollondilly
St James Anglican Church	Menangle Road	Menangle	Wollondilly
St James Anglican Church	Menangle Rd	Menangle	Wollondilly
St Lukes Anglican Church	Argyle Street	Wilton	Wollondilly
St Lukes Anglican Church and Trees	Merlin St	The Oaks	Wollondilly
St Marks Anglican Church: St Mark the Evangelist Group	Bulli Rd	Appin	Wollondilly
St Marks Anglican Church: St Marks Anglican Group	Menangle St West	Picton	Wollondilly
St Marks Graveyard: St Mark the Evangelist Group	Bulli Rd	Appin	Wollondilly
St Marks Rectory (Former): St Mark the			

St Marks Rectory (Former): St Mark the Evangelist Group	5 Glebe Cl	Appin	Wollondilly
St Marys Towers	Mt Kiera Rd	Douglas Park	Wollondilly
St Matthews Church: St Mathews Group	Old Oaks Road	The Oaks	Wollondilly
St Patricks Roman Catholic Church	Menangle St	Menangle	Wollondilly
Stone Cottage	Main St	Appin	Wollondilly
Stone Culverts		Couridjah	Wollondilly
Stonequarry Creek Bridge piers	Hume Hwy/Argyle St	Picton	Wollondilly
Stonequarry Creek Quarry Site		Picton	Wollondilly
Stratford House	Old Hume Hwy	Tahmoor	Wollondilly
Suspension Bridge (Nepean River)	Wilton Park Rd	Maldon	Wollondilly
Tahmoor House	Old Hume Hwy	Tahmoor	Wollondilly
Theresa Park Church	Taylor Pl	Theresa Park	Wollondilly
Thirlmere House	Burns Rd	Thirlmere	Wollondilly
Thirlmere Public School: Thirlmere School Group	Oaks St	Thirlmere	Wollondilly
Thirlmere Pumping Station		Couridjah	Wollondilly
Thirlmere Urban Conservation Area	Thirlmere Way	Thirlmere	Wollondilly
Union Revived Inn (Former)	Main St/Appin Rd	Appin	Wollondilly
Uniting Church Group	Moores Way	Glenmore	Wollondilly
Upper Canal Water Supply System		(not given)	Wollondilly
Vault Hill Cemetery	Remembrance Driveway	Picton	Wollondilly
Victorian House	Menangle St West	Picton	Wollondilly
Warragamba Dam		Warragamba	Wollondilly
Weatherboard Shop (Former)	20 Main St	Appin	Wollondilly
Wellington Park Iceworks Site	Rays Lane	Mowbray	Wollondilly
Wendover House	83 Menangle St	Picton	Wollondilly
Wilton Park Stables Group	Wilton Road	Wilton	Wollondilly
Windmill Hill House Ruin	Wilton Road	Appin	Wollondilly
Wirrimbirra Sancturary		Bargo	Wollondilly
Wollondilly Shire Offices: Commercial & Civic Group	Menangle Rd	Picton	Wollondilly
Wooden Mile Post	Razorback Rd	Razorback	Wollondilly
Yerranderie Silver Mining Field and Settlement		Yerranderie	Wollondilly

There were **157** records in this section matching your search criteria.

There was a total of **177** records matching your search criteria.

Kev:

Note: The Heritage Office seeks to keep the State Heritage Inventory (SHI) up to date, ho listings in Local and Regional Environmental Plans (LEPs and REPs) may not yet be include with the relevant Local Council or Shire for the most recent listings.

Site Location:	Alkoomie Pl near Wilton
Map Reference:	AMG Grid Reference 289394E, 6205695N; Longitude 150.712437, Latitude -34.268468; WOLLONGONG (9029) 1:100,000 sheet
Profile Details:	Wollongong II NHT Survey, Profile 18, collected by Andrew Macleod on November 18, 2002
Physiography:	woodland shrub u'storey on shale,sandstone-quartz lithology. Slope 2% (measured), elevation 312 m, aspect west. Surface condition is hard set, profile is imperfectly drained, erosion hazard is slight, and no salting evident
Soil Type:	Mottled Red Kurosol (ASC), Red Podzolic Soil(GSG)
Profile Field Notes:	Some influence on soil conditions by fine sandstones + fragments. (Lucas Height SL). A1 absent.

Soil Description:

Layer 0	
Layer 1 00.00 - 00.35 m A2 Horizon	clay loam with massive structure(earthy), common (10-25/10x10cm) roots (<1mm), few (1-10/10x10cm) roots (1-2mm), field pH is 5.5. Layer notes are A1 absent.; smooth clear (20-50 mm) boundary to ...
Layer 2 ? - 00.70 m B2 Horizon	clay with moderate pedality(sub-angular blocky, 10-20 mm, rough-faced peds), none roots (<1mm), none roots (1-2mm), field pH is 4.5. Coarse fragments are few (2-10%), as parent material, fine gravel (2-6 mm),gravel (6-20 mm); gradual (50-100 mm) boundary to ...
Layer 99 00.80 m	highly weathered rock shale,sandstone-quartz

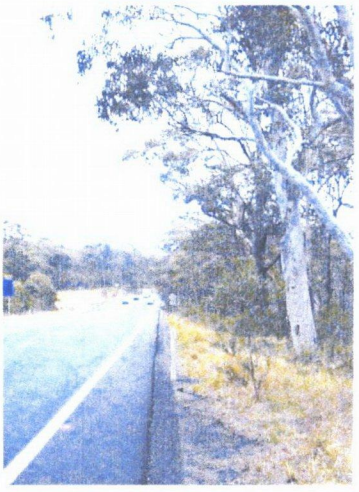
Laboratory Test Data:

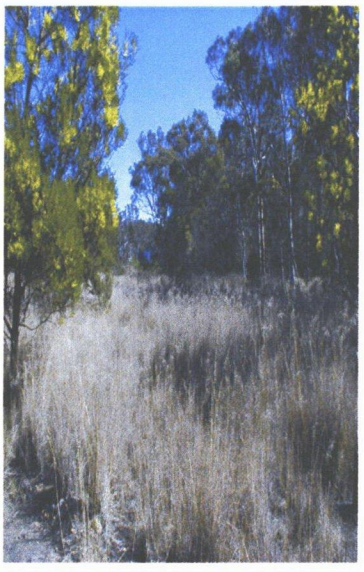
Upper Bound	Lower Bound	% Clay	USCS	PH	EC	OC	Bray P	P Sorbt	Exch Al	Exch Ca	Exch K	Exch Mg	Exch Na

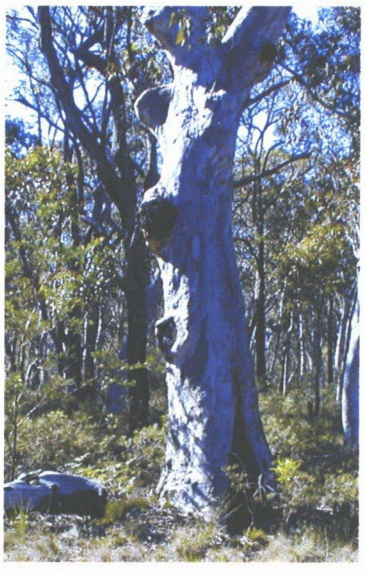
For information on laboratory test data and units of measure, please see the SPADE Help page

Appendix E

Specialist Studies







RTA Truck Parking Area
Picton Road, NSW

Archaeological Survey for Aboriginal Sites

September 2003

A Report to RTA Operations

Navin Officer

heritage consultants Pty Ltd

acn: 092 901 605

102 Jervois St.
Deakin ACT 2600

ph 02 6282 9415
fx 02 6282 9416

TABLE OF CONTENTS

1. SUMMARY **1**

2. INTRODUCTION **2**

2.1 The Proposed Development and Study Area 2
2.2 Report Outline 2

3. STUDY METHODOLOGY **4**

3.1 Review of Existing Documentation 4
3.2 Field Survey 4

4. ENVIRONMENTAL CONTEXT **4**

4.1 Environmental Setting 4
4.2 Previous Land Use and Level of Disturbance 5

5. ABORIGINAL CONSULTATION **5**

5.1 Project Participation 5
5.2 Native Title Claims 5

6. ARCHAEOLOGICAL CONTEXT **6**

6.1 Regional Overview 6
6.2 Site Location Criteria 7
6.3 Previously Recorded Sites 7

7. SURVEY RESULTS **10**

7.1 Aboriginal Sites 10
7.2 Landscape Sensitivity Assessment 10
7.3 Survey Coverage and Visibility Variables 10

8. STATUTORY INFORMATION **13**

8.1 The National Parks and Wildlife Act 1974 13
8.1.1 General Management Constraints and Requirements *14*
8.2 The National Parks and Wildlife Amendment Bill 2001 14
8.3 Statutory constraints arising from artefacts which constitute background scatter .. 15
8.4 Native Title Act, 1993 16

9. RECOMMENDATIONS **18**

10. REFERENCES **19**

APPENDIX 1: RECORD OF ABORIGINAL PARTICIPATION **21**

APPENDIX 2: NATIVE TITLE CLAIM INFORMATION **26**

1. SUMMARY

- The NSW Roads and Traffic Authority proposes to construct a formalised Truck Parking Area on Picton Road, approximately three kilometres northwest of the Cordeaux Dam turnoff.
- The subject area comprises approximately 1.1 hectares directly to the north of Picton Road, and includes an old airstrip.
- An archaeological survey for Aboriginal sites was undertaken within the area in August and September 2003.
- No previously recorded Aboriginal sites are known to occur in the proposed truck parking area. Site types in the surrounding area include axe grinding grooves, rock shelters with art, and isolated finds.
- No Aboriginal sites, relics or areas of archaeological potential were identified in the course of a field inspection of the proposed truck parking area.
- The archaeological sensitivity of the subject area is rated as low.
- It is recommended that:

  There are no Aboriginal archaeological heritage constraints on the development of the subject land as a proposed truck parking area.

2. INTRODUCTION

2.1 The Proposed Development and Study Area

The NSW Roads and Traffic Authority (RTA) proposes to construct a formalised truck parking area on the northern side of Picton Road, approximately three kilometres northwest of the Cordeaux Dam turnoff (Figure 1). The proposed development would involve the construction of a parallel parking lane offset approximately 15 metres from the existing eastbound travel lane. The parking area would take up approximately 1.1 hectares of RTA road reserve and Sydney Catchment Authority land.

It is anticipated that the proposed construction would include:

- clearing of vegetation;
- ripping and grubbing earthworks;
- road construction; and
- landscaping works.

This report documents the results of an archaeological assessment of the proposed truck parking area. The report was commissioned by the NSW Roads and Traffic Authority

The archaeology study for the truck parking area was conducted in two stages. An area located slightly northwest and immediately adjacent to the area under consideration in this report was assessed in August 2003. An environmental issue relating to the initial area necessitated the re-location of the proposed parking area a short distance to the southeast. However a portion of the area that was initially assessed in August (an abandoned airstrip) is included in this present study.

2.2 Report Outline

This report:

- Describes the methodology used in this study.
- Describes the environmental setting of the study area.
- Provides a review of Aboriginal archaeology relevant to the region and local area.
- Documents consultation with local representative Aboriginal groups conducted in the course of the study.
- Discusses the potential impact of landuse practices on the archaeological record in the subject area.
- Describes the results of a field survey of the subject area.
- Provides an assessment of the archaeological sensitivity of the subject area.

2.3 Project Personnel

This study was conducted by Tom Knight. The field survey was undertaken by archaeologists Tom Knight and Rebecca Parkes. The archaeologists were accompanied in the field by Aboriginal representatives Rebecca Chalker (Cubbitch Barta) and Lance Syme (TLALC).

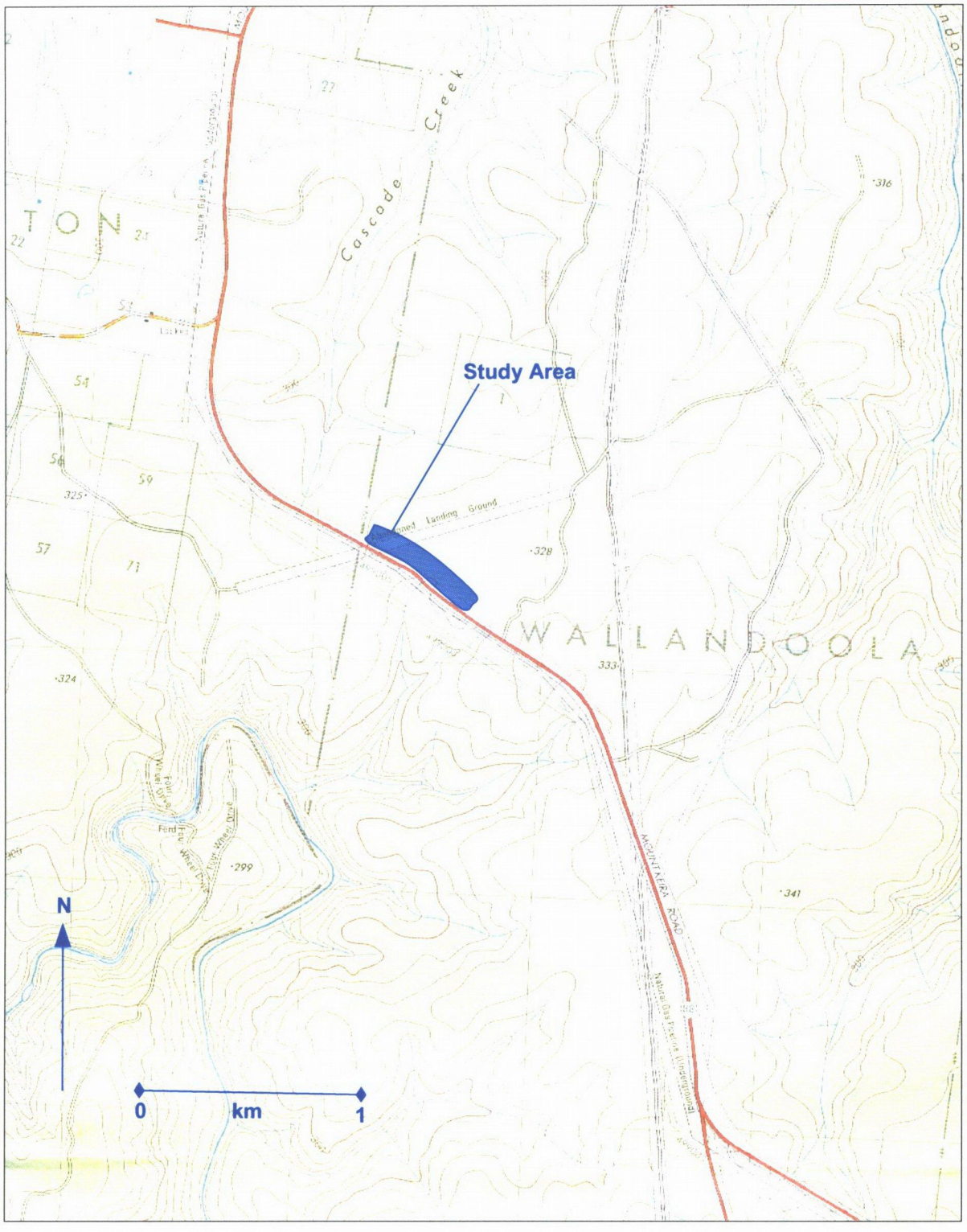


Figure 1 Location of the proposed truck parking area on Picton Road
(Bargo 1:25,000 topographic map 2nd edition)

3. STUDY METHODOLOGY

3.1 Review of Existing Documentation

A range of documentation was used in assessing the state of archaeological knowledge for the proposed truck parking area and the surrounding region. Literature sources included the NSW National Parks and Wildlife Service Register of Aboriginal Sites (Aboriginal Heritage Information System), associated files and catalogue of archaeological reports.

This background research was used to determine if known Aboriginal sites were located within the areas under investigation, to facilitate site prediction on the basis of known regional and local site patterns, and to place the areas within an archaeological and research management context.

3.2 Field Survey

The subject area was examined on foot. Survey was conducted across the entire development area and adjacent areas of bushland.

4. ENVIRONMENTAL CONTEXT

4.1 Environmental Setting

The study area is situated within the raised and bisected sandstone plateau that forms part of the structural geological unit termed the Woronora Ramp. The plateau consists predominantly of Hawkesbury Sandstone and extends to the west of the Illawarra Range and escarpment, forming an elevated extension of the Illawarra coastal hinterland. The ramp dips gradually to the north and west and can be seen as a continuation of the coastal zone with a gradual decline in ridgetop elevation from the inland upper valleys to the coastal flats around Port Hacking.

The topography of the Ramp is typified by a low relief plateau landscape and broad ridgetop complexes intersected by narrow and steep sided downcut river valleys that drain to the northwest. The Hawkesbury Sandstone can sustain steep slopes and the combination of weaker bedding planes and continental uplift has created a deeply incised plateau.

Outcrops of massive sandstone are present on ridge tops and within river, creek and tributary corridors as cliff lines, blocks and horizontal outcrops. Quartz and laterite pebbles occur in some of the sandstone outcrops and in soil deposits derived from the Hawkesbury sandstone. Shale and ironstone lenses also occur within bedding plane disconformities in the sandstone.

The soils derived from the Hawkesbury Sandstone are sandy and relatively infertile (Walker 1960).

At the local scale, the study area constitutes part of a broad ridge feature separating the catchments of the Cordeaux River and Wallandoola Creek. Local topography is generally amorphous, near level terrain exhibiting few sandstone outcrops. The ridge is drained to the southwest by a number of small tributary creeks to the Cordeaux River, and to the north and east by a series of creeks draining into Cascade and Wallandoola Creeks. The upper reaches of one of these tributary streams is located in the study area, however the stream here is small and ephemeral.

Mills (1989 in Sefton 1990) has broadly described the vegetation of Hawkesbury Sandstone of the Woronora Plateau. Vegetation on the lower valley slopes and valley bottoms is typified by an open forest or woodland community to about 25 m height. On the ridgetops and ridgesides near plateau level vegetation is a complex of heathland, woodland and open woodland. The shrub layer is usually dense and often impenetrable.

4.2 Previous Land Use and Level of Disturbance

Previous land use in the study area has resulted in considerable levels of disturbance to the local landscape. Primary impacts relate to the construction of a landing ground on the ridge top several decades ago. The landing ground comprises a cleared and levelled strip approximately 1500 x 100 m, in a north east/south west alignment. Part of this feature occupies approximately 20% of the study area. Disturbance evident includes vegetation clearance, levelling and subsequent ripping (rehabilitation) of parts of the ground in more recent times. Other parts of the study area show signs of having been subject to earthworks such as grading and relocation of soil.

5. ABORIGINAL CONSULTATION

5.1 Project Participation

The study area is located within the boundaries of the Tharawal Local Aboriginal Land Council (TLALC) and the area of custodial interest of the Cubbitch Barta Native Title Claimant's Corporation. These groups were contacted prior to the fieldwork and representatives were invited to participate in the survey.

Subsequently Mr Lance Syme, representing the TLALC, and Ms Rebecca Chalker, representing the Cubbitch Barta Native Title Claimant's Corporation, assisted in the field inspection of the truck parking area.

Records of Aboriginal Participation are provided in Appendix 1.

5.2 Native Title Claims

A search lodged with the National Native Title Tribunal reveals no existing claims within the study area. The nearest claims within Wollondilly Shire include *Gundungurra Number 6* and four discontinued claims filed by the Cubbitch Barta Native Title Aboriginal Claimants Corporation (Appendix 2).

6. ARCHAEOLOGICAL CONTEXT

6.1 Regional Overview

The Illawarra region borders the Pacific Ocean 80 km south of Sydney. It consists of a plateau section (the Woronora Plateau), a cliff-lined escarpment and a coastal plain that extends from north of Coalcliff to Durras Lake in the south. The region falls into the tribal area delineated by Tindale (1974) as Wodi Wodi, an area which extends from Wollongong to north of the Shoalhaven River, and west as far as Picton, Marulan and Moss Vale. Eades (1976) defines the language spoken by Wodi Wodi as Dharawal.

The proposed truck parking area is located on the Woronora Plateau. Numerous Aboriginal archaeological sites have been recorded in this landscape unit, the majority by the Illawarra Prehistory Group (IPG). This amateur group has been systematically surveying and recording Aboriginal sites associated with rock surfaces along a number of major tributaries of the Cataract and Cordeaux Rivers since the late 1970s. These include Cascade Creek, Wallandoola Creek, Lizard Creek, Back Gully, Myrtle Creek, Cordeaux Creek and Wattalli Creek, as well as areas further to the north and south such Darkes Forest, the O'Hares Creek catchment and the Woronora River (Sefton 1980, 1988, 1989, 1990a).

At least 1400 Aboriginal sites have been recorded in the area of the Woronora Plateau encompassed by the Georges River, Cataract River, Avon River, Nepean River and Cordeaux River (932/km^2). Both site numbers and site densities decrease from north to south. Site density is greatest in the Woronora (4.9/km^2) and O'Hares (3.8/km^2) catchments, while site density in the Cataract (1.4/km^2), Cordeaux (0.9/km^2) and Avon (1.9/km^2) catchments is less.

Shelter sites containing art are the most frequent site types, followed by grinding groove sites. Open campsites, engraved art sites, stone arrangements and scarred trees are each of very low frequency.

Surveys in the general vicinity of the present study area have been carried out by the Illawarra Prehistory Group, Sefton (1993a, 1993b), Kuskie, Navin & Officer (1995), Officer (1996), Saunders (1998b, 1998c) and Navin Officer Heritage Consultants (1999a, 1999b, 1999c, 2000, 2001).

Saunders (in QEM 1994a, QEM 1994b, QEM 1994c and 1993, 1997a and b, 1998a-g) surveyed a number of areas in the Avon, Appin and Cordeaux area which were under consideration variously as seismic testing locations (lines and boreholes), waste water and gas pipelines, and access tracks.

In 1993, Sefton conducted archaeological research relating to Aboriginal sites occurring in the vicinity of proposed longwall mining areas for Cordeaux Colliery (Part Area 4). A total of twenty sites was identified including grinding groove sites, rock shelters with PAD, archaeological deposit and surface artefacts, rock shelters with art and a stone arrangement site (Sefton 1993a, 1993b). These sites were found primarily in association with sandstone outcrops on the steeper slopes and drainage lines in and around Wallandoola Creek and its tributaries.

In 1995 Officer surveyed an area of mostly low gradient upper and middle slopes on a small spurline on the western side of Lake Cataract. No permanent water sources were observed in the study area and no sites were located (Officer 1995). A survey carried out by Officer in 1996 at a proposed borehole location on upper ridgeline slopes found no archaeological sites. Surface visibility conditions were excellent for this latter survey (Officer 1996).

In 1995, Saunders surveyed areas that were to be impacted by three proposed survey lines located east and west of Lake Cataract on the lake-side spurs (Saunders 1995a).

No sites were located in 1998 when three borehole sites and an access track were surveyed on the western side of Lake Cataract, on the spurline surveyed for proposed survey lines in 1995 (Saunders 1995b). No sites were located (Saunders 1998f).

In 1999 Navin Officer Heritage Consultants surveyed lower to upper spur slopes above the western shore of Lake Cataract approximately 500 metres north of Saunders' (1995a) survey area, and a four

kilometre long area adjacent to the north lake shoreline for proposed longwall mining areas. A previously recorded rock art site was relocated in the 70 ha survey (Navin Officer Heritage Consultants 1999a).

Five previously unrecorded sites and two previously recorded sites were located/re-located during an archaeological survey for Aboriginal sites within Cordeaux proposed longwall mining areas 29, 30, 31 and 32, along a proposed pipeline route, and at the Kemira Tunnel bore hole (Navin Officer Heritage Consultants 1999b). The survey area included approximately 366 ha of incised plateau in the upper Cordeaux, Wallandoola and Lizard Creek catchment areas to the south of the present study area. No sites were located in the course of a supplementary survey of 25 ha directly west of the Picton Road-Mount Keira Road intersection (Navin Officer Heritage Consultants 1999c).

In 2000 Navin Officer Heritage Consultants surveyed an area of approximately 86 ha on spur slopes above the western shore of Lake Cataract, south of Officer (1995), Saunders (1995a, 1998f) and Navin Officer (1999a). Four sites previously recorded by the Illawarra Prehistory Group in the early 1980s were re-located and two previously unrecorded sites, a rock shelter with art and deposit and a rock shelter with art, were located during the survey.

In 2001 a survey was conducted within a proposed 640 ha mining area which was located on a broad ridgeline between two tributaries of the Cataract River - Wallandoola Creek to the west and Lizard Creek to the east. The area included a section of each of these creeks and a number of their tributaries. Most of the study area was located on broad ridge crests and low gradient upper ridgeline slopes. Four previously recorded sites (two rock shelters with art, one rock shelter with art and occupation deposit and one grinding groove site) were known to occur in the study area. These sites were re-located and five previously unrecorded sites (a rock shelter with art, a rock shelter with art and PAD, a rock shelter with art and occupation deposit, a grinding groove site and an isolated find) were located during the survey (Navin Officer Heritage Consultants 2001).

6.2 Site Location Criteria

A characteristic suite of Aboriginal site types occurs within the sandstone topographies of the Woronora Ramp. The majority of these sites are rock shelters with art and/or occupation deposits, open grinding groove sites, and engraving sites on open rock platforms.

A regional pattern of site distribution indicates that sites are most likely to occur in particular topographic units. These include ridgelines that are postulated to have provided easy through-access to the resources offered by the rivers, and along both major and minor tributaries to the rivers. Movement may have been facilitated by the burning off of vegetation, and the regular use of defined trackways. There is also a high probability of sites being located in areas where sandstone has weathered to form shelters and where fine-grained sandstone (suitable for grinding purposes) occurs in proximity to water sources (Sefton 1988, Navin 1991b, Officer 1992).

Rock shelters with art and/or occupation deposits are unlikely to occur on ridge crests, where water is generally scarce and shelters are unlikely to form.

Ceremonial grounds, indicated by engraving sites or stone arrangements, appear to have been located in more remote, elevated areas such as ridgelines. Sites may also be expected near any source of raw material.

6.3 Previously Recorded Sites

A search of the NPWS AHIMS Register indicates that no previously recorded sites occur within the study area.

Six Aboriginal site recordings are located within one kilometre of the subject area. They include an axe grinding groove, a shelter with art, and four isolated finds (Table 1 and Figure 2). Five of the sites are listed on the NPWS Site Register. One of the isolated finds, Picton Road 1 (PR1), was located in the context of field survey for the area which was initially being considered for the truck parking area on Picton Road. With the re-location of the preferred area the isolated find PR1 is no longer located

in the proposed truck parking area. The description of PR1 is included in this report for information purposes only.

Picton Road 1 (PR1)

This recording constitutes a single stone flake located at the base of an old *Eucalypt* approximately 12 metres from the edge of Picton Road, and approximately 25 metres (bearing 210°) from a nearby 'BDY (ANGLE)' peg. (Plate 1 and Figure 2). An injured wildlife awareness sign on the westbound lane is directly opposite the recording.

The artefact is a grey silcrete flake with dimensions 30 x 25 x 7 mm and is evident on the surface of a gravelly exposure at the base of a distinctive tree with a hollow base. Local deposit is thin and gravelly, with low potential to contain *in situ* cultural material. Visibility in the area is generally low. Inspection of a number of comparable exposures nearby revealed no additional artefactual material.

Plate 1 Location of isolated artefact PR1, viewed from the west.
The artefact is located at the base of the hollow tree.

Table 1: Aboriginal Sites located within one kilometre of the proposed truck parking area

NPWS site number/name	Site type	AMG reference
52-2-1458	axe grinding groove	291100.6202580
52-2-1468	shelter with art	289850.6202710
52-2-1884	isolated find	291140.6202860
52-2-2114	isolated find	290526.6203248
52-2-2117	isolated find	289534.6203909
Picton Road 1	isolated find	290039.6203607(GPS)

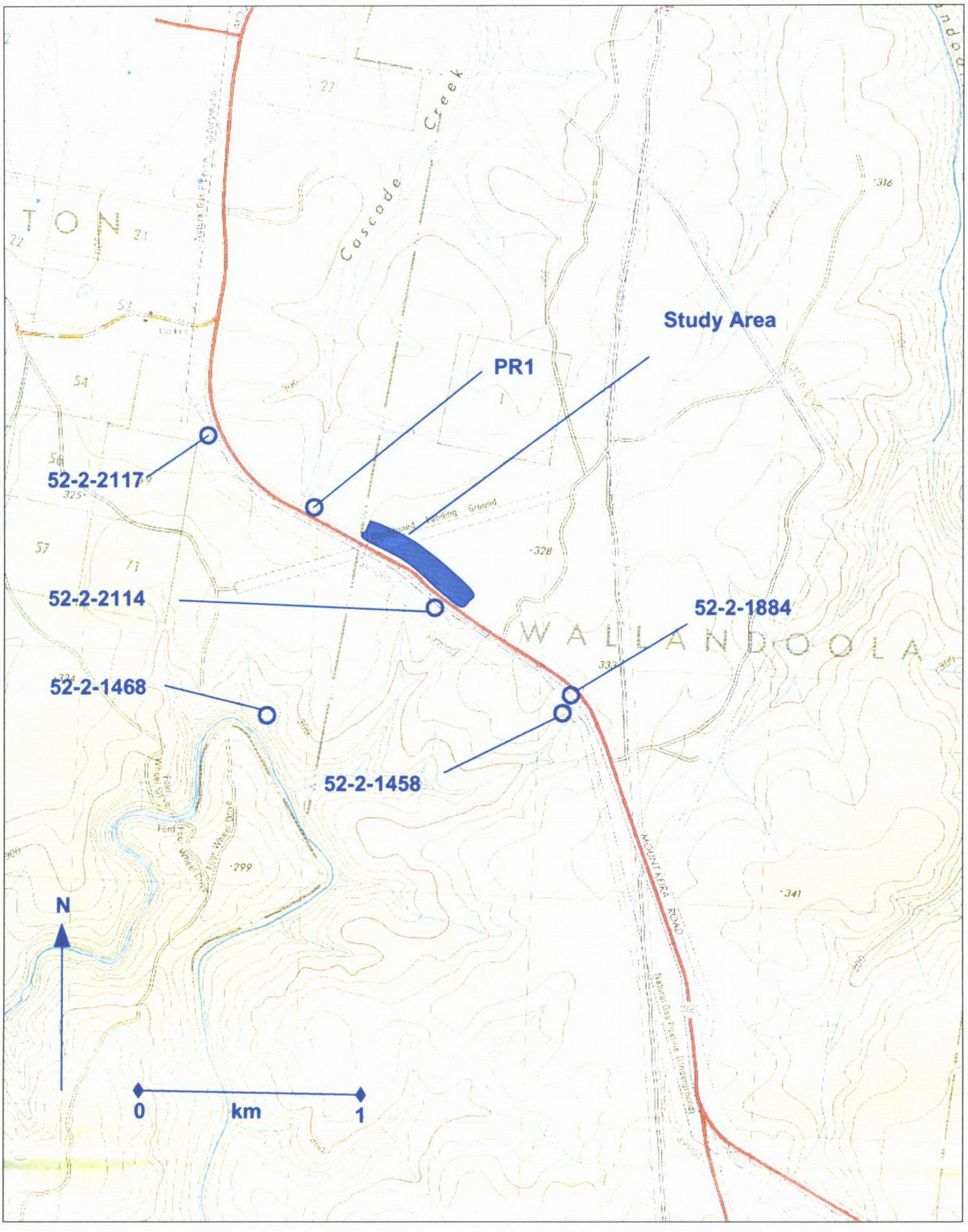


Figure 2 Location of previously recorded sites within one kilometre of the study area.
(Bargo 1:25,000 topographic map 2nd edition)

7. SURVEY RESULTS

7.1 Aboriginal Sites

No Aboriginal sites, relics, or areas of archaeological potential were identified in the course of the field survey of the proposed truck parking area.

7.2 Landscape Sensitivity Assessment

The archaeological sensitivity of the study area is rated as low. Local terrain constitutes amorphous, generally flat plateau topography with no natural 'routeways' or other landscape features conventionally associated with concentrated hunter-gatherer movement or other activities. Only one small ephemeral drainage line is present in the area. Soils in the area are thin and sandy, with appreciable disturbance from shallow grading and relocation of deposit evident across much of the area. The potential for undisturbed cultural material to occur within local deposits is therefore considered low.

No sandstone outcrops exhibiting requisite characteristics for other Aboriginal site types, such as habitable rock shelters, grooves or engravings, are apparent in the area.

7.3 Survey Coverage and Visibility Variables

The effectiveness of archaeological field survey is to a large degree related to the obtrusiveness of the sites being looked for and the incidence and quality of ground surface visibility. Visibility variables were estimated for all areas of comprehensive survey within the study area. These estimates provide a measure with which to gauge the effectiveness of the survey and level of sampling conducted. They can also be used to gauge the number and type of sites that may not have been detected by the survey.

Ground surface visibility is a measure of the bare ground visible to the archaeologist during the survey. There are two main variables used to assess ground surface visibility, the frequency of exposure encountered by the surveyor and the quality of visibility within those exposures. The predominant factors affecting the quality of ground surface visibility within an exposure are the extent of vegetation and ground litter, the depth and origin of exposure, the extent of recent sedimentary deposition, and the level of visual interference from surface gravels. Two variables of ground surface visibility were estimated during the survey:

- a percentage estimate of the total area of ground inspected which contained useable exposures of bare ground
- a percentage estimate of the average levels of ground surface visibility within those exposures. This is a net estimate and accounts for all impacting visual and physical variables including the archaeological potential of the sediment or rock exposed.

The obtrusiveness of different site types is also an important factor in assessing the impact of visibility levels. Sites based on rock exposures, such as rock shelters, open engravings and grinding grooves are more likely to be encountered than sites with no surface relief located on, or within, sedimentary matrices. Rock platform sites are still subject to visibility constraints in the form of obscuring ground litter, flood debris and sedimentation, however, rock shelters are less likely to go uninspected. The inspection rate of rock shelters is likely to be 100% in a comprehensive survey, however the extent of leaf litter and recent sediment on a rock shelter floor may be an important factor in a recorder's ability to detect either a site, or simply a potential archaeological deposit.

In another example, artefacts made from locally occurring rock such as quartz may be more difficult to detect under usual field survey conditions than rock types that are foreign to the area. The impact of natural gravels on artefact detection was taken into account in the visibility variables estimates outlined above.

The natural incidence of sandstone platforms suitable for grinding grooves or engraving, together with the incidence of old growth trees, are important considerations in identifying both survey effectiveness and site location patterns outside of environmentally determined factors.

Table 2 summarises estimates for the degree to which separate landforms within the study area were examined and also indicates the exposure incidence and average ground visibility present in each case. A total of 100% of the ground area in the study area was inspected during the survey, with 15.45% providing useable archaeological exposures. A graphic approximation of the surface survey coverage achieved within the study area is shown in Figure 3.

Taking into account survey coverage, archaeologically useable exposures, and visibility variables, the effective survey coverage (ESC) was 3.95% of the total survey area. The ESC attempts to provide an estimate of the proportion of the total study area that provided a net 100% level of ground surface visibility to archaeological surveyors.

The ESC calculation is defined and required by the NPWS and stated to be of use in assessing and cross comparing the adequacy of archaeological surface surveys. The actual utility of the ESC calculation however is challenged by many archaeologists. The limitations of the ESC calculation are emphasised by differences in the subjective assessment of exposure and visibility levels, variations in how survey units are defined and measured, and differences in how and which variables are estimated and combined. In reality, ESC results tend only to be meaningful when compared across surveys conducted by the same surveyors and ESC measurers.

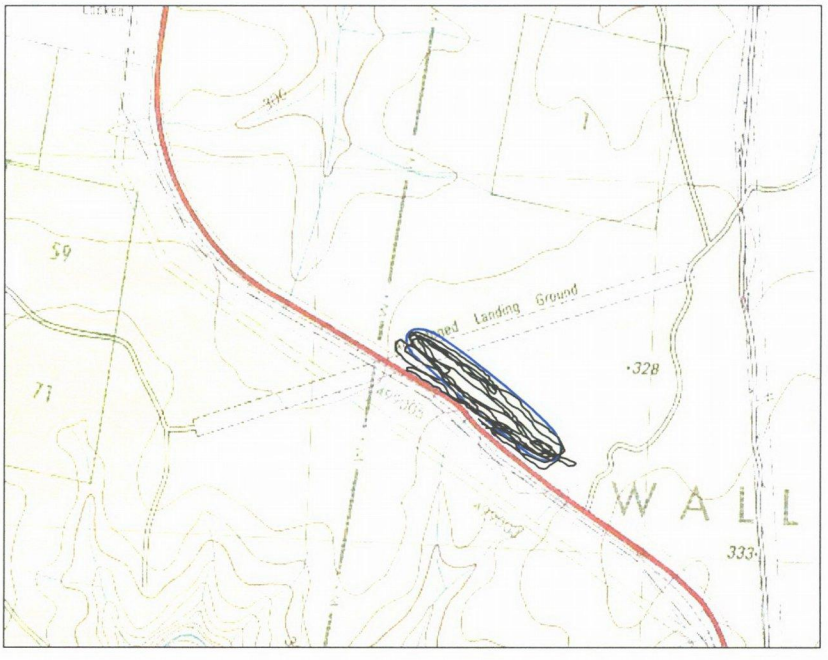


Figure 3 A graphic approximation of the surface survey coverage achieved within the study area.
(Bargo 1:25,000 topographic map 2nd edition)

Table 2: Survey Coverage Data

Survey division	*Survey unit*	*Landform*	*Survey mode*	*Main exposure types*	*Unit area (ha)*	*Proportion of unit surveyed*	*Exposure incidence %*	*Average exposure visibility %*	*Net effective exposure (ha)*	*Effective survey coverage of survey unit %*	*Archaeological recordings*
1	a	ridge/plateau top	foot	graded surfaces, bare patches	1	100	15	25	0.0375	3.75	
	b	drainage line and banks	foot	eroded edges, wombat digging	0.1	100	20	30	0.006	6	
Totals					***1.1***	***100***			***0.0435***	***3.95***	

8. STATUTORY INFORMATION[1]

8.1 The National Parks and Wildlife Act 1974

The following summary is based on:

- the provisions of the current National Parks and Wildlife Act 1974 (as amended). It should be noted that amendments to this Act were passed by both houses of the NSW State Government in 2001 (no.130, assented 19/12/2001). A small number of these amendments were proclaimed on 1 July 2002. It is anticipated however, that the majority of the amendments will become law sometime in 2003; and

- NPWS policy as presented in the 1997 Standards and Guidelines Kit for Aboriginal Cultural Heritage provided by the NSW NPWS, and as communicated orally to the consultants on a periodic basis. The 1997 Standards and Guidelines Kit is currently under review and subject to change in the near future.

The guideline documents presented in the 1997 Standards and Guidelines Kit were stated to be working drafts and subject to an 18 months performance review. The Standards Manual was defined not to be a draft and subject to periodic supplements.

The National Parks and Wildlife Act 1974 (as amended) provides the primary basis for the legal protection and management of Aboriginal sites within NSW. The implementation of the Aboriginal heritage provisions of the Act is the responsibility of the NSW National Parks and Wildlife Service.

The rationale behind the Act is the prevention of unnecessary or unwarranted destruction of relics, and the active protection and conservation of relics that are of high cultural significance.

With the exception of some artefacts in collections, or those specifically made for sale, the Act generally defines all Aboriginal artefacts to be 'relics' and to be the property of the Crown. The Act then provides various controls for the protection, management and destruction of these relics.

A 'relic' is defined as

> 'any deposit, object or material evidence (not being a handicraft made for sale) relating to indigenous and non-European habitation of the area that comprises New South Wales, being habitation both prior to and concurrent with the occupation of that area by persons of European extraction' [Section 5(1)].

