WA PLANTATION RESOURCES

DONNYBROOK WOODCHIP PROJECT PUBLIC ENVIRONMENTAL REVIEW

VOLUME 1

VERSION 1

MARCH 2002

REPORT NO: 2002/33

ATA Environmental
environmental scientists

WA PLANTATION RESOURCES

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AN INVITATION TO COMMENT ON THIS PUBLIC ENVIRONMENTAL REVIEW

The Environmental Protection Authority (EPA) invites people to make a submission on this proposal.

WA Plantation Resources Pty Ltd propose to develop a 1.0 million tonnes per annum capacity woodchip mill approximately 6km south east of Donnybrook. Should all approvals be in place, development will commence in the last quarter 2002.

A Public Environmental Review (PER) has been prepared by the company to examine the environmental effects associated with the proposed development and how they will be managed, in accordance with Western Australian Government procedures. The PER describes the proposal, examines the likely environmental effects and the proposed environmental management procedures.

The PER is available for public review for up to 4 weeks from 25 March 2002 to 22 April, 2002.

Comments from government agencies and from the public will help the EPA to prepare an assessment report in which it will make recommendations to government.

Why write a submission?

A submission is a way to provide information, express your opinion and put forward your suggested course of action - including any alternative approach.

It is useful if you indicate any suggestions you have to improve the proposal.

All submissions received by the EPA will be acknowledged. Submissions will be treated as public documents unless provided and received in confidence subject to the requirements of the Freedom of Information Act, and may be quoted in full or in part in the EPA's report.

Submissions may be fully or partially utilised in compiling a summary of the issues raised or where complex or technical issues are raised, a confidential copy of the submission (or part of it) may be sent to the Proponent.

The summary of issues is normally included in the EPA's Assessment Report.

Why not join a group?

If you prefer not to write your own comments, it may be worthwhile joining with a group interested in making a submission on similar issues.

Joint submissions may help to reduce the work for an individual or group, as well as increase the pool of ideas and information.

If you form a small group (up to ten people) please indicate all the names of the participants. If your group is larger, please indicate how many people your submission represents.

Developing a submission

You may agree or disagree with, or comment on, the general issues discussed in the PER or the specific proposals. It helps if you give reasons for your conclusions, supported by relevant data. You may make an important contribution by suggesting ways to make the proposal more environmentally acceptable.

When making comments on specific elements of the PER:

- clearly state your point of view;
- indicate the source of your information or argument if this is applicable; and
- suggest recommendations, safeguards or alternatives.

Points to keep in mind

By keeping the following points in mind, you will make it easier for your submission to be analysed:

- Attempt to list points so that the issues raised are clear. A summary of your submission is helpful.

- Refer each point to the appropriate section, chapter or recommendation in the PER.

- If you discuss different sections of the PER, keep them distinct and separate, so there is no confusion as to which section you are considering.

- Attach any factual information you wish to provide and give details of the source. Make sure your information is accurate.

Remember to include:

- your name,
- your address,
- date, and
- whether you want your submission to be confidential.

The closing date for submissions is:

Monday 22 April, 2002.

Submissions should be addressed to:

Environmental Protection Authority
8th Floor, Westralia Square
141 St George's Terrace
PERTH WA 6000

Attention: Richard Sutherland

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An internal quality review process has been applied to each project task undertaken by us. Each document is carefully reviewed by core members of the consultancy team and signed off at Director level prior to issue to the client. Draft documents are submitted to the client for comment and acceptance prior to final production.

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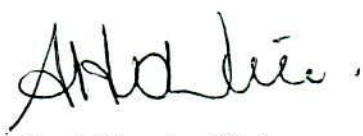
Checked by: Signed: 

Name: Helen Sivertsen Date: 22 March, 2002

Approved by: Signed: 

Name: Henk Van der Wiele Date: 22 March, 2002

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EXECUTIVE SUMMARY

Plantation bluegum resources in the South West region are approaching the end of the first rotation and require harvesting. This demand has, to present, been met by mobile chip mills operating in various locations in the Region. Logs have been transported to the mobile mills by truck, and wood chip product similarly transported to the Port of Bunbury for export. Implementation of this proposal will result in the bulk of chipping activity being concentrated in a single location, and rail replacing road for the transport of chip product.

This Public Environmental Report (PER) describes the WA Plantation Resources Pty Ltd (WAPRES) proposal to develop a 1.0 million tonnes per annum (mtpa) capacity woodchip mill approximately 6km south east of Donnybrook. Logs for the woodchips will be sourced primarily from bluegum plantations established on private land within a radius of about 150km from Donnybrook. Logs will be transported by truck to the mill site off the South Western Highway at Preston AA Lot 262, adjacent to the Manjimup-Bunbury Railway line.

Following chipping and sorting, woodchips will be railed to the existing woodchip export facility at the Bunbury Inner Harbour. The provision of a rail siding, if required, to the existing Manjimup-Bunbury Railway line will be the subject of a separate referral to the Environmental Protection Authority (EPA), with Westnet as the Proponent.

The woodchip product will be loaded into vessels using the existing fixed ship loader and woodchip storage/handling facility on the leased land adjacent to Berth 3 at the Bunbury Port. The port site is prescribed and licensed under Section 62 of the *Environmental Protection Act* (1986).

Should this project not proceed, the bluegum resource will continue to be chipped by various portable mills and both logs and wood chip product will continue to be transported on public roads. Implementation of this proposal has the potential to significantly reduce the total number of truck movements resulting from this activity.

WAPRES will develop, operate and own the Project. The Project will cost around AUD 10 million and is planned to commence export in the fourth quarter of 2003. Export tonnage will reach approximately 0.75 mtpa woodchips in the initial year of operation, and based on current market projections, continue at 0.75 mtpa. The project retains the capability to produce 1.0 mtpa should market demand require. Construction is scheduled to commence in last quarter 2002.

Significant and extensive community consultation has already been undertaken with the community of the Donnybrook region, residents in the vicinity of the site, the Shire of Donnybrook-Balingup and various decision making authorities. A social impact assessment was undertaken by Community Perspectives, a consultancy dealing in the consideration of social impacts, and the report has been included in the appendices to this report. The community consultation over the past 10 months has resulted in improvements to the project that will reduce and limit many environmental and social impacts. The Proponent has committed to an ongoing consultation program.

The PER addresses the environmental factors identified in meetings with the Department of Environment, Water and Catchment Protection (DEWCP), project stakeholders and as a result of community consultation.

Factors considered in this PER are summarised in Table A1.

TABLE A1
ENVIRONMENTAL FACTORS CONSIDERED
FOR THE COMPONENTS OF THE PROJECT

	TRANSPORT	MILL SITE	PORT
Biophysical			
vegetation communities		X	
specially protected fauna		X	
Pollution Management			
groundwater quality		X	X
liquid and solid waste disposal		X	
stormwater discharge		X	X
surface water quality		X	
air quality	X	X	
dust		X	X
odour		X	
noise	X	X	X
light overspill		X	
Social Surroundings			
public health and safety	X	X	
heritage		X	
visual amenity		X	X
public consultation	X	X	

Each of the environmental factors listed is addressed within this document and includes a description of the existing environment, potential impacts, proposed management and commitments made by the Proponent.

The Proponent has made a number of commitments with a view to managing the environmental impacts of the development. Summaries of the commitments for each section of the project, namely the mill site (Table A2), the transport issues (Table A3) and the existing Bunbury Port activities (Table A4) are given below.

The principal issues of concern identified by members of the community are consistent with those identified by the DEWCP in preliminary meetings. It is considered that similar concerns would be reflected regardless of the location of the wood chip mill within a corridor defined by the existing rail network.

Specialist assessments of flora and fauna at the proposed site have been undertaken. Noise impacts have been assessed and indicate that the project can be implemented in such a manner as to meet all the EPA's requirements. With respect to environmental management, the Proponent has committed to develop management strategies along such philosophies as described in the ISO 14000 series of documents, and report the results of monitoring to a community group established for the purpose of maintaining environmental quality and sustainability.

The possible direct physical impacts of implementation of the proposal (impacts on flora and fauna, noise, surface and groundwater) will be managed through the design, location, infrastructure and management programs identified in the project design.

The transportation of wood chip logs will be undertaken principally on major highways and haulage routes and arterial roads. Truck transport routes from the plantations to the woodchip mill will vary throughout the life of the project. An independent assessment of seven possible sites in the South West by the Department for Planning and Infrastructure (South West Woodchip Mill Strategic Site Assessment Study, October 2001) favoured Donnybrook. Much of the road network is likely to be upgraded in the future based on the results of the current BOND Log Haul Road Transport study and state budget announcements. A study of the roads likely to have the greatest impact, show the increase in heavy traffic will comply with EPA and MRWA criteria for air quality and noise.

WAPRES will minimise the impact of the transport of woodchips to the port by utilising the existing Manjimup-Bunbury railway.

While the increase in bluegum woodchips export is not expected to increase the level of noise resulting from the WAPRES port operations, the extended woodchip receival and vessel loading schedules will increase the length of time these noise levels impact on the nearest residences. A Noise Management Plan has been prepared to ensure noise at the existing Port facilities complies with the *Regulations* at all times.

The project has a number of direct and indirect benefits both to the environment and the people of the Region. Environmental benefits from the development of plantations include soil protection from wind and water erosion, salinity control and water resource protection. From an economic and financial outcome, there are direct benefits to the families employed either directly in growing the trees, producing or transporting the woodchips or indirectly through related support or service areas. Other benefits relate to the diversification in primary production and as a stimulus for revitalising rural and regional communities.

Finally, it is important to recognise that this project provides a downstream use for the expanding bluegum plantation industry. Forest industries can be made to be sustainable in the longer term through the adoption of sound and strategic management practices that reflect reasonable community expectations. Donnybrook, being central to the plantation resources minimises many of the impacts associated with the project development.

TABLE A2
DONNYBROOK WOODCHIP MILL: SUMMARY OF COMMITMENTS

COMMITMENT NO.	TOPIC	ACTION (WHAT, WHERE, HOW)	OBJECTIVE (WHY)	TIMING (WHEN)	ADVICE (TO WHOM)
1	General	Develop and Implement an overall Environmental Management Plan that will incorporate the Management Plans for the Individual factors	• Manage activities to minimise environmental impacts	Pre construction	DEWCP
2	Vegetation	To develop a vegetation management component of the Environmental Management Plan (EMP)	• Design and layout of mill and roads to minimise clearing native vegetation • Limit vegetation loss • Manage remnant vegetation • Stabilise disturbed areas	Pre construction	DEWCP on advice from CALM
3		To implement the agreed vegetation management plan		Construction and operation	
4	Fauna	Limit clearing.	• Limit faunal habitat loss	Construction	DEWCP with advice from CALM.
5	Surface Water	To develop and implement a water management component of the site EMP, to include: • details of potential impacts on surface water quality • how these impacts will be addressed • ensure any stormwater release complies with ANZECC Guidelines	• Reduce impact on surface water drainage across the site. • Limit potential for contaminant transportation in surface waters.	Pre-construction	DEWCP
6		To implement the agreed water management plan.		Construction and operation	

COMMITMENT NO.	TOPIC	ACTION (WHAT, WHERE, HOW)	OBJECTIVE (WHY)	TIMING (WHEN)	ADVICE (TO WHOM)
7	Groundwater	To develop and implement a groundwater management component of the site EMP, to include: • Management of bulk fuels; • Management of liquid waste; • Waste oil storage; • Disposal of solid wastes; • Monitoring; • Management of any bore; • Water reuse.	• Minimise potential for contamination the unconfined aquifer.	Pre-construction	DEWCP on advice from the DME and the Shire of Donnybrook-Balingup.
8		To implement the agreed groundwater management plan.		Construction and operation	
9	Solid Waste	To develop a waste management plan	Ensure fines and residual bark disposed of off site	Pre-construction	DEWCP
10		To implement the agreed waste management plan	Ensure other forms of solid waste disposed of to landfill or recycled	Construction and operation	DEWCP
11	Odour	Develop and implement an odour management plan if unreasonable odours are emitted Manage ATU's or amended septics	Ensure all waste (putrescible, office etc) is disposed of off site Comply with EPA and Shire guidelines	Pre-operational and Operational	DEWCP, Shire of Donnybrook-Balingup
12	Dust	Develop a dust management plan.	Comply with EPA guidelines in dust limitation and management	Pre operational	DEWCP
13		Implement the agreed dust management plan	Ensure compliance with stated criteria.	Construction and operation	

COMMITMENT NO.	TOPIC	ACTION (WHAT, WHERE, HOW)	OBJECTIVE (WHY)	TIMING (WHEN)	ADVICE (TO WHOM)
14	Noise	Design and install equipment such that at all times, noise emissions comply with all requirements of the *Environmental Protection (Noise) Regulations 1997.* Ensure compliance during equipment acceptance testing	Ensure impacts on nearby residents are limited to a reasonable minimum and meets EPA requirements for noise at all times.	Pre-construction and construction	DEWCP
15		Develop a Noise Management Plan (which includes monitoring).		Pre-construction	
16		Implement a Noise Management Plan, including monitoring as a component of the site EMP.		Operation	
17	Public Health & Safety	Develop an Emergency Management Plan	Limit risk to be as low as reasonably possible.	Construction	DEWCP and community on advice from DME.
18		Implement the Emergency Management plan as a component of the site EMP.		Operation	
19		Develop Occupational Health and Safety management strategies along such philosophies as described in AS 4801, AS 4804 and the ISO 14,000 series of documents.	Limit risk to be as low as reasonably possible. Ensure bulk fuel storage compliance with AS1940.	Pre-construction	
20		Implement the Occupational Health and Safety Management Plan as a component of the site EMP.	Ensure fencing, access, signage etc compliant with Occ Health and Safety Guidelines	Construction and Operation	
21		Develop a Fire Control Plan (FCP) as a component of the EMP.	Provide a timely and effective response to any fire hazard.	Pre-operation	DEWCP and community on advice from Fire and Emergency Services

COMMITMENT NO.	TOPIC	ACTION (WHAT, WHERE, HOW)	OBJECTIVE (WHY)	TIMING (WHEN)	ADVICE (TO WHOM)
22		Implement the agreed FCP.		Operation	
23	Aboriginal Heritage	Meet all the requirements of the *Aboriginal Heritage Act*.	Ensure that any Ethnographic & Archaeological material of significance is identified and protected during construction and operation;	Pre-construction	DEWCP on advice of the Aboriginal Affairs Department
24		Develop a site Heritage Protocol as a component of the EMP: • Develop site heritage protocol • contractor training.			
25		Implement the agreed site Heritage Protocol.	Provide timely specialist advice on sites of significance (if any) uncovered during construction.	Construction	Aboriginal Affairs Department
26	Visual Amenity & Light Overspill	Develop and install plant lighting to comply with AS 4282.	Limit light overspill and prevent obtrusive light through design and vegetative screening.	Pre-construction and construction	DEWCP
27		Implement screen planting component of the EMP.	Reduce aesthetic impact of mill	Construction and operation	DEWCP
28	Public Consultation	Prepare a public consultation program that both informs and educates the wider community generally, and addresses the concerns of those likely to be directly affected. This includes establishing a Community Consultation Group. Develop a Complaints register	• Ensure stakeholders, community and other interested parties have adequate opportunity to provide their input. • Consideration of stakeholders comment used to influence aspects of project design.	Pre-construction	Shire of Donnybrook-Balingup.
29		Implement the public consultation program.			

TABLE A3
TRUCKING OF LOGS TO THE MILL AND RAILING WOODCHIPS TO THE PORT
SUMMARY OF COMMITMENTS

COMMITMENT NO.	TOPIC	ACTION (WHAT, WHERE, HOW)	OBJECTIVE (WHY)	TIMING (WHEN)	ADVICE (TO WHOM)
1	General	Develop and Implement an overall Environmental Management Plan that will incorporate the Management Plans for the Individual factors	• Manage activities to minimise environmental impacts	Pre construction	DEWCP
2	Air Quality	To implement air quality management plan that includes selection of low emission equipment, shows a preference for credited contractors and supports rail over road for woodchip transport.	Ensure compliance with NEPM standards	Pre-construction	DEWCP
3		To develop agreed air quality management plan		Construction and operation	DEWCP
4	Noise	Implement a preference for road transport contractors with quieter equipment, acceptable maintenance schedules and conform to industry code of Practice	Ensure impacts on nearby residents are limited to a reasonable minimum and meets EPA requirements for noise at all times.	Pre-construction, construction and operation	DEWCP
5	Public Health & Safety	Select safest route and travel time for vehicles under WAPRES control	Limit risk to be as low as reasonably possible.	Pre-construction, construction and operation	Contractors, Community
6		Contract only experienced competent drivers.		Operation	
7		Recommend trucks avoid school and school bus activity periods		Operation	
8		Implement a preference for contractors conforming to a code of Practise.		Operation	

COMMITMENT NO.	TOPIC	ACTION (WHAT, WHERE, HOW)	OBJECTIVE (WHY)	TIMING (WHEN)	ADVICE (TO WHOM)
9		Design access road with SW Highway for legal compliance		Operation	
10		Implementation of WAPRES Code of Conduct for Log haulage		Operation	
11	Public Consultation	Prepare a public consultation program that both informs and educates the wider community generally, and addresses the concerns of those likely to be directly affected. This includes establishing a Community Consultation Group Develop a Complaints register	• Ensure stakeholders, community and other interested parties have adequate opportunity to provide their input. • Consideration of stakeholders comment used to influence aspects of project design.	Pre-construction	Shire of Donnybrook-Balingup
12		Implement the public consultation program.			