In practice, archaeologists tend to subdivide the legal category of 'relic' into different site types which relate to the way artefacts are found within the landscape. The archaeological definition of a site may vary according to survey objectives, however a site is not recognised or defined as a legal entity in the Act. It should be noted that even single and isolated artefacts are protected as relics under the Act.

Generally it is an offence to do any of the following without a Permit from the Director-General of the NPWS under Section 87: disturb or excavate any land for the purpose of discovering a relic; disturbing or moving a relic; take possession of or removing a relic from certain lands; and erecting a building or structure to store relics on certain land (Section 86). The maximum penalty is $11,000 for individuals and $22,000 for corporations. Section 175B outlines circumstances where corporation directors may be taken to have contravened these provisions, based on the acts or omissions of that Corporation.

---

[1] The following information is provided as a guide only and is accurate to the best knowledge of Navin Officer Heritage Consultants. Readers are advised that this information is subject to confirmation from qualified legal opinion.

Consents regarding the use or destruction of relics are managed through a NPWS system of Permits and Consents under the provisions of Sections 87 and 90 of the Act. The processing and assessment of Permit and Consent applications is dependent upon adequate archaeological review and assessment, together with an appropriate level of Aboriginal community liaison and involvement (refer Standards for Archaeological Practice in Aboriginal Heritage Management in 1997 NPWS Standards and Guidelines Kit).

The Minister may declare any place which, in his or her opinion, is or was of special Aboriginal significance with respect to Aboriginal culture, to be an Aboriginal place (Section 84). The Director-General has responsibility for the preservation and protection of the Aboriginal place (Section 85). An area declared to be an Aboriginal place may remain in private ownership, or be acquired by the Crown by agreement or by a compulsory process (Section 145).

The Director General may make an interim protection order and order that an action cease where that action is, or is likely to, significantly affect an Aboriginal object of Aboriginal place. Such an order is current for 40 days (Section 91AA, Schedule 3[10]). Such an order does not apply to certain actions, such as where they are in accordance with development consents or emergency procedures.

8.1.1 General Management Constraints and Requirements

The Act, together with the policies of the NPWS provide the following constraints and requirements on land owners and managers:

- it is an offence to knowingly disturb an Aboriginal artefact or site without an appropriate permit or consent (Section 90);

- prior to instigating any action which may conceivably disturb a 'relic' (this generally means land surface disturbance or felling of mature trees), archaeological survey and assessment is required (refer Standards for Archaeological Practice in Aboriginal Heritage Management in 1997 NPWS Standards and Guidelines Kit).

- when the archaeological resource of an area is known or can be reliably predicted, appropriate landuse practices should be adopted which will minimise the necessity for the destruction of sites/relics, and prevent destruction to sites/relics which warrant conservation (refer Standards for Archaeological Practice in Aboriginal Heritage Management in 1997 NPWS Standards and Guidelines Kit).

- documented and appropriate consultation with relevant Aboriginal Community representatives is required by the NPWS as part of the prerequisite information necessary for endorsement of consultant recommendations or the provision of Consents and Permits by the NPWS (refer Standards for Archaeological Practice in Aboriginal Heritage Management in 1997 NPWS Standards and Guidelines Kit).

8.2 The National Parks and Wildlife Amendment Bill 2001

The National Parks and Wildlife Amendment Bill 2001 is expected to pass into law with its gazettal sometime in 2003. The Bill will include the following provisions with regard to Aboriginal cultural heritage:

- The term 'relic' will be replaced with 'Aboriginal object' (Schedule 1[1]). An Aboriginal object is defined as:

> 'any deposit, object or material evidence (not being a handicraft made for sale) relating to the Aboriginal occupation of the area that comprises New South Wales, being habitation before or concurrent with (or both) the occupation of that area by persons of non-Aboriginal extraction, and includes Aboriginal remains.'

- The requirement for a 'Consent to Destroy' from the Director General will be replaced by a 'heritage impact permit' (Schedule 3[1], 3[3-8]).

- The offence under section 90 of the Principal Act of 'knowingly' destroying, defacing or damaging Aboriginal objects and Aboriginal Places without Consent will be changed so that the element of knowledge will be removed (Schedule 3 [2]). The amended section 90, subsection 1 will read:

  'A person must not destroy, deface, damage or desecrate, or cause or permit the destruction, defacement, damage or desecration of, an Aboriginal object or Aboriginal place.'

- Section 90 subsection 1 will not apply when an Aboriginal object or Aboriginal place is dealt with in accordance with a heritage impact permit issued by the Director-General (Schedule 3[3], Section 90(1B) in amended Act).

- It will be a defence to a prosecution for an offence against subsection 1 if the defendant shows that:

  (a) 'he or she took reasonable precautions and exercised due diligence to determine whether the action constituting the alleged offence would, or would be likely to, impact on the Aboriginal object of Aboriginal place concerned, and

  (b) the person reasonably believed that the action would not destroy, deface, damage or desecrate the Aboriginal object or Aboriginal place.' (Schedule 3[3], Section 90(1C) in amended Act)

- A court will be able to direct a person to mitigate damage to or restore an Aboriginal object or an Aboriginal place in appropriate circumstances when finding the person guilty of an offence referred to in section 90 of the Principal Act (Schedule 3[9]).

- Schedule 4[8] of the Bill provides for the Director-General to withhold in the public interest specified documents in the possession of the NPWS which relate to the location of Aboriginal objects, or the cultural values of an Aboriginal place or Aboriginal object.

8.3 Statutory constraints arising from artefacts which constitute background scatter

Background scatter is a term used generally by archaeologists to refer to artefacts that cannot be usefully related to a place or focus of past activity. There is no single concept for background 'scatter' or discard, and therefore no agreed definition. The recognition of background material within a particular study area is dependent on an appreciation of local contextual and taphonomic factors. Artefacts within a 'background' scatter can be found in most landscape types and may vary considerably in density.

Standard archaeological methodologies cannot effectively predict the location of individual background scatter artefacts. Surface survey may detect background material either as individual artefacts ('isolated finds'), or even as small, low-density 'sites'. Subsurface testing may sample, and through analysis, characterise background material. However, beyond the scope of archaeological sampling, the potential to encounter background artefacts within the context of development related ground disturbance will always remain.

There is generally no scientific justification for the conduct of ground disturbance monitoring to effect the recovery of background artefacts. The intrinsic scientific value of any recovered artefacts does not, in general, outweigh the expense of conducting the monitoring. However, the monitoring of ground works by Aboriginal groups is now increasingly practiced. The recovery of background scatter artefacts is the most probable outcome of such monitoring exercises.

Given the nature of statutory and NPWS policy requirements in NSW (refer Section 9), the detection of background artefacts during monitoring can be problematic. Unless the relic (or Aboriginal object) is covered by a current Consent or Permit (or Heritage Impact Permit (HIP)), from the NPWS, all further impact to the find, and the ground in its immediate vicinity, must cease until one is gained. It

may take up to eight weeks for this to occur. In the past, however, the NPWS has not as a general rule granted Consents to cover artefacts within background scatters. This is because the NPWS only provide Consents where the significance and location of the relics to be impacted can be reliably defined. By their very nature, this cannot be done for artefacts that constitute a background scatter.

The present policies of the NPWS do not provide an effective or proactive means of dealing with the statutory constraints posed by the detection of background scatter artefacts during development works. It should therefore be noted, that in the event that an Aboriginal artefact ('relic' or 'Aboriginal object') is detected during monitoring of ground disturbance within a development study area, and that area is not covered by a Consent to Destroy (or Heritage Impact Permit), there may be considerable delays to development works while an application for a Consent to Destroy is processed.

8.4 Native Title Act, 1993

'Native title' is the name given by the High Court to Indigenous property rights recognised by the court in the *Mabo* judgment (3 June 1992). The Mabo judgment overthrew the legal fiction of *terra nullius* – that the land of Australia had belonged to no one when the British arrived in 1788.

The judgment found that a native title to land existed in 1788 and may continue to exist provided it has not been extinguished by subsequent acts of government and provided Indigenous groups continue to observe their traditional laws and customs.

The main purpose of the Act is to recognise and protect Native Title, which can be defined as the 'rights and interests in land and waters that Aboriginal and Torres Strait Islander people have under laws and customs and that are recognised by the common law' (Section 223). The traditions of Aboriginal and Torres Strait Islander peoples can change with time and sometimes people stop following a tradition. Therefore, the Act states that native title rights can change or even finish.

The Act contains a process for determining whether native title exists, what rights and interests native title holders have, and whether people who have title have 'exclusive possession' (Sections 13, 61 and 225).

The Act states that native title is only extinguished in a few cases where it is necessary to make past acts legal. The Act provides for the validation of various categories of past government acts and grants of rights to use or own land or waters (prior to 1/1/94), which might have been invalid because the land or waters was native title land or waters at the time (Sections 14 and 19). As a consequence, native title does not exist over grants of freehold land, private freehold, all exclusive possession leases (residential, commercial, agricultural and some pastoral leases, defined in Sections 246 to 249), roads, and the construction of a public work (defined in Section 253). Other forms of leasehold interest, licences and permits do not extinguish native title, or may only extinguish native title tights where these cannot co-exist with the granted rights and interests (as in the case of some leasehold rights). The determination of where and when native title rights have been extinguished by past acts is complex and remains subject to court interpretation

The Act establishes the National Native Title Tribunal which has various responsibilities regarding the hearing and processing of native title claims. The Tribunal maintains a public Register of Native Title Claims and Claimants (Part 7) and a Register of Native Title Determinations (Part 8). The Register of Native Title Claims provides a useful means of identifying individuals and organisations that claim traditional cultural links and associations. It should not however be considered in any way to provide a definitive or comprehensive compilation of such potential claimants.

The Act empowers the states and territories to legislate their own native title regimes. This includes the setting up of alternative state/territory-based claims mediation bodies, replacing the Commonwealth's National Native Title Tribunal.

Some future acts of governments can affect native title. The 'non-extinguishment principle' will apply to most future acts (section 238). This means that those acts will not extinguish native title. If there is a conflict between the rights and interests under native title and those granted by a government, the act or grant will win. But once the interests are finished native title can again have full effect. The

non-extinguishment principle will not apply when people choose to give up their native title (section 21) or a government compulsorily acquires native title land (section 23(3)b)) and pays compensation. In those cases native title is extinguished or lost forever.

In order to demonstrate native title rights to a piece of land, claimants must be able to prove that:

- they owned the land under Aboriginal or Torres Strait Islander customs and laws;
- they have not lost their traditional links with the land; and
- Governments have not used the land or given it to anyone else in a way which 'extinguishes' native title.

Following the 1998 amendments to the Native Title Act, every native title application is a proceeding in the Federal Court.

An administrative test is applied to all Native Title claims to determine if a claim can be considered to be registered. A registered claim entitles the claimants to certain procedural rights, including the right to negotiate, pending the making of a determination of native title. Despite this, if an application fails the registration test, the applicant may still pursue the application for determination of native title. The conditions of the registration test are set out in sections 190B and 190C of the amended Native Title Act 1993. An application must comply with each of the conditions specified.

Under the Act, registered native title holders and registered native title claimants have a right to negotiate before certain 'permissible future acts' happen (Subdivision B of Division 3 of Part 2). These acts may involve mining or other development activities, and compulsory acquisition of native title for the alienation of crown lands. The right to negotiate is not a 'veto' or right to reject.

Where the right to negotiate applies to a future act, a state or territory government cannot validly do the future act unless it has complied with the right to negotiate provisions of the Native Title Act. Unless the grant can be fast-tracked (Section 32), this means that:

- the government party must give the native title party an opportunity to make submissions to it about the future act; and
- the negotiation parties must negotiate in good faith with a view to reaching agreement on the doing of the act with or without conditions.

If these obligations are not met, an activity carried out by a government party may be invalid and the authority may be exposed to claims for damages and compensation. Where negotiation fails to provide agreement between the parties, the Act provides various means for an arbitrated decision to be made (Sections 27, 35 and 39). The Tribunal may be requested to assist the parties by mediation. If the parties are unable to reach agreement then any one of them may make a future act determination application to the Tribunal. This is an application for the Tribunal to make a determination whether the future act can be done and if so whether any conditions should be imposed. These determinations can be overridden in certain circumstances by State, Territory of Commonwealth Ministers (Section 42).

The Act allows 'non-claimants' with an interest in land to ask for a determination about native title. If no one opposes a non-claimant application, future acts over the lands or waters are valid (Sections 61, 67 and 24).

The Act also allows for and defines procedures for the acquisition of native title lands for public purposes.

9. RECOMMENDATIONS

It is recommended that:

1. No further archaeological survey or assessment is required for the proposed Picton Road Truck Parking Area. There are no archaeological constraints on the proposed development.

2. Three copies of this report should be forwarded to the NSW NPWS at the following address:

   Cultural Resource Officer
   NSW NPWS
   Sydney Zone
   PO Box 1967
   HURSTVILLE NSW 2220

3. One copy of this report should be forwarded to each of the following groups:

   Ms Glenda Chalker
   Cubbitch Barta Native Title Claimants Aboriginal Corporation
   55 Nightingale Road
   PHEASANTS NEST NSW 2574

   Mr Lance Syme
   Sites Officer
   Tharawal LALC
   PO Box 20
   BUXTON NSW 2571

10. REFERENCES

Australia ICOMOS 1987 *The Australia Icomos Charter for the Conservation of Places of Cultural Significance (The Burra Charter), Guidelines to the Burra Charter: Cultural Significance and Conservation Policy.* Pamphlet, Australia Icomos (Inc).

Eades, D. K. 1976 *The Dharawal and Dhurga Languages of NSW.* AIAS Canberra.

Kuskie, P., K. Navin & K Officer 1995 An Aboriginal Archaeological and Anthropological Assessment of the Proposed Eastern Gas Pipeline Between Longford, Victoria And Wilton, New South Wales. Report to the Eastern Gas Pipeline Project.

Mathews, J. E. c1960 Unpublished manuscript held in the Library of the Australian Institute of Aboriginal and Torres Strait Islander Studies, Canberra. pMS 85.

Navin Officer Heritage Consultants 1999a Lake Cataract Proposed Longwall Mining Areas Archaeological Survey for Aboriginal Sites. Report to Allied Bellambi Collieries Ltd.

Navin Officer Heritage Consultants 1999b Cordeaux Colliery Archaeological Survey for Aboriginal Sites in Proposed Longwall Areas 29, 30, 31 and 32, Proposed Water Pipeline Route and Kemira Tunnel Borehole. Report to BHP Australia Coal.

Navin Officer Heritage Consultants 1999c Cordeaux Colliery Addendum: September 1999 Archaeological Survey. Report to BHP Australia Coal.

Navin Officer Heritage Consultants 2000 Cordeaux Colliery Longwalls W32, 33 and 34. Archaeological Survey for Aboriginal Sites. Report to BHP Coal.

Navin Officer Heritage Consultants 2001 Allied Bellambi West Colliery Proposed Longwall Mining, Cataract Catchment Archaeological Survey for Aboriginal Sites Report to Allied Coal Pty Ltd.

NSW Heritage Office 2000 *Assessing Heritage Significance.* Update for NSW Heritage Manual, (Final Approved Text August 2000). NSW Heritage Office, Sydney.

NSW Heritage Office and Department of Urban Affairs and Planning 1996 *NSW Heritage Manual.* NSW Heritage Office and Department of Urban Affairs and Planning, Sydney.

Officer, K. 1996 CX23 Bore Hole Cordeaux Colliery Archaeological Survey. Report to BHP Australia Coal.

QEM (Quality Environmental Management Pty Ltd) 1994a Environmental Assessment of Additional Drillhole and Access Track, Bellambi Collieries. Report to Bellambi Collieries Pty Ltd.

QEM (Quality Environmental Management Pty Ltd) 1994b Proposed 3-D Seismic Grid. Flora, Fauna & Archaeological Assessment: Cataract/Georges River Catchment between Fire Road No. 13 & Bulli-Appin Road, Appin. Report to BHP Collieries.

QEM (Quality Environmental Management Pty Ltd) 1994c Environmental Assessment 2-D Seismic Grid Lines: Elouera Colliery. Report to BHP Collieries.

Saunders, 1993 Archaeological Inspection: Borehole and Access Tracks, Cordeaux Colliery, NSW. Report by Navin Officer Heritage Consultants to BHP, Collieries Division.

Saunders, P. 1995a Archaeological Survey: South Bulli Subsidence Survey Lines. Report by Navin Officer Heritage Consultants for Bellambi Collieries Pty Ltd.

Saunders, P. 1995b Archaeological Survey South Bulli Mine Proposed Borehole and Access Track. Report by Navin Officer Heritage Consultants for Bellambi Collieries Pty Ltd.

Saunders, P. 1997a Archaeological survey of Seismic Lines A97 and B97 and A Subsidence Line, Appin Colliery. Report by Navin Officer Heritage Consultants for Collieries Division, BHP Coal.

Saunders, P. 1997b Elouera Colliery Seismic Lines A - D Archaeological Survey. Report by Division. Report by Navin Officer Heritage Consultants for Technical Services, Collieries Division, BHP Coal.

Saunders, P. 1998a Archaeological Investigation of Two Proposed Borehole Sites and a Proposed Gas Pipeline near Appin, NSW. Report by Navin Officer Heritage Consultants for Technical Services, Collieries Division, BHP Coal.

Saunders, P. 1998b Cordeaux Colliery Proposed Borehole Sites A and B Archaeological Survey. Report by Navin Officer Heritage Consultants for Technical Services, Collieries Division, BHP Coal.

Saunders, P. 1998c Cordeaux Colliery Waste Water Pipeline Archaeological Survey. Report by Navin Officer Heritage Consultants for Technical Services, Collieries Division, BHP Coal.

Saunders, P. 1998d Elouera Colliery Seismic Lines E-K, Line B Extension and Borehole Sites A-D. Archaeological Survey. Report by Navin Officer Heritage Consultants for Technical Services, Collieries Division, BHP Coal.

Saunders, P. 1998e Elouera Colliery Proposed Seismic Lines M, N, O and Existing Line L. Archaeological Survey. Report by Navin Officer Heritage Consultants for Technical Services, Collieries Division, BHP Coal.

Saunders, P. 1998f Allied West Mine proposed Borehole Sites and Access Track. Report by Navin Officer Heritage Consultants for Technical Services, Collieries Division, BHP Coal.

Saunders, P. 1998g Elouera Colliery Seismic Lines L99-Q99. Archaeological Assessment. Report by Navin Officer Heritage Consultants for Technical Services, Collieries Division, BHP Coal.

Sefton, C. 1980 Aboriginal Cultural Resources Study Illawarra Region. Illawarra Regional Planning Committee.

Sefton, C. 1988 Site and Artefact Patterns on the Woronora Plateau. M.A. Thesis, Department of Anthropology, University of Sydney.

Sefton, C. 1989 Archaeological Survey of the Cordeaux River and Woronora River by the Illawarra Prehistory Group. Report to the Australian Institute of Aboriginal Studies, Canberra.

Sefton, C. 1990a 1989-1990 Archaeological Survey of the Cordeaux River and Woronora River by the Illawarra Prehistory Group. Report to the Australian Institute of Aboriginal and Torres Strait Islander Studies, Canberra.

Sefton, C. 1990b Archaeological survey of the Wedderburn lease area and proposals for the monitoring of sandstone overhangs for the effects of mining subsidence.

Sefton, C. 1993a Archaeological Research Related to Cordeaux Colliery Area 4, Longwall Application No. 7. Report to BHP Steel Collieries Division.

Sefton, C. 1993b Archaeological Research Related to Cordeaux Colliery Part Area 4, Longwall Application No. 8. Report to BHP Steel Collieries Division.

Tindale, N. 1974 *Aboriginal Tribes of Australia* Australian National University Press, Canberra.

Walker, P. H. 1960 A Soil Survey of the County of Cumberland Soil *Survey Unit Bulletin No 2.* NSW Dept of Agriculture, Sydney.

~ o0o ~

APPENDIX 1

RECORD OF ABORIGINAL PARTICIPATION

Record of Aboriginal Representative Participation*

Name(s) of Aboriginal Representative: Rebecca Chatfield

Name of Aboriginal Organisation: Cubbitch Barta Native Title

Archaeologist(s): name & address Tom Knight (Navin Officer)
81 Hopetoun Circuit, Yarralumla ACT 2600.

Project Name: Picton Road Truck Parking Area Aboriginal Sites Surveys

Client: name & address NSW Roads & Traffic Authority
(please send your invoice PO Box 3035 Parramatta NSW 2124
to this address) Contact Trent Williams (8837 0593)

Type of participation:

- ☐ Guided inspection of study area and sites
- ☑ Accompanied/participated in archaeological survey
- ☐ Separate inspection or survey
- ☐ Accompanied/participated in excavation program

Period of participation:

Date(s)	Start	Finish
8/8/03	10 am	11.30

Issues raised:

Signed *(archaeologist)*:

Signed *(Aboriginal representative(s))*:

* *please note this form is not an invoice. For payment, please send an invoice from your organisation to the client name and address provided above.*

Record of Aboriginal Representative Participation*

Name(s) of Aboriginal Representative: Lance Syme

Name of Aboriginal Organisation: Tharawal L.A.L.C.

Archaeologist(s): name & address Tom Knight (Navin Officer)
91 Hopetoun Crt, Yarralumla ACT 2600

Project Name: Picton Road Truck Parking Area Aboriginal Sites Survey

Client: name & address NSW Roads & Traffic Authority
(please send your invoice PO Box 3035 Parramatta NSW 2124
to this address) Contact: Trent Williams (8837 0593)

Type of participation:
- ☐ Guided inspection of study area and sites
- ☑ Accompanied/participated in archaeological survey
- ☐ Separate inspection or survey
- ☐ Accompanied/participated in excavation program

Period of participation:

Date(s)	Start	Finish
8/8/03	10am	11 30

Issues raised: Isolated find to be relocated prior to development

Signed *(archaeologist)*: [signature]

Signed *(Aboriginal representative(s))*: [signature]

* *please note this form is not an invoice. For payment, please send an invoice from your organisation to the client name and address provided above.*

Record of Aboriginal Representative Participation*

Name(s) of Aboriginal Representative: Cubbitch Barta & Rebecca Chalker

Name of Aboriginal Organisation: .....

Archaeologist(s): name & address: Tom Knight (Navin Officer)
81 Hopetoun Circ, Yarralumla ACT 2600

Project Name: Picton Road Truck Parking Area Aboriginal sites survey (additional assessment)

Client: name & address: NSW Roads & Traffic Authority
(please send your invoice PO Box 3035 Parramatta NSW 2124
to this address) Contact: Trent Williams (8837 0593)

Type of participation:

- ☐ Guided inspection of study area and sites
- ☑ Accompanied/participated in archaeological survey
- ☐ Separate inspection or survey
- ☐ Accompanied/participated in excavation program

Period of participation:

Date(s)	Start	Finish
19/9/03	10am	11am

Issues raised: .....

Signed *(archaeologist)*: .....

Signed *(Aboriginal representative(s))*: .....

* *please note this form is not an invoice. For payment, please send an invoice from your organisation to the client name and address provided above.*

Record of Aboriginal Representative Participation*

Name(s) of Aboriginal Representative: Lance Syme

Name of Aboriginal Organisation: Tharawal Local Aboriginal Land Council

Archaeologist(s): name & address Tom Knight (Maori Officer)
81 Hopetoun Cct, Yarralumla ACT 2600

Project Name: Picton Road Truck Parking Area Aboriginal sites survey (additional assessment)

Client: name & address NSW Roads & Traffic Authority
(please send your invoice PO Box 3035 Parramatta NSW 2124
to this address) Contact: Trent Williams (8837 0593)

Type of participation:

- ☐ Guided inspection of study area and sites
- ☑ Accompanied/participated in archaeological survey
- ☐ Separate inspection or survey
- ☐ Accompanied/participated in excavation program

Period of participation:

Date(s)	Start	Finish
19/9/03	10 a.m	11 a.m

Issues raised: Nil

Signed *(archaeologist)*:

Signed *(Aboriginal representative(s))*:

* *please note this form is not an invoice. For payment, please send an invoice from your organisation to the client name and address provided above.*

APPENDIX 2

NATIVE TITLE CLAIM INFORMATION

NATIONAL NATIVE TITLE TRIBUNAL

Claimant Application Summary

Application numbers	Federal Court number: NG6047/98 NNTT number: NC96/30
Application name	Gundungurra People #3
Name of body where application lodged	National Native Title Tribunal
Date application lodged	27/09/1996
Current stage(s)	Notification Complete, In Mediation
Old Act* applicants	Mervyn Trindall
Former Old Act* registered native title claimants	Mervyn J Trindall
Address for service	Eduard Neumann Craddock, Murray & Neumann Solicitors Level 2/255 Castlereagh Street SYDNEY NSW 2000 Phone: (02) 9283 4755 Fax: (02) 9283 4180
Persons claiming to hold native title	Gundungurra People
Native title rights and interests claimed	The native title rights and interests held by the Gundungurra people pursuant to their traditional laws and customs confer possession, occupation, use and enjoyment of the land to the exclusion of all others, subject to any rights or interests created by the state of New South Wales or the Commonwealth of Australia which are not inconsistent with the Racial Discrimination Act 1975 or the Native Title Act 1993
Area	**Jurisdiction:** New South Wales **Location:** Area of land gazetted as Aboriginal Reserve No. 17023 between 1892 and 1924 in the Burragorang Valley (now underneath the Warragamba Dam), and the waters above it. **Local government region(s):** Wollondilly Shire Council **ATSIC region(s):** Sydney Regional Council **Representative A/TSI body(s):** NSW Native Title Services Ltd **Approximate size:** 78 acres (Note: There may be areas within the external boundary of the application that are not claimed.) **Land/water and/or sea:** Land/Water **Area covered by the claim (as detailed in the application):** The former Aboriginal Reserve and the waters above it on the north bank of the Coxs River opposite the junction of the Wollondilly and Warragamba Rivers in the Parish of Cooba, County of Cook, an area of 78 acres gazetted as Aboriginal Reserve No. 17023 on 23/12/1892 and marked as revoked on 31/10/1924 (now underneath the Warragamba Dam); see RR folio 94, RAR 56. Indigenous name for the area: Co gon gal li.
Registration information	*Please refer to the Register of Native Title Claims/National Native Title Register (as appropriate) for registered details of this application.*

	Registration test status: Not Accepted for registration

Attachments	1. Map showing location of former Aboriginal Reserve No 17023, Attachment A of the Application, 1 page - A4, Attached 17/12/1996. 2. Map showing former Aboriginal Reserves of the Burragorang Valley, Attachment B of the Application, 1 page - A4, Attached 17/12/1996.

NNTT contact details	**Case manager:**	Nicole Maher
	Address:	National Native Title Tribunal Level 25 25 Bligh Street SYDNEY NSW 2000 GPO Box 9973 SYDNEY NSW 2001
	Phone:	(02) 9235 6500 Freecall 1800 640 501
	Fax:	(02) 9233 5613
	Web page:	www.nntt.gov.au

** Old Act Applicant/Registered Native Title Claimants are those persons defined by the Native Title Act 1993 prior to 30 September 1998.*

NATIONAL NATIVE
TITLE TRIBUNAL

Claimant Application Summary

Application numbers	Federal Court number: NG6060/98 NNTT number: NC97/7
Application name	Gundungurra Tribal Council Aboriginal Corporation #6
Name of body where application lodged	National Native Title Tribunal
Date application lodged	29/04/1997
Current stage(s)	Notification Complete, In Mediation
Applicants	Ms Elsie Stockwell, Ms Pamela Stockwell
Address for service	Mr Eduard Neumann Craddock Murray and Neumann Level 2 255 Castlereagh Street SYDNEY NSW 2000 Phone: 02 9283 4755 Fax: 02 9283 4180
Persons claiming to hold native title	The members of the Gundungurra Tribal Council Aboriginal Corporation
Native title rights and interests claimed	1. Subject to (2) - (5) below, the full and free enjoyment of the following native title rights and interests area are claimed in relation to the land and waters the subject of the application: a. A right to possess, occupy, use and enjoy the claim area; b. A right to make decisions about the use and enjoyment of the claim area; c. A right of access to the claimed area; d. A right to control the access of others to the claimed area; e. The right to control the use and enjoyment of others or resources of the claimed area; f. The right to trade in resources of the claimed area; g. The right to receive a portion of any resources taken by others from the claimed area; h. The right to maintain, protect and prevent the misuse of cultural knowledge of the common law holders associated with the claimed area. 2. With respect of those parts of the area the subject of the application which are, or have been, the subject of a previous non-exclusive possession act within the meaning of s 23F of the Native Title Act 1993, the native title rights and interests area set out in (1) are claimed subject to the rights and interests created in the 'non-exclusive possession act' which are not inconsistent with the rights and interests claimed, subject to any suspension of the native title rights and interests which those inconsistent rights and interests cause. 3. With respect to those parts of the area the subject of the application which are, or have been, the subject of:

	a. a category B intermediate period act within the meaning of s232C of the Native Title Act 1993; b. a category C intermediate period act within the meaning of s232D of the Native Title Act 1993; c. a category D intermediate period act within the meaning of s232E of the Native Title Act 1993; the native title rights and interests claimed are those set out in (1) above subject to the rights and interests created in the non-exclusive possession act which are not inconsistent with the rights and interests claimed and, in the case of any rights granted which are inconsistent with the rights and interests claimed, subject to any suspension of the native title rights and interests which those inconsistent rights and interests cause. 4. With respect to those parts of the area of the application which are, or have been, the subject of: a. a category B past act within the meaning of s230 of the Native Title Act 1993; b. a category C past act within the meaning of s231 of the Native Title Act 1993; c. a category D past act within the meaning of s232 of the Native Title Act 1993; the native title rights and interests claimed area those set out in (1) above subject to the rights and interests created in the non-exclusive possession act which are not inconsistent with the rights and interests claimed and, in the case of any rights granted which are inconsistent with the rights and interests claimed, subject to any extinguishment or suspension of the native title rights and interests which those inconsistent rights and interests cause. 5. The native title rights and interests identified above do not extend to ownership of any minerals, petroleum or gas which are wholly owned by the Crown. 6. The native title rights and interests identified above do not include a claim for exclusive occupation and use of offshore areas as defined by s253 of the Native Title Act 1993.
Area	**Jurisdiction:** New South Wales **Location:** Land and waters in the area from the Blue Mountains south to Goulburn, following the Lachlan River west to Newbridge and then north to Mt Davidson. **Local government region(s):** Bathurst City Council, Blayney Shire Council, Blue Mountains City Council, Boorowa Shire Council, Camden Council, Campbelltown City Council, Cowra Shire Council, Crookwell Shire Council, Evans Shire Council, Goulburn City Council, Lithgow City Council, Cumming Shire Council, Liverpool City Council, Mulwaree Shire Council, Oberon Council, Penrith City Council, Tallaganda Shire Council, Wingecarribee Shire Council, Wollondilly Shire Council **ATSIC region(s):** Binnal Billa Regional Council, Sydney Regional Council, Queanbeyan Regional Council **Representative A/TSI body(s):** NSW Native Title Services Ltd **Land/water and/or sea:** Land/Water **Area covered by the claim (as detailed in the application):** (a) Commencing at 150.52297 east longitude and 34.591636 south latitude, approximately 15.5 kilometres east south east of Moss Vale, the application traverses clockwise starting in a south westerly direction, passing through points 2 to 36,765 of the following geographic coordinates. They are in decimal degrees and referenced to Australian Geodetic Datum 1984 (AGD84). These coordinates are based on the position of spatial reference data sourced by Land Information Centre, Department of Information Management and Technology, New South Wales as of 18 May 1999. (b) Subject to clauses (d) and (e) the area covered by the application excludes any land or waters covered by:

	(i) a scheduled interest; (ii) freehold estate; (iii) a commercial lease that is neither an agricultural lease nor a pastoral lease; (iv) an exclusive agricultural lease or an exclusive pastoral lease; (v) residential lease; (vi) a community purposes lease; (vii) a lease dissected from a mining lease as referred to in s23B(2)(vii); (viii) any lease (other than a mining lease) that confers a right of exclusive use over particular land or waters; which was validly vested or granted on or before 23 December 1996 (c) Subject to clauses (d) and (e) the area covered by the application excludes any area covered by the valid construction or establishment of any public work, where the construction or establishment of the public work commenced on or before 23 December 1996. (d) Where the act specified in (b) and (c) falls within the provisions of (i) s23B(9) - Exclusion of acts benefiting Aboriginal peoples or Torres Strait Islanders; (ii) s23B (9A) - Establishment of a national or state park; (iii) s23B (9B) - Acts where legislation provides for non-extinguishment; (iv) s23B (9C) - Exclusion of Crown to Crown grants; and (v) s23B (10) - Exclusion by regulation, the area covered by the act is not excluded from this application. (e) Where an act referred to in clauses (b) and (c) covers land or waters referred to in: s47 - Pastoral leases held by native title claimants; s47A - Reserves etc covered by claimant applications; and s47B - Vacant crown land covered by claimant applications, the area covered by the act is not excluded from the application. (f) Where an area is covered by a previous non-exclusive possession act (s 23F) the native title claim group does not claim possession, occupation, use and enjoyment to the exclusion of all others. (g) The area covered by the application excludes land where native title has been extinguished at common law. (h) The area covered by the application excludes areas covered by prior Gundungurra claims filed with the National Native Title Tribunal being NC96/7, NC96/27, NC96/30, NC96/36 and 97/4.
Registration information	*Please refer to the Register of Native Title Claims/ National Native Title Register (as appropriate) for registered details of this application.* **Date claim entered on Register of Native Title Claims:** 29/04/1997 **Registration test status:** Accepted for registration **Registration history:** Registered from 29/04/1997.
Attachments	1. Plan of Application Area, Attachment A of the Application, 1 page - A4, Attached 29/04/1997.

NNTT contact details	Case manager:	Nicole Maher
	Address:	National Native Title Tribunal Level 25 25 Bligh Street SYDNEY NSW 2000 GPO Box 9973 SYDNEY NSW 2001
	Phone:	(02) 9235 6300 Freecall 1800 640 501
	Fax:	(02) 9233 5613
	Web page:	www.nntt.gov.au

National Native Title Tribunal

Printer-friendly versio

keywords

Claimant application summary

Application name:	Cubbitch Barta Clan of the Dharawal People #1
Application type:	Claimant application
State/Territory:	New South Wales
Date filed:	04/08/1998
Federal Court file no.:	NG6108/98
Tribunal file no.:	NC98/20
Status:	Finalised - Discontinued
Approx area size:	0.245ha
Area description:	Wilton
ATSIC region:	Sydney Regional Council
Representative body:	NSW Native Title Services Ltd
Local government region(s):	Campbelltown City Council Wollondilly Shire Council

About the Tribunal

Native Title Applications
* Overview
* Information material
* Maps and spatial data
* How to apply
* Tribunal assistance
* Registration test
* Procedures and guidelines
* Sample clauses and agreements
* Search applications
* Browse determinations
* National Native Title Register
* Register of Native Title Claims
* Other organisations
* Contact for applications

Indigenous Land Use Agreements

Future Acts

Information and Publications

Registers

Media Centre

What's New

For definitions of specific native title words and terms see the Glossary.

Home | Text only | Sitemap | Glossary | Links | Contact us Privacy statement | Disclaimer and copy

National Native Title Tribunal

Printer-friendly version

keywords

Claimant application summary

Application name:	Cubbitch Barta Clan of the Dharawal People #2
Application type:	Claimant application
State/Territory:	New South Wales
Date filed:	20/08/1998
Federal Court file no.:	NG6182/98
Tribunal file no.:	NC98/27
Status:	Finalised - Discontinued
Approx area size:	400 hectares
Area description:	Wedderburn
ATSIC region:	Sydney Regional Council
Representative body:	NSW Native Title Services Ltd
Local government region(s):	Wollondilly Shire Council

About the Tribunal

Native Title Applications
* Overview
* Information material
* Maps and spatial data
* How to apply
* Tribunal assistance
* Registration test
* Procedures and guidelines
* Sample clauses and agreements
* Search applications
* Browse determinations
* National Native Title Register
* Register of Native Title Claims
* Other organisations
* Contact for applications

Indigenous Land Use Agreements

Future Acts

Information and Publications

Registers

Media Centre

What's New

For definitions of specific native title words and terms see the Glossary.

Home | Text only | Sitemap | Glossary | Links | Contact us Privacy statement | Disclaimer and copy

Get Acrobat Reader | Get Microsoft Internet Explorer | Netscape NOW!

National Native Title Tribunal

Printer-friendly versio

keywords

Claimant application summary

Application name:	Cubbitch Barta People
Application type:	Claimant application
State/Territory:	New South Wales
Date filed:	21/11/2002
Federal Court file no.:	N6017/02
Tribunal file no.:	NC02/12
Status:	Finalised - Discontinued
Area description:	Camden Park, Picton District
ATSIC region:	Sydney Regional Council
Representative body:	NSW Native Title Services Ltd
Local government region(s):	Wollondilly Shire Council

About the Tribunal

Native Title Applications
* Overview
* Information material
* Maps and spatial data
* How to apply
* Tribunal assistance
* Registration test
* Procedures and guidelines
* Sample clauses and agreements
* Search applications
* Browse determinations
* National Native Title Register
* Register of Native Title Claims
* Other organisations
* Contact for applications

Indigenous Land Use Agreements

Future Acts

Information and Publications

Registers

Media Centre

What's New

For definitions of specific native title words and terms see the Glossary.

Home | Text only | Sitemap | Glossary | Links | Contact us Privacy statement | Disclaimer and copy

PICTON ROAD, WOLLONDILLY SHIRE COUNCIL

PROPOSED TRUCK PARKING AREA

ECOLOGICAL ASSESSMENT

October 2003

HAYES ENVIRONMENTAL

HAYES
ENVIRONMENTAL

ABN 89 877 340 321
Wombeyan Caves Road, High Range 2575
Tel 02 4878 5542
Fax 02 4878 5543
Mob 0412 600 173
Email rhayes@hayesenv.com.au

PICTON ROAD, WOLLONDILLY SHIRE COUNCIL

PROPOSED TRUCK PARKING AREA

ECOLOGICAL ASSESSMENT

This assessment has been prepared by:

R Hayes

Rebecca Hayes
BSc (environmental biology) MEngMngt MEIA MECA

3/10/03

Date

EXECUTIVE SUMMARY

Detailed flora and fauna field surveys have been conducted for a proposed truck parking area to be located on Picton Road, approximately 2-3km northwest from the Cordeaux Dam turnoff.

Field surveys recorded the presence of a large population of *Epacris purpurascens* var *purpurascens*, a threatened plant species listed under the *NSW Threatened Species Conservation Act 1995* (TSC Act).

The population of *Epacris purpurascens* var *purpurascens* appears to be centred on land to the northwest of the study area, with only a small portion of the population occurring within the study area. Assessment of the potential impacts of the proposed works upon this species concluded that the proposed works would not impose a significant impact upon *Epacris purpurascens* var *purpurascens*, and that a Species Impact Statement was not required.

The proposed works are not considered likely to impose a significant impact upon any matter of National Environmental Significance. Therefore the proposed works do not need to be referred to the Commonwealth under the EPBC Act.

The study area does support 'potential koala habitat', but does not support 'core koala habitat'. Therefore State Environmental Planning Policy No 44 does not apply.

TABLE OF CONTENTS

Page No.