TABLE A4
BUNBURY PORT ACTIVITIES

COMMITMENT NO.	TOPIC	ACTION (WHAT, WHERE, HOW)	OBJECTIVE (WHY)	TIMING (WHEN)	ADVICE (TO WHOM)
1	Stormwater management	To continue stormwater management by: • continuing to dispose of solid waste off site • increasing woodchip hardstand area • continued use of perimeter drains, retention sump, mesh grates • continued monitoring	Prevent discharge of contaminated stormwater	Operation	DEWCP
2	Dust	Continue to undertake dust minimisation measures	Comply with EPA guidelines in dust limitation and management	Operation	DEWCP, BPA and Port Users Group
3		Continue to support BPA and Port Users Group initiatives	Ensure compliance with stated criteria.	Operation	
4	Light Overspill	Continue to use directional plant lighting and promote vegetation buffer	Limit light overspill in compliance with AS 4282	Operation	DEWCP
5	Visual Amenity	Continue to maintain and promote vegetation buffer and limit stockpile height	Ensure visual amenity is not unduly affected by the proposal	Operation	DEWCP
6	Noise	Develop and implement a Noise Management Plan (which includes monitoring).	Ensure impacts on nearby residents are limited to a reasonable minimum and meets EPA requirements for noise at all times.	Operation	DEWCP
7	Public Health & Safety	Continue to store bulk chemicals and fuels in compliance with AS 1940	Limit risk to be as low as reasonably possible.	Operation	DEWCP on advice from DME.
8		Maintain existing fence and compliance with Occ Health and safety regulations		Operation	

1. INTRODUCTION

1.1 Background and Project Benefits

WA Plantation Resources Pty Ltd (WAPRES) propose to develop a 1.0 million tonnes per annum (mtpa) capacity woodchip mill approximately 6km south east of Donnybrook. Logs for the woodchips will be sourced primarily from bluegum (*Eucalyptus globulus*) plantations established on private land within a radius of about 150km from Donnybrook. Logs will be transported by truck to the mill site off the South Western Highway at Preston AA Lot 262, adjacent to the Manjimup-Bunbury Railway line.

Following chipping and sorting, woodchips will be railed to the existing woodchip export facility at the Bunbury Inner Harbour. The provision of a rail siding, if required, to the existing Manjimup-Bunbury Railway line will be the subject of a separate referral to the Environmental Protection Authority (EPA), with Westnet as the Proponent.

The woodchip product will be loaded into vessels using the existing fixed ship loader and woodchip storage/handling facility on the leased land adjacent to Berth 3 at the Bunbury Port. The port site is prescribed and licensed under Section 62 of the *Environmental Protection Act* (1986).

The project has a number of direct and indirect benefits both to the environment and the people of the Region. Environmental benefits from the development of plantations include soil protection from wind and water erosion, salinity control and water resource protection. From an economic and financial outcome, there are direct benefits to the families employed either directly in growing the trees, producing or transporting the woodchips or indirectly through related support or service areas. Other benefits relate to the diversification in primary production and as a stimulus for revitalising rural and regional communities, for example:

- attracting into the Region a highly skilled professional workforce;
- expansion and raising of the status of a significant primary industry sector;
- provides a stimulus to revitalise declining rural communities;
- provision of long term sustainable employment;
- supplements and has the potential to increase farm incomes; and
- supplements raw materials currently harvested from native forest.

Based on the maximum mill production capacity of 1.0 million tonnes per annum, WAPRES estimates the mill will employ directly:

- up to 28 full time permanent employees on site, two shifts of up to 14 people per day (20 full time permanent employees at 0.75 million tonnes per annum); and

- 2-3 full time equivalent contractors to service/maintain the mill.

In addition, the proposal will indirectly:

- secure 100 current jobs in the harvesting and transport of logs; and
- generate 150 new jobs in the South West Region in the harvesting and the transport of logs and related mechanical, administrative, planning and inventory activities.

There are many direct and indirect benefits to businesses, services and residents of Donnybrook that will be generated by the project. On the level of local expenditure, the project has an annual requirement for well over $1.5 million worth of repairs and maintenance on the plant. The majority of the servicing will be done by local contractors, and equipment needs, where possible, will be supplied by local business. This project may encourage other supplier and machinery related businesses to relocate to Donnybrook as the town is well placed in terms of access to the plantation resource in the South West.

WAPRES recognise that social benefit cannot be measured in financial terms alone. However, the Proponents believe that in a period of declining primary produce prices and consolidation of holdings into larger management units, the establishment and operation of a robust woodchip industry provides an opportunity to redress the movement of people away from country areas and provide a diversified income.

1.2 Scope of this Public Environmental Report (PER)

This PER has been prepared as a referral document for the consideration of the Environmental Protection Authority (EPA) and has been produced in a manner and form consistent with the Guidelines included as Appendix 1.

In summary, this document provides:

- background information about the proposal, the Proponent, statutes relevant to the establishment and operation of the project infrastructure, and community consultation to date;
- a description of the project;
- an analysis of the implications of the project in terms of impacts on the existing environment; and
- a description of environmental management procedures which will be adopted to ensure that the proposal will be implemented in a manner consistent with EPA objectives.

This document assesses the impacts and management of the three main project components, namely the mill and associated log handling facilities, transport both of the logs to the mill and chips to the port, and the expansion of the existing export facilities at the Bunbury Port.

1.3 The Proponent

The Proponents for the project are WA Plantation Resources Pty Ltd (WAPRES). WA Chip and Pulp Pty Ltd. is the subsidiary company developing the project. The contact details for WAPRES are:

General Manager:	Ian Telfer
Postal Address:	PO Box 550, Bunbury WA 6330
Street Address:	South Inner Harbour, Bunbury WA 6330
Phone:	(08) 9721 7411

WAPRES is owned by the Japanese company, Marubeni Corporation. Marubeni is a large international trading house dealing in pulp, paper, woodchips and other global commodities and will be the purchaser of the woodchip product. Current WAPRES operations include a 10 million per annum capacity seedling nursery in Manjimup, 34,000ha of plantation resources under management, harvesting coordination, woodchipping operations (through the Diamond Mill in Manjimup), the contract chipping operations at Dardanup, and the woodchip export facilities at the Bunbury Port.

1.4 Statutory Framework and Requirements

1.4.1 Statutory Framework

In addition to meeting the requirements of the Environmental Protection Act, the Donnybrook Woodchip Mill is required to comply with, amongst others, any or all of a number of Acts of Parliament and Regulations at the State or Commonwealth level as listed below.

- Aboriginal Heritage Act 1972;
- Australian Heritage Commission Act;
- Conservation and Land Management Act;
- Dangerous Goods (Transport Act) 1998 (WA);
- Environmental Protection and Biodiversity Conservation Act, 1999 (Commonwealth);
- Environmental Protection Act 1986;
- Explosive and Dangerous Goods Act 1994;
- Hazardous and Toxic Substances Regulations;
- Health Act 1911-1979 and Regulations;
- Heritage of Western Australia Act 1990;
- Local Government Act 1995;
- Mining Act 1978-1987 and Regulations;
- Occupational Health, Safety and Welfare Act 1984-1987;
- Soil and Land Conservation Act 1945-1982;
- Waterways Conservation Act 1976 (WA);
- Water and Rivers Commission Act 1995 (WA);
- Wildlife Conservation Act 1950-1980.

1.4.2 Statutory Requirements

The successful development of the Donnybrook Woodchip Project is dependent on a number of statutory approvals from various levels of government. These include:

- **Environmental Approval (*Environmental Protection Act, 1986*)**
  Any project that has the potential to have significant impact on the environment, is required to be assessed by the EPA.

- **Zoning of Subject Land**
  The subject land is zoned 'General Farming Pastoral' under the Shire of Donnybrook - Balingup Town Planning Scheme (TPS) No 4.

  Within the General Farming Pastoral zone, discretionary land uses include 'Rural Industry'. Rural industry is defined in the TPS as meaning an industry handling, treating, processing or packing primary products, grown, reared or produced in the locality and a workshop servicing plant or equipment used for rural purposes in the locality.

  The project has been referred to the Shire of Donnybrook-Balingup for its consideration. Should the Shire of Donnybrook-Balingup Council determine that the proposed mill falls within the definition of 'Rural Industry' under TPS No 4, then the matter of development approval can be progressed without re-zoning. If the Council does not classify the use as a Rural Industry, then the use can be considered under the General Farming Pastoral zone as an 'Unspecified' Land Use which the Council still has the discretion to approve under the Town Planning Scheme.

- **Planning Approval**
  The project requires development approval from the local authority before proceeding.

- **Sewage**
  Any sewage treatment system will need to be licensed under the *Health Act* 1911.

2. DESCRIPTION OF THE PROPOSAL

2.1 Overview

WAPRES propose to develop a woodchip mill with a production capacity of 1.0 million tonnes per annum (mtpa), 600m off the South Western Highway about 6km south-east of Donnybrook (Figure 1).

Logs for the woodchips will be sourced primarily from bluegum (*E. globulus*) plantations established on private lands located within a radius of about 150km from Donnybrook and transported to the proposed mill site which is located adjacent to the existing Manjimup-Bunbury Railway line (Figure 1). The main components of the project are:

- the mill, associated log and chip handling facilities, administrative office and access road at the Donnybrook site;
- the transport of logs to the mill by truck and of the woodchips by rail to the existing woodchip export facility at the Bunbury Inner Harbour; and
- the expansion of the existing bluegum export capacity at the Bunbury Inner Harbour.

A summary of the project is provided in Table 1.

The project is planned to commence export in the last quarter of 2003. Export tonnage will reach the equivalent of 0.75mtpa in the initial year of operation and based on current market projections, continue at 0.75mtpa. The project retains the capability to produce 1 million tpa should market demand require.

TABLE 1
PROJECT SUMMARY

Proposal Aspect	Description of Proposal when Fully Implemented
TRANSPORT TO CHIPMILL	
Plantation Timber Sources	• *E. globulus* plantations, total resource of about 75 000ha from plantations within an approx. 150km radius from Donnybrook, from amongst others, the Shires of Boyup Brook, Kojonup, West Arthur and Williams in the east, Rockingham, Murray, Jarrahdale and Serpentine in the north, Bridgetown-Greenbushes and Nannup in the south and Augusta-Margaret River and Busselton in the west.
Transport of logs to Chip mill	• Road transport using various truck configurations on private haul roads within plantations, local, public and state funded main roads. • Truck movements - Initially (0.75 mtpa), 0.80 million tonnes of logs will be transported annually (based on 94% recovery). Equates to 35554 truck movements including return (17777 loaded truck movements), or about 9 truck movements per hour (or 4.5 loaded truck movements per hour) based on 230 days per year, 17 trucking hours per day. • At full export capacity (1.0 mtpa), 1.06 million tonnes of logs will be transported annually. This equates to 47281 truck movements per annum, including return, requiring 12 trucks per hour, (or around 6 loaded truck movements per hour) based on 230 days per year, 17 trucking hours/day. • Logs will be carried out on in excess of 1570 km of local and 820km of state (main) roads in South West region.

Proposal Aspect	Description of Proposal when Fully Implemented
DONNYBROOK CHIPMILL	
Site, location & area	• Preston AA Lot 262 is situated approx 600m off South Western Highway adjacent to the existing Manjimup-Bunbury Railway, about 6km SE of Donnybrook. • Comprising 18.69ha freehold land zoned 'General Farming Pastoral' and requiring negligible clearing of native vegetation.
Site facilities	• Single chipper line, associated log handling and pollution abatement equipment, and mobile plant. • Vibrating screens, associated conveyors and maintenance crane. • Train hopper bins and stockpile. • Stormwater recycle ponds. • Administration office, maintenance and truck weighing facilities.
Associated facilities	• Rail siding of approximately 0.5 km may be required (to be referred separately by Westnet).
Log unloading and chipping	• Log trucks arrive via a new access road from the South Western Highway. Trucks on the SW Highway will approach from both the north (primarily via Boyup Brook Rd) and the south from Kirup. • Rubber tyred loaders (up to 4) to remove and stacks logs initially. • Log crane and grab loads logs into chipper, with chips being transported by conveyors. • Chips are sized on vibrating screens and stockpiled into hoppers using conveyors. • Train loading hopper bins load chips into rail carriages.
TRANSPORT TO BUNBURY PORT	
Transport of chips to port	• Locomotive hauling up to 19 bottom discharge rail wagons. Total train capacity approximately 800 tonnes. • Number of loaded train movements from Donnybrook mill: initially (0.75 mtpa) 3-4 loaded train movements/day (approx. 250dpy), full production (1.0 mtpa) 4-5 train movements/day (280dpy).
BUNBURY PORT SHIP LOADING	
Site, location & area	• Existing land leased within the Bunbury Inner Harbour Port Facilities (about 9.6ha). • Chips dropped into existing below ground hopper and transported via conveyor to existing stockpile area at the Bunbury Port. • Stockpile storage area of approx 5.3ha (hardstand currently about 2.3ha). Hardstand drained to perimeter drains with stormwater retention ponds.
Site facilities	• Stacker, fixed ship loader and associated conveyors. • Office buildings, workshop, bulldozer washing and refuelling bay. • '966' rubber tyred loaders. • 'D8' bulldozer (1 during normal operations, up to 3 during ship loading). • 40 000tonne capacity ships. For bluegum chips only: at 0.75 mtpa, 19 ships/annum (average 2 days in port = 38 days in port), full production (1.00 mtpa) 25 ships/annum (50days in port). Port operations will proceed on a 24hr basis during ship loading.

2.2 Site Selection

2.2.1 Donnybrook Site

The south Donnybrook area has long been considered as having suitable sites for a South West woodchip mill. In December 2000, the then Department for Resources Development released a report outlining a strategy and action plan to facilitate the development of a plantation based wood processing industry in WA. *Entitled 'Wood Processing Industry Development and Infrastructure Strategy Plan for Western Australia'*, the report provided a possible framework in which government, industry, communities and other stakeholders could develop the region into a world class plantation growing and processing area. In addition, the report reinforced the concept of a 'three mill policy'. This envisages three major woodchip mills being established at Albany, Manjimup and Donnybrook to process bluegums in the region (DPI, 2001).

Considerable effort has been instigated by WAPRES to the identification of an appropriate site for the woodchip mill. The company undertook a site selection study (ATA Environmental, March 2001) which presented a comparative environmental analysis of five potential sites within the South West Region for the woodchip plant in reasonable proximity of the Port of Bunbury. Table 2 summarises the comparative advantages of each site, and rates their significance. The initial site considered in the Donnybrook area was Reserve C7859 which lies approximately 2km SE of Donnybrook.

ATA Environmental concluded that in terms of environmental issues, such as the impact on flora, fauna and water resources, development at the Donnybrook site Reserve C7859 would have less impact than the other four sites assessed, as well as having the following major advantages:

- is adjacent to the existing Manjimup-Bunbury railway allowing for train transport of woodchip product to the Port of Bunbury;
- is central within the timber resource and accordingly will reduce log road transport distances and the resulting risk, transport costs and air emissions;
- is well serviced by major roads both from southern and eastern growing areas; and
- minimises truck traffic through Donnybrook, Boyanup and the City of Bunbury.

A second site within Donnybrook, Preston AA Lot 262, (the subject of this proposal) was identified about 4km south of the initial Donnybrook site and 6km south east of Donnybrook town. This site is considered to have the advantages of Reserve C7859 but without many of the disadvantages, in that Preston AA Lot 262:

- has sufficient cleared agricultural land for the development of the woodchip plant, and tracts of natural vegetation sufficient for amenity;
- has a lower neighbouring density, with adjoining population located further from the property boundaries;
- is not adjacent to surface water features;
- is off the South Western Highway and is further from the Donnybrook townsite; and
- is not subject to Native Title.

Consideration of Preston AA Lot 262 using similar criteria to the 2001 comparative site assessment (ATA Environmental, March 2001) is also included in Table 2.

TABLE 2
SUMMARY OF COMPARATIVE SITE ASSESSMENT FINDINGS – SOUTHWEST WOODCHIP PROJECT

	Preston AA Lot 262 (this proposal)	[1]Reserve 7859	[2]Gwindinup	[3]Moore Rd	[4]Harris Rd	[5]Port	Comments
Biophysical:							
- vegetation communities	*	**	*	*	**	•	[1,4] DRF may be present
- specially protected fauna	*	**	*	*	*	•	[1] Priority flora may be present
Pollution Management:							
- groundwater quality	*	*	*	*	**	*	[4] EPP wetland nearby
- liquid & solid waste disposal	*	*	*	*	*	•	
- stormwater discharge	*	*	*	*	**	•	[4] EPP wetland nearby
- surface water quality	*	**	**	**	**	*	[1,2,3,4] Surface drainage features near site
- air quality	•	•	•	*	•	•	
- dust	*	*	*	*	*	***	[5] Previous history of dust complaints.
- odour	•	•	•	•	•	•	
- noise	*	*	*	***	**	***	[3,4,5] Previous history of noise complaints
- light overspill	•	•	•	•	•	*	
Social Surroundings:							
- air safety	•	•	•	**	**		[3,4] Need to obtain clearance from CASA
- public health & safety	*	*	*	*	*	*	
- heritage	*	***	*	*	*	*	[1] Need to progress Native Title Clearance
- visual amenity	*	*	*	*	*	**	[5] Townscape tending towards urban/residential
- public consultation	*	*	*	**	**	***	[3,4,5] Seen as conflict with urban development
Servicing:							
- power	med	med	med	low-med	low-med	low	
- water	low	low-med	med-high	low-med	low-med	low	
- telecommunications	low	low-med	med	low	low	low	
- wastewater/sewerage	low	low	low	low	low	low	
Statutory Approvals:							
- Strategic Plan	no	no	no	yes	yes	yes	
- Accepted land use	yes	no	no	no	no	yes	

• N/A

* Compliance may need to be demonstrated, not relevant to site

** Compliance will need to be demonstrated by measurement or modelling. Some site impacts that may raise public or regulatory agency concern.