1 INTRODUCTION 1

1.1 Context and Development Proposal 1

1.2 Study Area 1

1.3 Objectives 2

2 FIELD SURVEYS AND RESEARCH 2

2.1 Research 2

2.2 Flora 2

2.3 Fauna 3

2.4 Survey Limitations 4

3 EXISTING ENVIRONMENT 5

3.1 General Description 5

3.2 Flora 5

3.2.1 Details 5

3.2.2 Conservation Significance 6

3.3 Fauna and Fauna Habitats 6

3.3.1 Details 6

3.3.2 Conservation Significance 7

4 DISCUSSION OF IMPACTS 9

5 NSW THREATENED SPECIES CONSERVATION ACT 1995 10

5.1 Relevant Threatened Biota 10

5.1.1 Species 10

5.1.2 Populations 10

5.1.3 Ecological Communities 10

5.2 Summary of Eight Part Tests 11

5.2.1 Epacris purpurascens var purpurascens 11

5.2.2 Microchiropteran Bats 11

5.3 Summary 12

6 COMMONWEALTH EPBC ACT 1999 12

6.1 Matters of National Environmental Significance 12

6.2 Requirement for Referral to the Commonwealth 13

TABLE OF CONTENTS

Page No.

7 SEPP 44 – KOALA HABITAT PROTECTION 13

7.1 Relevance of SEPP 44 13

7.2 Determination of 'potential koala habitat' 13

7.3 Determination of 'core koala habitat' 14

8 CONCLUSIONS AND RECOMMENDATIONS 14

8.1 Conclusions 14

8.2 Recommendations 14

BIBLIOGRAPHY 16

TABLE 1 Fauna survey effort. 3

TABLE 2 Weather conditions during the fauna survey period. 4

TABLE 3 Relevance of threatened species known to occur in the locality. 7

FIGURE 1 General location of the study area in relation to surrounding lands.

FIGURE 2 Indicative extent and density of the population of *Epacris purpurascens* var *purpurascens* recorded within the study area and on adjacent lands during field surveys conducted for this report.

APPENDIX 1 Inventory of flora species recorded.

APPENDIX 2 Inventory of fauna species recorded

APPENDIX 3 Final Determinations of the NSW Scientific Committee

APPENDIX 4 Assessment of Significance pursuant to Section 5A of the EP&A Act

PICTON ROAD, WOLLONDILLY SHIRE COUNCIL

PROPOSED TRUCK PARKING AREA

ECOLOGICAL ASSESSMENT

October 2003

1 INTRODUCTION

1.1 Context and Development Proposal

This ecological assessment report has been prepared as part of a Review of Environmental Factors (REF) for a proposed truck parking area to be located on the northeastern side of Picton Road, approximately 2-3km west of the Cordeaux Dam turnoff, within the Wollondilly Local Government Area.

The proposed truck parking area would involve the construction of a parallel parking lane, offset approximately 15m from the existing eastbound travel lane of Picton Road. The truck parking area site was selected on the basis of several criteria, including the previously disturbed nature of the site, the relatively level topography (thus minimising the extent of earth works), and known locations of threatened plant species.

1.2 Study Area

The study area for this report is approximately 11300 sqm in size, following Picton Road for a length of 400m, and extending up to 50m out (to the northeast) from the road edge. Additional areas were walked during the surveys to give a wider context to the study area, but were not surveyed in detail.

The study area is located on the top of a broad sandstone ridgeline, and is surrounded by extensive areas of naturally vegetated land (Figure 1). The northwestern part of the study area has been previously disturbed due to clearing and earthworks associated with construction and subsequent removal of an airstrip (now overgrown). This area has some minor weed-invasion.

The central and southeastern parts of the study area support a mosaic of open woodland and grassy woodland communities. Two small but moderately steep-sided ephemeral drainage channels cross the study area and pass through culverts beneath Picton Road.

Weed-invasion is generally limited. However a variety of non-indigenous Acacia species occur along the road verge, and are likely to have been planted as part of a native plant mix for stabilising soils following earlier works along Picton Road.

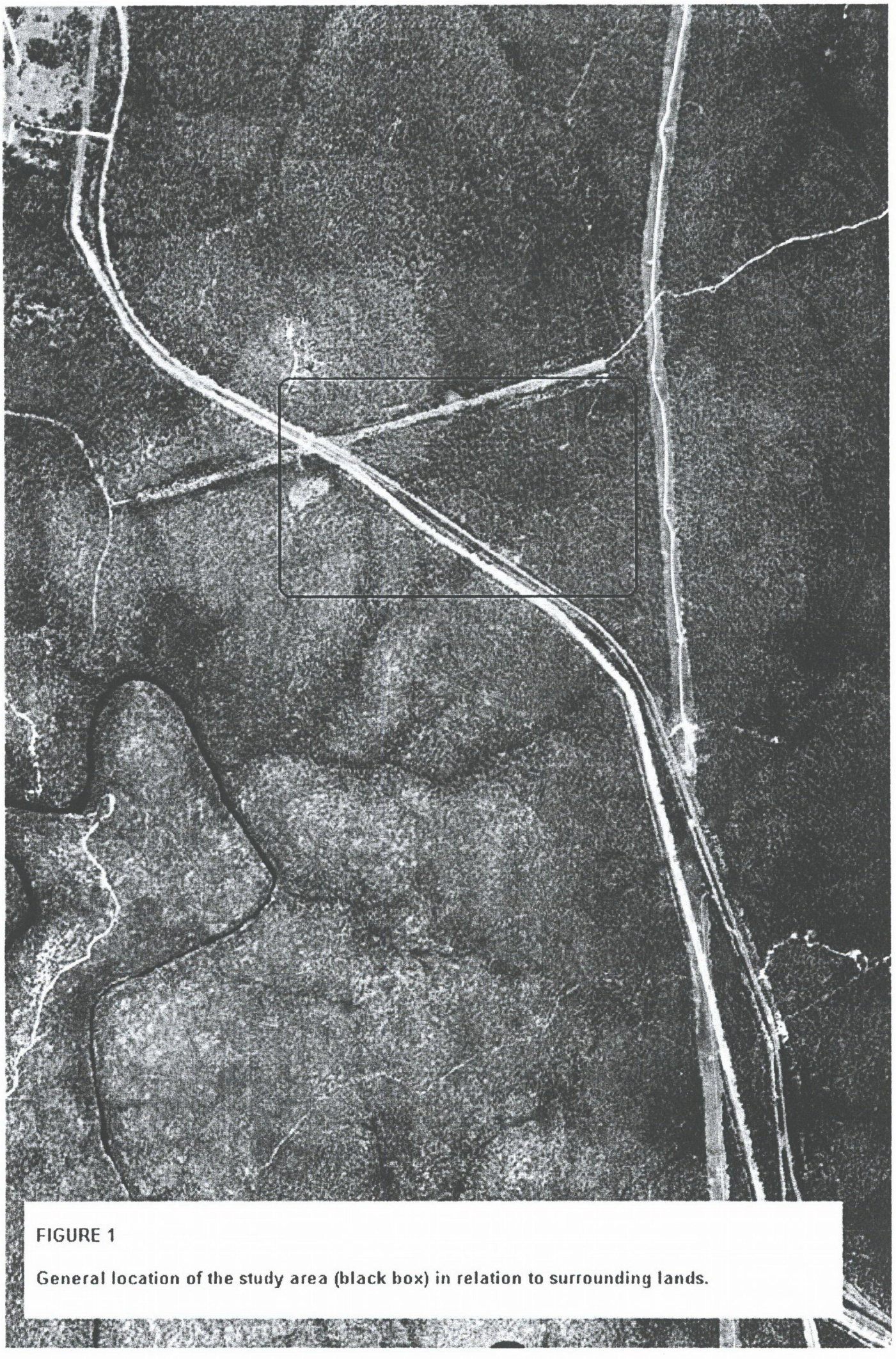


FIGURE 1

General location of the study area (black box) in relation to surrounding lands.

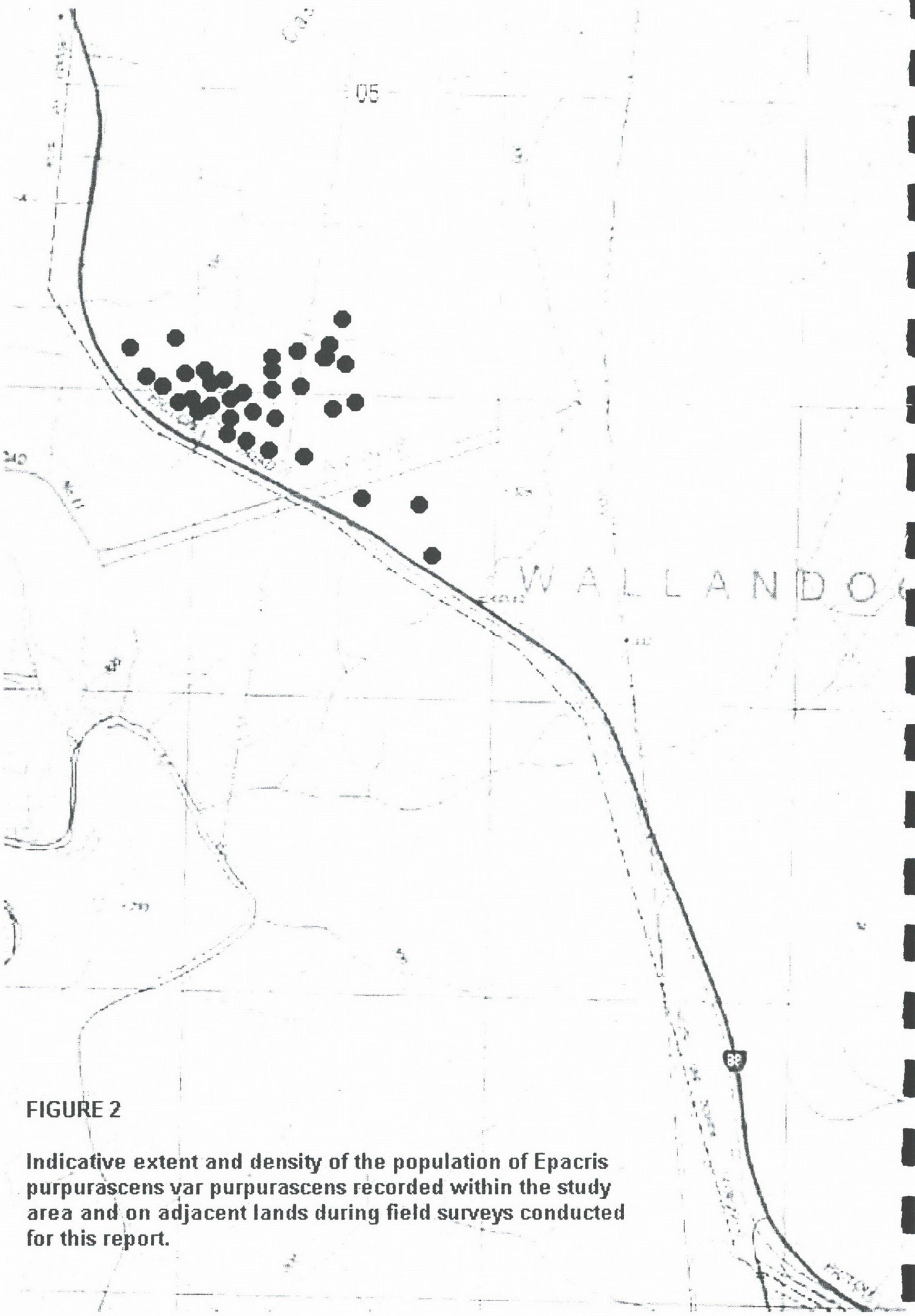


FIGURE 2

Indicative extent and density of the population of Epacris purpurascens var purpurascens recorded within the study area and on adjacent lands during field surveys conducted for this report.

1.3 Objectives

The objectives of this investigation and report are:

- to identify and describe the existing ecology of the study area;
- to determine the likelihood of threatened flora and fauna species, populations and ecological communities (as listed on the *NSW Threatened Species Conservation Act 1995* or on the *Commonwealth Environment Protection & Biodiversity Conservation Act 1999*) occurring in the study area or being affected by the proposed works;
- to assess the significance of likely impacts of the proposed works upon threatened biota, pursuant to Section 5A of the *NSW Environmental Planning & Assessment Act 1979* (EP&A Act), as modified by the NSW *Threatened Species Conservation Act 1995* ('eight-part test');
- to assess the study area in relation to State Environmental Planning Policy No. 44 – Koala Habitat;
- to consider whether the proposal should be referred to the Commonwealth Minister for Environment & Heritage under the *Commonwealth Environment Protection & Biodiversity Conservation Act 1999*; and
- to consider appropriate impact amelioration and environmental protection measures which should be implemented in the study area, to minimise the potential impacts of the proposed works on the natural ecology of the area.

2 FIELD SURVEYS AND RESEARCH

2.1 Research

Relevant data (including records of threatened species) were obtained from previous knowledge of the area, from a search of records listed within 10km of the site on the NSW National Parks & Wildlife Service (NPWS) Atlas of NSW Wildlife (data obtained 30/5/03), and from a search of Environment Australia's EPBC on-line database (data obtained 11/8/03).

Liaison with Brad Staggs from Wollondilly Shire Council provided some further information regarding threatened species records and known locations from the Wilton area. Wollondilly Shire Council has a Roadside Vegetation Plan which is not directly related to Picton Road, but provides some information and guidelines relating to minimising impacts of works upon adjacent vegetation and habitats.

Threatened species, populations and ecological communities known to occur within 5km of the study area are listed in Table 3 later in this report. Table 3 also provides known details of habits, habitat and foraging requirements, and distributions of these species.

2.2 Flora

Detailed botanical surveys were conducted throughout the study area and some adjacent lands on the 12th of August and 6th September 2003, with additional site visits conducted on the 19th and 22nd of August, and 24th September 2003.

Specific searches were conducted with reference to the Random Meander technique (Cropper 1993) for relevant plant species of conservation significance known to occur in the locality (relevant databases, previous investigations), or anticipated to occur in the study area.

Plant identifications conform to nomenclature in Harden (1990-1993) and to recent reclassifications and name changes listed in *Cunninghamia* and *Telopea*. The Royal Botanic Gardens in Sydney were consulted regarding plant species of taxonomic uncertainty which could potentially be significant. An inventory was compiled of all plant species recorded (Appendix 1).

Native vegetation was surveyed and assessed according to the structural classifications detailed in Specht (1970). Ecological communities were identified and described with reference to the vegetation descriptions of Benson & Howell (1994), NPWS (2000), and to the descriptions included in the Final Determinations of communities listed on the *NSW Threatened Species Conservation Act 1995* (TSC Act) and the *Commonwealth Environment Protection & Biodiversity Conservation Act 1999* (EPBC Act).

The conservation significance of species, populations and ecological communities recorded during the survey was established with reference to the EPBC Act in the national context, and to the TSC Act in the state context.

2.3 Fauna

A general fauna survey including habitat evaluation was conducted throughout the study area on the 12th and 19th of August 2003, with additional surveys and inspections conducted on the 22nd of August and 24th of September 2003.

The survey involved observations of animal activity, habitat surveys and searches for indirect evidence of fauna (such as nests, scats, tracks and scratchings). Specific searches were conducted for habitat or resources of relevance for threatened fauna species known from the general locality (relevant databases, previous investigations), or which might be anticipated to occur on the site.

Specific morning and evening bird surveys were conducted throughout all habitat types present in the study area, and involved both visual and aural detection of species (Table 1). Specific reptile searches involved the turning of rocks, logs and other debris, and scratching amongst leaf litter at the base of trees (Table 1).

Table 1 Fauna Survey Effort

Date	Method	Target Fauna
12th August 2003	Targeted morning surveys (4 hours)	Birds, reptiles, amphibians, general habitat observation and recording, searches for scats and other indirect evidence
19th August 2003	Targeted late afternoon survey and evening spotlighting survey (4 hours)	Birds, mammals, general observations
22nd August 2003	General morning survey (1.5 hours)	General observations
24th September 2003	General afternoon survey (1 hour)	Birds, reptiles, amphibians, general habitat observation and recording, searches for scats and other indirect evidence

Diurnal mammal and amphibian surveys were conducted throughout the study area in areas of potential or relevant habitat, where present (Table 1). An emphasis was placed on searches for scats, tracks and scratchings, and other indirect signs, and for aural detection of amphibians. Targeted amphibian surveys extended into the late afternoon and evening, in areas of potential habitat (Table 1).

A spotlighting survey was conducted throughout the study area (Table 1), to target nocturnal birds (such as owls), nocturnal mammals (such as possums and gliders), and amphibians. On the basis of the proximity of the study area to noise and disturbance associated with Picton Road, the extent of similar habitats on surrounding catchment lands more distant to Picton Road, and on the lack of indirect evidence for nocturnal mammals occurring within the study area, a second spotlighting survey was not considered necessary.

Similarly, given the proximity of the study area to the noise of Picton Road, Anabat II Bat Detectors were not able to be used. It is assumed that microchiropteran bat species known to occur in the locality would utilise the study area at least on occasions.

Opportunistic records of all fauna species were maintained throughout the survey period, and an inventory compiled to include all species detected (Appendix 2). The conservation significance of native fauna recorded during the survey or expected to occur on the site was established with reference to the EPBC Act in the national context, and to the TSC Act in the state context.

Weather conditions during the fauna survey are described in Table 2 below.

Table 2 Weather Conditions during the Fauna Survey Period

Date	Time	Weather
12th August 2003	Morning	Mild to warm, cloud cover 4/8, light cool wind
19th August 2003	Afternoon/Evening	Cool to mild, generally overcast
22nd August 2003	Morning	Cool to mild, cloud cover 3/8, mild breeze
24th September 2003	Afternoon	Warm, clear and sunny with some scattered cloud, moderate cold wind

2.4 Survey Limitations

The field surveys were conducted in early spring, whilst weather conditions were still cool. It is likely that some fauna species would still be relatively inactive during this time and would not be easily detected. To compensate for this, assessment of the proposed works was based largely on species records contained on databases, evaluation of habitats present in the study area, and indirect evidence for fauna.

The noise generated from Picton Road limited the success of aural detection of more cryptic and quieter birds, and also made it too difficult to detect bats using an ultrasonic call detector. In this regard, threatened species known to occur in the locality are assumed to also utilise the study area on occasions, in accordance with a precautionary approach.

Small terrestrial orchids were in flower during the survey period, as was *Epacris purpurascens* var *purpurascens*. The survey period does not appear to be too early in the season for easy detection of these species.

3 EXISTING ENVIRONMENT

3.1 General Description

The study area is relatively level, although sloping generally down to the southeast. Two ephemeral drainage lines cross the study area, and pass through culverts beneath Picton Road.

The vegetation consists of a mosaic of open eucalypt woodland and grassy eucalypt woodland communities, with a denser understorey and mid-canopy within the drainage lines.

There are no sandstone cliffs, caves or similar features within the study area, and only occasional sandstone boulders, some of which appear to have been placed along the boundary of the road reserve.

Disturbances include the construction and subsequent removal of an airstrip (now overgrown) in the northwestern part of the study area, construction of a fence along the boundary of the road reserve, and some minimal weed invasion. Dense acacia growth along the roadside is likely to have been planted following earlier works along Picton Road, and includes several non-indigenous species.

3.2 Flora

3.2.1 Details

The vegetation present in the study area is broadly consistent with the description of Sydney Sandstone Ridgetop Woodland i) Woodland/Low Woodland, as published by Benson & Howell (1994). This community is very variable, but generally dominated by *Corymbia gummifera*, *Eucalyptus haemastoma*, *Eucalyptus sparsifolia* and *Eucalytpus racemosa*, with a shrubby understorey dominated by shrubs from the Proteaceae, Fabaceae, Epacridaceae and Myrtaceae families.

Canopy

The vegetation canopy in the northwestern parts of the study area is dominated by Scribbly Gum *Eucalyptus haemastoma*, Red Bloodwood *Corymbia gummifera*, and White Stringybark *Eucalyptus globoidea*, to approximately 15m in height. Towards the southeastern parts of the study area, the canopy is dominated by Scribbly Gum *Eucalyptus haemastoma* and White Stringybark *Eucalyptus globoidea*.

Mid-canopy

The mid-canopy in the western part of the study area and near the drainage lines is dominated by Tick-bush *Kunzea ambigua* to approximately 3m in height. Within the drainage lines the mid-canopy is dominated by Snow-in-summer *Melaleuca lineariifolia*. The mid-canopy is generally absent from other parts of the site.

Shrub Layer/Groundcover

The shrub layer in the western part of the site is moderately dense and dominated by a range of Proteaceae and Fabaceae species. In the eastern part of the site the shrub layer is replaced by a grassy understorey dominated by *Poa* sp and several small native herbs.

3.2.2 Conservation Significance

One plant species of conservation significance, *Epacris purpurascens* var *purpurascens*, was recorded in the study area and on adjacent lands during the field surveys. *Epacris purpurascens* var *purpurascens* is listed as a "*threatened*" species on the TSC Act, and is discussed in more detail in Chapter 5 below.

No other plant species listed as threatened under either the TSC Act or the EPBC Act were recorded in the study area.

No plant species being part of any "*endangered population*" listed under the TSC Act were recorded in the study area.

No "*ecological community*" listed as threatened under either the TSC Act or the EPBC Act was recorded in the study area.

One of the exotic weed species recorded in the study area (Blackberry *Rubus fruticosus* species aggregate) is listed as 'noxious' weed for the Wollondilly Local Government Area on the *NSW Noxious Weeds Act 1993* (refer to Appendix 1). No 'notifiable' weeds as listed on the *NSW Noxious Weeds Act 1993* were recorded in the study area.

3.3 Fauna and Fauna Habitats

3.3.1 Details

16 vertebrate fauna species were recorded during field investigations conducted in the study area, including 11 native bird species, 3 native mammals species and 2 introduced mammal species (Appendix 2).

The fauna assemblage recorded is indicative of the nature of habitats and resources present within the study area and on surrounding conserved lands, but of lower diversity than would be expected given the variety and condition of habitats present within the study area. It is likely that many fauna species avoid the noise and disturbance associated with the Picton Road corridor, particularly given that extensive tracts of 'quieter' intact bushland surround the study area.

Habitat features present in the study area include:

- intact bushland with areas of moderately dense canopy and groundcover - providing shelter and foraging opportunities for a range of fauna species;
- some small to moderate sized tree-hollows, providing opportunities for shelter and nesting for a variety of bird and arboreal mammal species;
- occasional sandstone boulders providing shelter opportunities for small reptiles; and
- two ephemeral drainage lines, with culverts beneath Picton Road.

In general, the birds recorded or expected to occur in the study area are relatively common and disturbance-tolerant woodland species, and all would be common residents in surrounding conserved bushland. It is likely that a greater array of honeyeaters would be present during different seasons, particularly when the eucalypts present are in flower.

No reptile species were recorded during the surveys, although evidence of lizard/gecko trails was observed in soft sand beneath sandstone boulders present along the road reserve boundary. It is likely that a range of skinks and geckoes would occur in the study area, and would be more active during the warmer summer months. It is also likely that common snakes such as the Red-bellied Black Snake *Pseudechis porphyriacus*, Eastern Tiger Snake *Notechis scutatus* and Brown Snake *Pseudonaja textilis* would occur in the area, particularly in and around the drainage lines and culverts.

No amphibian species were recorded during the surveys. This is likely to be due to the dry conditions during the time of the survey, and the lack of permanent water in the area. Some of the common and more wide-ranging species are likely to occur in the study area on occasions, following prolonged rainfall, *eg* Common Eastern Froglet *Crinia signifera* and Peron's Tree Frog *Litoria peronii*.

Evidence of three native terrestrial mammal species were recorded during the surveys, burrows of the Common Wombat, scratching and destruction of termite mounds by the Echidna, and scats/trails of the Swamp Wallaby. These three species are all common and relatively disturbance-tolerant species, and are likely to occur throughout surrounding bushland areas.

No arboreal mammals were recorded during the surveys, nor any indirect evidence for such species. The trees present within the study area are remarkably unscratched. It is likely that the noise of Picton Road deters these species from utilising the study area.

Microchiropteran bat call recording was not undertaken during the surveys due to the noise of Picton Road. A large number of microchiropteran bats are known to occur in the locality (refer to Appendix 2), including several threatened species. It is assumed that all of these species would occur in or utilise the study area on occasions.

Introduced mammals recorded during the surveys include the Rabbit and Fox.

3.3.2 Conservation Significance

No fauna species listed as *threatened*" under either the TSC Act or EPBC Act were recorded during the surveys. However, it is likely that several of the threatened microchiropteran bat species known to occur in the locality would occur on occasions. These species are discussed further in Chapter 5 below.

Three bird species listed as migratory under the EPBC Act are known to occur in the locality, and could occur within the study area on occasions. These species are discussed further in Chapter 6 below.

No fauna species being part of any relevant "*endangered population*" listed under the TSC Act were recorded during the field surveys.

Table 3 Relevance of threatened species (TSC Act) known to occur within 5km of the study area.

Species	Habits/Requirements	Relevance to Study Area
Fauna		
Eastern Pygmy Possum	Rainforest, sclerophyll forest and tree heath, feeds on flowers of Banksia, eucalypts, bottlebrushes and on insects (Strahan 1995)	4 records within 5km, most recent in 2000. The study area does not provide typical habitat for this species, and is likely to be too noisy due to proximity to Picton Road. No indirect evidence. Not considered likely to occur within the study area.
Eastern False Pipistrelle	Roosts in tree cavities, forages mostly above the forest canopy, in woodland or over water (Strahan 1995)	2 records within 5km, most recent in 1998. May forage and possibly roost in the study area on occasions.
Common Bent-wing Bat	Roosts in caves and old mines, typically inhabits well-timbered valleys where it forages above the tree canopy (Strahan 1995)	4 records within 5km, most recent in 1999. May forage in the study area on occasions. No caves or likely roost sites are present in the study area.

Table 3 cont Relevance of threatened species (TSC Act) known to occur within 5km of the study area.

Species	Habits/Requirements	Relevance to Study Area
Eastern Freetail Bat	Usually recorded in dry eucalypt forest and woodland east of the Great Dividing Range, but has also been recorded in rainforest and wet sclerophyll forest. Predominantly tree-dwelling (Strahan 1995)	2 records within 5km, most recent in 1999. May forage and possibly roost in the study area on occasions.
Large-footed Myotis	Colonies never occur far from bodies of water. This species forages for aquatic insects by raking the surface with their large feet.	1 record within 5km, 1999. No aquatic foraging habitat present within the study area. May possibly occur in the study area on occasions.
Turquoise Parrot	Inhabits the edge of Eucalypt forest adjoining clearings, forages on the ground for grass seeds (Blakers *et al* 1984; Lindsey 1992)	1 record in the locality in 1994. The study area does not provide typical habitat for this species, and is likely to be too noisy due to proximity to Picton Road. No indirect evidence. Not considered likely to occur within the study area.
Koala	Forest remnants of foothills and coastal plains, feeds on foliage of specific eucalypts (Strahan 1995)	2 records within 5km, most recent in 2001. This species is sedentary and readily observed when present. No indirect evidence recorded (ie scratches, scats). Not likely to occur in the study area.
Greater Broad-nosed Bat	Inhabits gullies and river systems draining the Great Dividing Range, occurs in a variety of woodland and forest habitats, favours creekline corridors for foraging, roosts in tree-hollows (Strahan 1995)	3 records within 5km, most recent in 1999. May forage and possibly roost in the study area on occasions.
Diamond Firetail	Inhabits temperate eucalypt woodland, mallee and agricultural land. Generally sedentary. Forages on the ground for seeds and insects. Nests in a dense bush several metres from the ground (Lindsay 1992)	1 record within 5km, in 1994. The study area does not provide typical habitat for this species, and is likely to be too noisy due to proximity to Picton Road. Not considered likely to occur within the study area.
Rosenberg's Goanna	Coastal heaths, humid woodland, and sclerophyll forest, shelters in burrows, hollow logs and rock crevices (Cogger 1996)	2 records within 5km, most recent 2002. No evidence for this species such as scratch marks, shelter sites in the study area. Study area does not support typical habitat and is adjacent to a busy road. Not likely to occur in the study area.
Flora		
Epacris purpurascens var *purpurascens*	An erect shrub which occurs in sclerophyll forest, scrubs and swamps (NSW Scientific Committee).	29 records within 5km, most recent 2001. Recorded within the study area.
Grevillea parviflora ssp *parviflora*	A small shrub, usually less than 1m tall, with a scattered distribution predominantly through the Blue Mountains and Southern Highlands (Fairley & Moore 1995).	1 record within 5km, in 2001. Not recorded within the study area.

Table 3 cont Relevance of threatened species (TSC Act) known to occur within 5km of the study area.

Species	Habits/Requirements	Relevance to Study Area
Persoonia bargoensis	Erect shrub to 2.5m tall. Occurs in woodland to dry sclerophyll forest in the catchments of the Cataract, Cordeaux and Bargo Rivers. Often associated with disturbance margins (NSW Scientific Committee).	2 records within 5km, most recent 1999. Not recorded within the study area.
Pomaderris brunnea	Shrub to 2-3m tall, occurs in woodland and semi-cleared scrub on clay and alluvial soils of floodplain and creeklines (Fairley & Moore 1995).	1 record within 5km, in 1957. Study area does not provide suitable habitat. Not recorded within the study area.

4 DISCUSSION OF IMPACTS

The proposed truck parking area would involve clearing of all vegetation and habitats present within the study area (approximately 11300sqm of land), to enable levelling and surfacing. This would have a direct impact upon the vegetation to be removed, and upon fauna species resident within this area. However, this impact is considered minimal given the extent of intact bushland present on conserved lands surrounding the study area.

The study area does not support unique features or species that would be lost as a result of the proposed clearing. All species recorded within the study area are also present in surrounding areas, and most are likely to be present throughout the conserved land.

The proposed truck parking area is a not part of any on-going clearing and development of the area, and does not contribute to any significant cumulative impact upon the area. The cleared Picton Road corridor would be widened at the study area. However, this is a only a short section of the road corridor, and is not considered likely to result in further fragmentation or isolation of vegetation and habitats present in the surrounding area.

Potential impacts on native flora and fauna downstream of the site include increased nutrient loading of watercourses, the possible discharge of oils and other pollutants in watercourses, and increased erosion, soil loss and sedimentation. These impacts are to be minimised through the implementation of appropriate pollution and sediment control measures, and careful management of construction and on-going wastes.

5 NSW THREATENED SPECIES CONSERVATION ACT 1995

The *NSW Threatened Species Conservation Act 1995* (TSC Act) has modified the *NSW Environmental Planning & Assessment Act 1979* (EP&A Act) by including in Section 5A eight factors which are to be considered when determining "*whether there is likely to be a significant effect on threatened species, populations or ecological communities, or their habitats*". These eight factors "*must be taken into account*" by a consent or determining authority when considering a development proposal or Development Application, particularly in administering Sections 78, 79 and 112 of the EP&A Act.

5.1 Relevant Threatened Biota

5.1.1 Species

Flora

A population of the threatened plant *Epacris purpurascens* var *purpurascens* was recorded within the study area and on surrounding lands. The proposed development is likely to involve removal of up to 20 individuals of this species. The population appears to be centred on land to the northwest of the study area, on the other side of the airstrip, where at least several hundred individuals were observed.

Fauna

It is likely that threatened microchiropteran bat species known to occur in the locality (the Eastern Freetail Bat *Mormopterus norfolkensis*, Eastern False Pipistrelle *Falsistrellus tasmaniensis*, Common Bent-wing Bat *Miniopterus schreibersii*, Large-footed Myotis *Myotis adversus* and Greater Broad-nosed Bat *Scoteanax rueppellii*) would utilise the study area on occasions. The significance of potential impacts of the proposed works upon these species has been assessed pursuant to Section 5A of the EP&A Act (as summarised in Chapter 5.2 below, with details in Appendix 4).

5.1.2 Populations

No flora or fauna species being part of any relevant "*endangered population*" listed under the TSC Act were recorded in the study area.

5.1.3 Ecological Communities

No "*endangered ecological community*" listed under the TSC Act was recorded in the study area, or is likely to be affected by the proposed works.

5.2 Summary of Eight Part Tests

5.2.1 Epacris purpurascens var *purpurascens*

In summary of the eight parts:

a) the proposed removal of approximately 20 individuals of *Epacris purpurascens* var *purpurascens* from the study area is not considered likely to disrupt the local population such that it is placed at risk of extinction, either immediately or in the longer term";

b) the local population of *Epacris purpurascens* var *purpurascens* is not listed as an "*endangered population*" under the TSC Act;

c) the proposed works involve clearing of just 11300sqm of vegetation, in an area surrounded by extensive tracts of native vegetation (including potential and known habitat for *Epacris purpurascens* var *purpurascens*). It is considered unlikely that the proposed works would result in "*a significant area of known habitat*" for *Epacris purpurascens* var *purpurascens* "*to be modified or removed*";

d) the proposed truck parking area would widen a short length of the cleared Picton Road corridor in this area, but is not likely to isolate or further isolate known habitat for *Epacris purpurascens* var *purpurascens*;

e) the proposed works would not affect any declared critical habitat;

f) *Epacris purpurascens* var *purpurascens* is not regarded as "*adequately represented in conservation reserves (or other similar protected areas) in the region*";

g) the proposed works would involve some clearing of native vegetation and habitats, and thus constitute an "*activity that is recognised as a threatening process*"; and

h) *Epacris purpurascens* var *purpurascens* occurs in the Sydney and Central Coast districts, and may be located near its southern limit of distribution in the study area.

Upon consideration of the above (with details in Appendix 4), it is not considered likely that the proposed truck parking area along Picton Road would impose "*a significant effect*" upon *Epacris purpurascens* var *purpurascens*.

5.2.2 Microchiropteran Bats

It is considered likely that threatened microchiropteran bats known to occur in the locality (the Eastern Freetail Bat *Mormopterus norfolkensis*, Eastern False Pipistrelle *Falsistrellus tasmaniensis*, Common Bent-wing Bat *Miniopterus schreibersii*, Large-footed Myotis *Myotis adversus* and Greater Broad-nosed Bat *Scoteanax rueppellii*) would utilise the study area on occasions.

In summary of the above eight parts:

a) it is unlikely that the proposed works would disrupt the life cycle of "*a viable local population*" of any of the five microchiropteran bat species such that it would "*be placed at risk of extinction*";

b) neither of the five species are part of any listed "*endangered population*";

c) the proposed works involve clearing of 11300sqm of vegetation, in an area surrounded by extensive tracts of native vegetation. The proposed works are not considered likely to involve "*a significant area of known habitat*" for the five threatened microchiropteran bat species "*to be modified or removed*";

d) the proposed truck parking area would widen a short length of the cleared Picton Road corridor, but is not likely to notably isolate or further isolate known habitat for microchiropteran bats;

e) the proposed works would not affect any declared critical habitat;

f) the occurrence of the five microchiropteran bat species within conservation reserves is not well known. However, given that the five species are all listed as "*threatened*" on the TSC Act, it would seem unlikely that these species are "*adequately represented in conservation reserves ... in the region*";

g) the proposed works would involve some clearing of native vegetation and habitats, and thus constitute an "*activity that is recognised as a threatening process*"; and

h) the Eastern Freetail Bat *Mormopterus norfolkensis*, Eastern False Pipistrelle *Falsistrellus tasmaniensis*, Common Bent-wing Bat *Miniopterus schreibersii*, Large-footed Myotis *Myotis adversus* and Greater Broad-nosed Bat *Scoteanax rueppellii* would not be located "*at the limit of ... known distribution*" in the study area on Picton Road.

Upon consideration of the above, it is not considered likely that the proposed truck parking area on Picton Road would impose "*a significant effect*" upon either the Eastern Freetail Bat *Mormopterus norfolkensis*, Eastern False Pipistrelle *Falsistrellus tasmaniensis*, Common Bent-wing Bat *Miniopterus schreibersii*, Large-footed Myotis *Myotis adversus* and Greater Broad-nosed Bat *Scoteanax rueppellii*.

5.3 Summary

The proposed truck parking area on Picton Road is not considered likely to impose "*a significant effect*" upon any threatened species, population or ecological community listed on the TSC Act.

A Species Impact Statement is not required for this proposal.

6 COMMONWEALTH EPBC ACT 1999

The *Commonwealth Environment Protection & Biodiversity Conservation Act 1999* requires that an action which has, will have or is likely to have a significant impact upon one or more matters of National Environmental Significance (NES) must be referred to the Commonwealth Minister for Environment & Heritage for approval. These actions are referred to as 'controlled actions'.

Matters of NES include World Heritage properties, listed Ramsar Wetlands of international importance, listed threatened species and communities, listed migratory species, nuclear actions and Commonwealth marine areas.

6.1 Matters of National Environmental Significance

It is possible that some of the migratory bird species listed as occurring in the locality (EPBC database), or known to occur in the locality (previous surveys, NPWS database) could occur in the study area on occasions.

Migratory species known to occur in the locality and which may occur in the study area on occasions include the White-throated Needletail and Black-faced Monarch. The Australian Wood Duck has also been recorded in the locality, but is not considered likely to utilise the study area, given the lack of permanent water, and the distance of the study area from permanent water bodies (more than 1km).

No other matters of NES are considered likely to be affected by the proposed works.

6.2 Requirement for Referral to the Commonwealth

The proposed works are not considered likely to impose a significant impact upon migratory species on the basis that:

- the proposed works involve clearing and disturbance to approximately 11300sqm of land immediately adjacent to Picton Road, some of which has been previously disturbed;
- the proposed works do not involve clearing or loss of any features or resources unique to the study area;
- the study area is surrounded by extensive tracts of intact bushland conserved on water catchment land;
- migratory species are by nature wide-ranging and highly mobile species; and
- no evidence for any of these species (either sighting, or indirect *eg* nests, feathers) was recorded during the surveys.

The proposed works are not considered likely to impose 'a significant impact' upon any matter of NES. On this basis, referral to the Commonwealth Minister for Environment and Heritage under the EPBC Act is not required.

7 SEPP 44 – KOALA HABITAT PROTECTION

7.1 Relevance of SEPP 44

State Environmental Planning Policy No 44 (SEPP 44) "*aims to encourage the proper conservation and management of areas of natural vegetation that provide habitat for koalas to ensure a permanent free-living population over their present range and reverse the current trend of koala population decline*".

The policy applies to land within Local Government Areas listed on Schedule 1 of the policy. Wollondilly LGA is listed on Schedule 1.

Part 2 of the policy (Development Control of Koala Habitats) applies to land with an area (or adjoining lands under the same ownership with a combined area) of greater than 1 hectare. The study area is greater than 1 hectare in size (11300sqm), and is connected to extensive tracts of natural bushland.

Therefore, SEPP 44 is of relevance to the proposed works.

7.2 Determination of 'potential koala habitat'

'Potential koala habitat' is native vegetation where tree species listed under Schedule 2 of the Policy constitute 15% or greater of the number of trees present.

One tree species listed on Schedule 2 of the Policy occurs within the study area – Broad-leaved Scribbly Gum *Eucalyptus haemastoma*. This species is dominant within the study area, and does constitute more than 15% of the number of trees present.

Therefore the study area does support 'potential koala habitat'.

7.3 Determination of 'core koala habitat'

'Core koala habitat' is land which has been classed as 'potential koala habitat', and which supports a resident population of Koalas, evidenced by breeding females, recent sightings and historical records.

No Koalas were recorded within the study area, nor any indirect evidence for Koalas (*eg* scats, scratchings, fur tufts). Only one record of the Koala occurring within several kilometres of the study area is listed on the NPWS Atlas of NSW Wildlife, from 1974, nearly 30 years ago.

There does not appear to be a resident population of Koalas within the study area. Therefore the study area does not support 'core koala habitat', and SEPP 44 no longer applies to the proposed works.

8 CONCLUSIONS AND RECOMMENDATIONS

8.1 Conclusions

The proposed truck parking area on Picton Road is not considered likely to impose "*a significant effect*" upon any threatened species, population or ecological community listed on the TSC Act. A Species Impact Statement is not required for this proposal.