*** Compliance will need to be demonstrated by measurement or modelling. Clearances need to be sought through formal processes or strongly argued. High levels of concern.

The Department for Planning and Infrastructure (DPI, 2001) subsequently considered seven locations in the South West as part of a strategic assessment for the selection of a woodchip site. These were Kirup, Greenbushes, Hester, Wilga, Picton Industrial Estate, Donnybrook and Bunbury Port. This assessment favoured Donnybrook in terms of strategic transport issues as it was considered to:

- generate the lowest total transport cost;
- require minimal public investment in road infra-structure improvements;
- deviate traffic away from some communities such as Donnybrook, Capel and Bunbury;
- be suitable to use single locomotive operations unlike sites further south such as Kirup, Greenbushes, Hester and Wilga which due to an increase in gradient require two locomotives;
- lessen influence on transport costs should fuel costs increase in the future, (due to a single locomotive is used);
- have the second lowest greenhouse gas emissions cost for the sites assessed;
- have the second lowest annual total resource cost for the sites assessed; and
- have a lower potential than sites further south of Donnybrook for the consolidation of chipping operations on one site in the future. This may have implications for the long term future of Diamond Mill and the Manjimup section of the railway and may result in bluegum traffic transiting through Bridgetown (DPI, 2001).

According to the DPI assessment (DPI, 2001), differences between the sites regarding transport costs there were not large, nor were environmental and social effects. However, there was a significant variation in the location and size of heavy vehicle concentrations through a number of communities such as Balingup, and in the cost of major road improvements. The assumptions made in the assessment are listed in.

2.2.2 Kirup Sites

DPI undertook an assessment of potential alternative sites at Kirup (DPI, 2002).

Six sites were assessed against the criteria of land suitability, land availability, rail access, social impact and access to power. Three of the sites were state owned, requiring native forest clearing which has related conservation value, tenure, Aboriginal heritage, zoning and time schedule implications, thus making these sites unattractive.

Of six potential sites, only one does not result in a moderate to high impact on the townsite or the adjacent landowners. This site had poor road access from the east and north, moderate from the south and was identified as having an access that has a low – moderate social impact/opposition potential. This site shared the most expensive road

cost estimate of the sites considered. There is no indication that many of the other issues identified for the Donnybrook site will not be replicated to this site.

Other non-site specific issues regarding a Kirup location include:

- Kirup had higher total transport costs than Donnybrook. Road improvement costs (as well as annualised road improvement costs) were higher than for Donnybrook. Annual train kilometres were more than for Donnybrook;
- Power supply is more costly and the Proponent would require significant Government financial support;
- Kirup has no mobile phone coverage and limited housing and amenities for mill workers and their families; and
- Kirup would require the upgrading of the Grimwade Road to a standard suitable for log haulage. The cost of this upgrade and ongoing maintenance would need to be met by either the Shire or the State Government. If this road was not upgraded, log haulage would occur along the Donnybrook-Boyup Brook Rd as it will for the Donnybrook site.

2.3 Social Setting

The development of the plantation timber industry in Western Australia can be viewed from many perspectives within the community. Plantations developed in established agricultural areas have been both lauded as diversification and a valuable addition to farm income, and criticised as seen to be leading to the depopulation in rural communities by different sectors of the community.

2.3.1 Demographics

The population in the South West in June 2000 was 126 889, representing a 2.8% increase over the previous year. The population growth rate within the South West for 1996 to 2000 was 3.0% pa (WA Dept of Local Gov and Regional Development, 2001). This rate is high compared to Western Australia as a whole (1.7%) and regional Australia (1.7%). The South West growth rate is up on the 1991-1996 figure of 1.7% (compared to 1.5% for WA).

In 1998 there were more than 7800 business located in the South West, with a third of them involved in agriculture, fishing and forestry. Between 1991 and 1996 there was a 1% increase in the number of people employed in agriculture, fishing and farming in the South West compared to a growth in the total South West workforce of 3.3%.

Since 1988 there has been a rapid growth of the plantation timber industry within the South West Region. Farm forestry and industrial plantations generally are amongst Western Australia's fastest growing primary industries, with an increasing number of producers recognising the multiple benefits of planting trees to complement their farming operations. Benefits include the lowering of water tables to help combat the spread of salinity, increasing protection for soil prone to wind-erosion, sheltering livestock, and improving the appearance of the rural landscape.

2.3.2 Resources

Plantation establishment activity has been encouraged by prospectus-based managed investment funds sector and continues to be encouraged by the Federal Government through favourable tax incentives. This has seen a move away from Government owned plantations towards industrial corporations, individual investors and farmers. The State Government is involved with major overseas partners for the establishment of plantations under various State Agreement Acts.

Bluegums are now a major commercial tree species, with new WA industrial plantations of about 100, 000ha established in the planting period 1995-1999 and 59,700ha/yr in 2000, (National Forestry Inventory, 2001) as shown in Table 3.

TABLE 3
WESTERN AUSTRALIAN *E.GLOBULUS*
PLANTATION AREAS, SEPTEMBER 2000

PLANTING PERIOD	INDUSTRIAL PLANTATIONS (HA)	FARM FORESTRY (HA)	TOTAL RESOURCE (HA)
UNKNOWN	763	12	775
BEFORE 1974	9	60	69
1975-79	4	0	4
1980-84	586	27	613
1985-89	6812	67	6880
1990-94	30307	2296	32603
1990-99	99914	3038	102952
2000	59739	0	59739
TOTAL	**198 134**	**5500**	**203634**

Source: Plantations of Australia, 2001

The Great Southern and South West regions contain approximately 54% and 32% of the national resource respectively (DPI, 2001). From 2008, it is predicted that the Southern Province of WA will have a bluegum plantation resource of over 200 000ha, harvested at a rate of about 20 000ha pa.

WAPRES currently manages a total bluegum resource of about 34,000ha in the South West and Great Southern Regions. In 2000, WAPRES harvested and chipped over 300 000 tonnes of bluegum logs with yields from plantations averaging around 180 tonnes/ha (but varying between 120-350 tonnes/ha). In 2001 harvesting increased to about 500 000 tonnes of bluegum logs. Increases are predicted until 2005 when a steady level of around 1.5 million tonnes per year logs harvested across the entire industry is forecast (WAPRES, 2001).

In 2000, about 350 000 tonnes of bluegum woodchips alone were exported through Bunbury, this figure is expected to exceed 450 000 tonnes in 2002, with all products being chipped using portable mills and being delivered on by truck on public roads to the Port of Bunbury.

2.3.3 Salinity Issues

Farm forestry presents an opportunity for farmers and other landowners to tackle existing problems of land degradation, including salinity increases, while at the same time maintaining farm income.

Western Australia has the largest area of dryland salinity in Australia (4 363 000ha in 2000 of Australia's total of 5 658 000ha of land affected by salinity). It also has the highest risk of increased salinity over the next 50 years. An estimated 4.3 million ha, or 16% of the South West region has a high potential of developing salinity from shallow water tables. This is predicted to rise to 8.8million ha by 2050 if remedial action is not taken (Engineers Australia, 2001). More than half of the river and stream systems have become saline because of rising water tables (CALM, 2000).

Encouraging the planting of commercial, deep rooting bluegums for large areas of land which are presently used for annual crops and pastures is one way of ensuring the take-up of surplus groundwater to prevent it carrying salt up to the surface (CALM, 2000 and Engineers Australia, 2001).

2.3.4 Mobile Chippers

Mobile infield chippers continue to process all the mature bluegum resource in the South West at present. A 1.0 mtpa wood chip mill was recently commissioned at Down Road near Albany to process a proportion of the Great Southern bluegum resource.

Trials on mobile shippers have indicated a higher unit production cost, have lower reliability and produce a lesser quality chip than a fixed mill operation (DPI, 2001).

Environmentally, the potential for unacceptable impacts resulting from the operation of mobile chippers is far greater than for a single fixed plant by virtue of the controls that can be implemented.

2.4 Transport of Logs to the Mill

Woodchips will be produced with logs from bluegum plantations located within a radius of 150km from Donnybrook. The plantations are widely distributed across the South West (Figure 2) with a significant concentration occurring in the Shire of Boyup Brook and a band extending roughly north-south from Collie to Muir Highway. Currently, Diamond Chip Mill located just south of Manjimup is the only major chip mill facility in operation in the South West. Smaller mills exist at Whittakers Mill in Greenbushes, and a small contract mill at Dardanup. An equivalent mill to that proposed for Donnybrook was recently commissioned in the Albany Shire.