The proposed works are not considered likely to impose 'a significant impact' upon any matter of NES. On this basis, referral to the Commonwealth Minister for Environment and Heritage under the EPBC Act is not required.

One weed species listed as 'noxious' on the *NSW Noxious Weeds Act 1993* was recorded in the study area (Blackberry). The *Noxious Weeds Act 1993* lists requirements pertaining to control and removal of listed weeds. No weed species listed as 'notifiable' in NSW or in the Wollondilly LGA were recorded in the study area.

The study area does not support 'core koala habitat' as defined under SEPP 44, therefore SEPP 44 does not apply to the proposed works.

8.2 Recommendations

The following general measures are recommended to minimise the potential impacts of proposed works upon native flora and fauna:

- all weed material cleared from the works site should be removed and/or destroyed, having particular regard to the requirements for weed species listed as 'noxious' under the *NSW Noxious Weeds Act 1993* (refer to Appendix 1);
- large trees, particularly those containing hollows, should be removed relatively intact and placed on the ground in adjacent bushland, to provide additional habitat features for native fauna;

- appropriate sediment control measures should be implemented during the clearing and construction phases of the project (*eg* silt fences, sediment traps), to protect terrestrial and aquatic habitats in the immediate vicinity and downstream. These should conform to relevant guidelines, should be maintained throughout the construction period and should be carefully removed following the completion of works;
- appropriate management of wastes, to minimise the discharge of chemicals or contaminants (such as oils, detergents, concrete) into waterways and adjacent areas of native vegetation; and
- the use of locally indigenous plant species in any replanting schemes, to provide habitat features for native flora and fauna, and to maintain the local and regional genetic resource.

These measures would assist to reduce the impacts of the proposed works, but do not compensate for the loss of vegetation and habitats. However, the likely impacts of the proposed works are minimal in relation to vegetation conserved within the surrounding area, and no further impact amelioration or compensatory measures are considered necessary.

BIBLIOGRAPHY

Beadle N, Evans O and Carolin R. 1982. *Flora of the Sydney Region*. Reed Books, Sydney.

Benson D and Howell J. 1990. *Taken for Granted. The Bushland of Sydney and its Suburbs*. Kangaroo Press, Sydney.

Benson D and Howell J. 1994. The natural vegetation of the Sydney area. *Cunninghamia* 3(4).

Beruldsen G. 1995. *Which Bird of Prey is that?* Gordon Beruldsen, Kenmore Hills, Qld.

Blakers M, Davies SJJF and Reilly PN. 1984. *The Atlas of Australian Birds*. Royal Australian Ornithologists Union/Melbourne University Press.

Brooker MIH and Kleinig DA. 1990. *Field Guide to Eucalypts Volume 1 - Southeastern Australia*. Inkata Press, Melbourne.

Cogger HG. 1992. *Reptiles and Amphibians of Australia*. AH & AW Reed, Sydney.

Cropper SC. 1993. *Management of Endangered Plants*. CSIRO, Melbourne.

Dwyer PD. 1995. Common Bent-wing Bat *Miniopterus schreibersii*. In Strahan R (*ed*). 1995. *The Mammals of Australia*. Angus & Robertson Publishers, Sydney.

Environment Australia. 2000. *EPBC Act Administrative Guidelines on Significance*. Environment Australia.

Fairley A and Moore P. 1995. *Native Plants of the Sydney District*. Kangaroo Press, Sydney.

Griffiths K. 1987. *Reptiles of the Sydney Region*. Three Sisters Publications, Winmalee.

Harden G (*ed*). 1990. *Flora of New South Wales Vol 1*. NSW University Press, Kensington.

Harden G (*ed*). 1991. *Flora of New South Wales Vol 2*. NSW University Press, Kensington.

Harden G (*ed*). 1992. *Flora of New South Wales Vol 3*. NSW University Press, Kensington.

Harden G (*ed*). 1993. *Flora of New South Wales Vol 4*. NSW University Press, Kensington.

Hoye GA & Richards GC. 1995. Greater Broad-nosed Bat *Scoteanax rueppellii*. In Strahan R (*ed*). 1995. *The Mammals of Australia*. Angus & Robertson Publishers, Sydney.

Leonard G. 1993. *Eucalypts: A Bushwalkers Guide*. NSW University Press, Kensington.

Lindsey TR. 1992. *Encyclopaedia of Australian Animals: Birds*. Australian Museum/Angus & Robertson.

Phillips W. 1995. Eastern False Pipistrelle *Falsistrellus tasmaniensis*. In Strahan R (*ed*). 1995. *The Mammals of Australia*. Angus & Robertson Publishers, Sydney.

Robinson L. 1991. *Field Guide to the Native Plants of Sydney*. Kangaroo Press, Sydney.

Robinson M. 1996. *A Field Guide to Frogs of Australia*. Australian Museum/Reed Books.

Slater P, Slater P and Slater R. 1989. *The Slater Field Guide to Australian Birds*. Weldon Publishing, Sydney.

Specht RL. 1970. *Vegetation*. In Leeper GW (*ed*). *The Australian Environment*. CSIRO Australia.

Strahan R (*ed*). 1995. *The Mammals of Australia*. Angus & Robertson Publishers, Sydney.

Swan G. 1990. *A Field Guide to the Snakes and Lizards of New South Wales*. Three Sisters Publications, Winmalee.

Triggs B. 1998. *Tracks, Scats and Other Traces: A Field Guide to Australian Mammals*. Oxford University Press, Melbourne.

PICTON ROAD
PROPOSED TRUCK PARKING AREA

ECOLOGICAL ASSESSMENT

APPENDIX 1

Inventory of flora species recorded

October 2003

APPENDIX 1 Flora species recorded in the study area along Picton Road during the recent field investigations.

KEY	
Status	
*	Weed species (including horticultural and native non-indigenous specimens)
TSC – V	Vulnerable species listed on Schedule 2 of the *NSW Threatened Species Conservation Act 1995*
N	Noxious weed (category) listed on the *NSW Noxious Weeds Act 1993* (NW Act) for the Wollondilly LGA

Status	SCIENTIFIC NAME	COMMON NAME
	PTERIDOPHYTA: FILOCOPSIDA	
	Dennstaedtiaceae	
	Pteridium esculentum	Common Bracken Fern
	MAGNOLIOPSIDA: DICOTYLEDONS	
	Apiaceae	
	Centella asiatica	Swamp Pennywort
*	*Foeniculum vulgare*	Fennel
	Platysace linearifolia	Narrow-leaf Platysace
	Trachymene incisa ssp *incisa*	-
	Apocynaceae	
	Parsonsia straminea	Common Silkpod
	Asclepiadaceae	
*	*Gomphocarpus fruticosus*	Narrow Leaf Cotton Bush
	Asteraceae	
	Actinotus minor	Lesser Flannel Flower
*	*Arctotheca calendula*	Cape Weed
*	*Calotis* sp.	Bindii Weed
*	*Conzya bonariensis*	Flaxleaf/Fleabane
	Helichrysum rutidolepis	Button Everlasting
	Helichrysum scorpioides	Button Everlasting
*	*Hypochoeris radicata*	Cat's Ears
	Olearia microphylla	Small-leaved Daisy-bush
	Senecio linearifolius	Fireweed/Groundsel
*	*Senecio madagascariensis*	Fireweed
*	*Sonchus asper* ssp. *glaucescens*	Prickly Sowthistle
*	*Sonchus oleraceus*	Common Sowthistle
	Vittadinia cuneata var *cuneata*	Vittadinia
	Carophyllaceae	
*	*Cerastium glomeratum*	Mouse Ear Chickweed
	Cassythaceae	
	Cassytha paniculata	Dodder/Devil's Twine
	Casuarinaceae	
	Allocasuarina torulosa	Forest She-Oak
	Convolvulaceae	
	Dichondra repens	Kidney Weed
	Dilleniaceae	
	Hibbertia obtusifolia	Hibbertia
	Epacridaceae	
TSC - V	*Epacris purpurascens* var *purpurascens*	-
	Leucopogon lanceolatus var *lanceolatus*	-
	Leucopogon juniperus	Prickly Beard-Heath
	Lissanthe strigosa	Peach Heath

APPENDIX 1 cont Flora species recorded in the study area along Picton Road during the recent field investigations.

Status	SCIENTIFIC NAME	COMMON NAME
	Euphorbiaceae	
*	*Euphorbia peplus*	Petty Spurge
	Fabaceae: Faboideae	
	Bossiaea obcordata	Spiny Bossiaea
	Bossiaea prostrata	Bossiaea
	Bossiaea rhombifolia ssp rhombifolia	Bossiaea
	Daviesia squarrosa	Bitter Pea
	Dillwynia rudis	Dillwynia
	Gompholobium glabratum	Dainty Wedge Pea
	Hardenbergia violacea	Native Sarsparilla
	Kennedia rubicunda	
*	*Medicago polymorpha*	Burr Medic
	Pultenaea scabra	Pultenaea
	Pultenaea daphnoides	Large-leave Pultenaea
*	*Trifolium repens*	White Clover
	Viminaria juncea	
	Fabaceae: Mimosoideae	
*	*Acacia baileyana*	Cootamundra Wattle
	Acacia binervia	Coast Myall
	Acacia brownii	Heath Wattle
	Acacia decurrens	Black/Green Wattle
	Acacia fimbriata	Fringed Wattle
	Acacia hispidula	-
*	*Acacia iteaphylla*	Flinders Ranges Wattle
	Acacia linearifolia	-
	Acacia linifolia	Flax-leaved Wattle
	Acacia longifolia ssp. *longifolia*	Sydney Green Wattle
	Acacia parramattensis	Parramatta/Sydney Green Wattle
	Acacia pravissima	Wedge-leaved Wattle
*	*Acacia saligna*	Golden Wreath Wattle
	Acacia terminalis	Sunshine Wattle
	Lobeliaceae	
	Pratia purpurascens	White-root
	Malaceae	
*	*Cotoneaster glaucophyllus*	Large-leaf Cotoneaster
	Malvaceae	
*	*Malva parviflora*	Small-flowered Mallow
	Myrtaceae	
	Corymbia gummifera	Red Bloodwood
	Eucalyptus globoidea	White Stringybark
	Eucalyptus haemastoma	Scribbly Gum
	Eucalyptus notabilis	Mountain Mahogany
	Eucalyptus sieberi	Silvertop Ash
	Leptospermum polygalifolium ssp *polygalifolium*	Tea-Tree
	Melaleuca armillaris ssp *armillaris*	Giant Honey-myrtle
	Melaleuca hypericifolia	Melaleuca
	Melaleuca linariifolia	Snow-in-summer
	Oleaceae	
	Olax stricta	Olax
	Pittosporaceae	
	Billardiera scandens	Apple Berry
	Pittosporum undulatum	Sweet Pittosporum
	Plantaginaceae	
*	*Plantago lanceolata*	Lambs Tongues
	Proteaceae	
	Banksia paludosa	-
	Banksia spinulosa var. *spinulosa*	Hairpin Banksia

APPENDIX 1 cont Flora species recorded in the study area along Picton Road during the recent field investigations.

Status	SCIENTIFIC NAME	COMMON NAME
	Proteaceae cont	
	Grevillea buxifolia	Grey Spider Flower
	Hakea gibbosa	Hakea
	Hakea laevipes ssp. *laevipes*	Hakea
	Hakea sericea	Hakea
	Isopogon anemonifolius	Broad-leaf Drumstick
	Kunzea ambigua	Tick Bush
	Lambertia formosa	Honey Flower
	Lomatia silaifolia	Crinkle Bush
	Persoonia laevis	Broad-leaf Geebung
	Persoonia linearis	Geebung
	Persoonia pinifolia	Pine-leaf Geebung
	Petrophile pedunculata	Conestick
	Xylomelum pyriforme	Woody Pear
	Ranunculaceae	
	Clematis glycinoides var *glycinoides*	Headache Vine
	Rosaceae	
N (W3)	*Rubus fruticosus* species aggregate	Blackberry
	Rutaceae	
	Eriostemon australasius	Pink Wax Flower
	Scrophulariaceae	
	Verbascum thapsus ssp *thapsus*	Blanket Weed
	Solanaceae	
	Solanum aviculare	Kangaroo Apple
	Thymelaeaceae	
	Pimelia linifolia ssp. *linifolia*	Pimelia
	Verbenaceae	
*	*Verbena bonariensis*	Purple Top
	Viola	
	Viola betonicifolia	Native Violet
	MAGNOLIOPSIDA: MONOCOTYLEDONS	
	Cyperaceae	
	Gahnia microstachya	Gahnia
	Lepidosperma laterale	-
	Lepidosperma concavum	-
	Iridaceae	
	Patersonia sericea	Native Iris/Purple Flag
	Juncaceae	
	Juncus usitatus	Juncus
	Lomandraceae	
	Lomandra longifolia	Spiny-headed Mat-rush
	Lomandra obliqua	Twisted Mat-rush
	Orchidaceae	
	Diuris maculata	Spotted Doubletail
	Glossodia major	Waxlip Orchid
	Phormiaceae	
	Dianella longifolia var. *longfolia*	Blue Flax Lily
	Poaceae	
*	*Chloris gayana*	Rhodes Grass
	Cymbopogon refractus	Barbed Wire Grass
*	*Cynodon dactylon*	Couch/Bermuda Grass
	Danthonia sp.	Wallaby Grass

APPENDIX 1 cont Flora species recorded in the study area along Picton Road during the recent field investigations.

Status	SCIENTIFIC NAME	COMMON NAME
	Poaceae cont	
	Dichelachne rara	Rare Plume Grass
	Echinopogon caespitosus	Hedgehog Grass
	Entolasia marginata	Border Panic
	Entolasia stricta	Wiry Panic
	Imperata cylindrica	Blady Grass
	Microlaena stipoides	-
*	*Paspalum dilatum*	Paspalum
*	*Pennisetum clandestinum*	Kikuyu Grass
*	*Poa annua*	Winter Grass
	Poa labillardieri	Poa
	Stipa pubescens	Tall Spear Grass
	Themeda australis	Kangaroo Grass
*	*Vulpa Bromides*	Squirrel Tail Fescue

PICTON ROAD
PROPOSED TRUCK PARKING AREA

ECOLOGICAL ASSESSMENT

APPENDIX 2

Inventory of fauna species recorded

October 2003

APPENDIX 2 Fauna species recorded in the study area along Picton Road during specific field investigations, and previously in the vicinity.

KEY

Status

*	Introduced species
M	Migratory species listed under the Commonwealth EPBC Act
V	Vulnerable species listed on the NSW TSC Act

Location

A	Species recorded in the study area during current surveys.
B	Species recorded previously within several kilometers of the study area (NPWS Atlas of NSW Wildlife)

Status	COMMON NAME	SCIENTIFIC NAME	A	B
	BIRDS			
	Anatidae			
M	Australian Wood Duck	*Chenonetta jubata*		✓
	Cacatuidae			
	Sulphur-crested Cockatoo	*Cacatua galerita*	✓	
	Psittacidae			
	Crimson Rosella	*Platycercus elegans*	✓	✓
	Caprimulgidae			
	White-throated Nightjar	*Eurostopodus mystacalis*		✓
	Aegothelidae			
	Australian Owlet-nightjar	*Aegotheles cristatus*		✓
	Apodidae			
M	White-throated Needletail	*Hirundapus caudacutus*		✓
	Alcedinidae			
	Azure Kingfisher	*Alcedo azurea*		✓
	Halcyonidae			
	Sacred Kingfisher	*Todiramphus sanctus*		✓
	Laughing Kookaburra	*Dacelo novaeguineae*	✓	✓
	Neosittidae			
	Varied Sittella	*Daphoenositta chrysoptera*	✓	
	Pachycephalidae			
	Golden Whistler	*Pachycephala pectoralis*		✓
	Dicruridae			
	Grey Fantail	*Rhipidura albiscapa*		✓
M	Black-faced Monarch	*Monarcha melanopsis*		✓
	Campephagidae			
	Black-faced Cuckoo-shrike	*Coracina novaehollandiae*		✓
	Menuridae			
	Superb Lyrebird	*Menura novaehollandiae*		✓
	Climacteridae			
	White-throated Treecreeper	*Climacteris leucophrys*	✓	✓
	Pardalotidae			
	Spotted Pardalote	*Pardalotus punctatus*	✓	
	Brown Thornbill	*Acanthiza pusilla*		✓
	Thornbill	*Acanthiza* sp	✓	
	Rockwarbler	*Origma solitaria*		✓
	Pilotbird	*Pycnoptilus floccosus*		✓

APPENDIX 2 cont Fauna species recorded in the study area along Picton Road during specific field investigations, and previously in the vicinity.

Status	COMMON NAME	SCIENTIFIC NAME	A	B
	Meliphagidae			
	Noisy Friarbird	*Philemon corniculatus*		✓
	Red Wattlebird	*Anthochaera carunculata*	✓	
	Eastern Spinebill	*Acanthorhynchus tenuirostris*	✓	✓
	Lewins Honeyeater	*Meliphaga lewinii*		✓
	Yellow-faced Honeyeater	*Lichenostomus chrysops*		✓
	Petroicidae			
	Eastern Yellow Robin	*Eopsaltria australis*	✓	✓
	Artamidae			
	Pied Currawong	*Strepera graculina*		✓
	Grey Butcherbird	*Cracticus torquatus*		✓
	Passeridae			
	Red-browed Finch	*Neochmia temporalis*		✓
	Dicaeidae			
	Mistletoebird	*Dicaeum hirundinaceum*	✓	
	REPTILES			
	Gekkonidae			
	Broad-tailed Gecko	*Phyllurus platurus*		✓
	Agamidae			
	Jacky Lizard	*Amphibolurus muricatus*		✓
	Mountain Heath Dragon	*Tympanocryptis diemensis*		✓
	Eastern Water Dragon	*Physignthus lesueurii ssp lesueurii*		✓
	Scincidae			
	Red-throated Cool-skink	*Bassiana platynota*		✓
	Copper-tailed Ctenotus	*Ctenotus taeniolatus*		✓
	Eastern Water Skink	*Eulamprus quoyii*		✓
	Garden Skink	*Lampropholis delicata*		✓
	AMPHIBIANS			
	Hylidae			
	Blue Mountains Tree Frog	*Litoria citropa*		✓
	Lesueurs Frog	*Litoria lesueuri*		✓
	Green Stream Tree Frog	*Litoria phyllochroa*		✓
	Peron's Tree Frog	*Litoria peronii*		✓
	MAMMALS			
	Tachyglossidae			
	Echidna	*Tachyglossus aculeatus*	✓	
	Dasyuridae			
	Brown Antechinus	*Antechinus stuartii*		✓
	Phascolarctidae			
V	Koala	*Phascolarctos cinereus*		✓
	Vombatidae			
	Common Wombat	*Vombatus ursinus*	✓	
	Petauridae			
	Sugar Glider	*Petaurus breviceps*		✓
	Macropodidae			
	Common Wallaroo	*Macropus robustus*		✓
	Swamp Wallaby	*Wallabia bicolor*	✓	✓

APPENDIX 2 cont Fauna species recorded in the study area along Picton Road during specific field investigations, and previously in the vicinity.

Status	COMMON NAME	SCIENTIFIC NAME	A	B
	Molossidae			
V	Eastern Freetail Bat	*Mormopterus norfolkensis*		✓
	Undescribed mastiff-bat	*Mormopteris* sp 1		✓
	Vespertilionidae			
	Chocolate Wattled Bat	*Chalinolobus morio*		✓
	Gould's Wattled Bat	*Chalinolobus gouldii*		✓
V	Eastern False Pipistrelle	*Falsistrellus tasmaniensis*		✓
V	Common Bent-wing Bat	*Miniopterus schreibersii*		✓
	Large-footed Myotis	*Myotis adversus*		✓
	Gould's Long-eared Bat	*Nyctophilus gouldi*		✓
V	Greater Broad-nosed Bat	*Scoteanax rueppellii*		✓
	Eastern Broad-nosed Bat	*Scoteanax orion*		✓
	Southern Forest Bat	*Vespadelus regulus*		✓
	Little Forest Bat	*Vespadelus vulturnus*		✓
	Large Forest Bat	*Vespadelus darlingtoni*		✓
	Muridae			
	Bush Rat	*Rattus fuscipes*		✓
	Introduced Mammals			
*	Fox	*Vulpes vulpes*	✓	✓
*	Rabbit	*Oryctolagus cuniculus*	✓	✓
*	Dog	*Canis familiaris*		✓

PICTON ROAD
PROPOSED TRUCK PARKING AREA

ECOLOGICAL ASSESSMENT

APPENDIX 3

Final Determinations of the NSW Scientific Committee

October 2003

APPENDIX 3

Final Determination of the NSW Scientific Committee regarding *Epacris purpurascens* var *purpurascens*

Epacris purpurascens* var *purpurascens

The Scientific Committee, established by the Threatened Species Conservation Act, has made a Final Determination to list the shrub *Epacris purpurascens* var. *purpurascens* R. Br. as a VULNERABLE SPECIES on Schedule 2 of the Act. Listing of vulnerable species is provided for by Part 2 of the Act.

The Scientific Committee has found that:

1. *Epacris purpurascens* var. *purpurascens* is an erect shrub 50-150 cm high. It is described in Harden, 1992 (Flora of NSW Vol. 3) as follows: stems with prominent short, broad, leaf scars and villous branchlets; leaves with an aristate tip to 1.4 mm long, margins entire, and petiole glabrous; corolla tube shorter than, to as long as the sepals, 4.3-6 mm long, lobes 4.6-5 mm long; style 5.5-6.8 mm long; fruiting capsule about 2 mm long. *Epacris purpurascens* var. *purpurascens* occurs in sclerophyll forest, scrubs and swamps, from Gosford and Sydney districts in the Central Coast botanical subdivision. It is listed under the ROTAP scheme (Briggs and Leigh 1995, Rare or Threatened Australian Plants, CSIRO, Canberra) as 2KC- (poorly known), occurring in NSW in region 57C-, Brisbane Water National Park.

2. The species is currently known from about 30 locations. The size of populations, where known, varies from very small (1-5 plants) to greater than 1000 individuals.

3. A number of the known sites are reserved, with populations recorded from several reserves including Ku-ring-gai Chase National Park, Muogamarra Nature Reserve, Brisbane Water National Park, Berowra Valley Regional Park and Bents Basin State Recreation Area. However, most of these populations are very small, with the largest known populations occurring within Sydney Catchment Authority areas, west of Wollongong.

4. The main threats to *Epacris purpurascens* var. *purpurascens* are clearing and too frequent fire, particularly in areas north of Sydney. Due to the fragmented nature of the northern populations, and their small size, the species is susceptible to localised extinctions.

5. In view of 2, 3 & 4 above the Scientific Committee is of the opinion that the species is likely to become endangered unless the circumstances and factors threatening its survival or evolutionary development cease to operate, and is therefore eligible for listing as a vulnerable species.

Proposed Gazettal date: 24/12/99
Exhibition period: 24/12/99 – 4/2/00

PICTON ROAD
PROPOSED TRUCK PARKING AREA

ECOLOGICAL ASSESSMENT

APPENDIX 4

Assessment of Significance pursuant to Section 5A of the EP&A Act

October 2003

APPENDIX 4

Assessment of Significance of potential impacts of the proposed truck parking area along Picton Road upon *Epacris purpurascens* var *purpurascens*, and upon threatened microchiropteran bats known to occur in the locality, pursuant to Section 5A of the EP&A Act.

1 INTRODUCTION

The *NSW Threatened Species Conservation Act 1995* (TSC Act) has modified the *NSW Environmental Planning & Assessment Act 1979* (EP&A Act) by including in Section 5A eight factors which are to be considered when determining "*whether there is likely to be a significant effect on threatened species, populations or ecological communities, or their habitats*". These eight factors "*must be taken into account*" by a consent or determining authority when considering a development proposal or Development Application.

One plant species of conservation significance, *Epacris purpurascens* var *purpurascens*, was recorded in the study area and on adjacent lands during the field surveys. *Epacris purpurascens* var *purpurascens* is listed as a "*threatened*" species under the TSC Act. The proposed development is likely to involve removal of up to 20 individuals of this species. The population appears to be centred on land to the northwest of the study area, on the other side of the airstrip, where at least several hundred individuals were observed.

Five microchiropteran bat species are known to occur within 5km of the study area (NPWS Atlas of NSW Wildlife), and could potentially utilise the study area for foraging or roosting on occasions. In accordance with a precautionary approach, the potential impacts of the proposal upon these species have been assessed.

2 FACTORS for CONSIDERATION

2.1 *Epacris purpurascens* var *purpurascens*

(a) in the case of a threatened species, whether the life cycle of the species is likely to be disrupted such that a viable local population of the species is likely to be placed at risk of extinction

Epacris purpurascens var *purpurascens* appears to occur as a large population centred on land to the northwest of the study area. At least several hundred individuals of this species were observed during random walked surveys on lands surrounding the study area. 29 records of *Epacris purpurascens* var *purpurascens* are listed on the NPWS Atlas of NSW Wildlife within 5km of the study area, with all but three of these records dated in 2001.

Approximately 20 individuals of *Epacris purpurascens* var *purpurascens* were observed within the study area, representing only a small portion of the total population. The proposed works would involve removal of all of the *Epacris purpurascens* var *purpurascens* present within the study area.

The NSW Scientific Committee state that *Epacris purpurascens* var *purpurascens* is known from approximately 30 locations, varying size from only a few individuals, up to greater than 1000 individuals. The largest known populations occur within Sydney Catchment Authority areas west of Wollongong (*ie* in the vicinity of the study area).

The proposed removal of approximately 20 individuals of *Epacris purpurascens* var *purpurascens* from the study area is not considered likely to disrupt the local population such that it is placed at risk of extinction, either immediately or in the longer term.

(b) in the case of an endangered population, whether the life cycle of the species that constitutes the endangered population is likely to be disrupted such that the viability of the population is likely to be significantly compromised

The TSC Act defines an "*endangered population*" as "*a population specified in Part 2 of Schedule 1*" of the Act.

The local population of *Epacris purpurascens* var *purpurascens* is not listed as an "*endangered population*" under the TSC Act.

(c) in relation to the regional distribution of the habitat of a threatened species, population or ecological community, whether a significant area of known habitat is to be modified or removed

The TSC Act defines "*region*" as "*a bioregion defined in a national system of bioregionalisation that is determined (by the Director-General by order published in the Gazette) to be appropriate for those purposes*". The Director-General of the NSW NP&WS has given notice that the Interim Biogeographic Regionalisation of Australia (IBRA), published by the Australian Nature Conservation Agency (ANCA), is the appropriate definition of "*region*" for the TSC Act (Government Gazette No 65 - 24 May 1996).

On the basis of the IBRA, the study area on Picton Road is located within the Sydney Basin Region, which stretches from Batemans Bay in the south to Port Stephens in the north, and includes the whole of the Sydney Metropolitan area out to at least Lithgow and essentially all of the Hunter Valley.

Extensive areas of potential habitat occur on catchment lands surrounding the study area, and apparently very large populations of *Epacris purpurascens* var *purpurascens* are known to occur in the vicinity of the study area.

The study area is approximately 11300sqm in size, and only supports *Epacris purpurascens* var *purpurascens* across the northwestern parts of this area.

On the basis of the above considerations, it is considered unlikely that the proposed works would result in "*a significant area of known habitat*" for *Epacris purpurascens* var *purpurascens* "*to be modified or removed*".

(d) whether an area of known habitat is likely to become isolated from currently interconnecting or proximate areas of habitat for a threatened species, population or ecological community

Epacris purpurascens var *purpurascens* is likely to occur on both sides of Picton Road in the vicinity of the study area.

The proposed truck parking area would widen a short length of the cleared Picton Road corridor in this area, but is not likely to isolate or further isolate known habitat for *Epacris purpurascens* var *purpurascens*.

(e) whether critical habitat will be affected

The TSC Act 1995 defines "*critical habitat*" as "*habitat declared to be critical habitat under part 3*" of the Act.

The proposed works would not affect any declared critical habitat.

(f) whether a threatened species, population or ecological community, or their habitats, are adequately represented in conservation reserves (or other similar protected areas) in the region

Epacris purpurascens var *purpurascens* is known to occur on lands conserved as water catchment, and also occurs within Ku-ring-gai Chase National Park, Muogamarra Nature Reserve, Brisbane Water National Park, Berowra Valley Regional Park and Bents Basin State Recreation Area.

However, most of these populations are very small, and *Epacris purpurascens* var *purpurascens* is not regarded as "*adequately represented in conservation reserves (or other similar protected areas) in the region*".

(g) whether the development or activity is of a class of development or activity that is recognised as a threatening process

The TSC Act 1995 defines "*threatening process*" as "*a process that threatens, or may have the capability to threaten, the survival or evolutionary development of species, populations or ecological communities*".

The NSW Scientific Committee lists threats to the survival of *Epacris purpurascens* var *purpurascens* as clearing and too-frequent fire. Small populations in the north of Sydney are particularly susceptible to localised extinctions.

The NSW Scientific Committee has recently listed the clearing of native vegetation as a Key Threatening Process under the TSC Act.

The proposed works would involve some clearing of native vegetation and habitats, and thus constitute an "*activity that is recognised as a threatening process*".

(h) whether any threatened species, population or ecological community is at the limit of its known distribution

Epacris purpurascens var *purpurascens* occurs in the Sydney and Central Coast districts, and may be located near its southern limit of distribution in the study area.

Summary

In summary of the above eight parts:

a) the proposed removal of approximately 20 individuals of *Epacris purpurascens* var *purpurascens* from the study area is not considered likely to disrupt the local population such that it is placed at risk of extinction, either immediately or in the longer term";

b) the local population of *Epacris purpurascens* var *purpurascens* is not listed as an "*endangered population*" under the TSC Act;

c) the proposed works involve clearing of just 11300sqm of vegetation, in an area surrounded by extensive tracts of native vegetation (including potential and known habitat for *Epacris purpurascens* var *purpurascens*). It is considered unlikely that the proposed works would result in "*a significant area of known habitat*" for *Epacris purpurascens* var *purpurascens* "*to be modified or removed*";

d) the proposed truck parking area would widen a short length of the cleared Picton Road corridor in this area, but is not likely to isolate or further isolate known habitat for *Epacris purpurascens* var *purpurascens*;

e) the proposed works would not affect any declared critical habitat;

f) *Epacris purpurascens* var *purpurascens* is not regarded as "*adequately represented in conservation reserves (or other similar protected areas) in the region*";

g) the proposed works would involve some clearing of native vegetation and habitats, and thus constitute an "*activity that is recognised as a threatening process*"; and

h) *Epacris purpurascens* var *purpurascens* occurs in the Sydney and Central Coast districts, and may be located near its southern limit of distribution in the study area.

Upon consideration of the above, it is not considered likely that the proposed truck parking area on Picton Road would impose "*a significant effect*" upon *Epacris purpurascens* var *purpurascens*.

2.2 Microchiropteran Bats

(Eastern Freetail Bat *Mormopterus norfolkensis*, Eastern False Pipistrelle *Falsistrellus tasmaniensis*, Common Bent-wing Bat *Miniopterus schreibersii*, Large-footed Myotis *Myotis adversus* and Greater Broad-nosed Bat *Scoteanax rueppellii*)

(a) in the case of a threatened species, whether the life cycle of the species is likely to be disrupted such that a viable local population of the species is likely to be placed at risk of extinction

A "*threatened species*" is defined in the TSC Act as "*a species specified in Part 1 or 4 of Schedule 1 or in Schedule 2*" of the Act.

The above five microchiropteran bat species are all listed as "*threatened*" on the TSC Act, and have all been listed as occurring within 5km of the study area on the NPWS Atlas of NSW Wildlife.

All five species are known to occur across substantial distributions (Strahan 1995), with current knowledge suggesting that all are capable of flying large distances in search of suitable foraging habitat and roosting sites.

The study area provides potential foraging and/or shelter resources for several of these microchiropteran bat species, and it is considered likely that individuals would utilise the study area, at least on occasions.

The study area provides potential foraging resources in the form of open woodland, with a relatively continuous canopy cover, and a variety of plant species present likely to attract a variety of prey insects. The study area does not provide foraging resources for the Large-footed Myotis, which forages for aquatic insects over water bodies.

The study area provides potential shelter and roosting opportunities for tree-dwelling microchiropteran bats, such as the Eastern False Pipistrelle, Eastern Freetail Bat and Greater Broad-nosed Bat. The Common Bent-wing Bat and Large-footed Myotis both tend to roost in caves, disused mines and in tunnels. These features are not present within the study area.

The proposed works involve clearing of approximately 11300sqm of land, immediately adjacent to Picton Road. The area of vegetation to be removed is extremely small in relation to native vegetation present on surrounding catchment lands, which also provides potential habitat for these microchiropteran bat species.

No habitat features of particular significance or uniquity are to be removed for the proposed works.

Upon consideration of the above, it is considered unlikely that the proposed works would disrupt the life cycle of "*a viable local population*" of any of the five species such that it would "*be placed at risk of extinction*".

(b) in the case of an endangered population, whether the life cycle of the species that constitutes the endangered population is likely to be disrupted such that the viability of the population is likely to be significantly compromised

The TSC Act defines an "*endangered population*" as "*a population specified in Part 2 of Schedule 1*" of the Act.

Neither the Eastern False Pipistrelle *Falsistrellus tasmaniensis*, Eastern Freetail Bat *Mormopterus norfolkensis*, Common Bent-wing Bat *Miniopterus schreibersii*, Large-footed Myotis *Myotis adversus* or Greater Broad-nosed Bat *Scoteanax rueppellii* are part of any listed "*endangered population*".

(c) in relation to the regional distribution of the habitat of a threatened species, population or ecological community, whether a significant area of known habitat is to be modified or removed

The TSC Act defines "*region*" as "*a bioregion defined in a national system of bioregionalisation that is determined (by the Director-General by order published in the Gazette) to be appropriate for those purposes*". The Director-General of the NSW NPWS has given notice that the Interim Biogeographic Regionalisation of Australia (IBRA), published by the Australian Nature Conservation Agency (ANCA), is the appropriate definition of "region" for the TSC Act (Government Gazette No 65 - 24 May 1996).

On the basis of the IBRA, the study area on Picton Road is located within the Sydney Basin Region, which stretches from Batemans Bay in the south to Port Stephens in the north, and includes the whole of the Sydney Metropolitan area out to at least Lithgow and essentially all of the Hunter Valley.

Within this extremely large region, the three microchiropteran bat species are known to occur across the following distributions:

- The Eastern False Pipistrelle is more common at cool elevations along the east coast of Australia, from SE Queensland to the Victorian/SA border, and including Tasmania (Phillips 1995);
- The Eastern Freetail Bat occurs in eucalypt woodland and occasionally rainforest and wet sclerophyll forest, along most of the east coast of NSW, generally east of the Great Dividing Range (Allison & Hoye 1995);
- the Common Bent-wing Bat occurs in well-timbered valleys along the entire east coast of Australia, from Cape York to Adelaide (Dwyer 1995);
- the Large-footed Myotis occurs near bodies of water around the northern and eastern coastlines of Australia, in NSW generally east of the Great Dividing Range (Richards 1995);
- The Greater Broad-nosed Bat occurs predominantly in the gullies and river systems of the Great Dividing Range, from the Atherton Tablelands to NE Victoria (Hoye & Richards 1995);

Extensive areas of potential foraging and shelter habitat for microchiropteran bats occurs on catchment lands surrounding the study area, and it is likely that populations of the five microchiropteran bat species would utilise much of this area. The study area is approximately 11300sqm in size, and does not support any habitat features of particular significance or uniquity.

On the basis of the above, the proposed works are not considered likely to involve "*a significant area of known habitat*" for the five threatened microchiropteran bat species "*to be modified or removed*".

(d) whether an area of known habitat is likely to become isolated from currently interconnecting or proximate areas of habitat for a threatened species, population or ecological community

The proposed truck parking area would widen a short length of the cleared Picton Road corridor, but is not likely to notably isolate or further isolate known habitat for microchiropteran bats.

(e) whether critical habitat will be affected

The TSC Act 1995 defines "*critical habitat*" as "*habitat declared to be critical habitat under part 3*" of the Act.

The proposed works would not affect any declared critical habitat.

(f) whether a threatened species, population or ecological community, or their habitats, are adequately represented in conservation reserves (or other similar protected areas) in the region

The occurrence of the five microchiropteran bat species within conservation reserves is not well known. However, given that the five species are all listed as "*threatened*" on the TSC Act, it would seem unlikely that these species are "*adequately represented in conservation reserves ... in the region*".

(g) whether the development or activity is of a class of development or activity that is recognised as a threatening process

The TSC Act 1995 defines "*threatening process*" as "*a process that threatens, or may have the capability to threaten, the survival or evolutionary development of species, populations or ecological communities*".

Disturbance to native vegetation is generally regarded as a threatening process for most native fauna species. The NSW Scientific Committee has recently listed the clearing of native vegetation as a Key Threatening Process under the TSC Act.

The proposed works would involve some clearing of native vegetation and habitats, and thus constitute an "*activity that is recognised as a threatening process*".

(h) whether any threatened species, population or ecological community is at the limit of its known distribution

All five species occur along the east coast of Australia to the north and south of the study area, and all occur from the coast to at least the foothills of the Great Dividing Range.

The Eastern Freetail Bat *Mormopterus norfolkensis*, Eastern False Pipistrelle *Falsistrellus tasmaniensis*, Common Bent-wing Bat *Miniopterus schreibersii*, Large-footed Myotis *Myotis adversus* and Greater Broad-nosed Bat *Scoteanax rueppellii* would not be located "*at the limit of ... known distribution*" in the study area on Picton Road.

Summary

In summary of the above eight parts:

a) it is unlikely that the proposed works would disrupt the life cycle of "*a viable local population*" of any of the five microchiropteran bat species such that it would "*be placed at risk of extinction*";

b) neither of the five species are part of any listed "*endangered population*";

c) the proposed works involve clearing of just 11300sqm of vegetation, in an area surrounded by extensive tracts of native vegetation. The proposed works are not considered likely to involve "*a significant area of known habitat*" for the five threatened microchiropteran bat species "*to be modified or removed*";

d) the proposed truck parking area would widen a short length of the cleared Picton Road corridor, but is not likely to notably isolate or further isolate known habitat for microchiropteran bats;

e) the proposed works would not affect any declared critical habitat;

f) the occurrence of the five microchiropteran bat species within conservation reserves is not well known. However, given that the five species are all listed as "*threatened*" on the TSC Act, it would seem unlikely that these species are "*adequately represented in conservation reserves ... in the region*";

g) the proposed works would involve some clearing of native vegetation and habitats, and thus constitute an "*activity that is recognised as a threatening process*";

h) the Eastern Freetail Bat *Mormopterus norfolkensis*, Eastern False Pipistrelle *Falsistrellus tasmaniensis*, Common Bent-wing Bat *Miniopterus schreibersii*, Large-footed Myotis *Myotis adversus* and Greater Broad-nosed Bat *Scoteanax rueppellii* would not be located "*at the limit of ... known distribution*" in the study area on Picton Road.

Upon consideration of the above, it is not considered likely that the proposed truck parking area on Picton Road would impose "*a significant effect*" upon either the Eastern Freetail Bat *Mormopterus norfolkensis*, Eastern False Pipistrelle *Falsistrellus tasmaniensis*, Common Bent-wing Bat *Miniopterus schreibersii*, Large-footed Myotis *Myotis adversus* and Greater Broad-nosed Bat *Scoteanax rueppellii*.

3 CONCLUSIONS

The eight factors which are required to be considered under Section 5A of the EP&A Act in the determination of "*whether there is likely to be a significant effect on threatened species, populations or ecological communities, or their habitats*" are discussed above with regard to *Epacris purpurascens* var *purpurascens* and threatened microchiropteran bat species.

On the basis of the above considerations, the proposed truck parking area on Picton Road is not considered "*likely*" to impose "*a significant effect*" upon "*threatened species, population or ecological community*", as listed on the NSW TSC Act.

A Species Impact Statement is not required for this proposal.

Appendix F

RTA's QA Specifications
- G35 Environmental Protection (Management Plan)
- G38 Soil and Water Management
- G39 Erosion and Sediment Control Plan
- G40 Clearing and Grubbing

RTA QA SPECIFICATION G35

ENVIRONMENTAL PROTECTION (MANAGEMENT PLAN)

NOTICE

"This document is a copy of one of the Authority's QA Specifications.

The QA Specifications are policy documents within the meaning of the Freedom of Information Act 1989 (NSW)("FOI Act") and this document is accordingly made available to you pursuant to Section 15(1) of the FOI Act.

The QA Specifications were developed by the Authority for use with roadworks and bridgeworks contracts let by the Authority or local councils. The Authority only uses the QA Specifications in conjunction with its other standard form documents and under the supervision of professional civil engineers who are trained and experienced in roadworks and bridgeworks. The Authority does not use the QA Specifications for any other purpose and does not consider them suitable for use for any other purpose.

Consistent with the FOI Act, the purposes for which this document has been made available for inspection or purchase by you are:

- to satisfy the Authority's obligation under Section 15(1) of the FOI Act to make its policy documents available for inspection and purchase by members of the public
- to ensure that you, as a member of the public who may be affected by the operation of this document, have access to the document.

The price which you have paid for this document only covers the Authority's costs of printing and handling the document.

If you use this document for any purpose which is not consistent with the above (including, without limitation, for carrying out any construction, engineering, maintenance or other work), you do so at your own risk.

This document is current as at the date of this notice. However, you should be aware that the Authority regularly reviews and updates its QA Specifications. You will not be notified of any update.

Your comments and suggestions to improve any of the RTA QA specifications may be sent to: Infrastructure Contracts Branch, RTA, PO Box K198, Haymarket, NSW 1238 (Fax 02-9218 6980).

No advisory or support services will be provided by the Authority.

RTA QA SPECIFICATION G35

ENVIRONMENTAL PROTECTION (MANAGEMENT PLAN)

NOTICE - RTA SPECIFICATIONS AND GUIDES TO SPECIFICATIONS

RTA Specifications are written specifically as models for adaptation and use on RTA projects and may not be suitable for other purposes. Copies of RTA specifications and guides to specifications supplied to the general public do not require the Revision Register and the following guide notes (if provided) but must include the Notice before the Table of Contents. Paper copies may be purchased under the Freedom of Information Act on payment of the price listed in the document "QALIST".

Electronic copies of specifications in MS Word format are not to be supplied outside the RTA unless loaned, by the appropriate RTA Project Manager, to professional services contractors or Councils for preparing tender documents for RTA funded projects. In which cases, the contractors and Councils are required to return them to the RTA Project Manager.

Electronic copies of specifications may be provided to other State Road or NSW Government Authorities by Infrastructure Contracts Branch for use on Government funded projects only.

RTA does not permit the possession or use of electronic copies of specifications or guides to specifications by non-RTA organisations or persons other than as stated above.

REVISION REGISTER

Ed/Rev Number	Clause Number	Description of Revision	Authorised By	Date
Ed1 / Rev0		First issued to replace RTA G5.	GM, RNIC	26.04.99
Ed1 / Rev1	1.2	Additional references added to list.	GM, RNIC	06.12.99
	1.3	Definition (c) - definition of "Environmental Incident" removed and replaced by definition of "Pollution Incident".		
	4.1 (d)	"(b) and" added.		
	4.1 (n)	Item (n) added.		
	4.1 (o)	New item		
	4.2 1st para	More specific provisions regarding deficiencies; "and keeping the Contractor's environmental records" added.		

Ed/Rev Number	Clause Number	Description of Revision	Authorised By	Date
	4.2 2nd para	"status of" deleted; "environmental incidents" replaced with "pollution incidents"; "control of environmental nonconformances" added.		
Ed1 / Rev1 (cont'd)	4.4 (e)	Reference to "the register" and "Waste Minimisation and Management Act" added.		
	4.7	Reworded to clarify the requirement for Contractor to advise EPA and Superintendent.		
	4.8 1st para	Reworded. Contractor's notification requirements to local residents made more specific.		
	4.9 2nd para	Reworded. Contractor's obligation under the POEO Act to notify EPA of pollution incidents.		
	4.10 3rd line	The word "taken" added after the word "action".		
	4.13	New sentence concerning records and summary reports of performance evaluations.		
	4.14	Clause renamed.		
	4.14.1	New clause number with revised wording.		
	4.14.2	New clause number.		
	6.2.1 1st para	Reworded. CEMP to identify "Contractor's obligations" under legislation relevant to the work; list of relevant legislation revised.		
	6.2.2	List of legislation repealed and replaced by POEO Act added; paragraph on Waste Minimisation and Management Act added.		
	6.5.1 1st para	Second sentence revised.		
	6.5.2	New clause - "Soil Stockpile Management".		

Ed/Rev Number	Clause Number	Description of Revision	Authorised By	Date
	6.5.3	Clause renumbered from 6.5.2; 1st paragraph, reference to "Clean Waters Act, Clean Waters Regulations" replaced by "POEO Act".		
	6.5.4	New clause – Water Extraction.		
	6.6	First paragraph, reference to "Clean Air Act" replaced by "POEO Act"; 3rd paragraph, "such as" replaced by "including"; "as required" inserted after "listed below".		
Ed1 / Rev 1	6.6 (g)	Wording revised.		
(cont'd)	6.6 (h)	Wording revised.		
	6.7	First paragraph, reference to "Noise Control Act 1975" replaced by "POEO Act"; point (iii) revised; new point (iv); previous point (iv) renumbered to point (v).		
	6.9 1st para	Third line, "CEMP and implement" replaced by "CEMP, and then implement".		
	6.11.2 (c)	The word "shall" replaced by "does".		
	6.13	First paragraph, "any" waterways replaced by "land or" waterways; 2nd paragraph, "on any road with drainage" replaced by "on any location with direct drainage"; two new sentences on refuelling added; 3rd paragraph, new sentence on location of storage areas added.		
	6.15	"immediately who will arrange" replaced by "immediately, who will then arrange".		
	6.17	First paragraph revised; example box added.		
	6.18	The words "to the satisfaction of the Superintendent" deleted.		
	Annexure G35/3	Clause numbers revised.		
	Annexure G35/4	Clause numbers revised.		

Ed/Rev Number	Clause Number	Description of Revision	Authorised By	Date
Ed1 / Rev2	4.1	Title changed.	GM, RNIC	21.01.00
	4.1.1	New clause number and title; "meet" replaced by "comply with".		
	4.1.2	New clause number and title; second paragraph revised; new second last and last paragraphs added.		
	5, 6.5.3, 6.6	Examples revised.		
	6.7	First paragraph revised; example revised; new paragraph added after item (v); example deleted		
	6.8	Example revised; fourth paragraph "monitored" replaced by "managed".		
	6.16	Example revised.		
Ed1 / Rev2 (cont'd)	Annexure G35/1	Clause 4.1 of the table revised.		
	Annexure G35/4	Example contents of the table deleted.		
Ed1 / Rev3	1.1, 1.3, 4.7	Reference to "Special Conditions of Contract" changed to "Conditions of Contract".	GM, RNIC	17.07.01
Ed 1/Rev 4	4.1.1.(g), 4.1.2, 6.3,	Minor editorial changes. 6.7, Annex G35/1 (4.1)	GM, RNIC	07.09.01
	1.2	New references added		
	1.2, 1.3	ISO 9000 replaces ISO 8402		
	2(5),4.1.1e	Monitoring of high risks required		
	3.8	Quality system requirements added		
	4.1.1	CEMP to comply with legislation and approval conditions Additional details required.		
	4.1.2	CEMP submission to others changed		
	4.5	Minimum training levels to be shown		
	4.9, Annex G351	Notification to EPA of contact persons changed.		
	5	Include construction related problems/risks		
	6.2.1	List of legislation updated		

Ed/Rev Number	Clause Number	Description of Revision	Authorised By	Date
	6.5.3, 6.6	Use EPA methods in monitoring
	6.6	Visually check exhaust systems
	6.7	Comply with EPA requirements
	6.9	Observe limits of clearing
	6.11.2	EPA regulation and guideline added
	6.13	Store away from vegetated areas EPA guideline added
	6.16	Requirements defined as a Hold Point
	6.17(c)	New guideline added Consider waste management in design, planning and purchasing
Ed 2/Rev 0		Specification reformatted
	1.1	Responsibilities defined
	1.2	New clause
	4.1.1, 4.3 4.5, 4.8, 4.9	Minor changes. 4.12, 6.6, 6.10
Ed 2/Rev 0	4.7	Notification only if a licence requirement
(Cont'd)	6.2	References include regulations Legislation list updated & transferred to Anx G35/M
	6.3	Guidance on application for a licence
	6.5	Detailed requirements transferred to RTA G38 and RTA G39
	6.7	Refer to EPA road traffic noise Guideline
	6.8	Consult with EPA, Superintendent's presence no longer mandatory
	6.9	Clearing and lopping may require statutory approvals
	6.10	Use a NPWS licensed ecologist Legislation listed
	6.11	Clause rewritten with new Hold Point
	6.12	Scope changed to dangerous goods and incorporates previous clause 6.13. Procedure to include fuel and chemical deliveries. Additional bunding requirements added with a Hold Point

Ed/Rev Number	Clause Number	Description of Revision	Authorised By	Date
	6.13 - 6.18	Clauses renumbered		
	6.13	Ensure training is implemented		
	6.15	Clause rewritten		
	6.17	Restoration requirements added		
	6.18	New clause		
	Annex G35/C	Schedule of Identified Records added.		
	Annex G35/B, -/F	New annexure.		
	Annex G35/M	New annexure with new details.		

NOTICE

Using RTA G35

Specification RTA G35 contains the RTA's requirements for a contractor's project specific environmental management plan. When a corporate environmental management system is to be implemented by the Contractor, Specification RTA G36 should be used in lieu of RTA G35.

Specification RTA G35 is a "proforma" model specification and must be customised by the TENDER DOCUMENTER for each specific project. Customisation requires insertion of the various environmental conditions and constraints from the REF, EIS, Decision Report and associated information into the body of G35. It is recommended that G35 is project customised parallel with the RTA's project environmental management plan.

Some typical examples of customisation are shown in boxes within the text, as illustrated below:

Example: List or cross-refer to specific topsoil management requirements

The reuse of weed contaminated topsoil by surface spreading is not permitted. Where necessary, horticultural advice must be sought to determine whether the type and/or proportion of weed cover is significant for the topsoil to be deemed weed contaminated.

If any issue is not relevant for your project, delete the boxed text.

If an issue is relevant, delete the borders around the text, modify the text to suit your circumstances, adjust the margins so the customised paragraphs line up with the general text, match the font size and set the customised paragraphs in bold italic.

After completing the customisation, check the pagination of the whole document and insert page breaks if necessary to achieve continuity within Clauses. Then return to CONTENTS page to highlight and automatically revise listing and page numbers.

This customisation must be done carefully because tenderers will rely on G35 to price in their environmental obligations for the project.

QA SPECIFICATION G35

ENVIRONMENTAL PROTECTION
(MANAGEMENT PLAN)

RNIC-QA-G35

VERSION FOR: DRAFT
DATE: 25.02.03

Edition 2 / Revision 0
February 2003

ROADS and TRAFFIC AUTHORITY NSW

CONTENTS

CLAUSE PAGE

REVISIONS TO EDITION 2 1

PROJECT SPECIFIC CHANGES 1

1 GENERAL 1
1.1 Scope 1
1.2 Structure of the Specification 2

2 ENVIRONMENTAL PROTECTION MANAGEMENT PROCESS 3

3 NONCONFORMANCE CONTROL, CORRECTIVE AND PREVENTIVE ACTION 3

4 CONTRACTOR'S ENVIRONMENTAL MANAGEMENT PLAN (CEMP) 4
4.1 Preparation of CEMP 4
4.2 Resources 6
4.3 Communication 7
4.4 Emergency Planning and Response 7
4.5 Training, Awareness and Competence 7
4.6 Subcontractors 8
4.7 Hours of Work 8
4.8 Community Liaison 9
4.9 Liaison with EPA 9
4.10 Complaints 10
4.11 Records of Environmental Activities 10
4.12 Consequences of Noncompliance 10
4.13 Project Environmental Performance 11
4.14 Environmental Auditing 11

5 ENVIRONMENTALLY SENSITIVE AREAS 11

6 ENVIRONMENTAL PROTECTION REQUIREMENTS 12
6.1 General 12
6.2 Legislation 12
6.3 Approvals, Licences and Permits 12
6.4 Access and Traffic Management 13
6.5 Soil and Water Management 13
6.6 Air Quality 13
6.7 Noise Control 14
6.8 Ground Vibration and Air Blast 15
6.9 Vegetation 16
6.10 Fauna 17
6.11 Fire Precautions 18

6.12 Chemicals, Dangerous Goods and Other Potential Contaminants 19
6.13 Indigenous Heritage 21
6.14 Non-Indigenous Heritage 22
6.15 Contaminated Ground 22
6.16 Waste Avoidance and Management 23
6.17 Restoration of Site 24
6.18 Materials with Recycled Content 25

7 SUPERINTENDENT'S SURVEILLANCE AND AUDITS 26

ANNEXURE G35/A - SUPPLEMENTARY PROJECT INFORMATION 27

ANNEXURE G35/B - MEASUREMENT AND PAYMENT 28

ANNEXURE G35/C - SCHEDULES OF HOLD POINTS AND IDENTIFIED RECORDS 29

C1 SCHEDULE OF HOLD POINTS 29
C2 (Reserved) 29
C3 Schedule of Identified Records 29

ANNEXURE G35/D - (RESERVED) 30

ANNEXURE G35/E - DISTANCE FROM CONSTRUCTION ACTIVITY FOR BUILDING CONDITION INSPECTION 30

ANNEXURE G35/F – WASTE AVOIDANCE AND RESOURCE RECOVERY REPORTING 31
F1 Quarterly report - Material Purchase Data 31
F2 Quarterly report - Waste and Recycling Data 31
F3 Annual Report - Additional Supporting Information 33

ANNEXURES G35/G TO G35/L - (RESERVED) 33

ANNEXURE G35/M - REFERENCES, DEFINITIONS AND LEGISLATION 34
M1 References 34
M2 Definitions 35
M3 Legislation 36

LAST PAGE OF RTA G35 IS 37

RTA QA SPECIFICATION G35

ENVIRONMENTAL PROTECTION (MANAGEMENT PLAN)

REVISIONS TO EDITION 2

This document is based on RTA Specification G35 Edition 2 Revision 0 — February 2003.

All revisions to RTA G35 Ed 2 / Rev 2 (other than minor editorial and project specific changes) have been indicated by a vertical line in the margin as shown here.

PROJECT SPECIFIC CHANGES

Any project specific changes have been indicated in the following manner:

(a) Text which is additional to the base document and which is included in the Specification is shown in bold italics e.g. ***Additional Text***.

(b) Text which has been deleted from the base document and which is not included in the Specification is shown struck out e.g. ~~Deleted Text~~.

1 GENERAL

1.1 SCOPE

The Principal recognises that construction of the Works in accordance with the Contract will result in some unavoidable damage to the environment. The Contractor must undertake all activities in such a manner as to limit damage to the environment to that which is unavoidable.

All actions, work, supply of materials and services, responsibilities, etc described in this Specification must be carried out by the Contractor unless specifically stated otherwise.

RTA G35 describes an environmental protection management process which the Contractor must implement to provide environmental protection during execution of the Works.

RTA G35 also identifies environmental conditions of approval for the project which the Contractor must satisfy.

The environmental protection requirements in RTA G35, together with the Conditions of Contract, are complementary to, and not in substitution for, any statutory requirements nor any of the technical requirements of the Specifications and Drawings.

The Contractor is responsible for ensuring compliance with all relevant environmental statutory requirements and procedures defined within the CEMP and all supplementary plans

Compliance with this Specification must continue while carrying out the Work Under the Contract, including application of a project specific Contractor's Environmental Management Plan (CEMP) - (refer to RTA G35 Clause 4).

1.2 STRUCTURE OF THE SPECIFICATION

This Specification includes a series of annexures that detail additional requirements.

1.2.1 Supplementary Project Information

Supplementary Project Information are shown in Annexure G35/A.

1.2.2 Measurement and Payment

The method of measurement and payment must comply with Annexure R35/B.

1.2.3 Schedules of HOLD POINTS, WITNESS POINTS and Identified Records

The schedules in Annexure R35/C list the **HOLD POINTS** and **WITNESS POINTS** that must be observed. Refer to the Conditions of Contract for the definitions of **HOLD POINTS** and **WITNESS POINTS**.

The records listed in Annexure R35/C are Identified Records for the purposes of RTA G2 Clause 19 and RTA G5 Clause 9.

1.2.4 Reference Documents, Definitions and Legislation

Unless otherwise specified the applicable issue of a reference document, other than an RTA Specification, must be the issue current at the date one week before the closing date for tenders, or where no issue is current at that date, the most recent issue.

Standards, specifications and test methods are referred to in abbreviated form (e.g. AS 2350). For convenience, the full titles are given in Annexure G35/M:

The definitions given in Annexure G35/M apply to this Specification.

Environmental legislation which may be relevant to the Work Under the Contract is listed in Annexure G35/M. Refer to Clause 6.2. The list may not be current or complete for this Contract.

2 ENVIRONMENTAL PROTECTION MANAGEMENT PROCESS

The Contractor must undertake the following tasks:

1. Identify statutory requirements, compliance limits and adverse environmental effects which could occur during execution of the Works (refer to Clause 6).

2. Plan work activities and environmental protection measures to minimise environmental risks and comply with specified environmental protection requirements (refer to Clause 4.1). The CEMP is the outcome of this planning process.

3. Set up the planned environmental protection measures (refer to Clause 6) and train site personnel to be environmentally aware (refer to Clause 4.5).

4. Monitor the effectiveness of the environmental protection measures (refer to Clause 4.1.1e).

5. Set up response procedures which will initially contain then remedy any environmental damage which does arise (refer to Clause 4.4).

6. Improve environmental protection measures and revise the CEMP promptly when deficiencies are identified (refer to Clauses 3 and 4.1).

3 NONCONFORMANCE CONTROL, CORRECTIVE AND PREVENTIVE ACTION

The Contractor must apply nonconformance control and corrective and preventive action procedures in accordance with RTA Q to address any environmental management deficiencies.

Nonconformance control must apply to containment measures, clean-up and restoration of the environment as well as rectification of deficient environmental protection measures.

If surveillance or an audit by the Superintendent indicates a nonconforming product or event which has not been addressed by a Nonconformance Report, the Superintendent may issue a 'Nonconforming Product Notification'. The Contractor shall deal with this nonconforming product or event in the same manner as if it had been identified by the Contractor.

The Contractor must review, analyse and record the cause of all detected nonconformances and develop corrective action to eliminate the cause of nonconformities. This must include both the determination of immediate action to prevent recurrence, as well as long term corrective action.

If surveillance or an audit by the Superintendent indicates that the CEMP does not comply with the provisions of the Contract or that an environmental risk is identified, the Superintendent may issue a 'Corrective Action Request'.

Rectify any nonconformance or environmental risk notified by the Superintendent, initiate and implement corrective/preventive action to prevent recurrence of the nonconformity or remove the identified environmental risk and return the completed Corrective Action Request, all within seven days after the Corrective Action Request is given to the Contractor.

The Corrective Action Request must be dealt with in accordance with the Contractor's procedure for handling customer complaints as required by Clause 4.10.

4 CONTRACTOR'S ENVIRONMENTAL MANAGEMENT PLAN (CEMP)

4.1 PREPARATION OF CEMP

4.1.1 Scope

Prepare the Contractor's Environmental Management Plan (CEMP) for the Works Under the Contract. The CEMP must cover the environmental protection practices, resources and sequence of activities required to comply with all the requirements of relevant environmental legislation, conditions of any applicable licence, approval and permit and this Specification.

The CEMP must include the following, as applicable:

(a) assignment of responsibility for planning, approving, implementing, maintaining, assessing and monitoring of environmental controls (refer to Clause 4.2);

(b) copies of approvals, licences and permits to meet statutory requirements (refer to Clauses 6.2, 6.3);

(c) details of the potential environmental effects and the operational control measures which are to be implemented to comply with statutory requirements and provide environmental protection in accordance with the requirements of the Contract (refer to Clause 6);

(d) details of how environmental protection will be maintained for each subcontractor's activities (refer to Clause 4.6), including full details in accordance with (b) and (c) above;

(e) environmental monitoring programme and report forms for recording all monitoring activities, including periodic inspections and inspections essential for monitoring high risk events, of the adequacy of operational controls together with measurements for aspects where compliance limits have been specified;

(f) locations of environmental controls and environmentally sensitive areas, with particular reference to how the effectiveness of such controls will be ensured in any environmentally sensitive areas (refer to Clause 5);

(g) supplementary plans for environmental protection and operational control (including Erosion and Sedimentation Control Plan, Soil and Water Management Plan, Noise Management Plan, Waste Management Plan, Vegetation Management Plan and a Vibration and Air Blast Management Plan, if specified);

(h) how nonconformance control, corrective and preventive actions will be implemented and closed out (refer to Clause 3)

(i) communication procedures (refer to Clause 4.3);

(j) emergency response procedures for containing environmental damage and procedures for planning restoration activities (refer to Clause 4.4);

(k) environmental training plan and procedures (refer to Clause 4.5);

(l) authorised personnel and procedure for changing and issuing the CEMP (refer to Clause 4.2);

(m) details of how the changes to the environmental management documentation and data are to be identified and communicated to relevant project personnel;

(n) mechanism for regular evaluation of environmental performance (refer to Clause 4.13); and

(o) environmental auditing programme (refer to Clause 4.14).

The CEMP must identify potential adverse environmental effects, applicable regulatory requirements and/or compliance limits for the physical, human and biological environment. Appropriate environmental protection measuresmust be documented to keep environmental effects within compliance limits and must show the person responsible for implementation in each case.

Three distinct phases of activity must be addressed, as appropriate:

(i) before construction and site establishment;

(ii) during construction; and

(iii) after construction (including rehabilitation activities and maintenance of erosion and sedimentation controls).

4.1.2 Submission of Documents to the Superintendent

The CEMP must be a "controlled" document and may be submitted progressively, if agreed with the Superintendent, to suit construction stages in accordance with the specified requirement in RTA Q for the submission of the PROJECT QUALITY PLAN.

HOLD POINT	
Process Held.	Commencement of Work not previously addressed by CEMP documents and authorised by earlier Hold Point release.

Submission Details.	At least 10 working days prior to the proposed commencement of work nominated in the submission by the Contractor, the Contractor must submit its CEMP, addressing the issues listed in Clause 4.1 for the nominated work.
Release of Hold Point.	The Superintendent will consider the documents prior to authorising the release of the Hold Point for the nominated work. The Superintendent may release work covered by the CEMP progressively, consistent with the Contractor's programme for the Works.

The CEMP must be either incorporated as part of the PROJECT QUALITY PLAN (refer to RTA Q) or be consistent with the PROJECT QUALITY PLAN. Appropriate cross-referencing to the Contractor's quality system and PROJECT QUALITY PLAN must be included.

Revise the CEMP and implement better environmental protection measures if the original protection measures prove to be not fully effective (refer to Clause 3).

The submission of copies of the CEMP and environmental management documents must be as specified in RTA Q for quality system documentation.

Where submission to a statutory authority is nominated in Annexure G35/A or directed by the Superintendent, an additional copy of the CEMP at each stage, including any proposal for staged submission, for each of the nominated authorities must be submitted to the Superintendent. The staging of CEMP submissions must comply with the requirements of the nominated authorities. The submissions of the CEMP at each stage must contain sufficient information and detail explain the proposed environmental protection measures for the understanding of the nominated authority.

The CEMP must include a matrix or index which clearly shows where the environmental protection requirements of this Specification have been addressed in the submitted documents.

4.2 RESOURCES

The CEMP must indicate the names, responsibilities and authority of the Contractor's site management personnel who have primary responsibility for implementing the CEMP for the Works Under the Contract, monitoring its effectiveness, rectifying any environmental deficiencies, controlling further construction activities until deficiencies are rectified and keeping the Contractor's environmental records. Provide a sufficient level of resources at the site to ensure effective environmental management throughout the duration of the Contract.

When the conditions of approval require a full time environmental officer, provide details of the requirements, addressing relevant specific requirements of the conditions, skills and training of the person to:
appreciate the environmental issues and proposed environmental measures of the project and monitor and audit environmental performance;
provide advice on environmental issues and improvements to environmental performance; and

liaise with EPA and the Superintendent on environmental issues.

Nominate a full time member of the Contractor's site management team to be the authorised contact person for communications with the Superintendent and the Environment Protection Authority (EPA) on environmental matters. This person must be fully conversant with the CEMP, operational controls, monitoring programme, complaints, pollution incidents, control of environmental nonconformances and environmental records and must promptly provide access to or copies of environmental records to the Superintendent as required.

Where the Contractor has established corporate responsibilities for environmental management, the relationship between the Contractor's site management personnel with environmental responsibility and the corporate environmental functions must be detailed in the CEMP.

4.3 COMMUNICATION

Establish site communication, external communication and communication with subcontractors in relation to notification of environmental problems and pollution incidents. Maintain a current list of relevant contact names, telephone numbers and facsimile numbers for the project.

4.4 EMERGENCY PLANNING AND RESPONSE

The CEMP must include details of:

(a) a list of the Contractor's key emergency response personnel showing responsibilities and contact details including all-hours telephone numbers;

(b) details of emergency services (eg. ambulance, fire brigade, spill clean-up services);

(c) communications strategy (internal and external) - (refer to Clause 4.3);

(d) details of containment measures to be taken in the event of emergency situations that may arise during the Work Under the Contract; and

(e) location on site of the register and information on hazardous materials (as defined in the Waste Minimisation and Management Act) including MSDS sheets.

4.5 TRAINING, AWARENESS AND COMPETENCE

Ensure that all staff and subcontractors working on the site are provided with environmental training to achieve a level of awareness and competence appropriate to their assigned activities before they commence their assigned activities. Persons, including subcontractors' personnel, without appropriate environmental training are not permitted to work on the site.

CEMP documents must include a site specific induction and training plan and induction and training procedures that describe the minimum level of training and/or qualifications staff and subcontractors working on site shall require, who is to be trained, when and how.

Train relevant employees to use the plant and materials on site efficiently and minimise all potential environmental impacts including noise, air and water quality, waste generation, minimisation and disposal, effluent control and management and contamination of land and groundwater.

Establish and maintain a register of environmental training carried out including dates, names of persons trained and trainer details.

4.6 SUBCONTRACTORS

When complying with the purchasing requirements of RTA Q, include environmental management requirements in the planning, selection and management of subcontractors.

When the Contract specifies RTA Prequalification for a subcontractor and the Prequalification level nominated includes environmental management requirements, the subcontractor must apply its RTA Accredited environmental management system for its construction activities.

Undertake appropriate monitoring of each subcontractor's work to ensure that the specified environmental protection requirements are effectively implemented.

For subcontracted work, include in the CEMP the processes the Contractor will implement to ensure subcontractor compliance, including details of:

(a) the duties of each subcontractor for planning, implementing and monitoring environmental protection measures and for keeping environmental records;

(b) the duties the Contractor will retain for environmental protection of subcontracted work;

(c) how environmental protection measures on subcontracted work interface with adjacent work areas, as applicable; and

(d) the Contractor's surveillance programme to monitor effectiveness of each subcontractor's environmental protection measures.

4.7 HOURS OF WORK

Any approval by the Superintendent (refer to Clause 32 of the Conditions of Contract) to extend working hours or working days (except for Saturday work between 8.00am - 1.00pm), shall be conditional on the Contractor completing relevant community consultation (see Clause 4.8), advising the EPA in writing (if this is a requirement of an Environment Protection Licence) then submitting a copy of the advice to the Superintendent (together with EPA's concurrence, where this is a condition of any consent by Planning NSW) at least 2 working days before the commencement of the extended period.

The CEMP must provide a mechanism for notifying the Superintendent and all relevant Authorities in advance of any changes to hours of work. Take responsibility for ensuring that changes in work hours comply with all licences, permits, approvals, consents and statutory requirements.

List any additional restrictions on working hours such as noise generating activities

4.8 COMMUNITY LIAISON

Notify local residents about new or changed construction activities which will affect access to their properties or otherwise significantly disrupt residents' use of their premises. Such notification must be made at least 5 working days before commencing work affecting residents and must advise the nature of the work, why it is necessary, indicate the expected duration plus any changes to arrangements for traffic or property access. The name and contact telephone number of the Contractor's representative who can respond to resident concerns must also be provided to residents.

On each instance when approval to extend working hours is being sought, inform residents by letter of the extent, times and duration of the proposed work outside normal working hours prior to requesting approval from the EPA (where required) and the Superintendent. A contact name and telephone number must be included so residents can notify any concerns about altered working hours.

Any concerns raised by residents must be addressed in accordance with the complaints procedure in the CEMP.

4.9 LIAISON WITH EPA

The CEMP must identify at least two (2) persons (and their contact telephone numbers) who will be available to the EPA on a 24-hour basis and who have authority to take immediate action to shut down any activity, or to effect any pollution control measure, as directed by an authorised officer of the EPA. The Contractor (if nominated in Annexure G35/A) or the licensee (if an Environmental Protection Licence is issued) must notify the EPA Regional Manager of these contacts.

Notify the EPA Regional Manager (or the EPA Pollution Line on telephone 131555 should the incident occur outside normal EPA business hours) of pollution incidents on or around the site which have occurred in the course of the Contractor's activities or during the Contractor's possession of the site (to comply with the POEO Act - refer to Clause 6.2), in the following circumstances:

a) if the actual or potential harm to the health or safety of human beings or ecosystems is not trivial,

b) if actual or potential loss or property damage (including clean-up costs) associated with a pollution incident exceeds $10,000.

Notify the Superintendent verbally within 2 hours and in writing within 24 hours of any pollution incidents which involve the EPA.

Prepare a report on each occasion when the site is visited by the EPA, notifying the Superintendent of the purpose and outcome of the EPA visit and of all actions being taken by the Contractor in response to the EPA visit. This report must be submitted to the Superintendent within 5 working days of the EPA site visit.

4.10 COMPLAINTS

Within one (1) working day of receiving a complaint about any environmental issue, including pollution, arising from the Work Under the Contract, supply a written report to the Superintendent detailing the complaint and the action taken to alleviate the problem. A final report with proposed measures to prevent the occurrence of a similar incident must be submitted to the Superintendent within 5 working days.

Keep a register of all such complaints, together with the following records:

(a) date, time and nature of complaint;

(b) type of communication (telephone, letter, meeting, etc);

(c) name, address, contact number of complainant;

(d) nature of complaint;

(e) action taken in response; and

(f) any monitoring to confirm that the complaint has been satisfactorily resolved.

4.11 RECORDS OF ENVIRONMENTAL ACTIVITIES

Maintain (as part of the quality records in accordance with RTA Q Clause 4.16) legible records of all environmental control issues and activities required under this Specification.

These records must be held for at least 5 years after the date of issue of the Final Certificate and be accessible to staff of the Superintendent and Principal and to authorised EPA officers.

4.12 CONSEQUENCES OF NONCOMPLIANCE

If the Contractor fails to comply with its environmental obligations under the Contract, including failure to:

(a) comply with, and to ensure compliance by subcontractors with, any requirements of the Specification; or

(b) act promptly when environmental controls are observed not to be effective by the Contractor, the Superintendent, or by any Statutory Authority having jurisdiction over the Works,

a Hold Point may apply.

HOLD POINT	(Where required by the Superintendent)

Process Held.	The Process/es relevant to the Noncompliance.
Submission Details.	Verification that the failure has been corrected and measures have been implemented to prevent recurrence.
Release of Hold Point.	The Superintendent will consider the submitted documents and may inspect the work subject to the failure prior to authorising the release of the Hold Point.

4.13 PROJECT ENVIRONMENTAL PERFORMANCE

The effectiveness of the Contractor's environmental protection measures must be evaluated for compliance by the Contractor during the Contract, at least once per month. The minimum frequency for performance evaluation may be reduced by the Superintendent when the Contractor submits a risk based review and evidence of consistent compliance. Keep detailed records of the environmental performance evaluations and provide a summary report of the evaluations at intervals of six months or when requested by the Superintendent.

4.14 ENVIRONMENTAL AUDITING

4.14.1 Audits During Construction

Undertake compliance auditing of the CEMP against the requirements of this Specification while construction is in progress and to verify that the work under the Contract is in compliance with the CEMP. The first audit must be scheduled within the first three months from the commencement of work on site and then at least every six months. The Superintendent may require more frequent auditing if environmental performance evaluations (refer to Clause 4.13) indicate significant deficiencies with the Contractor's environmental management of the site. Keep detailed records of these audits and the audit reports.

4.14.2 Post Completion Audit

Within 28 days after the issue of the Certificate of Practical Completion, the Contractor must carry out an environmental compliance audit, including site inspection and full review of environmental records, to identify any environmental protection measures (refer to Clause 4.1) which have not yet been finalised. The condition of existing environmental protection controls must be recorded and environmental protection controls which need ongoing management must be itemised.

An audit report must be submitted promptly to the Superintendent, together with the Contractor's written response on when and how all actions and issues raised in the audit will be addressed.

5 ENVIRONMENTALLY SENSITIVE AREAS

Pay particular attention to ensuring that environmental protection measures are effective in any environmentally sensitive areas identified by the Principal or detected during the progress of the Contract.

The Principal has identified the following environmentally sensitive areas:
List significant items identified in REF or EIS and include construction related problems/risks.
Delete this paragraph if there are no significant items.

6 ENVIRONMENTAL PROTECTION REQUIREMENTS

6.1 GENERAL

Comply with all the environmental protection requirements specified in Clause 6. These are minimum requirements. The documents listed in Annexure G35/A are available on request and for the Contractor's information only; they do not form part of the Contract.

Ascertain any additional environmental protection requirements resulting from the Contractor's operations and incorporate these additional requirements in the CEMP.

Particular measures to protect the environment which are specified may, with the Superintendent's approval, be substituted by measures which achieve the same environmental result but which are superior in terms of cost or operational efficiency.

6.2 LEGISLATION

The CEMP must identify the Contractor's obligations under environmental legislation which is relevant to the Work Under the Contract including but not limited to those listed in Annexure G35/M (as amended): (References to Acts includes a reference to Regulations made under them.)

6.3 APPROVALS, LICENCES AND PERMITS

The following approvals, licences and permits will be obtained by the Principal:

List any or insert NIL. NOTE: The Principal should only apply for an EPA Licence when required by the POEO Act, refer to the RTA/EPA Protocol.

Ascertain from the appropriate authorities what other approvals, licences and permits are required for the Work Under the Contract.

Each necessary approval, licence and permit not obtained by the Principal must be obtained by the Contractor prior to the commencement of any work which relates to that approval, licence or permit. This constitutes a HOLD POINT in accordance with Clause 4.1.

Comply with the terms and conditions of all approvals, licences and permits.

6.4 ACCESS AND TRAFFIC MANAGEMENT

Identify construction activities and site access requirements which are likely to:

(a) interfere with traffic flow and pedestrian thoroughfare through and adjacent to the site; and/or

(b) interfere with access to nearby properties.

Plan and implement traffic control measures in accordance with RTA G10 to minimise disruption to traffic and pedestrians.

6.5 SOIL AND WATER MANAGEMENT

6.5.1 Erosion and Sedimentation Control

Plan and carry out the whole of the Work Under the Contract to avoid erosion and sedimentation of the site, surrounding country, watercourses, waterbodies, wetlands and stormwater drainage systems (refer to RTA G38 or RTA G39). This must include careful location of site compounds (refer to RTA G2), access tracks, stockpile sites and temporary work areas plus staging of work to minimise the extent and duration of disturbance to vegetation. 6.5.2Water Extraction

The proposed water source(s) which the Contractor intends to use for construction activities (such as dust control, earthworks/pavement compaction, on-site concrete batching and the like) shall be identified in the CEMP.

6.6 AIR QUALITY

Comply with the requirements of the POEO Act and all other relevant laws and by-laws in force from time to time in the State of New South Wales.

Ensure that all its construction facilities erected on the site of the Works are designed and operated to minimise the emission of smoke, dust, cement dust, pesticides, herbicides and other substances into the atmosphere. Comply with any conditions of licences or approvals in relation to maximum air pollutant levels (refer to Clause 6.3).

Insert all air quality compliance limits as detailed in the REF, Decision Report or EPA approval

Where monitoring is required, the monitoring must comply with the EPA Approved Methods for Sampling and Analysis of Air Pollutants in NSW.

Employ construction methods that will keep the air pollution to a minimum and apply appropriate measures to ensure that airborne pollutants from the Contractor's and subcontractors' activities do not cause undue disruption or inconvenience in the vicinity of the Works.

Measures, for example, may include:

(a) the spraying of earthwork formations and roads with water or other suitable liquids approved by the Superintendent;

(b) the removal of mud from the wheels and bodies of haulage equipment before it enters public roads or other sealed pavements by means of facilities such as truck washdowns and wheel washes;

(c) the removal of mud spilt by construction equipment on to public roads or other sealed pavements;

(d) the establishment of suitable cover crop or provision of other covering over topsoil stockpiles;

(e) the erection of dust screens around and/or spraying of stockpiles with suitable stabilising agents;

(f) cease dust generating activities which cannot be adequately controlled by water or other means;

(g) maintaining dust control equipment so that this equipment is available when required including periods of dust generating activities or high wind speed, and

(h) undertaking periodic visual checks of exhaust systems emissions.

The materials and methods used for effective dust control, including the recording and monitoring arrangements, must be detailed in the CEMP.

6.7 NOISE CONTROL

When developing and implementing management strategies, the Contractor must make all practical efforts to comply with the requirements of the POEO Act, and, where applicable, the EPA Noise Control Manual, EPA Industrial Noise policy, EPA Environmental Criteria for Road Traffic Noise and the RTA Environmental Noise Management Manual..

Insert all noise compliance limits as detailed in the REF, Decision Report or EPA approval

Prepare a Noise Management Plan as part of the CEMP to show how construction will be carried out to minimise the impact of noise from the Contractor's operations on adjacent properties. This could include operational controls such as:

(i) substitution by an alternative process

(ii) restricting times when noisy work is carried out

(iii) placement of work compounds, parking areas, equipment and material stockpile sites away from noise-sensitive locations

(iv) where noise barriers/walls are to be constructed, program this as early as possible to reduce noise impacts from other construction work on neighbouring residents

(v) screening or enclosures

(vi) consultation with affected residents

The Noise Management Plan must cover all significant noise generating activities.

HOLD POINT	
Process Held.	Offending process producing noise at adjacent property above specified noise levels.
Submission Details.	Nonconformance Report and Revised Noise Management Plan.
Release of Hold Point.	The Superintendent will consider the submitted documents prior to authorising the release of the Hold Point.

All construction plant and equipment used on the Works must, in addition to other requirements, be:

(a) fitted with properly maintained noise suppression devices in accordance with the manufacturer's recommendations;

(b) maintained in an efficient condition; and

(c) operated in a proper and efficient manner.