The logs from the plantations will be transported to the chip mill using a variety of legal truck configurations (predominantly configurations with a maximum length of 27.5m and load capacity of 45 tonnes) on private haul roads, local public roads and State funded main roads. Initially, when the production rate is 0.75mtpa, this will require the transport of about 0.80 million tonnes of logs annually (based on 94%

recovery). This equates to 35,554 truck movements annually, including return trips (or 17,777 loaded truck movements), requiring around 9 truck movements per hour (or 4.5 loaded truck movements per hour) based on 230 days per year, 17 trucking hours per day.

When the chip mill reaches full export capacity (1.0 mtpa), 1.06 million tonnes of logs will be transported annually. This equates to 47,281 truck movements, including return trips, requiring 12 truck movements per hour (or 6 loaded truck movements per hour) based on a 230 days per year, 17 trucking hours per day.

Although these trucks will originate on a network of roads in excess of 1570 km and 820 km for local and state (main) roads respectively, the majority will converge on the Donnybrook chip mill site as a consequence of the implementation of this proposal. Alternatively these trucks would converge on a number of nodes dictated by the location of the mobile chippers, and wood chip product would then be loaded onto high sided tip trucks for transport to the Port of Bunbury.

2.5 Donnybrook Chip Mill

The chip mill will be located on the 18.69ha Preston AA Lot 262 about 600m from the South Western Highway (Figures 1 and 3) and 6km south east of Donnybrook. The site is situated adjacent to the existing Manjimup-Bunbury railway. Figure 4 shows the aerial view of the proposed site.

Site facilities will include a single chipper line and associated log handling and noise pollution abatement equipment, debarker, log crane and grab, vibrating screens and associated conveyors, reloading hopper and stockpile, administration office, maintenance and truck weighing facilities. The indicative plant layout is shown in Figure 5a and the preliminary side elevations of the plant in Figure 5b.

A railway siding of approximately 0.5km may be required to connect to the Manjimup-Bunbury Railway (Figure 5a). The railway siding would be the subject of a separate referral by Westnet. Alternatively approval may be sought to locate overhead hopper bins over the existing track.

The log trucks will arrive at the chip mill via a new access road from the South Western Highway across Preston AA Lots 351 and 296 (Figure 4). The intersection of this road and the South West Highway will be designed to meet the Main Roads WA design criteria (Section 5.3.3).

During early (low) production, logs will be removed and stacked by a rubber tyred loader. However this function may eventually be done by crane. The log crane and grab will load logs into the chipper, with the chips leaving the chipper via conveyors. The chips are sized on an oscillating screen and stockpiled using conveyors. Hoppers will discharge the chips into rail carriages.

The surrounding residential density is low. The closest resident is Mr B Foan, approximately 160m NE of the NE corner of the site (ie about 570m from the mill, Figure 3). Preston AA Lots 351 and 296 immediately west of the site are both owned by Mr JP and Mrs CA Proctor.

2.6 Transport of Chips to the Port

A single locomotive will haul up to 19 bottom discharge rail wagons of woodchips to the Bunbury Port. The total capacity of the train will be in the order of 800 tonnes of woodchips. The number of train movements per year could initially be as low as 3-4 new train movements/day (approx. 250dpy) on the Manjimup to Bunbury railway when the production rate is equivalent to 0.75mtpa. At full production (1.0mtpa), there will be 4-5 new train movements/day (280dpy) on a 24hour per day basis. Given the travel, loading times, all train movement may be able to be accommodated during daylight hours.

The portion of the Manjimup-Bunbury railway to be used by this project is indicated in Figure 1. The single narrow gauge rail comes from Manjimup, through Kirup to the south east of the site. It then passes northwards roughly parallel with the South Western Highway, as far as Boyanup where the railway line from Capel joins. The railway continues north-north west following the Boyanup-Picton Rd through Dardanup. Thereafter it is joined by the railway from Burekup-Harvey and travels north west on to Bunbury.

The rail for the Inner Harbour runs from the east at Pelican Point, parallel to Koombana Drive. An unloading siding terminates in front of the existing WAPRES Woodchip Export facility.

By virtue of the rural and semi rural nature of the majority of the rail segment between Donnybrook and Bunbury port, a minimal number of residences are located within close proximity (less than 100m) from the rail until the outskirts of Bunbury are reached.

2.7 The Ship Loading Facility

The ship loading facility at the Bunbury Inner Harbour is located adjacent to the existing Berth 3, comprising a 9.6ha leased site. A concrete hardstand is being constructed the replace the traditional sacrificial wood chip layer used at the facility. The current hardstand is about around 2.3ha in size.

WAPRES intends to continue to increase the hardstand storage area to approximately 5ha. This hardstand will drain to perimeter drains equipped with stormwater retention ponds and grid mesh filters. Other facilities and equipment currently include a stacker, fixed ship loader and associated conveyors, rubber tyred loader, and bulldozers (1 during normal operations, up to 3 during ship loading).

On arrival at the existing WAPRES export facilities in the Bunbury Inner Harbour, the woodchips are dropped into a below ground discharge hopper then transported to the stockpile area using the conveyor and jetslinger arrangement.

Special woodchip carriers (approx. 40,000 tonnes cargo capacity) will be used to regularly transfer the woodchips to their export destinations. For the export of the bluegum woodchips, initially this will involve 19 ships/annum at a rate equivalent to a production of 0.75 mtpa, (average 2 days in port per visit = 38 days in port per year). At full production (1.0mtpa), this will increase to 25 ships/annum (average 2 days in

port = 50 days per year). Port operations will proceed on a continuous 24 hour basis during ship loading.

2.8 Provision of Services

2.8.1 Water

Donnybrook

A combination of on-site dam storage, proposed recycling measures, supplementation with borewater (see Section 5.4.3 and 5.4.4) and/or mains water, buying water from the surrounding farm dams and rainwater storage will all be assessed and are expected to prove sufficient to supply the water requirements for the woodchip mill. Preliminary engineering suggests a summer make up volume of approximately $20m^3$ per day may be required. It is anticipated a large percentage will be routinely recycled.

Bunbury Port

In relation to the provision of water at the Bunbury Inner Harbour site an existing Water Corporation mains supplies the waterfront industries with process, drinking and sanitary water. A ring main provides water for fire services. Provisional modifications to the port facility to extend or increase the capacity of the Fire Service system are envisaged.

Increase in water requirements due to the increase in export capacity are expected to be minimal (<10%) and is within the current Water Corporation supply capacity.

2.8.2 Power

Donnybrook

Western Power has reviewed a number of options to provide power from the Picton substation via a 33kV over head transmission line. The notional route follows existing power line easements, road and rail reserves to the terminus on the proposed site.

Power requirements for the woodchip mill and site have been identified as having a peak demand requirement of about 5MW. The principle draw will be from the chipper main drive, which is rated at approximately 1500kW. By nature of the large and variable power demand (particularly on start-up of the chipper motor), it is possible a dedicated line in part will be installed to service the chip mill.

Bunbury Port

In relation to power supply at the Bunbury port site, Western Power currently supplies the site requirements and increases in demand are expected to be minimal (<10%) and well within the current capacity.

2.8.3 Telecommunications

Donnybrook

Telstra advise that both Fibre Optic and Copper cable run adjacent to the proposed site. Depending upon the final orientation of the proposed mill, access may be gained to the existing telecommunication services. Further, the proposed site is within mobile communication service as serviced by Digital and CDMA Telstra-Services.

Bunbury Port

In relation to the Bunbury port site, full land and mobile telephone communications facilities exist. No changes are anticipated when the bluegum export capacity is increased.

2.9 Operating Hours

The design of the woodchip mill will be for operation 24 hours a day, 7 days per week. This is to allow for flexibility in the operational components.

The likely hours at full production (1.0 mtpa) of mill site operation are expected to be:-

Receival of logs	6:00 am to 10:00 pm
Milling operation	6:00 am to 11:00 pm
Maintenance	As required at any time (24 hours a day)
Administration	8:00 am to 6:00 pm Monday to Friday
Rail loading	Predominantly during daylight hours but could occur at any time depending upon scheduling requirements. Rail loading operations will comply at all times with the *Noise Regulations* (1997).

The Bunbury port facility operating hours will be unchanged.

3. COMMUNITY CONSULTATION

3.1 Introduction

An essential feature of any major infrastructure project is the need to consult and address relevant issues with the wider community. WAPRES recognise the importance of keeping the local residents of the Donnybrook region, businesses, land owners, local authorities and interest groups fully informed about the proposed woodchip mill project.

Community consultation was initiated in May 2001 when WAPRES first considered Reserve 7859 a possible site for the woodchip mill. An extensive and targeted public consultation process was undertaken to ensure groups and individuals had the opportunity to comment on any aspect of the project at the conceptual stage, including design features and proposed operational processes.