6.8 GROUND VIBRATION AND AIR BLAST

The Contractor must take due care in all construction activities to prevent damage to adjacent public utilities, structures and buildings resulting from construction vibration and air blast. To protect the amenity of the occupiers of buildings the blasting activities must be carried out to meet the ANZECC Guidelines "*Technical Basis for Guidelines to Minimise Annoyance Due to Blasting Over pressure and Ground Vibration - September 1990".* Where the amenity guidelines are likely to be exceeded, the Contractor must manage the impacts in consultation with, and in accordance with, the requirements stipulated by the EPA.

The contractor must meet the requirements of Chapter 174 "Vibration in Buildings" of the EPA Noise Control Manual. Where the requirements of Chapter 174 are likely to be exceeded, the Contractor must manage the impacts in consultation with, and in accordance with, the requirements stipulated by the EPA.

To avoid structural damage, the activities must be carried out to meet the requirements of BS 7385.

Include any specific requirements from REF or consent conditions

Where construction activities including blasting, pile driving, excavation by hammering or ripping, dynamic compaction or demolition of structures may cause damage through vibration or air blast to nearby public utilities, structures, buildings and their contents or if the items are located within the distance from the construction activity as specified in Annexure G35/E, a Building Condition Inspection of these items must be undertaken.

A written report of the Building Condition Inspection supported by photographs, details of the expertise of the inspectors, together with a list of any existing defects in the items, must be submitted to the owner of each item and to the Superintendent before the construction activity commences.

The Contractor must prepare a Vibration and Air Blast Management Plan as part of the CEMP to show how construction will be carried out to minimise the impacts from the Contractor's operations on adjacent properties. This could include operational controls such as:

(a) substitution by an alternative process

(b) restricting times when work is carried out

(c) screening or enclosures

(d) consultations with affected residents

The Vibration and Air Blast Management Plan must detail how construction vibration and air blast will be managed for various plant items working adjacent to buildings. Records must be kept as evidence of compliance with these construction vibration and air blast restrictions.

HOLD POINT

Process Held.	Commencement of blasting, pile driving, excavation by hammering or ripping, dynamic compaction or demolition operations or other activities which may cause damage through vibration or air blast.
Submission Details.	Copy of Building Condition Inspection.
Release of Hold Point.	The Superintendent will consider the submitted documents prior to authorising the release of the Hold Point.

Notwithstanding the above, the Contractor must be liable for any accident or damage to any property, person, or thing resulting from vibration and air blast from construction activity.

6.9 VEGETATION

The Contractor must preserve existing trees, plants, and other vegetation that are to remain within or adjacent to the Works and must use every precaution necessary to prevent damage or injury thereto (refer to RTA R41 or B30). The Contractor must include in the CEMP, and then implement, procedures for monitoring clearing and grubbing operations to ensure that trees and other vegetation are not unnecessarily cleared or otherwise disturbed.

Clearing, lopping or trimming of vegetation must occur without the required approvals under the Native Vegetation Conservation Act 1997 (NSW), Environmental Planning and Assessment Act 1979 (NSW), Threatened Species Conservation Act 1995 (NSW), and Environmental Protection and Biodiversity Conservation Act 1999 (Cth).

Include any specific requirements from REF or consent conditions

Procedures for controlling the spreading or introduction of weeds caused by works under the Contract, including the monitoring arrangements, must be included in the CEMP.

Example: List or cross-refer to specific topsoil management requirements

The reuse of weed contaminated topsoil by surface spreading is not permitted. Where necessary, horticultural advice must be sought to determine whether the type and/or proportion of weed cover is significant for the topsoil to be deemed weed contaminated.

The Contractor must ensure that all site personnel observe the limits of clearing and are made aware of the importance of any trees of significant value.

6.10 FAUNA

Include habitat conservation measures in the CEMP.

All native wildlife must be protected. No firearms will be allowed on site except for security purposes permitted by law.

Where the Contractor proposes to remove vegetation during the nesting and breeding season, all trees to be removed must first be inspected to establish whether nesting of native fauna is evident. If so, advice must be sought from an ecologist on whether disturbance of fauna is feasible. Disturbance of fauna must only proceed under the guidance of an ecologist and with the concurrence of NPWS where threatened species occur.

Example: (modify to suit any conditions of consent or delete if not applicable)

The following protected wildlife has been identified on, and in the vicinity of, the site: (list any from REF)

Tree hollows affected by clearing (refer to RTA R41) must be relocated to suitable undisturbed bushland sites within the Bypass corridor.

Winding Creek is designated as a wildlife corridor. The Contractor must conduct its operations to minimise any disturbance to fauna in the vicinity of Winding Creek and must erect suitable fencing to assist with "funnelling" fauna towards Winding Creek.

Injury to protected wildlife caused through or because of any construction activity must be reported by the Contractor to ???

6.11 FIRE PRECAUTIONS

6.11.1 General

At all times comply with the requirements of the Rural Fires Act, 1997 and the Local Government Act, 1993 and be guided by the NSW rural Fire Service publication Equipment and Machinery Use in Bush fire Prone Areas.

The Contractor is be responsible for any damage to fences, trees, grass, cultivation, buildings or other property caused by fires lit, whether intentionally or not, for any purpose in connection with the Work Under the Contract.

Ensure fire fighting equipment is provided, as required, to ensure the safety of public and property.

All items of plant used during proclaimed high fire danger periods that could discharge sparks must be fitted with spark arresters. No cutting, welding, grinding or other activities likely to generate fires must be undertaken in the open on "total fire ban" days.

When there is a risk of fire being caused by "hot work" (such as welding, thermal or oxygen cutting, heating or other fire producing or spark producing operations) or when burning off is proposed, ensure that all personnel are adequately trained with regard to fire prevention, safety and basic fire fighting skills. All such personnel and vehicles involved in such activities shall be adequately equipped with fire fighting equipment and safety gear.

6.11.2 Burning Off

Annexure G35/A indicates whether the Principal will allow disposal of cleared and grubbed vegetation by burning off, subject to the requirements of the Protection of the Environment Operations (Control of Burning) Regulation 2000.

Even if burning off is permitted, the Contractor must utilise recycling or alternative uses of cleared vegetation where practical. Where burning off is planned, the Contractor, the Contractor must obtain a fire permit from the relevant Statutory Authorities and comply with the requirements of the Statutory Regulations. The Contractor shall be guided by the EPA guideline Regulation of Open Burning in NSW.

On receipt of a fire permit, the Contractor must notify the Superintendent and occupiers of adjoining properties of the proposed burning off operation at least twenty four (24) hours before burning off is commenced. The burning off operation must be controlled so that:

(a) vegetation outside the limits of clearing is not damaged;

(b) fences, buildings or other property is not damaged; and

(c) smoke does not cause a traffic hazard, nuisance nor contravene air quality requirements.

HOLD POINT	
Process Held.	Commencement of burning operations.
Submission Details.	Proposals for burning off and the relevant fire permit..
Release of Hold Point.	The Superintendent will consider the submitted documents prior to authorising the release of the Hold Point.

6.12 CHEMICALS, DANGEROUS GOODS AND OTHER POTENTIAL CONTAMINANTS

Plan and execute the Work Under the Contract so as to minimise the possibility of pollution of areas adjoining the construction area from chemicals, dangerous goods and other potential contaminants.

The use and storage of chemicals and dangerous goods must be strictly in accordance with all relevant legislation, manufacturer's instructions and the relevant Materials Safety Data Sheets (MSDS). Transporting, handling, storage and application methods that will prevent chemical, fuel and lubricant spillage on or around the site caused by construction activity must be employed. Polluting or permitting pollution of land or waterways by a chemical, fuel or lubricant, or any waste material is not permitted.

It must be demonstrated that any material imported to the site meets the requirements for the intended land-use of the site. Notification that any imported material is suitable must be provided to the Superintendent 5 working days prior to delivery to site.

Refuelling or maintenance of plant and equipment, mixing of cutting oil with bitumen, or any other activity which may result in the spillage of a chemical, fuel or lubricant on any location with direct drainage to a waterway or environmentally sensitive areas is not permitted without appropriate temporary bunding being provided. Refuelling operations must not be left unattended while in progress. Adequate quantities of suitable material to counteract spillage must be kept readily available.

Chemical, fuel and lubricant storage areas must be suitably located and protected to minimise the impact of any spillage or contamination on or around the site. Storage areas must not be located within 20 metres of natural or built drainage lines, flood prone areas, or on slopes steeper than 1:10, or near vegetated areas. Impervious bunds of sufficient capacity to contain at least 120% of the stored chemical, fuel and lubricant volume, must be constructed around all chemical, fuel and lubricant storage areas. Detail in the CEMP how bunded areas will be monitored and drained to meet environmental requirements and to ensure bund capacity is maintained.

Bunding and spill management must be undertaken according to requirements within:

(a) EPA's Bunding and Spill Management Guidelines contained within the EPA Environmental Protection Manual for Authorised Officers.

(b) Relevant legislation and Australian Standards.

(c) RTA Code of Practice for Water Management, 1999.

Where it is essential to remove chemical drums from bunded areas, they must not be left unattended. Where this is not practical, the unbunded and unattended drums must be managed to minimise the risk of spillage and must only be for use on that day, and a procedure must be implemented for both safe overnight storage and removal to bunded areas when conditions change creating a risk to the environment. Drums used as markers must not contain chemicals or fuels.

HOLD POINT

Process Held.	On-site storage of chemicals, fuels and lubricants requiring additional bunding.
Submission Details.	A report detailing completion of the required bunds (including aspects such as chemicals to be stored, location and bunding details) 10 working days prior to commencement of storage of chemicals on site and also confirming that the bunded areas meet all specified requirements.
Release of Hold Point.	The Superintendent will consider the submitted report prior to authorising the release of the Hold Point.

Before discharging any water from bunded areas, the Contractor must verify that the water complies with any applicable legislation or water quality criteria nominated by the EPA (refer to Clause 6.5). Arrange appropriate treatment if the water quality is not suitable for discharge.

Keep records of all water quality checks, discharges and any remedial actions.

Do not store any chemicals outside the works without the approval of the Superintendent.

Procedures for controlling and removing chemical, fuel and lubricant spillage on or around the site caused by works under the Contract must be included in the CEMP. These procedures must cover, at a minimum, the following activities if applicable to Work Under the Contract:

(a) refuelling or maintenance/cleaning of plant and equipment including concrete agitators, bitumen spraybars and asphalt pavers;

(b) on-site batching of concrete or asphalt;

(c) mixing of cutting oil and additives with bitumen;

(d) application of liquid membranes, including paint and thermoplastic, resin, emulsion, precoat agent and curing compound;

(e) bulk fuel or chemical deliveries;

(f) removal and disposal of excess chemicals and equipment washdown wastewater in an environmentally sound manner with adequate capture and treatment controls to ensure pollution does not occur;

(g) pumping out of oil and grease collection pits well before overflow is likely and residual material disposed of in accordance with regulatory requirements;

(h) decanting operations such as for fuel, chemicals or bitumen;

(i) routine checking of machinery, pumps and other equipment for leaks and prompt cleanup and repair of leakages;

(j) adequate runoff controls for the capture and filtering of all chemicals that may runoff in storms, including wax and hydrocarbon curing compounds, bitumen tack and saw cutting material, including primary and secondary controls;

(k) provision of adequate pits in number and size for concrete disposal (where no reuse options exist) and concrete washdown must be provided in non-environmentally sensitive areas; and

(l) adequate quantities of suitable materials and equipment to counteract spillage must be kept readily available. All chemical spills must be promptly cleaned up.

Detail specific requirements for chemical storage, handling, transporting and pollution control procedures.

List other specific EIS, REF, Decision Report or Determination requirements:

6.13 INDIGENOUS HERITAGE

Should any relic, artefact or material (including skeletal remains) suspected of being of Aboriginal origin be encountered, the Contractor must cease all construction work that might affect the relic, artefact or material and protect the relic, artefact or material from damage or disturbance. The Contractor must notify the Superintendent immediately, who will then arrange for an officer of the National Parks and Wildlife Service and a member of the appropriate Local Aboriginal Land Council to be consulted.

Ensure that all personnel working on site have received training regarding their responsibilities under the National Parks and Wildlife Act and are made aware of any relevant sites/areas (identified in the EIS/REF) which must be avoided.

Detail specific requirements, such as from the REF, EIS, Decision Report or Determination.

Example: Protect the aboriginal cave site and surroundings located on the banks of Shark River approximately 50 m upstream of the bridge site from construction related activities.

This is to include the provision of a man-proof fence located as shown on the Drawings and constructed in accordance with the provisions of RTA R161.

The fencing must be paid for in accordance with RTA R161.

6.14 NON-INDIGENOUS HERITAGE

Should any item be encountered which is suspected to be a relic of heritage value, the Contractor must cease all construction work that might affect the item and protect the item from damage or disturbance. The Contractor must notify the Superintendent immediately, who will then arrange for an officer from the Heritage Office to be consulted.

Under the Heritage Act 1977, 'relic' means any deposit, object or material evidence:

(a) which relates to the settlement of the area that comprises NSW, not being aboriginal settlement; and

(b) which is 50 or more years old.

Detail specific requirements for any sites identified in REF

6.15 CONTAMINATED GROUND

Contaminated land may have associated contaminated groundwater. Disturbance of contaminated soils and/or groundwater may also result in the release of contaminated surface waters.

Promptly notify the Superintendent of any suspected or potentially contaminated ground exposed during construction activities. Implement any control measures needed to divert surface runoff away from contaminated ground and to capture and manage any surface runoff contaminated by exposure to contaminated ground.

The Contractor must comply with the Contaminated Land Management Act and EPA Guidelines made under it in relation to disturbance or treatment of potentially contaminated ground.

Prepare a Contaminated Land Management Plan as part of the CEMP that details the processes to:

(a) protect the environment by taking control measures to divert surface runoff away from the potentially contaminated ground

(b) capture and manage any surface runoff contaminated by exposure to the contaminated ground

(c) investigate the contamination to determine the concentration and type of contaminants and the extent of contamination

(d) assess the requirements to notify the EPA

(e) manage the remediation and validation of the contaminated area, including any certification required.

HOLD POINT

Process Held.	Activities within the vicinity of actual or suspected contaminated ground.
Submission Details.	Notification to Superintendent of actual or suspected contaminated ground exposed during construction activities and the Contaminated Land Management Plan.
Release of Hold Point.	The Superintendent will consider the submitted documents prior to authorising the release of the Hold Point.

Detail specific requirements for any contaminated sites identified in REF

6.16 WASTE AVOIDANCE AND MANAGEMENT

The CEMP must include a Waste Management Plan detailing how the Contractor will manage and dispose of any waste generated during execution of the Contract including, but not limited to, green waste, office waste and construction and demolition waste. This must include compliance with the POEO Act for any non-licensed as well as licensed waste activities which involve the generation, storage and/or disposal of waste, as applicable. In preparing the Waste Management Plan, the Contractor shall be guided by the following publications:

(a) Compliance Guidelines for Waste Minimisation and Management Act 1995 and the WMM Regulation 1996;

(b) Green Waste Action Plan and Construction and Demolition Waste Action Plan; and

(c) Assessment, Classification and Management of Liquid and Non Liquid Wastes.

Effluent from the amenities for which the Contractor is responsible must be discharged into the local sewerage system, where available. Otherwise, septic tanks and portable self-contained toilets of suitable capacity may be used subject to acceptable arrangements for disposal of the effluent. Pit toilets are not permitted.

Littering or dumping of unwanted waste or disposal of surplus construction materials including bitumen, asphalt or concrete, or permitting such activities on any land on or around the site, is not permitted unless specifically permitted in the Specifications.

Appropriate receptacles must be provided for depositing of litter and other waste materials, and their contents disposed off site at a suitable waste disposal station on a regular basis. The disposal of chemical, fuel and lubricant containers, solid and liquid wastes must be in accordance with the requirements of the local Council or the EPA.

The Waste Management Plan must address measures to consider use of recycled materials and to avoid or minimise waste, where permitted, when designing and planning the work or purchasing materials.

The Waste Management Plan must cover transport and disposal arrangements including suitable facilities for storing waste materials and for monitoring the waste control measures.

A Waste Management Register must be kept detailing type of waste picked up, amounts, date/time, by whom, and where it was disposed.

Example: Detailed requirements for the preparation of the Waste Management Plan

The Contractor must include in the Waste Management Plan the percentage of reused, recycled or substituted materials as detailed in the following specifications:

3256 Comminuted Scrap Rubber
3151 Cover Aggregate for Sprayed Bituminous Surfacing
R116 Asphalt (Dense Graded and Open Graded)
R84 Continuously Reinforced Concrete Base

This list may be added to as appropriate to incorporate any specifications that allow the reuse, recycling or substitution of materials.

6.17 RESTORATION OF SITE

Reinstate all areas disturbed by the Contractor's construction operations. Restoration must include remedying of any ground contaminated by incidents such as oil or fuel spills (particularly in fuel storage areas), appropriate revegetation (refer to Clause 6.9) and any other measures to restore the land to a condition at least similar to the existing condition before disturbance.

On completion of the Works, all areas disturbed by the Contractor's construction activities (such as areas for compounds, material storage, access and haul roads and the provision of the Superintendent's accommodation) must be restored to conditions similar to their original condition. Restoration must include ripping, topsoiling of the area, weed control and seeding, planting, watering and maintenance. If RTA 178 is included in the Contract, areas disturbed by the Contractor's activities must be restored in accordance with RTA 178.

6.18 MATERIALS WITH RECYCLED CONTENT

Materials and products with recycled content must be proposed wherever these are cost- and performance-competitive, and they are environmentally preferable to the non-recycled alternative.

An "environmentally preferable" material or product is one with characteristics such as: having a higher percentage of recycled materials; minimising use of energy and materials over the total lifecycle of the Works; having a lower overall greenhouse gas impact; allowing for easy future re-use at end of design life; minimising impact on the local environment. Waste information that is reportable under the NSW Government Waste Reduction and Purchasing Policy must be reported as detailed within Annexure G35F.

HOLD POINT

Process Held.	Use of a specific material with recycled content not specified in the Contract, within the Works, in the manner proposed.
Submission Details.	Proposed type of material, quantities, and planned application areas, the cost savings to the Principal, verification that the materials conform to the Contract and verification that the single or repeated use of the materials in the manner proposed will not result in immediate, delayed or cumulative damage to the local environment.
Release of Hold Point.	The Superintendent will examine details prior to authorising the release of the Hold Point. The Superintendent is not bound to accept the proposal.

Detail any specific requirements for the use of materials with recycled content within the Works, or other specific requirements, such as from the REF, EIS, Decision Report or Determination.

For example: The Contractor must include in the Waste Management Plan the percentage of reused, recycled or substituted materials as detailed in the following specifications:

3051	*Unbound and Modified Base and Subbase Materials for Surfaced Road Pavements*
3052	*Material to be Bound (MTBB) for Base and Sub-Base Materials for Surfaced Road Pavements*
3252	*Polymer Modified Binder*
3256	*Comminuted Scrap Rubber*
3151	*Cover Aggregate for Sprayed Bituminous Surfacing*
R116	*Asphalt (Dense Graded and Open Graded)*
R84	*Continuously Reinforced Concrete Base*

This list may be augmented as appropriate to incorporate any specifications that allow the reuse, recycling or substitution of materials.

7 SUPERINTENDENT'S SURVEILLANCE AND AUDITS

Environmental management audits by the Superintendent may be conducted on a scheduled basis on all aspects of the CEMP and will be performed in accordance with recognised audit procedures.

The Superintendent shall give the Contractor at least five days notice that an environmental management audit is to be conducted and shall advise the scope of this audit.

Surveillance and process audits by the Superintendent may be conducted at any time.

The Superintendent may authorise environmental specialists as agents of the Principal to enter the site for the purposes of inspection and liaison with the Superintendent and to attend appropriately convened site meetings to discuss aspects of the work.

If surveillance or an audit indicates a significant nonconformance of environmental requirements, the Superintendent shall be entitled to conduct an environmental management audit at twenty four hours notice to the Contractor.

The Contractor must make available at the site suitable facilities to accommodate an audit team of three persons. The cost of providing such facilities must be borne by the Contractor.

ANNEXURE G35/A - SUPPLEMENTARY PROJECT INFORMATION

CLAUSE	DETAILS
4.1	Submission of the CEMP to the Superintendent is required for forwarding to: *[insert (as applicable)]:* *(a) Department of Urban Affairs and Planning* *Yes* *(b) Environmental Protection Authority* *Yes* *(c) [ ]* *[Yes]*
4.9	Notification to EPA Regional Manager is required of at least two (2) persons (and their contact telephone numbers) who will be available to the EPA on a 24-hour basis. *Yes/No*
6.1	Documents relevant to Environmental Protection: (NOTE: These documents are available on request and are for information only, they do not form part of the Contract.) *[insert (as applicable) REF, EIS, Environmental Impact Assessment Report, Determination of the Chief Executive, Decision Report, Conditions of Approval, Project EMP, any other relevant documents]*
6.11.2	Disposal of cleared and grubbed vegetation by burning off is conditionally allowed by the Principal Yes/No

ANNEXURE G35/B - MEASUREMENT AND PAYMENT

Refer to Clause 1.2.2.

Except where specific pay items are provided, all costs associated with environmental protection shall be deemed to be included in the rates and prices generally for the work under the Contract.

Measurement for payment defined in other specifications shall, unless otherwise stated in RTA G35, exclude works which are only carried out to comply with RTA G35.

NOTES TO TENDER DOCUMENTER: (Delete this boxed text after drafting G35)

The documenter may include Pay Items for specific items such as monitoring of dust, monitoring of water quality, building condition inspections, etc

Example:

Pay Item G35 P1 - Building Condition Inspections

This is a provisional item.

Payment will be made for all activities associated with performing and reporting building condition inspections in accordance with G35 Clause 6.8. The unit of measurement is "each" building inspected.

Pay Item G35 P2 - Site Monitoring

Payment will be made for all activities associated with the measurement and provision of records associated with the site monitoring required under G35 Clauses 6.5 to 6.8 under the following items:

a) Water Quality

b) Air Pollution

c) Noise

d) Ground Vibration

Progress payments shall be made on a pro rata basis, having due regard to the duration of the Contract.

ANNEXURE G35/C - SCHEDULES OF HOLD POINTS AND IDENTIFIED RECORDS

Refer to Clause 1.2.3

C1 SCHEDULE OF HOLD POINTS

CLAUSE	DESCRIPTION
4.1	Submission of CEMP
4.12	Failure to comply with environmental requirements
6.3	Environmental Protection Licences
6.7	Noise levels above specified limits
6.8	Building Condition Inspections
6.11.2	Proposal for burning off.
6.12	On-site storage of chemicals requiring additional bunding
6.15	Suspected or potentially contaminated ground
6.18	New Application for Materials with Recycled Content

C2 (RESERVED)

C3 SCHEDULE OF IDENTIFIED RECORDS

Clause	Description of the Identified Record
4.1	CONTRACTOR'S ENVIRONMENTAL MANAGEMENT PLAN (CEMP), supplementary plans and procedures
4.9	The report on each occasion when the site is visited by the EPA.
4.10	The reports on complaints about any environmental issue and actions.
4.13	The summary report of the risk-based performance evaluations.
4.14.2	Post completion audit report.
6.7	Nonconformance reports.
6.8	Building Condition Inspection reports

ANNEXURE G35/D - (RESERVED)

ANNEXURE G35/E - DISTANCE FROM CONSTRUCTION ACTIVITY FOR BUILDING CONDITION INSPECTION

Refer to Clause 6.8.

The Contractor must carry out a Building Condition Inspection for each public utility, structure and building within the distance from the appropriate activity listed below, however, where the risk of damage to an item is assessed to be very low, the requirement for a Building Condition Inspection may be waived with the Superintendent's agreement.

ACTIVITY	DISTANCE
Blasting Operations	*(Eg. 500 metres)*
Pile Driving	*(Eg. 200 metres)*
Excavation by hammering or ripping	*(Eg. 100 metres)*
Vibrating Compaction > 7 tonne plant	*(Eg. 50 metres)*
Vibrating Compaction < 7 tonne plant	*(Eg. 25 metres)*
Demolition of Structures	*(Eg. 50 metres)*

NOTES TO TENDER DOCUMENTER: (Delete this boxed text after drafting G35)

The documenter shall ascertain from the REF if any structures are potentially susceptible to damage from construction vibration or air blast and amend the distances in the table for actual site circumstances.

ANNEXURE G35/F – WASTE AVOIDANCE AND RESOURCE RECOVERY REPORTING

Refer to Clause 6.16.

F1 QUARTERLY REPORT - MATERIAL PURCHASE DATA

Field	Material	Quantity Purchased (tonnes)	% Containing Recycled Content	% Estimated Recycled Content by mass *(for those materials containing recycled content)*	*Comments*
1	Fill/ VENM *				
2	Concrete				
3	Asphalt				
4	Landscaping Materials				

Notes:

- ** VENM: Virgin excavated natural materials.*
- ***Landscaping Materials** includes bark, chips, soil amenders, mulches and compost*
- ***Asphalt** includes pavement materials containing hydrocarbons.*
- *Where figures are only available in cubic metres, use the following EPA conversion factors to calculate tonnes: 2.3 for concrete; 2.0 for fill/ VENM; 1.65 for asphalt.*

F2 QUARTERLY REPORT - WASTE AND RECYCLING DATA

Field	Material	Quantity of Waste Landfilled (tonnes)	Quantity of Material Recycled or Reused (tonnes)	Comments
5	Concrete			
6	Fill/ VENM *			
7	Asphalt			
8	Vegetation Waste			

Notes:

- ** VENM: Virgin excavated natural materials*
- ***Quantity of Waste Landfilled** includes all materials disposed of to licensed landfills, or otherwise to land as waste with no intended environmental or engineering improvement to the application site.*
- ***Quantity of Material Recycled or Reused** includes all wastes that are not landfilled, and reuse or recycling of these materials is intended.*

Where figures are only available in cubic metres, use the following EPA conversion factors to calculate tonnes: 1.1 for concrete; 2.0 for fill/ VENM; 1.6 for asphalt.

F3 ANNUAL REPORT - ADDITIONAL SUPPORTING INFORMATION

The following information is to be provided at the end of each financial year and on project completion

Field	Heading	Comments *(for financial year just completed)*
1	Initiatives *reducing waste generation* for: i) concrete ii) asphalt iii) fill/VENM iv) vegetation wastes during the year	▪ *list and briefly discuss initiatives*
2	Estimated amount of waste being avoided through these initiatives	▪ *estimates in tonnes.*
3	Initiatives for *reuse and recycling* of i) concrete ii) asphalt iii) fill/VENM iv) vegetation during the year	▪ *list and briefly discuss initiatives*
4	Barriers preventing reuse and recycling of i) concrete ii) asphalt iii) fill/VENM iv) vegetation during the year	▪ *list and briefly discuss barriers*
5	Initiatives to *increase the recycled content* of: i) concrete ii) asphalt iii) fill/VENM iv) landscaping materials	▪ *list and briefly discuss initiatives*
6	Barriers preventing increased recycled content of: i) concrete ii) asphalt iii) fill/VENM iv) landscaping materials	▪ *list and briefly discuss barriers*

Note:

- ***Reducing waste generation** means avoiding the generation of materials that need to be managed by recycling, reuse, storage or disposal.*

ANNEXURES G35/G TO G35/L - (RESERVED)

ANNEXURE G35/M - REFERENCES, DEFINITIONS AND LEGISLATION

M1 REFERENCES

Refer to Clause 1.2.4.

Australian Standards

AS 1055	Acoustics – Description and measurement of environment noise
AS 3580	Methods of sampling and analysis of ambient air
ISO 14001	AS/NZS/ISO 14001, Environmental management systems - Specification with guidance for use
ISO 9000	AS/NZS ISO 9000, Quality management systems – Fundamentals and vocabulary

British Standards

BS 7385	Evaluation and measurement for vibration in buildings

RTA Specifications

RTA G2	General Requirements
RTA G10	Control of Traffic
RTA G22	Occupational Health and Safety (Major Works)
RTA Q	Quality System
RTA R41	Clearing and Grubbing
RTA R178	Vegetation
RTA B30	Clearing, Excavation and Backfill for Bridgeworks

RTA Publications

Environmental Noise Management Manual

EPA Publications

Noise Control Manual

Green Waste Action Plan

Construction and Demolition Waste Action Plan

Industrial Noise Policy

Assessment, Classification and Management of Liquid and Non Liquid Wastes

Bunding and Spill Management

Approved Methods for Sampling and Analysis of Air Pollutants in NSW

Approved Methods for Sampling and Analysis of Water Pollutants in NSW

Regulation of Open Burning in NSW

Environmental Criteria for Road Traffic Noise

Department of Housing Publication

Managing Urban Stormwater: Soils and Construction

NSW Rural Fire Service Publication

Equipment and Machinery Use in Bush Fire Prone Areas

ANZECC Publications

Technical Basis for Guidelines to Minimise Annoyance Due to Blasting Over pressure and Ground Vibration - September 1990

M2 DEFINITIONS

Refer to clause 1.2.4. The following definitions are applicable:

(a) "Environment": refer to the definition in the Conditions of Contract;

(b) Clauses 3.1 and 3.3 to 3.13 of ISO 14001;

(c) The definitions used in ISO 9000 for nonconformance (see "nonconformity"), corrective action and preventive action, where they can be extended to apply to environmental management and are not inconsistent with ISO 14001;

(d) "Pollution Incident": means an incident or set of circumstances during or as a consequence of which there is, has been or is likely to be a leak, spill or other escape of a substance, as a result of which pollution has occurred, is occurring or is likely to occur. It includes an incident or set of circumstances in which material (including waste) has been placed or disposed of on premises unlawfully, but it does not include an incident or set of circumstances involving only the emission of any noise or odour.

(e) "Pesticide" has the same meaning as within the Pesticides Act 1999.

(f) "Dangerous Goods" have the same meaning as within the Dangerous Goods Act 1975.

(g) "Contamination of land" is the presence of a substance in, on or under the land at a concentration above that which it is normally found in that locality, such that there presents a risk of harm to human health or to the environment. (Contaminated land is generally the result of polluting practices of commercial, agricultural or industrial land uses.)

(h) "Work Under the Contract" has the same meaning as in the Conditions of Contract.

M3 LEGISLATION

Refer to Clauses 1.2.4 and 6.2.

Environmental Planning Legislation

Environmental Planning and Assessment Act, 1979 (NSW) (and instruments made under it)

Local Government Act, 1993 (NSW)

Roads Act, 1993 (NSW)

Soil Conservation Act, 1938 (NSW)

Native Vegetation Conservation Act, 1997 (NSW)

Environment Protection and Biodiversity Conservation Act, 1999 (Cth)

Land and Environment Court Act, 1979 (NSW)

Rivers and Foreshores Improvement Act, 1948 (NSW)

Conservation and Heritage Legislation

Dams Safety Act, 1978 (NSW)

Native Vegetation Conservation Act, 1997 (NSW)

Coastal Protection Act, 1979 (NSW)

National Parks and Wildlife Act, 1974 (NSW)

Threatened Species Conservation Act, 1995 (NSW)

Environment Protection and Biodiversity Conservation Act, 1999 (Cth)

Fisheries Management Act, 1994 (NSW)

Marine Pollution Act, 1987 (NSW)

Noxious Weeds Act, 1993 (NSW)

Rivers and Foreshores Improvement Act, 1948 (NSW)

Water Act, 1912 (NSW)

Water Management Act, 2000 (NSW)

Heritage Act, 1977 (NSW)

Wilderness Act, 1987 (NSW)

Plantations and Reafforestation Act, 1999 (NSW)

Australian Heritage Commission Act, 1975 (Cth)

Aboriginal and Torres Strait Islander Heritage Protection Act, 1984 (Cth)

Pollution and Waste Management Legislation

Ozone Protection Act, 1989 (NSW)

Protection of the Environment Operations Act, 1997 (NSW)

RTA QA SPECIFICATION G38

SOIL AND WATER MANAGEMENT (SOIL AND WATER MANAGEMENT PLAN)

RTA QA SPECIFICATION G38

SOIL AND WATER MANAGEMENT (SOIL AND WATER MANAGEMENT PLAN)

NOTICE - RTA SPECIFICATIONS AND GUIDES TO SPECIFICATIONS

RTA Specifications are written specifically as models for adaptation and use on RTA projects and may not be suitable for other purposes. Copies of RTA specifications and guides to specifications supplied to the general public do not require the Revision Register and the attached guide notes (if provided) but must include the Notice before the Table of Contents. Paper copies may be purchased under the Freedom of Information Act on payment of the price listed in the document "QALIST".

Electronic copies of specifications in MS Word format are not to be supplied outside the RTA unless loaned, by the appropriate RTA Project Manager, to professional services contractors or Councils for preparing tender documents for RTA funded projects. In which cases, the contractors and Councils are required to return them to the RTA Project Manager.

Electronic copies of specifications may be provided to other State Road or NSW Government Authorities by Infrastructure Contracts Branch for use on Government funded projects only.

RTA does not permit the possession or use of electronic copies of specifications or guides to specifications by non-RTA organisations or persons other than as stated above.

REVISION REGISTER

Ed/Rev Number	Clause Number	Description of Revision	Authorised By	Date
Ed 1/Rev 0				

QA SPECIFICATION G38

SOIL AND WATER MANAGEMENT

(SOIL AND WATER MANAGEMENT PLAN)

RNIC-QA-G38

VERSION FOR: ***DRAFT***
DATE: ***February 2003***

CONTENTS

REVISIONS TO EDITION 1 1

PROJECT SPECIFIC CHANGES 1

1 GENERAL 1
1.1 Scope 1
1.2 Structure of the Specification 1

2 SOIL AND WATER MANAGEMENT PLAN 3

3 SOIL AND WATER MANAGEMENT MEASURES 4
3.1 Erosion and Sediment Control 4
3.2 Soil and Stockpile Management 6
3.3 Water Quality 7
3.4 Water Quality Monitoring 7
3.5 Water Extraction 7

4 OPERATIONAL AND CONSTRUCTION BASINS/TRAPS 8
4.1 Design and Construction 8
4.2 Maintenance of Sedimentation Basins 9
4.3 Removal 9

5 DROP INLET SEDIMENT TRAPS AND INLET CONTROL BANKS 10

ANNEXURE G38/A – PROJECT REQUIREMENTS 11
A1 Water Quality Monitoring 11

ANNEXURE G38/B – MEASUREMENT AND PAYMENT 12

ANNEXURE G38/C - SCHEDULES OF HOLD AND WITNESS POINTS AND IDENTIFIED RECORDS 14
C1 Schedule of HOLD POINTS 14
C1 Schedule of WITNESS POINTS 14
C3 Schedule of Identified Records 14

ANNEXURE G38/D - SOIL AND WATER MANAGEMENT PLAN DOCUMENTATION 15

ANNEXURE G38/E - MINIMUM FREQUENCY OF TESTING 16

ANNEXURE G38/F - DESIGN AVERAGE RECURRENCE INTERVALS 17

ANNEXURE G38/G – RELATIONSHIP BETWEEN RTA G38 AND THE SPECIFICATION FOR ENVIRONMENTAL PROTECTION 18

ANNEXURE G38H TO G38/L – (RESERVED) 19

ANNEXURE RG38/M - REFERENCE DOCUMENTS AND DEFINITIONS 19

M1 References 19
M2 Definitions 20

LAST PAGE OF RTA G38 IS 21

RTA QA SPECIFICATION G38

SOIL AND WATER MANAGEMENT (SOIL AND WATER MANAGEMENT PLAN)

REVISIONS TO EDITION 1

This document is based on RTA Specification G38 Edition 1 Revision 0 — February 2003.

All revisions to RTA G38 Ed1/Rev 0 (other than minor editorial and project specific changes) have been indicated by a vertical line in the margin as shown here.

PROJECT SPECIFIC CHANGES

Any project specific changes have been indicated in the following manner:

(a) Text which is additional to the base document and which is included in the Specification is shown in bold italics e.g. ***Additional Text***.

(b) Text which has been deleted from the base document and which is not included in the Specification is shown struck out e.g. ~~Deleted Text~~.

1 GENERAL

1.1 SCOPE

The work to be executed under this Specification consists of the design and construction of facilities and implementation of work methods to, avoid pollution of water, minimise erosion and control sediment.

The Contractor must plan and carry out the whole of the work under the Contract to minimise the extent and duration of disturbance to vegetation and to avoid pollution of any water (including groundwater) or erosion and sedimentation of the site, surrounding country, watercourses, drainage systems, rivers or other waters, wetlands or stormwater drainage systems.

1.2 STRUCTURE OF THE SPECIFICATION

This Specification includes a series of annexures that detail additional requirements.

1.2.1 Project Requirements

Details of Project Requirements are shown in Annexure G38/A.

1.2.2 Measurement and Payment

Measurement and payment shall be in accordance with Annexure G38/B.

1.2.3 Schedules of HOLD POINTS, WITNESS POINTS and Identified Records

The schedules in Annexure G38/C list the **HOLD POINTS** and **WITNESS POINTS** that must be observed. Refer to the Conditions of Contract for the definitions of **HOLD POINTS** and **WITNESS POINTS**.

The records listed in Annexure G38/C are Identified Records for the purposes of RTA G2 Clause 19 and RTA G5 Clause 9.

1.2.4 Planning Documents

The Soil and Water Management Plan must include each of the documents and requirements listed in Annexure G38/D and must be implemented.

If the Contract does not require the Contractor to implement a PROJECT QUALITY PLAN, the documents listed in Annexure G40/D must be submitted to the Superintendent for consideration at least 5 working days prior to work commencing and must be implemented.

1.2.5 Minimum Frequency of Testing

Work must be tested at not less than the frequency of testing specified in Annexure G38/E. The Contractor must nominate the frequency in the Soil and Water Management Plan in accordance with RTA Q.

1.2.6 Design Average Recurrence Intervals

The Design Average Recurrence Intervals shown in Annexure G38/F are used when complying with the BLUE BOOK, refer to Clause 2 of this Specification.

1.2.6 Relationship between RTA G38 and the Specification for Environmental Protection

Annexure G38/G is for information purposes only and does not form part of the Contract.

1.2.7 Reference Documents and Definitions

Unless otherwise specified the applicable issue of a reference document, other than an RTA Specification, must be the issue current at the date one week before the closing date for tenders, or where no issue is current at that date, the most recent issue.

Standards, specifications and test methods are referred to in abbreviated form (e.g. AS 2350). For convenience, the full titles are given in Annexure G38/M:

The definitions given in Annexure G38/M apply to this Specification.

2 SOIL AND WATER MANAGEMENT PLAN

The Contractor must prepare a Soil and Water Management Plan (SWMP) to cover all work under the Contract. The Contractor's SWMP must be prepared by a person experienced in this type of work.

The SWMP is to supplement the Contractor's Environmental Management Plan (CEMP) as set out in the specification for ENVIRONMENTAL PROTECTION. Matters to be included are, as a minimum, those listed in Annexure G38/4. The SWMP is subject to the requirements for the CEMP, including the HOLD POINT on commencement of work, included in the specification for ENVIRONMENTAL PROTECTION.

When preparing the SWMP the site must be subdivided into sections based on the separate catchment areas which will be affected by the work under the Contract. In addition to the area bounded by the road reserve, the sections must be:

(a) access and haulage tracks;

(b) borrow pits;

(c) stockpile and storage areas;

(d) temporary work areas;

(e) materials processing areas;

(f) compound areas, such as the Contractor's and the Superintendent's facilities; and

(g) concrete and asphalt batching areas.

A map must be provided that shows the locations of the above in addition to any other activities that may impact on water quality. The map must include details of how the site is sub-divided into separate catchment areas.

The Contractor must locate the above facilities and stage all work to minimise impacts on vegetation and water.

The SWMP must be revised whenever the construction program, scope of work or work methods change, whenever the work methods and control structures are found to be ineffective, or if so directed by the Superintendent.

The following parameters must be applied when using the BLUE BOOK:

(i) peak flows and other parameters needed to design drains and drainage structures must be estimated using the methods described in ARR;

(ii) the design Average Recurrence Interval (ARI) for erosion and sediment control measures must be as shown in Annexure G38/5 unless site conditions or risks to life, property or the environment suggest that other values are applicable; and

(iii) the drawings accompanying the SWMP must be superimposed on A3 sized drainage drawings of the works.

Procedures for controlling the following activities on or around the site must be included in the SWMP, if applicable to work under the Contract:

(A) waste water discharge from dewatering, surface washing, grit blasting, saw cutting, drilling, washing vehicles and plant, batching plants, washing out of concrete mixers and concrete trucks and any other activities which add pollutants to water;

(B) prevention of mud and litter being deposited on trafficked roadways;

(C) maintenance and cleaning of sediment control works;

(D) protection of soil and other stockpiles from erosion by wind and rain;

(E) extraction of water for construction purposes; and

(F) excavation in waterways.

Procedures for controlling excavation in waterways must describe methods to minimise erosion, water quality impacts and riparian flora and fauna impacts. Preparation of these procedures must include consultation with the National Parks and Wildlife Service, the EPA, NSW Fisheries and the Department of Land and Water Conservation.

The calculations carried out during preparation of the SWMP need not be submitted with the plan but must be retained by the Contractor and a copy must be forwarded to the Superintendent if so directed.

3 SOIL AND WATER MANAGEMENT MEASURES

3.1 EROSION AND SEDIMENT CONTROL

ESCP's must be prepared to supplement the SWMP. They must be prepared by a person experienced in the preparation of ESCP's and in accordance with the BLUE BOOK guidelines. They must be prepared for each section of the site, as defined in the SWMP, and must include all erosion and sediment controls required to avoid erosion and sedimentation of the site, surrounding country, watercourses, drainage systems, waterbodies and wetlands.

ESCP's must be prepared for each section of the site before any work begins on that section. All ESCP's must be revised whenever the construction program, scope of work or work methods change, whenever the work methods and control structures are found to be ineffective, or if so directed by the Superintendent.

The ESCP must describe the following:

(a) the method of tree removal in intermittent watercourses, leaving grasses and small understorey species wherever possible;

(b) measures required before clearing and grubbing of the site;

(c) appropriate controls before the removal of topsoil and commencement of earthworks for the formation within the catchment area of each structure. This must include construction and operational sediment basins and other water quality structures shown on the drawings;

(d) how upstream water will be managed so it is not affected by the construction activities;

(e) scour protection measures for haul roads and access tracks when these are an erosion hazard due to either their steepness, soil erodibility or potential for concentrating runoff flow.

(f) the method for stabilising temporary drains;

(g) the methods to minimise erosion during construction of embankments;

(h) the method of constructing batters to assist the retention of topsoil on the batter slopes;

(i) temporary sediment trapping measures in median areas at regular intervals;

(j) the method of maintenance of erosion and sediment control basins including measures to restore the capacity of sedimentation basins; and

(k) the details of the inspection and maintenance program for all erosion and sediment controls to ensure that no disturbed area is left without adequate means of containment and treatment of contaminated water.

Erosion control and sediment capture measures to be documented and implemented must include, but must not be limited to, the following:

(i) locating site compounds (refer to RTA G2), access tracks, stockpile sites and temporary work areas to minimise erosion;

(ii) staging of work and programming of construction activities to minimise the extent and duration of disturbance to vegetation. This includes leaving clearing and initial earthworks in intermittent and permanent watercourses until subsequent works are about to commence;

(iii) limiting of areas of soil exposed at any time to those areas being actively worked;

(iv) temporarily modifying of operational sedimentation basins during the construction period for additional capture of construction site runoff;

(v) installing and lining catch drains and diversion banks in accordance with the requirements of RTA R11 before earthworks commence.

(vi) installing scour protection at the base of drainage outlets, both permanent and temporary.

(vii) constructing of drains to ensure that runoff from heavily disturbed areas is directed to sediment basins or to areas with adequate sediment trapping/filtering devices away from watercourses.

(viii) filtering of sediment prior to water entering any pit and management of stormwater discharge through any pit;

(ix) staging re-vegetation of the site as work proceeds and progressively undertaking topsoiling and vegetation work as specified in RTA R178.

HOLD POINT	
Process Held:	Commencement of any work on the site, as defined in Clause 2, requiring the installation of control measures .
Submission Details:	An ESCP for work under the Contract as detailed in Clause 2 prepared for the section of site where work is to commence and, where required in Annexure G38/6, a Water Quality Management Plan (WQMP). The plan(s) must be submitted at least ten working days before disturbance.
Release of Hold Point:	The Superintendent will consider the submitted plan(s) prior to authorising the release of the Hold Point.

WITNESS POINT	
Process Held:	Disturbance of the existing surface on a section of the site, other than for the installation of erosion and pollution control measures.
Submission Details:	Written advice that the measures described in the ESCP for that section of the site have been implemented or of the date by which implementation will have been completed. The advice must nominate the works to be undertaken and the relevant part of the ESCP. It must be forwarded at least five working days before the works are to commence but not more than seven days before implementation of the measures is planned to be complete.

The Contractor must maintain a register of inspections, maintenance, discharge volumes and dates, water treatment (flocculation), discharge water quality, volumes of sediment removed from each device and daily rainfall.

3.2 SOIL AND STOCKPILE MANAGEMENT

Measures to minimise erosion and control sedimentation must be detailed in the SWMP and must be implemented prior to stockpiling any material.

Stockpiles which are susceptible to wind or water erosion, must be covered or otherwise managed. Soil stockpiles may be protected by the establishment of a cover crop.

Stockpiled materials must not be placed inside vegetation protection areas or within 5 metres of retained trees. Stockpiles must be sited so that any slump of the stockpile would not affect erosion and sediment control measures or infringe specified minimum clearance requirements.

Topsoil that is not contaminated by noxious weeds must be stockpiled in acceptable stockpile locations for later spreading on fill batters and other areas. Other material may also be stockpiled at these sites but separated from the topsoil stockpiles.Stockpiles must be maintained to prevent the growth of weeds on stockpiles.

3.3 WATER QUALITY

The Contractor must comply with the requirements of the NSW Protection of the Environment Operations Act 1997, requirements of local water authorities and all other relevant laws and by-laws in force from time to time in the State of New South Wales.

The Contractor must provide adequate controls, including soil erosion and sediment controls, to ensure that all water leaving the site complies with any water quality criteria nominated by the EPA or specified for the project.

Insert all water quality compliance limits as detailed in the REF, Decision Report or EPA licence

3.4 WATER QUALITY MONITORING

Where Annexure G38/A so requires, the Contractor must implement a water quality monitoring programme as part of its environmental monitoring program.. Monitoring must comply with Annexure G38/A and the RTA Guideline for Construction Water Quality Monitoring.

3.5 WATER EXTRACTION

The proposed water source(s) which the Contractor intends to use for construction activities (such as dust control, earthworks/pavement compaction, on-site concrete batching and the like) must be identified in the SWMP. The proposed water source(s) must be discussed with the Department of Land and Water Conservation, the Local Council and any other persons or authorities having responsibility for the chosen source(s). The Contractor must obtain all necessary licences before commencing construction.

The Contractor's procedures must include regular testing of the source if water from a sewerage treatment works, or another source other than a town water supply or natural water source, is to be used. Testing must be designed to ensure that the water is suitable for the purpose, is free of pollutants and is not hazardous to health.

4 OPERATIONAL AND CONSTRUCTION BASINS/TRAPS

4.1 DESIGN AND CONSTRUCTION

Earthworks for operational basins/traps must be as shown on the Drawings or directed by the Superintendent.

The entire storage and embankment foundation area of operational basins/traps must be cleared and grubbed and must be stripped of topsoil. Unsuitable material under embankments must be removed in accordance with the specifications for EARTHWORKS.

The site under the embankment must be prepared by ripping to a depth of 100 mm and excavating a trench at least 600 mm deep by 1200 mm wide along the centreline of the embankment.

The embankment and trench backfill must be constructed in layers not exceeding 200 mm in depth and compacted so that the relative compaction, determined by RTA T166, must not be less than 95.0 per cent.

Material forming the embankment and trench backfill must have a Plasticity Index neither less than 15 nor more than 30 and a grading such that at least 20 per cent by mass of material passes the 425 micron sieve. Where material from excavations for operational basins is unsuitable for the embankments, materials may be obtained from other excavations, borrowed or imported in accordance with the Specification for EARTHWORKS. Surplus materials must be disposed of in accordance with the Specification for EARTHWORKS.

Pipes and fittings must be installed as shown on the drawings.

Alternative methods of draining the basins for sediment removal may be proposed by the Contractor. The use of alternative methods must be subject to the agreement of the Superintendent.

The area disturbed by the construction of the operational basins/traps (except the inner surfaces below the spillway levels and the areas covered by rock mattresses) must be stabilised by vegetation as specified in RTA R178 or as shown on the Drawings.

Construction sediment retention basins/traps must be designed by the Contractor in accordance with the BLUE BOOK guidelines. Earthworks must be in accordance with the requirements of this clause for operational basins unless site specific designs using alternative materials and construction methods are prepared by a suitably qualified engineer experienced in the type of work. Details of the design must be included as part of the ESCP.

Inlets and spillways must be constructed as soon as possible using rock filled woven galvanised steel mattresses laid on a needle punched, mechanically bonded, non-woven geotextile filter fabric. The rock filled mattresses must comply with RTA R55 and the geotextile must comply with the requirements of RTA R63 for Application Category G4 unless shown otherwise on the Drawings.

Alternative methods of inlet and spillway construction and low flow outlets may be proposed by the Contractor. The use of alternative methods of construction must be subject to the agreement of the Superintendent.

4.2 MAINTENANCE OF SEDIMENTATION BASINS

The Contractor must clean out sediment control basins as per the maintenance Schedule or whenever the accumulated sediment exceeds 60 per cent of the sediment storage zone.

Accumulated sediment must be removed from sedimentation control structures in such a manner as not to damage the structures. The sediment removed must be disposed of in such locations that the sediment will not be conveyed back into the construction areas or into watercourses. The Contractor must provide and maintain suitable access to sediment control structures to allow cleaning out in all weather conditions.

Where flocculation is necessary to settle suspended sediments the Contractor must apply the flocculant of a kind at times appropriate to settle sediments within 24 hours of the conclusion of each rain period. The flocculating agent used must be calcium sulphate (gypsum) unless the use of an alternative chemical is approved by the Superintendent. The use of polyelectrolytes will not be approved. Any request for permission to use an alternative agent must be supported by documentation nominating the chemical and the dosage rate and showing that conditions are suitable for the proposed agent and there will be no adverse effects on the receiving waters.

Before using any flocculating agent the Contractor must determine the amount of the agent that is appropriate for the volume to be treated, the soil type and the prevailing weather conditions.

Before discharging water from a basin the Contractor must test the water to ensure that it meets the following criteria:

Insert all water quality compliance limits as for discharges from a point source. Where the EPA has issued a licence the criteria will be specified in the licence. Where no criteria have been specified in a license or another document the following default values may be used:

- *total suspended solids 50mg/L*
- *pH 6.5 – 8.5, and*
- *oil and grease 10mg/L (and no visible trace)*

All operational basins and drainage structures must be cleaned out as part of the work to be executed by the Contractor before Practical Completion of the Works.

4.3 REMOVAL

Before the end of the defects liability period, but not before all upstream areas have been vegetated or otherwise stabilised, the Contractor must remove all construction sediment retention basins. Where directed, the Contractor must remove any or all of the operational basins and spillways.

The work must result in the restoration of the ground surface disturbed by the construction of the basins to approximate that previously existing and must include the following:

(a) removal of all redundant mattresses from the spillway(s) and their subsequent burial into the basin area or their use as scour protection or their removal from site;

(b) spreading and compaction of the embankment material into the basin area; and

(c) removal of access roads.

The disturbed material must be compacted to at least the relative density of the material existing in the adjacent ground.

Vegetation in the restored area must be carried out and paid for in accordance with RTA R178.

5 DROP INLET SEDIMENT TRAPS AND INLET CONTROL BANKS

Drop inlet sediment traps and inlet control banks must be constructed on completion of each median gully pit. These drop inlet sediment traps and inlet control banks are additional to the temporary sediment control measures that may be required during construction of the median gully pits.

The drop inlet sediment traps are intended to remove sediment from the surface flow before it enters the drainage system. The inlet control banks must be constructed across the median as required to prevent the surface flows bypassing the median gully pits.

The drop inlet sediment traps must be constructed as shown on the Drawings.

Alternative methods of achieving the same results may be proposed by the Contractor. The use of alternative methods must be subject to the agreement of the Superintendent.

The Contractor must clean out drop inlet sediment traps and inlet control banks as per the maintenance schedule or whenever the deposited sediment exceeds 50% capacity of the device.

Towards the end of the contract period, the Contractor where directed must remove from the site any or all of the drop inlet sediment traps and associated inlet control banks.

ANNEXURE G38/A – PROJECT REQUIREMENTS

Water Quality Monitoring is required.....**YES/NO**

A1 WATER QUALITY MONITORING

Where water quality monitoring is required the Contractor must undertake the monitoring in accordance with the RTA Guideline for Construction Water Quality Monitoring. The Contractor must address the following in the SWMP::

(a) the objectives of the monitoring (including EIA or EPA licence requirements);

(b) a map showing the water sampling locations;

(c) the sampling frequency;

(d) the parameters to be monitored;

(e) the method for interpretation of field results;

(f) accountabilities, responsibilities and training required the meet the monitoring objectives;

(g) the method of comparison of results between sampling locations (eg: upstream and downstream) and any water quality criteria and/or targets for the project;

(h) reporting and recording of monitoring outcomes;

(i) responsibility for planning, implementing, checking and reviewing each element of the monitoring;

(j) the methodology for using monitoring results to assess and manage identified problems; and

(k) reporting requirements in the case the monitoring results exceed the set criteria.

ANNEXURE G38/B – MEASUREMENT AND PAYMENT

Payment shall be made for all activities associated with completing the work detailed in this Specification in accordance with the following Pay Items.

The cost of preparation of SWMP's and ESCP's, monitoring performance, constructing and maintaining environmental control measures, the cost of proposing and implementing alternative methods and all other activities not specifically mentioned in the Pay Items must be deemed to be included in the rates and prices generally for the work under the Contract.

A lump sum price for any of these items shall not be accepted.

Measurement for payment defined in other specifications must, unless otherwise stated in RTA G38, exclude works only carried out to comply with RTA G38.

If any item for which a quantity of work is listed in the Schedule of Rates has not been priced by the Contractor it must be understood that due allowance has been made in the prices of other items for the cost of the activity which has not been priced.

Pay Item G38P1 Earthworks for Operational Basins/Traps

The unit of measurement must be "each" basin/trap shown on the drawings.

The schedule rate must cover the excavation of material from within the sediment retention basin/trap, embankment construction and disposal of surplus materials and must be an average rate for all types of materials.

The cost of excavating and transporting material for embankment construction which is obtained from within cuttings or from borrow or imported must not be covered by this Pay Item. It must be included in the schedule rates for earthworks under the Specification for EARTHWORKS.

Pay Item G38P2 Inlets, Spillways and Low Flow Outlets for Operational Basins

The unit of measurement must be the square metre of rock filled mattress. The area must be determined from the actual slope area of the completed work. Payment at the schedule rate must include the cost of all pipes and valves shown on the Drawings.

Pay Item G38P3 Drop Inlet Sediment Traps and Inlet Control Banks

The unit of measurement must be 'each' drop inlet sediment trap including inlet control bank.

Pay Item G38P4 Cleaning of Operational Basins

The unit of measurement must be the in-place cubic metre of sediment removed from the structure.

The volume of sediment removed must be determined by survey.

The schedule quantity is a provisional quantity.

Pay Item G38P5 Removal of Operational Basins including Spillways

The unit of measurement must be 'each' operational basin, including spillway, removed.

The schedule quantity is a provisional quantity.

Pay Item G38P6 Removal of Drop Inlet Sediment Traps and Inlet Control Banks

The unit of measurement must be 'each' drop inlet sediment trap including control bank removed.

The schedule quantity is a provisional quantity.

ANNEXURE G38/C - SCHEDULES OF HOLD AND WITNESS POINTS AND IDENTIFIED RECORDS

Refer to Clause 1.2.3.

C1 SCHEDULE OF HOLD POINTS

CLAUSE	TYPE	DESCRIPTION
3.1	HOLD	Submission of a ESCP and, where required, WQMP for a section of the work under the Contract.

C1 SCHEDULE OF WITNESS POINTS

CLAUSE	TYPE	DESCRIPTION
3.1	WITNESS	Submission of written notice that measures set out in the ESCP for a section of the work have been installed.

C3 SCHEDULE OF IDENTIFIED RECORDS

The records listed below are Identified Records for the purposes of RTA G2 Clause 19 and RTA G5 Clause 9.

RTA: Required to permit RTA to comply with the State Records Act.

CLAUSE	DESCRIPTION OF THE IDENTIFIED RECORD
3	Soil and Water Management Plan (SWMP)

ANNEXURE G38/D – PLANNING DOCUMENTS

The Contractor's Soil and Water Management Plan (SWMP) for the project must cover the following matters where relevant:

1. The purpose and objectives of the SWMP.
2. References, approvals, licence requirements and relevant legislation.
3. Site investigations and assessments including:
   - a soil properties (including dispersion properties and the presence of Acid Sulfate Soils),
   - b rainfall records and design parameters,
   - c waterways and other water sensitive environments,
   - d groundwater, and
   - e possibilities and limitations on water extraction.
4. Environmental controls – Best Management Practices.
5. Responsibility for implementation (including names and contact details).
6. Implementation schedule, related to construction activities.
7. Resources for construction, monitoring, maintenance and removal of environmental controls.
8. Training, including:
   - a site induction,
   - b environmental training, and
   - c toolbox training.
9. Monitoring and maintenance of environmental control measures.
10. Inspection and auditing (linked to CEMP provisions).
11. Soil and water management plans including:
    - a ESCP's,
    - b primary and secondary sediment and waste control plans.
12. Method statements for construction in or near waterways.
13. Protection of vegetation and topsoil management, including:
    - a protection of vegetation which is to remain*,
    - b clearing, and
    - c management of topsoil.

    [* Where a Clearing and Grubbing Plan and/or Vegetation Management Plan is specified, the SWMP must be linked to that plan.]

14. Construction sediment retention basins, including:

    a design details of the construction sediment retention basins and any temporary modifications to the operational basins (approach, standards, criteria and references to be included when variations from the Blue Book provisions are adopted),

    b management of the basins,

    c procedures for testing, treatment and discharge of water, and

    d procedures for removal and disposal of sediment.

15. Management of contaminated soil.

16. Water quality monitoring including:

    a ambient water quality,

    b water quality parameters,

    c sampling sites,

    d frequency of monitoring,

    e records, and

    f use of the data to identify and resolve problems.

ANNEXURE G38/E - MINIMUM FREQUENCY OF TESTING

CLAUSE	CHARACTERISTIC ANALYSED	TEST METHOD	MINIMUM FREQUENCY OF TESTING
5	Compaction of embankments	T166	One test per 500 m^3 with a minimum of 2 per basin/trap

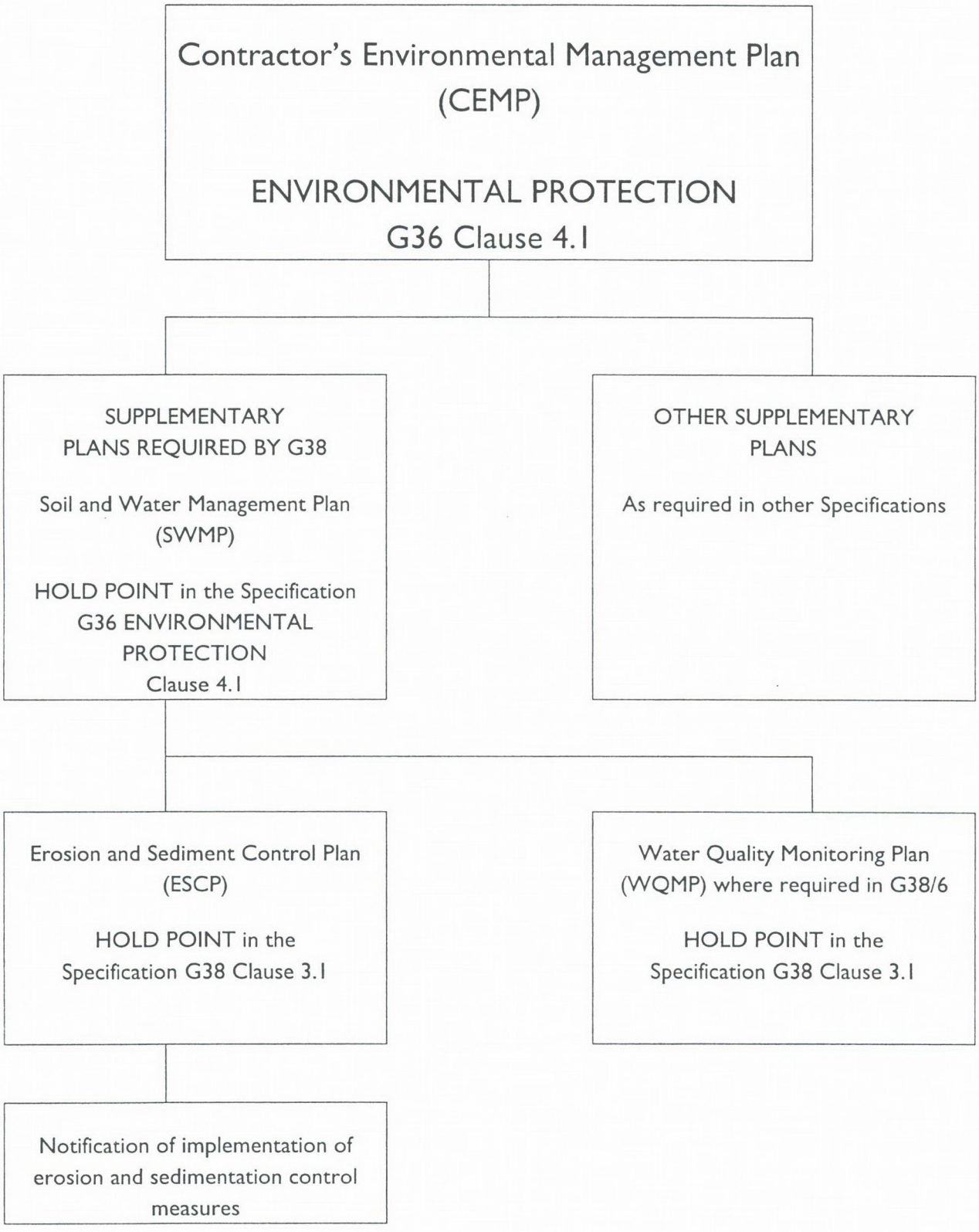
ANNEXURE G38/F - DESIGN AVERAGE RECURRENCE INTERVALS

	Estimated Design Life	
	0 - 12 months	> 12 months (See Note)
CONTROL MEASURE	Design Average Recurrence Interval (ARI) (years)	
Diversion bank	10	20/100
Level spreader	10	20/100
Waterway	10	20/100
Sediment retention basin:		
Primary outlet	5	10
Emergency outlet (overflow)	20	100
Sediment trap	5	10
Outlet protection	20	50
Grade stabilising structure	20	50
Detention basin:		
Primary outlet	5	10
Emergency outlet (overflow)	20	100
Waterway diversion	2	5/100

NOTE: Where two ARI's are indicated the first number refers to the minor flow and the second to the major flow as defined in ARR.

ANNEXURE G38/G – RELATIONSHIP BETWEEN RTA G38 AND THE SPECIFICATION FOR ENVIRONMENTAL PROTECTION

(Annexure G38/G id for information only, it is not part of the contract)



WITNESS POINT in the Specification
G38 Clause 3.1

ANNEXURE G38H TO G38/L – (RESERVED)

ANNEXURE RG38/M - REFERENCE DOCUMENTS AND DEFINITIONS

Refer to Clause 1.2.7.

M1 REFERENCES

Unless otherwise specified the applicable issue of a reference document, other than an RTA Specification, must be the issue current at the date one week before the closing date for tenders or, where no issue is current at that date, the most recent issue.

Standards, specifications and test methods are referred to in abbreviated form (eg AS 1234). For convenience, the full titles are given below:

Australian Standards

AS/NZS 5667.1 Water Quality – Sampling - Guidance on the Design of Sampling Programs, Sampling Techniques and the Preservation and Handling of Samples

RTA Test Methods

RTA T166 Determination of Relative Compaction

RTA T215 Wet/Dry Strength Variation

RTA Specifications

RTA G2 General Requirements

RTA G34 Environmental Protection - Maintenance Works (Management Plan)

RTA G35 Environmental Protection (Management Plan)

RTA G36 Environmental Protection (Management System)

RTA R11 Stormwater Drainage

RTA R42 Earthworks (Cut-Fill)

RTA R43	Earthworks (Cut plus Imported Fill)
RTA R44	Earthworks (Imported Fill and Selected Material)
RTA R55	Rock Filled Gabions and Mattresses
RTA R63	Geotextiles (Separation and Filtration)
RTA R178	Vegetation

The specification for ENVIRONMENTAL PROTECTION shall mean RTA G34, G35 or RTA G36, as incorporated into the contract documents.

The specification for EARTHWORKS shall mean RTA R42, RTA R43 or RTA R44, as incorporated into the contract documents.

Environmental Protection Authority

EPA WSA	Approved Methods for the Sampling and Analysis of Water Pollutants in NSW (available from 'Pollution Line' (131 555) or on the EPA's internet site – www.epa.nsw.gov.au).

Institution of Engineers, Australia

ARR	Australian Rainfall and Runoff

NSW Department of Housing

BLUE BOOK	Managing Urban Stormwater: Soils and Construction.

M2 DEFINITIONS

The following interpretations apply to terms used in this Specification:

Catch drain	An open channel constructed along the high side of a road cutting or embankment, outside the batter, to intercept and redirect surface water.
Construction sediment retention basin	Construction sediment retention basins are temporary dams or other structures designed to trap a significant proportion of the sediment carried in the stormwater entering the basin in order to protect downstream areas and waterways from excessive sedimentation.
Contractor's Environmental Management Plan (CEMP)	A plan prepared by the Contractor to cover the environmental protection practices, resources and sequence of activities required to comply with the requirements of the Specification for ENVIRONMENTAL PROTECTION.

Diversion bank	A bank constructed to provide an open channel without excavation.
Diversion drain	An open channel leading water away from a given area.
Earth bank	Earth banks are temporary open channels constructed at a low gradient across a slope in the form of a ditch with a bank on its lower side to intercept and divert runoff from the site to nearby stable areas at non-erosive velocities.
Erosion and Sediment Control Plan (ESCP)	A plan which clearly identifies all erosion and sediment control constraints and describes how these will be addressed during construction.
Soil and Water Management Plan (SWMP)	A plan which clearly identifies all constraints relating to the control of soil erosion and the pollution of sediments and other materials. The plan describes how these will be addressed during construction.
Level spreader (or level sill)	A flat stabilised area at the outlet of an open drain which spreads the water over a sufficient width to avoid downstream erosion.
Open Drain	An open channel constructed to intercept and redirect surface runoff water including catch drains, diversion banks and drains, earth banks, batter drains and inlet and outlet drains.
Operational basin	An operational basin is a permanent structure provided to trap a significant proportion of the sediment and other pollutants which may enter the stormwater system from the road environment following construction and opening for traffic. Operational basins may also be designed to trap chemical spills. Operational basins are usually shown on the Drawings and their location and design are not necessarily satisfactory for construction sediment retention purposes. Operational basins are also referred to as permanent sediment control basins.
Sediment traps and filters	Temporary measures used to trap or filter sediment in runoff from small areas. Examples include straw bales and filter fences.

RTA QA SPECIFICATION G39

SOIL AND WATER MANAGEMENT (EROSION AND SEDIMENT CONTROL PLAN)

RTA QA SPECIFICATION G39

SOIL AND WATER MANAGEMENT (EROSION AND SEDIMENT CONTROL PLAN)

REVISION REGISTER

Ed/Rev Number	Clause Number	Description of Revision	Authorised By	Date
Ed1/Rev0		New Specification replacing R2		

GUIDE NOTES

RTA G39

RTA Specification G38 covers requirements for avoiding water pollution, minimising soil erosion and controlling sediment on larger work sites. RTA Specification G39 is a simpler specification for use on smaller sites. Other QA specifications cover related matters including environmental protection, clearing and grubbing, earthworks and vegetation.

Using RTA G39

RTA G39 is a QA specification and the use of QA specifications requires the implementation of a quality system by the Contractor that meets the quality system requirements specified in RTA Q. To comply with the intention of government policy as well as RTA G39, soil and water management activities undertaken using RTA G39 require adequate surveillance and audit by the Superintendent.

The provisions in Specification G39 are intended for contracts where the area affected by the construction works is less than about 2,500 m^2. The NSW Department of Housing manual "Managing Urban Stormwater: Soils and Construction" states that an Erosion and Sediment Control Plan (ESCP) will normally be adequate for sites where the area to be disturbed is less than 2,500 m^2 but a Soil and Water Management Plan (SWMP) should be prepared for sites where the disturbed area exceeds 2,500 m^2. This Specification RTA G39 has been prepared for sites, generally less than 2,500 m^2 in area, where an ESCP should be sufficient to cover the environmental protection necessary.

Any project in an area of special environmental sensitivity or which includes the construction of operational basins or other structures to control water quality should include RTA G38 rather than RTA G39 in the contract documents. The NSW Department of Housing manual "Managing Urban Stormwater: Soils and Construction" should be consulted for further guidance.

The following notes are provided to assist in assembling the contract documents for a project and in making project specific changes to RTA G39:

- The Drawings and the relevant provisions in the RTA Environmental Management Plan and the RTA Risk Management Plan must be considered when deciding whether RTA G39 is the appropriate Specification and whether any project specific amendments or additions are necessary.

- The definitions in Clause 1.3 may need to be supplemented if project specific soil erosion and sediment control measures are specified. Note that diversion banks are included to cover those cases where excavated drains are impractical, e.g. in the vicinity of underground services or to avoid ponding at a level spreader (sill).

- The list of soil and water management measures in Clause 3 may be modified if any measures are not applicable at a particular site and may be extended if other measures are appropriate.

- Clause 6 makes it clear that temporary soil and water management measures are to be retained until they become redundant. In some cases the requirements for removal may need to be modified, e.g. when some of the measures are to remain and be removed by others. In these cases the Pay Items may also need to be modified.

- Model drawing MD.G38.A08.A is to be included in the drawings where work includes the construction of median gully pits.

QA SPECIFICATION G39

SOIL AND WATER MANAGEMENT

(EROSION AND SEDIMENT CONTROL PLAN)

RNIC-QA-G39

VERSION FOR: ***DRAFT***
DATE: ***February 2003***

CONTENTS

REVISIONS TO EDITION 1 1

PROJECT SPECIFIC CHANGES 1

1 GENERAL 1
1.1 Scope 1
1.2 Structure of the Specification 1

2 EROSION AND SEDIMENT CONTROL PLAN 2

3 EROSION AND SEDIMENT CONTROL MEASURES 5
3.1 Erosion and Sediment Control 5
3.2 Soil and Stockpile Management 6
3.3 Water Quality 6
3.4 Water Extraction 7

4 DROP INLET SEDIMENT TRAPS AND INLET CONTROL BANKS 7

5 CLEANING SEDIMENT RETENTION STRUCTURES 7

6 REMOVAL OF TEMPORARY SOIL AND WATER MANAGEMENT MEASURES 8

ANNEXURE G39/A - (NOT USED) 9

ANNEXURE G39/B - MEASUREMENT AND PAYMENT 9

ANNEXURE G38/C - SCHEDULES OF HOLD AND WITNESS POINTS AND IDENTIFIED RECORDS 10
C1 Schedule of HOLD POINTS 10
C1 Schedule of WITNESS POINTS 10
C3 Schedule of Identified Records 10

ANNEXURE G39/D – (NOT USED) 11

ANNEXURE G39/E - MINIMUM FREQUENCY OF TESTING 11

ANNEXURE G38/F - DESIGN AVERAGE RECURRENCE INTERVALS 12

ANNEXURE G38/G - RELATIONSHIP BETWEEN RTA G38 AND THE SPECIFICATION FOR ENVIRONMENTAL PROTECTION 13

ANNEXURE G38H TO G38/L - (RESERVED) 15

ANNEXURE RG38/M - REFERENCE DOCUMENTS AND DEFINITIONS 15
M1 References 15
M2 Definitions of Terms 16

LAST PAGE OF RTA G39 IS.....16

RTA QA SPECIFICATION G39

SOIL AND WATER MANAGEMENT (EROSION AND SEDIMENT CONTROL PLAN)

REVISIONS TO EDITION 1

This document is based on RTA Specification G39 Edition 1 Revision 0 — February 2003.

All revisions to RTA G39 Ed1/Rev 0 (other than minor editorial and project specific changes) have been indicated by a vertical line in the margin as shown here.

PROJECT SPECIFIC CHANGES

Any project specific changes have been indicated in the following manner:

(a) Text which is additional to the base document and which is included in the Specification is shown in bold italics e.g. ***Additional Text***.

(b) Text which has been deleted from the base document and which is not included in the Specification is shown struck out e.g. ~~Deleted Text~~.

1 GENERAL

1.1 SCOPE

The work to be executed under this Specification consists of the design and construction of facilities, and implementation of work methods, to avoid pollution of water, minimise erosion and control sediment.

The Contractor must plan and carry out the whole of the work under the Contract to minimise the extent and duration of disturbance to vegetation and to avoid pollution of any water (including groundwater) or erosion and sedimentation of the site, surrounding country, watercourses, drainage systems, rivers or other waters, wetlands or stormwater drainage systems.

1.2 STRUCTURE OF THE SPECIFICATION

This Specification includes a series of annexures that detail additional requirements.

1.2.1 Measurement and Payment

Measurement and payment shall be in accordance with Annexure G39/B.

1.2.2 Schedules of HOLD POINTS, WITNESS POINTS and Identified Records

The schedules list in Annexure G39/C the **HOLD POINTS** and **WITNESS POINTS** that must be observed. Refer to the Conditions of Contract for the definitions of **HOLD POINTS** and **WITNESS POINTS**.

The records listed in Annexure G38/C are Identified Records for the purposes of RTA G2 Clause 19 and RTA G5 Clause 9.

1.2.3 Minimum Frequency of Testing

Work must be tested at not less than the frequency of testing specified in Annexure G39/E. The Contractor must nominate the frequency in the Soil and Water Management Plan in accordance with RTA Q.

1.2.4 Design Average Recurrence Intervals

The Design Average Recurrence Intervals shown in Annexure G39/F are used when complying with the BLUE BOOK, refer to Clause 2 of this Specification.

1.2.5 Relationship between RTA G39 and the Specification for Environmental Protection

Annexure G39/G is for information purposes only and does not form part of the Contract.

1.2.6 Reference Documents and Definitions

Unless otherwise specified the applicable issue of a reference document, other than an RTA Specification, must be the issue current at the date one week before the closing date for tenders, or where no issue is current at that date, the most recent issue.

Standards, specifications and test methods are referred to in abbreviated form (e.g. AS 2350). For convenience, the full titles are given in Annexure G39/M:

The definitions given in Annexure G39/M apply to this Specification.

2 EROSION AND SEDIMENT CONTROL PLAN

The Contractor must prepare an Erosion and Sediment Control Plan (ESCP) to cover all work under the Contract. The Contractor's ESCP must be prepared by a person experienced in this type of work and in accordance with the BLUE BOOK guidelines.

The ESCP is to supplement the Contractor's Environmental Management Plan (CEMP) as set out in the specification for ENVIRONMENTAL PROTECTION. The ESCP is subject to the requirements for the CEMP, including the HOLD POINT on commencement of work, included in the specification for ENVIRONMENTAL PROTECTION.

When preparing the ESCP the site must be subdivided into sections based on the separate catchment areas which will be affected by the work under the Contract. In addition to the area bounded by the road reserve, the sections must be:

(a) access and haulage tracks;

(b) borrow pits;

(c) stockpile and storage areas;

(d) temporary work areas;

(e) materials processing areas;

(f) compound areas, such as the Contractor's and the Superintendent's facilities; and

(g) concrete and asphalt batching areas.

A map must be provided that shows the locations of the above in addition to any other activities that may impact on water quality. The map will include details of how the site is sub-divided into separate catchment areas.

The Contractor must locate the above facilities and stage all work to minimise impacts on vegetation and water.

The ESCP must be revised whenever the construction programme, scope of work or work methods change, whenever the work methods and control structures are found to be ineffective, or if so directed by the Superintendent.

The following parameters must be applied when using the BLUE BOOK:

(i) peak flows and other parameters needed to design drains and drainage structures must be estimated using the methods described in ARR;

(ii) the design Average Recurrence Interval (ARI) for erosion and sediment control measures must be as shown in Annexure G39/2 unless site conditions or risks to life, property or the environment suggest that other values are applicable; and

(iii) the drawings accompanying the ESCP must be superimposed on A3 sized drainage drawings of the works.

Procedures for controlling the following activities on or around the site must also be included in the ESCP, if applicable to work under the Contract:

(A) waste water discharge from dewatering, surface washing, grit blasting, saw cutting, drilling, washing vehicles and plant, batching plants, washing out of concrete mixers and concrete trucks and any other activities which add pollutants to water;

(B) prevention of mud and litter being deposited on trafficked roadways;

(C) maintenance and cleaning of sediment control works;

(D) protection of soil and other stockpiles from erosion by wind and rain;

(E) extraction of water for construction purposes; and

(F) excavation in waterways.

Procedures for controlling excavation in waterways must describe methods to minimise erosion, water quality impacts and riparian flora and fauna impacts. Preparation of these procedures must include consultation with the National Parks and Wildlife Service, the EPA, NSW Fisheries and the Department of Land and Water Conservation.

The calculations carried out during preparation of the ESCP need not be submitted with the plan but must be retained by the Contractor and a copy must be forwarded to the Superintendent if so directed.

HOLD POINT

Process Held:	Commencement of any work on the site, as defined in Clause 2, requiring the installation of control measures.
Submission Details:	An ESCP for work under the Contract as detailed in Clause 2 prepared for the section of site where work is to commence. The ESCP(s) must be submitted at least ten working days before disturbance.
Release of Hold Point:	The Superintendent will consider the submitted plan(s) prior to authorising the release of the Hold Point.

WITNESS POINT

Process Held:	Disturbance of the existing surface on a section of the site, other than for the installation of erosion and pollution control measures.
Submission Details:	Written advice that the measures described in the ESCP for that section of the site have been implemented or of the date by which implementation will have been completed. The advice must nominate the works to be undertaken and the relevant part of the ESCP. It must be forwarded at least five working days before the works are to commence but not more than seven days before implementation of the measures is planned to be complete.

3 EROSION AND SEDIMENT CONTROL MEASURES

3.1 EROSION AND SEDIMENT CONTROL

ESCP's must be prepared for each section of the site before any work begins on that section. . They must be prepared for each section of the site, and must include all erosion and sediment controls required to avoid erosion and sedimentation of the site, surrounding country, watercourses, drainage systems, waterbodies and wetlands.

All ESCP's must be revised whenever the construction program, scope of work or work methods change, whenever the work methods and control structures are found to be ineffective, or if so directed by the Superintendent.