The involvement of the community in developing the concept has led to the modification of several aspects of the project to accommodate ideas and concerns of the public. In particular, the process resulted in the identification of a more suitable site located several kilometres south (Preston AA Lot 262) of the original proposal.

The 10 month consultation process has proved effective in developing a more environmentally sound project with further community acceptance and support.

Specifically, the consultation approach has involved the following opportunities for public awareness and discussion:

- Stakeholder consultation meetings, including local government, other government agencies and parliamentary members.
- Liaison with the Shire of Donnybrook-Balingup, Bunbury Port Authority, Department of Environment, Catchment and Water Protection, Environmental Protection Authority, Water & Rivers Commission, Main Roads Western Australia, Department of Conservation and Land Management, Department of Resources Development, Department of Transport, Australian Western Railroads, Department of Land Administration, WA Government Railroads, Western Power Corporation, South West Development Commission, Office for the Minister for Police and Emergency Services, Office of the Minister for Primary Industry and Fisheries, Department for Planning and Infrastructure and other relevant government agencies.
- Undertaking a social impact assessment through the specialist consultancy, Community Perspectives.
- Discussions with adjoining landowners and nearby residents.
- Incorporation of the findings of the Timber Industry Road Evaluation Strategy Group (BOND, 2000 and 2001) study. Also, incorporation of findings from the Department of Planning and Infrastructure Study (DPI, 2001).

- Utilising 'The Donnybrook-Bridgetown Mail', South Western Times and 'Bunbury Herald' newspapers for media articles discussing the project proposal.

- Utilising 'The Donnybrook-Bridgetown Mail' to advertise the Public Information and Display events (5 June and 26 June 2001).

- Utilising Australia Post mailouts (28 May 2001, 22 June 2001) to post information leaflet inserts.

- Radio interviews with key project management personnel discussing the period of development of the proposal (Appendix 5b).

- Holding two Public Information and Display events (5 and 6 June, 30 June 2001).

- Attending public briefing sessions at the request of community groups: Donnybrook Chamber of Commerce on 14 June 2001, Supporters Meeting on 5 July 2001, Public meeting in Balingup on 26 June 2001, Action Group on 12 July 2001, Public meeting held by Donnybrook Shire on 31 July 2001; Public Meeting with local residents at Yabberup (4 Dec 2001), at Kirup (4 Dec 2001) and at Brookhampton (11 Dec 2001).

- Briefing the Shire Council (23 May 2001).

- Meetings with the Donnybrook Aboriginal Community and Ngalang Boodja Council, headed by Joe Northover over issues relating to the Donnybrook site previously considered (Reserve 7859).

- Briefing Christine Sharp, Greens, MLC (7 June 2001).

- Meeting with Mick Murray, MLA (12 July 2001).

- Tour of Moore Rd Chipper and Bunbury Port with the Action Group (24 July 2001).

3.2 Consultation Process

Discussions and communications offered during the consultation process have provided a substantial amount of information on potential environmental and social issues of concern to the community and decision-making authorities. The cooperation and input of these individuals and organisations is gratefully acknowledged. A summary of the issues raised during the public consultation is provided in Appendix 4.

3.2.1 Stakeholder Meetings

Meetings were held with a variety of key stakeholders to discuss the project as listed in Section 3.1 above.

A summary of the points raised during the stakeholder meetings and correspondence with stakeholders is provided in Appendix 3a, 3b and 4. In summary, the major issues discussed with stakeholders included:

- impact of chipmill and train noise on nearby residents generally;
- road safety issues associated with increase in traffic;
- impact on local roads resulting from the increase of truck traffic;
- requirement to significantly upgrade local road system;
- source of funding required for road improvement and on-going maintenance
- Shire of Donnybrook-Balingup to be fully involved in all stages of development;
- benefits to the region;
- powerline issues;
- preference for rail over road for the transport of product;
- potential conflict of additional truck traffic with tourist traffic;
- water quality protection of the Preston River (Thomson Brook);
- mill operational activities and truck movement impacts on tourism;
- noise and dust impacts at the Port;
- devaluation of land in the immediate vicinity; and
- visual amenity of the site and Port activities.

3.2.2 BOND 2000 and Department for Planning Transport Studies

The BOND study (BOND, 2001), transport studies undertaken by the Department for Planning and Infrastructure (DPI, 2001) and the resulting specialist committee studies have involved extensive stakeholder and community consultation to compile much of the information required for their investigations. This parallel consultation has allowed many segments of the community in the Region to become fully acquainted with the issues in relation to this project.

The South West Woodchip Mill Strategic Site Assessment Study (DPI, 2001) presents an extensive strategic assessment of the transport task generated by the bluegum plantation industry in the South West region.

3.2.3 Newspaper Media Releases

Numerous newspaper items describing activities related to the development of woodchip proposals in Donnybrook, or raising issues in relation to such developments have been published since May 2001. The list of articles and stories published during 2000/1, together with copies of advertisements and newspaper inserts published to raise the awareness of the general public in relation to this project, are provided in Appendix 5a.

The Public Information Days were advertised in 'The Donnybrook-Bridgetown Mail' (on 5 June 2001 and the 26 June). The Donnybrook-Bridgetown Mail is a paid paper, with a circulation of around 10000 through the Donnybrook-Balingup Shire, Bridgetown-Greenbushes and Boyup Brook regions.

An A4 leaflet insert describing this project was mailed out to all residents in Donnybrook early in June 2001. This provided a summary of the proposed project and advice in relation to the Public Information and Display event to follow (June 5 and

6, 2001). Contact details for further information/comments were also provided. An additional double sided A4 leaflet was mailed out to all residents in Donnybrook later in June with a more detailed project proposal description and notice of a third Public Information Day held on 30 June 2001.

3.2.4 Radio Interviews

The Hon. Dr Christine Sharp (Greens MLC) and Hon. Alannah MacTiernan (Planning and Infrastructure Minister) amongst others, have participated in a number of radio interviews regarding the project to the wider community and to ask/answer questions. Many of the broadcast dates, times and stations are noted in Appendix 5b. The primary issues related to concerns in relation to tourism, noise, road upgrade funding, the choice of site location and the use of rail to transport the chips.

3.2.5 Public Information & Display

Two Public Information and Display days were held at a central shopping arcade in Donnybrook, one on 5, 6 June 2001 and the second on 30 June 2001. Opening hours were 1000 to 1700 and 0930 to 1430 respectively. The event sought to provide an overview of the project to the general public in an informal setting and invite comment. Project team members were available to discuss aspects of the project with interested people.

The display provided specific information for the public, including:

- plantation timber resources;
- transport of logs to the Donnybrook chip mill by truck;
- rail transport of woodchips from chip mill to the existing woodchip export facility at Bunbury Port;
- noise, dust and surface water control measures and contingency plans for other possible impacts to the environment and amenity of residents surrounding the chip mill; and
- environmental and economic benefits to the Region, such as protection of land and water resources, employment and benefits to associated industries, diversification in primary production and a stimulus for revitalising rural and regional communities.

An attendance and comment record sheet was established to assist in considering public views and suggestions to be later considered in refining the project. Over 130 people attended the open days, and 21 participants provided written submissions during the two events or posted replies. The record sheet also serves to provide a contact list to provide specific feedback to interested public as the project progresses.

A brief overview of the comments received during both the 2-day and single day event included the following:

- project will benefit Donnybrook and the Region in terms of employment, industrial growth, economic activity, environment, and community;
- widespread support for the project and appreciation;
- widespread support for the use of rail rather than road for the transport of woodchips from the mill to the Bunbury Port;
- project/industry will provide a supplement to the traditional fruit farming;
- should result in less logging in old growth forests;
- concern about the impact of chemical sprays used on the plantation to surrounding properties;
- concern about noise from the mill operations;
- concern about rail noise, frequency, timing, increased rail traffic;
- concern about truck movements and noise;
- road safety problems in the SW;
- concern about plant light overspill;
- would like justification for the preferred options adopted; and
- concern about potential water contamination and disturbance to flora and fauna (relevant only to the initial Donnybrook site considered, Reserve 7859).

Comments attributable to individual submitters are summarised in Appendix 4. The response of WAPRES to these comments is presented in Section 7.

Briefings were held with several groups during the consultation period. A public meeting was held with the Donnybrook Chamber of Commerce on 14 June 2001, which was attended by approximately 30 people. A public briefing with the Balingup Progress Association, involving about 70 people was held on 26 June 2001. A public briefing was also held in Donnybrook on 5 July 2001 at the invitation of local residents and businesses supporting the proposal and was attended by approximately 150 people.

3.2.6 Discussions with Landowners Adjacent to Preston AA Lot 262 and Nearby Community

Consultation with owners and lessees of lots adjacent to Preston AA Lot 262 have been undertaken. The following residents and land owners have been consulted:

- **JP and CA Proctor** – Own and rent Preston AA Lot 351 (west of Preston AA Lot 262) and 296.
- **B Foan** - Preston AA Lots 18 (east of Preston AA Lot 262), 19 and 263.
- **AA and MF Foan** – Preston AA Lots 320 (north of Preston AA Lot 262), 265 and 320.