The ESCP must describe the following:

(a) the method of tree removal in intermittent watercourses, leaving grasses and small understorey species wherever possible;

(b) measures required before clearing and grubbing of the site;

(c) appropriate controls before the removal of topsoil and commencement of earthworks for the formation within the catchment area of each structure;

(d) how upstream water will be managed so it is not affected by the construction activities;

(e) scour protection measures for haul roads and access tracks when these are an erosion hazard due to either their steepness, soil erodibility or potential for concentrating runoff flow;

(f) the method for stabilising temporary drains;

(g) the methods to minimise erosion during construction of embankments;

(h) the method of constructing batters to assist the retention of topsoil on the batter slopes;

(i) temporary sediment trapping measures in median areas at regular intervals;

(j) the method of maintenance of erosion and sediment control structures including measures to restore their capacity.

(k) the details of the inspection and maintenance program for all erosion and sediment controls to ensure that no disturbed area is left without adequate means of containment and treatment of contaminated water.

Erosion control and sediment capture measures to be documented and implemented must include, but must not be limited to, the following:

(i) locating site compounds (refer to RTA G2), access tracks, stockpile sites and temporary work areas to minimise erosion;

(ii) staging of work and programming of construction activities to minimise the extent and duration of disturbance to vegetation. This includes leaving clearing and initial earthworks in intermittent and permanent watercourses until subsequent works are about to commence;

(iv) (iii) limiting of areas of soil exposed at any time to those areas being actively worked;

(v) installing and lining catch drains and diversion banks in accordance with the requirements of RTA R11 before earthworks commence.

(vi) installing scour protection at the base of drainage outlets, both permanent and temporary.

(vii) constructing of drains to ensure that runoff from heavily disturbed areas is directed to areas with adequate sediment trapping/filtering devices away from watercourses.

(viii) filtering of sediment prior to water entering any pit and management of stormwater discharge through any pit;

(ix) staging re-vegetation of the site as work proceeds and progressively undertaking topsoiling and vegetation work as specified in RTA R178.

The Contractor must maintain a register of inspections and maintenance of sediment control structures and daily rainfall.

3.2 SOIL AND STOCKPILE MANAGEMENT

Measures to minimise erosion and control sedimentation must be detailed in the ESCP and must be implemented prior to stockpiling of any material.

Stockpiles which are susceptible to wind or water erosion, must be covered or otherwise managed. Soil stockpiles may be protected by the establishment of a cover crop.

Stockpiled materials must not be placed inside vegetation protection areas or within 5 metres of retained trees. Stockpiles must be sited so that any slump of the stockpile would not affect erosion and sediment control measures or infringe specified minimum clearance requirements.

Topsoil that is not contaminated by noxious weeds must be stockpiled in acceptable stockpile locations for later spreading on fill batters and other areas. Other material may also be stockpiled at these sites but separated from the topsoil stockpiles.

Stockpiles must be maintained to prevent the growth of weeds on stockpiles.

3.3 WATER QUALITY

The Contractor must comply with the requirements of the NSW Protection of the Environment Operations Act 1997, requirements of local water authorities and all other relevant laws and by-laws in force from time to time in the State of New South Wales.

The Contractor must provide adequate controls, including soil erosion and sediment controls, to ensure that all water leaving the site complies with any water quality criteria nominated by the EPA or specified for the project.

Insert all water quality compliance limits as detailed in the REF, Decision Report or EPA licence

3.4 WATER EXTRACTION

The proposed water source(s) which the Contractor intends to use for construction activities (such as dust control, earthworks/pavement compaction, on-site concrete batching and the like) must be identified in the ESCP. The proposed water source(s) must be discussed with the Department of Land and Water Conservation, the Local Council and any other persons or authorities having responsibility for the chosen source(s). The Contractor must obtain all necessary approvals before commencing construction.

The Contractor's procedures must include regular testing of the source if water from a sewerage treatment works, or another source other than a town water supply or natural water source, is to be used. Testing must be designed to ensure that the water is suitable for the purpose, is free of pollutants and is not hazardous to health.

4 DROP INLET SEDIMENT TRAPS AND INLET CONTROL BANKS

The ESCP must provide for drop inlet sediment traps and inlet control banks to be constructed at the completion of each median gully pit. These drop inlet sediment traps and inlet control banks are additional to the temporary sediment control measures that may be required during construction of the median gully pits.

The drop inlet sediment traps are intended to remove sediment from the surface flow before it enters the drainage system. The inlet control banks must be constructed across the median as required to prevent the surface flows bypassing the median gully pits.

The drop inlet sediment traps must be constructed as shown on the Drawings.

Alternative methods of achieving the same result may be proposed by the Contractor. The use of alternative methods must be subject to the agreement of the Superintendent.

The Contractor must clean out drop inlet sediment traps and inlet control banks as per the maintenance schedule or whenever the deposited sediment exceeds 50% capacity of the device.

Towards the end of the contract period, the Contractor where directed must remove from the site any or all of the drop inlet sediment traps and associated inlet control banks.

5 CLEANING SEDIMENT RETENTION STRUCTURES

The Contractor must clean out sediment control structures as specified in Clause 4.

Accumulated sediment must be removed from sedimentation control structures in such a manner as not to damage the structures. The sediment removed must be disposed of in such locations that the sediment will not be conveyed back into the construction areas or into watercourses. The Contractor must provide and maintain suitable access to sediment control structures to allow cleaning out in all weather conditions.

All operational basins must be cleaned out as part of the work to be executed by the Contractor before Practical Completion of the Works.

6 REMOVAL OF TEMPORARY SOIL AND WATER MANAGEMENT MEASURES

Before the end of the defects liability period, but not before all upstream areas have been vegetated or otherwise stabilised, the Contractor must remove all construction sediment retention structures. Where directed, the Contractor must remove any or all of the operational basins and spillways.

The work must result in the restoration of the ground surface disturbed by the construction of the sediment control structures to approximate that previously existing and must include the following:

(a) removal of all redundant mattresses from the spillway(s) and their subsequent burial into the structure area or their use as scour protection or their removal from site;

(b) spreading and compaction of the embankment material into the structure area; and

(c) removal of access roads.

The disturbed material must be compacted to at least the relative density of the material existing in the adjacent ground.

Vegetation in the restored area must be carried out and paid for in accordance with RTA R178.

ANNEXURE G39/A - (NOT USED)

ANNEXURE G39/B - MEASUREMENT AND PAYMENT

Except where specific pay items are provided, all costs associated with soil and water management must be deemed to be included in the rates and prices generally for the work under the Contract.

The cost of preparation of ESCP's, monitoring performance, constructing and maintaining and removing environmental control measures, the cost of proposing and implementing alternative methods and all other activities not specifically mentioned in the Pay Items must be deemed to be included in the rates and prices generally for the work under the Contract.

Measurement for payment defined in other specifications must, unless otherwise stated in RTA G39, exclude works only carried out to comply with RTA G39.

If any item for which a quantity of work is listed in the Schedule of Rates has not been priced by the Contractor it must be understood that due allowance has been made in the prices of other items for the cost of the activity which has not been priced.

Pay Item G39P1 Drop Inlet Sediment Traps and Inlet Control Banks

The unit of measurement must be 'each' drop inlet sediment trap including inlet control bank.

Pay Item G39P2 Removal of Drop Inlet Sediment Traps and Inlet Control Banks

The unit of measurement must be 'each' drop inlet sediment trap including control bank removed.

The schedule quantity is a provisional quantity.

ANNEXURE G38/C - SCHEDULES OF HOLD AND WITNESS POINTS AND IDENTIFIED RECORDS

Refer to Clause 1.2.3.

C1 SCHEDULE OF HOLD POINTS

CLAUSE	TYPE	DESCRIPTION
2	HOLD	Submission of the ESCP for a section of the work under the Contract.

C1 SCHEDULE OF WITNESS POINTS

CLAUSE	TYPE	DESCRIPTION
2	WITNESS	Submission of written notice that measures set out in the ESCP for a section of the work have been installed.

C3 SCHEDULE OF IDENTIFIED RECORDS

The records listed below are Identified Records for the purposes of RTA G2 Clause 19 and RTA G5 Clause 9.

Clause	Description of the Identified Record
2	Erosion and Sediment Control Plan (ESCP)

ANNEXURE G39/D – (NOT USED)

ANNEXURE G39/E - MINIMUM FREQUENCY OF TESTING

CLAUSE	CHARACTERISTIC ANALYSED	TEST METHOD	MINIMUM FREQUENCY OF TESTING
4	Compaction of embankments	T166	One test per 500 m^3 with a minimum of 2 per basin/trap

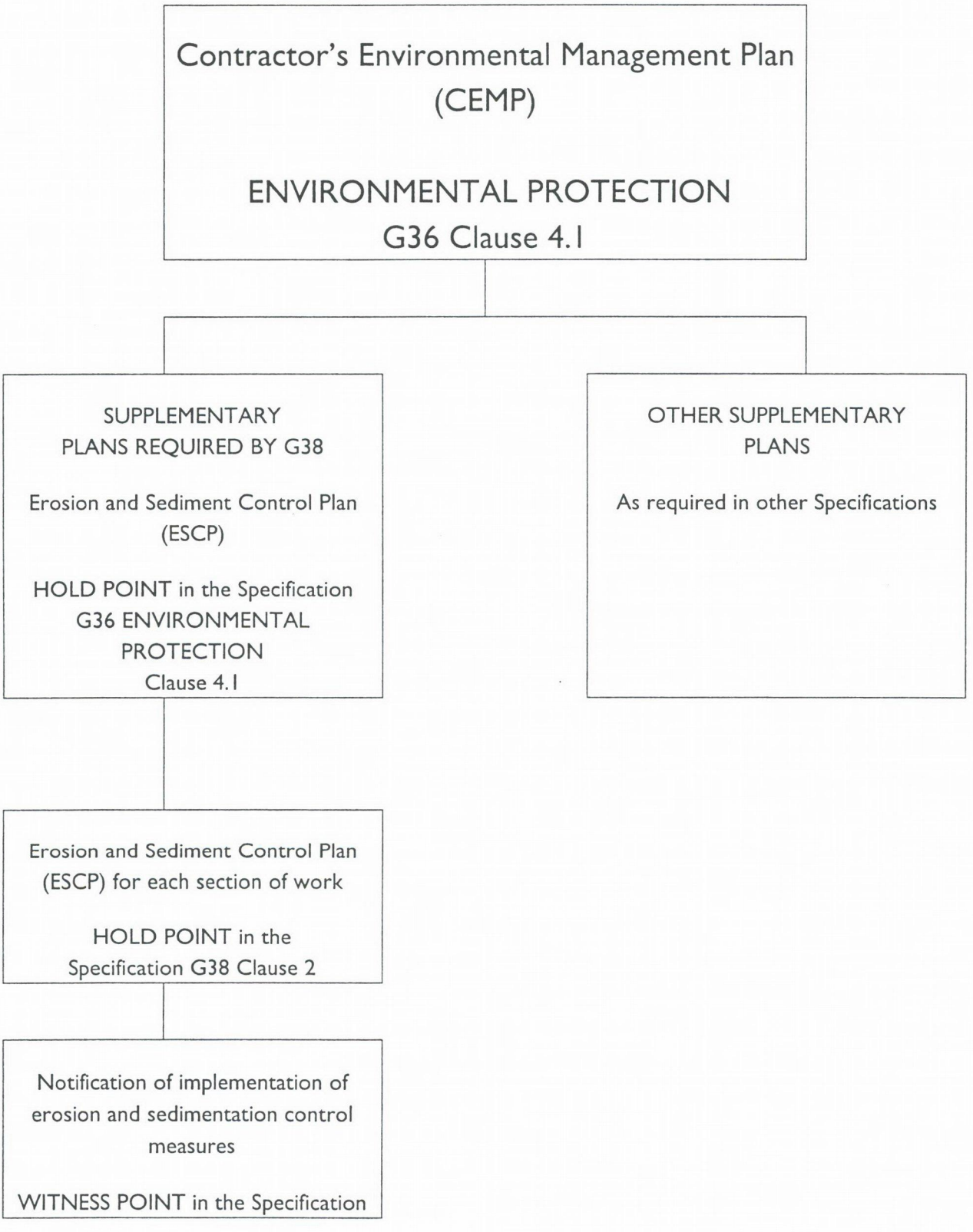
ANNEXURE G38/F - DESIGN AVERAGE RECURRENCE INTERVALS

	Estimated design life	
	0 - 12 months	**> 12 months (See Note)**
CONTROL MEASURE	**Design Average Recurrence Interval (ARI) (years)**	
Diversion bank	10	20/100
Level spreader	10	20/100
Waterway	10	20/100
Sediment trap	5	10
Outlet protection	20	50
Grade stabilising structure	20	50
Detention basin: Primary outlet Emergency outlet (overflow)	 5 20	 10 100

NOTE: Where two ARI's are indicated the first number refers to the minor flow and the second to the major flow as defined in ARR.

ANNEXURE G38/G - RELATIONSHIP BETWEEN RTA G38 AND THE SPECIFICATION FOR ENVIRONMENTAL PROTECTION

(Annexure G39/G id for information only, it is not part of the contract)



G38 Clause 2

ANNEXURE G38H TO G38/L - (RESERVED)

ANNEXURE RG38/M - REFERENCE DOCUMENTS AND DEFINITIONS

Refer to Clause 1.2.6.

M1 REFERENCES

Unless otherwise specified the applicable issue of a reference document, other than an RTA Specification, must be the issue current at the date one week before the closing date for tenders or, where no issue is current at that date, the most recent issue.

Standards, specifications and test methods are referred to in abbreviated form (eg AS 1234). For convenience, the full titles are given below:

RTA Specifications

RTA G2	General Requirements
RTA G34	Environmental Protection - Maintenance Works (Management Plan)
RTA G35	Environmental Protection (Management Plan)
RTA G36	Environmental Protection (Management System)
RTA R11	Stormwater Drainage
RTA R178	Vegetation

The specification for ENVIRONMENTAL PROTECTION shall mean RTA G34, G35 or RTA G36, as incorporated into the contract documents.

The specification for EARTHWORKS shall mean RTA R42, RTA R43 or RTA R44, as incorporated into the contract documents.

Institution of Engineers, Australia

ARR	Australian Rainfall and Runoff

NSW Department of Housing

Blue Book	Managing Urban Stormwater: Soils and Construction.

M2 DEFINITIONS OF TERMS

The following interpretations apply to terms used in this Specification:

Catch drain	An open channel constructed along the high side of a road cutting or embankment, outside the batter, to intercept and redirect surface water.
Contractor's Environmental Management Plan (CEMP)	A plan prepared by the Contractor to cover the environmental protection practices, resources and sequence of activities required to comply with the requirements of the Specification for ENVIRONMENTAL PROTECTION.
Diversion bank	A bank constructed to provide an open channel without excavation.
Diversion drain	An open channel leading water away from a given area.
Earth bank	Earth banks are temporary open channels constructed at a low gradient across a slope in the form of a ditch with a bank on its lower side to intercept and divert runoff from the site to nearby stable areas at non-erosive velocities.
Erosion and Sediment Control Plan (ESCP)	A plan which clearly identifies all erosion and sediment control constraints and describes how these will be addressed during construction.
Level spreader (or level sill)	A flat stabilised area at the outlet of an open drain which spreads the water over a sufficient width to avoid downstream erosion.
Open Drain	An open channel constructed to intercept and redirect surface runoff water including catch drains, diversion banks and drains, earth banks, batter drains and inlet and outlet drains.
Sediment traps and filters	Temporary measures used to trap or filter sediment in runoff from small areas. Examples include straw bales and filter fences.

NOTICE

RTA G40

RTA G40 replaces RTA R41 and the clauses of RTA B30 which covered clearing and grubbing.

Using RTA G40

RTA G40 is a QA specification and the use of QA specifications requires the implementation of a quality system by the Contractor that meets the quality system requirements specified in RTA Q. To comply with the intention of government policy as well as RTA G40, clearing and grubbing works undertaken using RTA G40 require adequate surveillance and audit by the Superintendent.

Specification RTA G40 is a "proforma" model specification and must be customised by the TENDER DOCUMENTER for each specific project.

Where customisation is likely to be required prompts are shown in boxes within the text, as illustrated below:

Example: List any additional work such as trimming and stockpiling the trunks and stumps of native trees as required by the EIS or REF, Representations Report, Concurrence Report, Decision Report/Planning Approval, any Conditions of Approval and the landscape drawings.

If any issue is not relevant for your project, delete the boxed text.

If an issue is relevant, delete the borders around the text, modify the text to suit your circumstances, adjust the margins so the customised paragraphs line up with the general textand match the font size, this can be done by selecting the whole box and 'Main Text' in the menu bar. Then set the customised paragraphs in bold italic.

After completing the customisation, check the pagination of the whole document and insert page breaks if necessary to achieve continuity within tables. Then return to CONTENTS, page (with Tools – Track changes turned off) to highlight and automatically revise listing and page numbers.

This customisation must be done carefully because tenderers will rely on G40 to price their clearing and grubbing obligations for the project.

Clause 1.1: The intent of RTA G40 is that all existing vegetation, except weeds and exotics, should be recycled and remain on site whenever possible.

Mulching of the native vegetation which is removed during clearing and grubbing is one method of recycling which will usually be applicable. Another possibility is the use of selected trunks and branches of native trees, placed outside the hazard line (see comments on Clause 1.3 below), to

assist in the prevention of soil erosion and the capture of sediment, to assist vegetation and to provide fauna habitat. Tree stumps may also be used in the same areas provided they are not placed in a manner which will be a barrier for fauna and also provided they are arranged so that they are not visible above the surrounding vegetation when viewed from the roadway or from nearby private property. If such use of tree trunks and stumps or other additional work is required it should be nominated in this clause and additional requirements inserted in Clause 4.

Other environmentally responsible options may be possible in some circumstances; an example would be the sale of suitable trees for milling into timber.

Clause 1.2 The TENDER DOCUMENTER should ensure that any further standards, specifications and test methods mentioned in project specific additions are included in this clause.

Clause 1.3: The term "hazard line" has been introduced to ensure that the clear zone (where there is no protection afforded by a safety barrier), or the space required for the dynamic deflection and/or working width of a safety barrier system, is clear of any trees of sufficient size to be a hazard. For details of the clear zone concept and the dynamic deflection and/or working width requirements for safety barrier systems refer to the RTA Road Design Guide.

Clause 2.1: Where the area to be cleared for the formation can be reduced below that specified the limits of clearing should be shown on the Drawings or project specific modifications made to this clause.

Clause 2.2: It is necessary for the design team to consider both the clear zone (where no safety barriers are to be provided) and the space required for the dynamic deflection and/or working width of a safety barrier system during the design process. The designer is best placed to define a line on each side of each carriageway within which no hazards (including trees over 100 mm diameter) are to remain. In this specification this line or, preferably, a geometrically simpler line which is never closer to the carriageway than the minimum distance calculated at each cross section, is referred to as the "hazard line". The hazard line should be shown on the Drawings as a string on the detail plans or on the cross sections.

Where the removal of other hazards (such as rock outcrops or power poles) is required suitable project specific provisions should be included in the contract documents.

The method of removal of overhanging branches requires that they be cut off flush with the tree trunk in accordance with normal horticultural practice. The remaining section of a branch which has been cut off away from the trunk is a source of decay which could spread to the trunk.

Clause 4:

This clause covers production and stockpiling of mulch for later use in landscape planting and elsewhere. Mulching of trees from clearing and grubbing should be encouraged even when the mulch is not required for site works.

The TENDER DOCUMENTER should consider the RTA Stockpile Sites Management Procedures and any site specific requirements and make project specific additions or alterations as necessary.

Considerations should include resrictions on siting of stockpiles and the need for stockpile sites to be fenced.

Clause 6: Pay item G40P1 has been worded to ensure that the contract rate only applies to areas actually required to be cleared and grubbed. The TENDER DOCUMENTER should make project specific amendments where necessary.

.

QA SPECIFICATION G40

CLEARING AND GRUBBING

RNIC–QA–G40

VERSION FOR: ***Draft 2***
DATE: ***February 2003***

CONTENTS

REVISIONS TO EDITION 1 1

PROJECT SPECIFIC CHANGES 1

1 GENERAL 1
1.1 Scope 1
1.2 Structure of the Specification 2

2 CLEARING 3
2.1 Area to be Cleared for the Formation 3
2.2 Area to be Cleared Outside the Formation 3
2.3 Area to be Cleared for Bridges 4
2.4 Clearing 4
2.5 Clearing of Built Structures 6

3 GRUBBING 6

4 PRODUCTION AND STOCKPILING OF MULCH 7
4.1 Mulch 7
4.2 Mulch Stockpiles 7

5 DISPOSAL OF MATERIALS 7

ANNEXURE G40/A — PROJECT REQUIREMENTS 9
A1 Clearing for Bridgeworks 9

ANNEXURE G40/B - MEASUREMENT AND PAYMENT 10

ANNEXURE G40/C - SCHEDULE OF HOLD POINTS AND IDENTIFIED RECORDS 12
C1 Schedule of HOLD POINTS 12
C2 (Not used) 12
C3 Schedule of Identified Records 12

ANNEXURE G40/D – PLANNING DOCUMENTS 13

ANNEXURES G40/E TO G40/L – (NOT USED) 13

ANNEXURE G40/M - REFERENCE DOCUMENTS AND DEFINITIONS 14
M1 References 14
M2 Definitions of Terms 14

LAST PAGE OF RTA G40 IS 15

RTA QA SPECIFICATION G40

CLEARING AND GRUBBING

REVISIONS TO EDITION 1

This document is based on RTA Specification G40 Edition 1 Revision 0 — February 2003.

All revisions to RTA G40 Ed1/Rev 0 (other than minor editorial and project specific changes) have been indicated by a vertical line in the margin as shown here.

PROJECT SPECIFIC CHANGES

Any project specific changes have been indicated in the following manner:

(a) Text which is additional to the base document and which is included in the Specification is shown in bold italics e.g. ***Additional Text***.

(b) Text which has been deleted from the base document and which is not included in the Specification is shown struck out e.g. ~~Deleted Text~~.

1 GENERAL

1.1 SCOPE

The work to be executed under this Specification consists of the clearing of all vegetation, both living and dead, all minor built structures (such as fences and livestock yards), all rubbish and other materials which are unsuitable for use in the Works, and the grubbing of trees and stumps from the area defined in clause 2.

The work includes the mulching of native trees, stockpiling the mulch, and the removal from site and disposal of all materials from built structures, rubbish, weeds and exotic plants.

List any additional work such as trimming and stockpiling the trunks and stumps of native trees as required by the EIS or REF, Representations Report, Concurrence Report, Decision Report/Planning Approval, any Conditions of Approval and the landscape drawings.

In advance of, or in conjunction with, clearing and grubbing operations, effective erosion and sediment control measures must be implemented as required in the Specification for SOIL AND WATER MANAGEMENT.

The clearing and grubbing required for boundary fencing is included in RTA R161 and does not form part of the work under this Specification G40.

1.2 STRUCTURE OF THE SPECIFICATION

This Specification includes a series of annexures that detail additional requirements.

1.2.1 Project Requirements

Project Requirements are shown in Annexure G40/A.

1.2.2 Measurement and Payment

The method of measurement and payment must comply with Annexure G40/B.

Work and materials must be rejected unless they conform to the requirements of this Specification.

1.2.3 Schedules of HOLD POINTS and Identified Records

The schedule in Annexure G40/C lists the **HOLD POINTS** that must be observed. Refer to the Conditions of Contract for the definitions of **HOLD POINTS**.

The records listed in Annexure G40/C are Identified Records for the purposes of RTA G2 Clause 19 and RTA G5 Clause 9.

1.2.4 Planning documents

The PROJECT QUALITY PLAN must include each of the documents and requirements listed in Annexure G40/D and must be implemented.

If the Contract does not require the Contractor to implement a PROJECT QUALITY PLAN, the documents listed in Annexure G40/D must be submitted to the Superintendent for consideration at least 5 working days prior to work commencing and must be implemented.

In all cases where this Specification refers to the Manufacturer's recommendations, these must be included in the PROJECT QUALITY PLAN.

1.2.5 Reference Documents and Definitions

Unless otherwise specified the applicable issue of a reference document, other than an RTA Specification, must be the issue current at the date one week before the closing date for tenders, or where no issue is current at that date, the most recent issue.

Standards, specifications and test methods are referred to in abbreviated form (e.g. AS 2350). For convenience, the full titles are given in Annexure G40/M:

The definitions given in Annexure G40/M apply to this Specification.

2 CLEARING

2.1 AREA TO BE CLEARED FOR THE FORMATION

Unless shown otherwise on the Drawings, the area to be cleared for the formation is that which will be occupied by the completed formation plus a clearance of 4 m beyond tops of cuts and toes of embankments where the natural fall of the ground is towards the roadway and 2 m beyond the tops of cuts and toes of embankments where the natural fall of the ground either slopes away from the roadway or is level.

The Contractor must also clear areas that will be occupied by ancillary earth features shown on the Drawings, including sediment basins and traps, open drains and diversion banks.

2.2 AREA TO BE CLEARED OUTSIDE THE FORMATION

Any area outside the area to be cleared for the formation as defined in clause 2.1 and which the Superintendent has approved as a site for the Contractor's facilities, the Superintendent's accommodation, stockpiles, borrow pits or any other purpose connected with the contract must be cleared to the extent required for the approved purpose. The area cleared must be the minimum consistent with the intended use.

All trees, stumps and logs of the sizes listed below which are outside the area to be cleared for the formation as defined in clause 2.1 but which are within the hazard line shown on the Drawings must be removed with a minimum of disturbance to adjacent trees and other vegetation. The sizes of the trees, stumps and logs which must be removed are:

ITEM	SIZE	ACTION
Tree	Trunk diameter 100 mm or more at a point 1.5 m above the adjacent ground level	Remove tree and stump for disposal in accordance with Clause 4.
Stump projecting 1.5 m or more above the adjacent ground level	Trunk diameter 100 mm or more at a point 1.5 m above the adjacent ground level	Remove stump for disposal in accordance with Clause 4.
Stump projecting less than 1.5 m above the adjacent ground level	Trunk diameter 100 mm or more at the top of the remaining trunk	Remove stump for disposal in accordance with Clause 4.
Log	Diameter 100 mm or more at any point	Remove entire log for disposal in accordance with Clause 4.

All minor built structures within the road reserve must be removed unless otherwise shown on the drawings or marked to be preserved.

2.3 AREA TO BE CLEARED FOR BRIDGES

At bridges all trees and stumps and all built structures must be removed within the area specified in Annexure G40/1 except:

(a) where shown otherwise on the Drawings; or

(b) marked to be preserved; or

(c) within 5 metres of the bank of any stream or other waterway.

Trees outside this area but having branches overhanging the bridge must have their branches lopped to be 3 metres clear of the bridge.

Trees within 10 metres of the centreline of the bridge and within 5 metres of the bank of any stream or other waterway must be cleanly cut off between 300 and 600 mm above the adjacent ground level so that stable vegetation is retained on the banks. This work must be undertaken in consultation with the Superintendent.

2.4 CLEARING

Before clearing commences the Contractor must identify the limits of clearing by clearly visible markers placed at 25 m intervals on each side of the road formation and bridges as shown on the Drawings. The Contractor must also provide a report which:

(a) includes a statement from an Ecologist that identifies the species and location of any weeds growing anywhere in the road reserve over the length to be cleared and grubbed;

(b) identifies all locations of threatened flora species and trees which have been marked or otherwise identified for preservation; and

(c) lists any trees outside the limits of clearing which are unsound and likely to fall upon the roadway or onto private property.

The Contractor must plan and carry out all operations to ensure that there is no damage to any trees outside the limits of clearing specified.

Trees nominated in (c) above must be marked and identified in the clearing and grubbing plan in a manner which allows them to be identified as one of the listed trees and whether pruning or removal is recommended.

HOLD POINT	
Process Held.	Clearing any area of work.
Submission Details.	Clearing and Grubbing Plan (clause 1.4) and report on the presence of weeds and unsound trees together with written notice that limits of clearing are marked, at least seven days before starting any clearing.
Release of Hold Point.	The Superintendent will consider the submitted documents, inspect and mark trees or built structures for preservation, prior to authorising the release of the Hold Point.

Before commencing clearing and grubbing all soil erosion and sedimentation controls required for this phase of construction must be installed in accordance with the specification for SOIL AND WATER MANAGEMENT.

Weeds must be removed and disposed of in accordance with the requirements of the local Council. Removal of weeds growing in the area to be cleared and grubbed must be carried out at the Contractor's cost. Removal and disposal of weeds growing in the road reserve outside the area to be cleared and grubbed may be directed by the Superintendent as a Variation to the Contract unless the Superintendent elects to have this work carried out by others.

The Contractor must take protective measures during the operations of clearing and road construction to avoid damaging or destroying threatened flora species and trees which have been marked or otherwise identified for preservation. These measures must include but are not limited to:

(i) fencing around trees clear of the canopy line;

(ii) ensuring no materials are stockpiled and no vehicles are parked under the canopy;

(iii) avoiding excavation or the placing of fill near any tree without advice from an ecologist; and

(iv) routing haul roads and access tracks clear of the canopy.

If any tree, which must be preserved, is found to be within the area to be covered by embankment, protective measures for the tree and safety barriers of a type not specifically shown on the drawings will be directed as a Variation to the Contract.

Those trees remaining within the road reserve, but outside the limits of clearing, which the Superintendent has agreed are unsound and likely to fall upon the roadway or onto private property must be cleared or pruned in accordance with AS 4373.

Any branch, which overhangs the road formation, must be cut back flush with the tree trunk in accordance with AS 4373.

Every precaution must be taken to prevent timber from falling on private property and the Contractor must dispose of any timber so fallen or produce the written consent of the owner to its remaining there.

Existing trees, grasses and other ground cover must be retained within 15 metres of rivers, creeks and watercourses and in all drainage lines until immediately before construction commences in the area. An access track may be constructed across these areas on an alignment which will minimise erosion. Notwithstanding the retention of the ground cover all soil erosion and sedimentation controls for the area must be installed in accordance with the Specification for SOIL AND WATER MANAGEMENT. All trees in these areas must be felled manually, leaving grasses and small understorey species wherever possible.

Damage of any kind, including damage to fencing or trees or other vegetation outside the limits of clearing, which occurs during clearing operations, must be made good by the Contractor.

Holes left following the removal of trees and stumps must be backfilled and vegetated as described in clause 3.

2.5 CLEARING OF BUILT STRUCTURES

Built structures other than marked or otherwise identified for preservation must be completely removed, including footings. Built structures which are only discovered during clearing and grubbing are to be retained until the Superintendent authorises their removal. Holes must be backfilled and vegetated as described in clause 3.

3 GRUBBING

All trees and stumps, on or within the limits of clearing defined in clauses 2.1, 2.2 and 2.3, and which are unable to be felled and removed by the clearing methods used by the Contractor, must be removed by grubbing.

Grubbing operations must be carried out both to a depth of 0.5 m below the natural surface and 1.5 m below the top of the Selected Material Zone.

Holes remaining after trees and stumps have been grubbed must be backfilled promptly with sound material to prevent the infiltration and ponding of water. The backfilling material must be compacted to at least the relative compaction of the material existing in the adjacent ground. In the area defined in Clause 2.2 the final 50 mm of backfilling must be topsoil and the area must be vegetated within 7 days of removal of the stump. Topsoil and vegetation must comply with RTA R178.

4 PRODUCTION AND STOCKPILING OF MULCH

4.1 MULCH

Native trees removed during clearing and grubbing may be used in conjunction with soil erosion and sediment control measures. All other native trees removed must be converted to mulch and stockpiled for use during landscape planting under the Contract. This requirement is subject to the following constraints:

(a) Where the native vegetation on site is insufficient to provide the quantities of mulch needed during landscape planting, all native trees removed during clearing and grubbing must be mulched and stockpiled. Under no circumstances must the extent of clearing and grubbing be extended or weeds or exotic species used to make up any shortfall of mulch.

(b) Where the quantity of mulch produced would exceed the quantity required under the Contract the excess mulch shall become the property of the Contractor and removed from the site.

4.2 MULCH STOCKPILES

All stockpiles must be on the site of the Works as described elsewhere in the documents. The Contractor must obtain written consent from the Superintendent to the use of any stockpile site which is not shown on the Drawings. Such requests must be made at least ten working days before stockpiling is due to commence, specifying the maximum dimensions of the proposed stockpile.

Stockpile sites must be located away from drainage lines and watercourses and must be arranged to minimise damage to natural vegetation and trees. The stockpile sites must be positioned so that the stockpiled material may be transported away at any time. Any clearing and grubbing required for these sites must be carried out in accordance with this Specification RTA_G40. Temporary erosion and sediment control measures must be taken in accordance with the specification for SOIL AND WATER MANAGEMENT.

Restoration of stockpile sites following completion of the work must be carried out in accordance with RTA R178.

Stockpiles must be monitored and turned over as required to avoid spontaneous combustion.

Mulch in excess of the quantity required for landscape planting must not be stockpiled on site.

5 DISPOSAL OF MATERIALS

Unless otherwise specified, all materials cleared, pruned and grubbed in accordance with this Specification shall become the property of the Contractor and must be removed from the site for recycling or disposal. Disposal must be in accordance with the Contractor's Waste Management Plan.

Disposal of timber and other combustible materials by burning must comply with the requirements of the specification for ENVIRONMENTAL PROTECTION.

ANNEXURE G40/A — PROJECT REQUIREMENTS

A1 CLEARING FOR BRIDGEWORKS

The area to be cleared for bridgeworks shall be as follows:

BRIDGE	DISTANCE (METRES) TO BE CLEARED BEYOND:		
	ABUTMENT		OUTSIDE FACES OF PARAPETS
	A	B	

ANNEXURE G40/B - MEASUREMENT AND PAYMENT

Payment shall be made for all activities associated with completing the work detailed in RTA G40 of the Specification in accordance with the following Pay Items.

A lump sum price for these items, other than G40P1, shall not be accepted.

If any item for which a quantity of work is listed in the Schedule of Rates has not been priced by the Contractor it must be understood that due allowance has been made in the prices of other items for the cost of the activity which has not been priced.

Pay Item G40P1 — Clearing and Grubbing

{Comment: Two options have been shown below. The first only pays clearing and grubbing as a lump sum. The second follows past practice in requiring a rate based on area, this seems to have the potential for disputes over the defining of the area of "roads", "bridges", "bridgeworks" and "formation". Due to the variable amount of work needed within the measured area, a tendered rate would have little value in the administration of the contract. Based on the experience on some contracts, defining the scope of the clearing is more important than its method of measurement. The lump sum option will be used in the model G40 unless comments prefer the rate based on area.}

Option 1:

This shall be a lump sum item.

Payment must include the cost of weed removal, disposal of timber and other cleared materials, making good damage, backfilling, compacting, topsoiling and vegetating holes remaining after removal of stumps.

Option 2:

The unit of measurement shall be the hectare of plan area bounded by the limits of clearing specified in clause 2 but excluding the plan areas of existing roads, bridges, vegetation required to be preserved and any other specified zone within these limits where clearing and grubbing is not undertaken.

Payment must include the cost of weed removal, disposal of timber and other cleared materials, making good damage, backfilling, compacting, topsoiling and vegetating holes remaining after removal of stumps.

G40P1.1 Areas of clearing and grubbing for the formation.

G40P1.2 Areas of clearing and grubbing outside the formation.

G40P1.3 Areas of clearing and grubbing for bridgeworks.

Pay Item R41P2 - Production and Stockpiling of Mulch

The unit of measurement must be the cubic metre measured in the stockpile of mulch produced, stockpiled on site and maintained in accordance with Clause 4.

The volume must be determined by measurement or survey and calculation. The measurement may be made immediately after completion of the stockpile.

Add any Project Specific Pay Items e.g. for stockpiling tree trunks.

ANNEXURE G40/C - SCHEDULE OF HOLD POINTS AND IDENTIFIED RECORDS

Refer to Clause 1.2.3.

C1 SCHEDULE OF HOLD POINTS

CLAUSE	DESCRIPTION
2.3	Written notification of intention to clear any area.

C2 (NOT USED)

C3 SCHEDULE OF IDENTIFIED RECORDS

The records listed below are Identified Records for the purposes of RTA G2 Clause 19 and RTA G5 Clause 9.

Clause	Description of the Identified Record
1.4	Clearing and Grubbing Plan
2.2	Report on the presence of weeds and unsound trees

ANNEXURE G40/D – PLANNING DOCUMENTS

The Contractor must provide a CLEARING AND GRUBBING PLAN which must include, but not be limited to, the following information:

(a) methods used to identify and mark areas of weeds to be removed and methods for their removal (clause 2.4);

(b) procedure for the disposal of weeds and exotics (clause 2.4);

(c) procedure for protecting threatened flora species and trees marked for preservation (clause 2.4);

(d) methods used for identifying, marking and removing or pruning unsound trees likely to fall upon the roadway or onto private property (clause 2.4); and

(e) procedure for identifying and removing trees, stumps and logs above the specified size and within the hazard line (clause 2.2).

The Contractor must include in the WASTE MANAGEMENT PLAN (refer to the Specification for ENVIRONMENTAL PROTECTION) procedures for the disposal of weeds and exotics and for the recycling and disposal of all other materials from clearing and grubbing operations.

The CLEARING AND GRUBBING PLAN and the WASTE MANAGEMENT PLAN must be consistent with the requirements of the other RTA specifications and shall supplement the CONTRACTOR'S ENVIRONMENTAL MANAGEMENT PLAN (CEMP) as set out in the RTA Specification for ENVIRONMENTAL PROTECTION.

ANNEXURES G40/E TO G40/L – (NOT USED)

ANNEXURE G40/M - REFERENCE DOCUMENTS AND DEFINITIONS

Refer to Clause 1.2.4.

M1 REFERENCES

Unless otherwise specified the applicable issue of a reference document, other than an RTA Specification, must be the issue current at the date one week before the closing date for tenders or, where no issue is current at that date, the most recent issue.

Standards, specifications and test methods are referred to in abbreviated form (eg AS 1234). For convenience, the full titles are given below:

Australian Standards

AS 4373	Pruning of Amenity Trees

RTA Specifications

RTA G34	Environmental Protection – Maintenance Works (Management Plan)
RTA G35	Environmental Protection (Management Plan)
RTA G36	Environmental Protection (Management System)
RTA G38	Soil and Water Management (Soil and Water Management Plan)
RTA G39	Soil and Water Management (Erosion and Sediment Control Plan)
RTA R161	Fencing
RTA R178	Vegetation

The specification for ENVIRONMENTAL PROTECTION shall mean RTA G34, RTA G35 or RTA G36, as incorporated into the contract documents.

The specification for SOIL AND WATER MANAGEMENT shall mean either RTA G38 or RTA G39, as incorporated into the contract documents.

M2 DEFINITIONS OF TERMS

The following interpretations apply to terms used in this Specification:

Ecologist	Ecologists are people whose qualifications and experience in botany, environmental science, landscaping or bush regeneration and experience in identifying weeds and other plant species are accepted by the Superintendent.
Hazard line	A line shown on the Drawings to indicate the outer limits of the roadside zone

which must remain free of hazards. In this context a tree with a trunk diameter exceeding 100 mm is considered a hazard.

Tree

In this Specification the term "tree" includes a shrub.

Weeds

Weed species include but are not necessarily limited to, those listed by the relevant local government authority as noxious categories W1, W2, W3, or W4 under the Noxious Weeds Act 1993. Also included under this definition are agricultural and horticultural weed species and in particular invasive grasses such as *Chloris gayana* (Rhodes Grass), *Phalaris sps., Eragrostis curvula* complex (African Lovegrass), *Andropogon virginicus* (Whisky Grass) and *Nassella trichotoma* (Serrated Tussock).

Where necessary, advice must be sought from an Ecologist in order to determine whether the type and/or proportion of weed cover are significant for the purposes of this definition.