The above lots are indicated in Figures 3 and 4. Mr & Mrs Foan and Mr & Mrs Proctor have provided written agreement to the Development Application, particularly with respect to the location of the access road from the South Western Highway to the mill site.

An on-site meeting was convened with nearby Brookhampton landowners (11 Dec 2001) to discuss the proposal and to consider resident concerns. This meeting was followed up with a further meeting at Brookhampton, allowing other interested landowners to attend. Further meetings with local residents were held in Yabberup (4 Dec 2001, approximately 70 people) and Kirup (4 Dec 2001, approximately 50 people). A public meeting was also held at the Town Hall (13 Dec 2001, approximately 120 people).

3.2.7 Lobby Groups

The support by a local lobby group in favour of the proposal resulted in a thirteen page submission of signatures (266 total) included in Appendix 6.

The local Action Group against the proposal led to a submission of 21 signatures (Appendix 7).

In response to the Shire's request for submissions on the project, the Shire has advised that approximately 500 submissions in SUPPORT of the project were received, and approx. 200 were received AGAINST the project.

WAPRES gave interested residents (including individuals both supporting and against the proposal) an opportunity to view the chipper operations at the Bunbury Port and at Moore Rd, Dardanup, on Tuesday 24 July 2001.

3.2.8 Social Impact Assessment Study

Community Perspectives, a consultancy specialising in the assessment and mitigation of social impact undertook a social impact assessment at the request of the DEWCP and in consideration of the needs of Council. A copy of the report is provided in full as Appendix 8 and the Proponents response to the mitigation measures proposed in the report are addressed in Section 7.3.

Interviews, a review of relevant literature and the Australian Bureau of Statistics were the primary sources of data. A total of 17 interviews and meetings occurred, involving a total of 50 individuals. Written comments were also provided from a further 9 people. Mitigation measures have been drawn from those identified in the environmental appraisal and management plan (ATA Environmental, December 2001), further refinement of the project and suggestions in the interviews and community consultation phase.

3.3 Tourist Potential

The Proponent is aware of the positive and negative impacts such a proposal could have on the tourist industry in the area and has committed to support/implement the following tourism initiatives:

- Employment of a tour guide to host tours based on demand, possibly through an arrangement with the Donnybrook Tourist Bureau.

- Promotional material regarding the tours to be distributed in the Donnybrook Tourist Bureau and public library.

- Tourist parking area & Bus/Caravan Parking will be made available on site.

- Display boards with educational material about the plantation industry will be erected at the site.

- Tours are currently held 3 times per week at the WA Plantation Resources Diamond Mill in Manjimup, hosted by a part time tour guide, with attendance of over 500 people per annum. Other examples in the region include the Dean Mill in Manjimup, attracting around 600 people per annum, and the Pemberton Mill that attracts over 9000 people per annum on a tour of facilities.

- With regards to surrounding landuse at these mills, and the subsequent impact of the mill on tourism, the following points can be made:

    - Pemberton Mill is located in the heart of Pemberton town, and is surrounded by housing, recreation facilities, vineyards within one kilometre, tourist tramway, shops and schools. If anything, the mill appears to have a positive impact on tourism, with people intentionally extending their visit to the town to take a tour of the mill.

    - Dean Mill is located in a mill town setting, about 7 km from Manjimup, and quite "out of the way" off the tourist route. It is surrounded by mainly residential properties and general farming properties. Despite it being quite far from the main tourist drives, it still achieves attendance of over 600 people per annum on its tours.

    - Diamond Mill is located just off the South West Highway on the southern side of Manjimup and has surrounding landuses including vineyards, horticultural farms, the Diamond Lookout Tree (major tourist attraction) virtually on its boundary, and residential properties less than 2km from the

mill site. The mill is highly visible from the Diamond Tree Lookout. The mill has worked in conjunction with the other surrounding landuses for over 25 years.

4. EXISTING ENVIRONMENT

4.1 The Plantations

Farm forestry presents an opportunity for farmers and other landowners to tackle existing problems of land degradation, including salinity increases, while at the same time maintaining farm income. A large proportion of the bluegum plantation industry is based on whole of property plantings established primarily to produce woodchips for export as feedstock for paper pulp mills.

Encouraging the planting of deep rooting bluegums on farms is one way of ensuring the take-up of surplus groundwater before it has a chance to carry salt to the surface (CALM, 2000). Annual crops and short root pasture crops are unable to take up as much water as plantation timber crops or replaced native vegetation. As a result, this water has entered the water table, causing it to rise, bringing with it salt trapped under the ground. (Section 2.3.3).

The log tonnage due for harvest by WAPRES is presented in Table 4 below:

TABLE 4
TONNES OF LOGS DUE FOR HARVEST IN THE SOUTH WESTERN REGION[1] (PRELIMINARY)

	2001	2002	2003	2004	2005	2006	2007	2008	TOTAL
Augusta	18789	825	101152	40584	0	115258	20242	44764	341614
Boyup Bk	23414	134215	220154	330272	196235	97724	15490	29434	1046938
Boddingt.	2703	15250	21000	0	38000	86661	73154	26500	263268
Bridget'n	84791	52821	176614	130300	207919	220878	273591	168406	1315320
Busselton	5355	3267	11638	8575	1188	0	0	920	30943
Bunbury	0	0	0	0	24373	0	0	0	24373
Capel	475	0	7970	0	0	70497	71358	0	150300
Cranbk	13539	30097	47399	159848	14374	61788	188616	232020	747681
Collie	10000 •	46527	6651	0	5590	0	0	9734	78502
Dardanup	0	0	0	0	23098	0	0	0	23098
Donnybk	42586	19295	9701	49200	5825	125285	21317	9278	282487
Harvey	11558	15444	11736	0	45617	0	42246	57302	183903
Manjimup	123241	25727	157467	98110	241214	89081	310142	241750	1286732
Murray	10351	152000	1456	352	2863	0	507	0	167529
Nannup	21632	79676	59823	173714	128670	59228	201413	31710	755866
Serp/J'dle	0	0	0	294	597	0	0	0	891
W. Arthur	0	7789	0	0	20727	0	0	0	28516
Williams	1993	0	26385	0	0	0	0	0	28378
Total	372428	584935	861149	993253	958295	928406	1220083	853826	6772375

SOURCE: WAPRES, 27 Nov 2001
Notes: 1. Log availability does not include the volume in state managed plantations.

The plantations supplying logs to the proposed Donnybrook mill are primarily located to the north east, east and south east of Donnybrook (refer to Figure 2). Most are located in the Bridgetown (19%) and Manjimup Shires (19%), and somewhat less in the Boyup (15%) and Nannup Shires (11%).

Methods employed in the production of the timber resource vary in detail between plantations, however the following description presents a summarised review of accepted and widely applied practice.

The greatest effort in raising plantation bluegums is crop establishment, which includes site assessment, ground preparation, planting, weed control, fertilising, pest control, and fencing if needed.

Later requirements include growth monitoring, fertilising, weed control, pest and disease control, fire prevention and fence maintenance.

Pruning is not normally needed for pulp logs grown in large blocks. However, edge trees and trees grown in widely spaced rows tend to develop heavy side branches and may need pruning to be suitable for mechanical harvesting.

For later rotations, coppice thinning (or replanting) and fertiliser (if required) are the main costs.

The effort required per hectare depends on the scale of operation (higher for smaller plantations), as well as site factors such as soil type, soil fertility, slope, and the incidence of pests and weeds.

A range of typical activities for each step of the establishment and maintenance of a bluegum crop is shown in Table 5 on the following page. This schedule is for a pulp log crop harvested at year 10, then grown for a further 10 years from coppice. The growth rate can vary according to rainfall, soil quality, plantation density etc. Although some sites are unsuitable for multiple rotations, effective management practices on the remaining sites, coupled with the establishment of new sites, is expected to result in a sustainable resource.

TABLE 5
REQUIREMENTS TO ESTABLISH AND GROW BLUEGUMS

YEAR	REQUIREMENTS
0	***Establishment***
	Soil assessment
	Plan, prepare and supervise
	Rabbit control
	Fencing
	Ripping and mounding
	Pre-plant spray(s)
	Seedlings
	Planting
	Fertiliser Application
	Insect surveillance
	Insecticide and spray
	Over-spraying weeds (say 40%)
	Firebreaks
	Growing - First Crop
1	Weed control
	Insect surveillance
2	Fertiliser
	Growing - Second Crop
11	Thin coppice
13	Fertiliser
15	Fertiliser
	Annual
1-20	Fire control/fighting
	Firebreaks

4.2 Transport Routes from the Plantations to the Mill

Integral to the success of the Donnybrook Woodchip mill is the provision of a suitable road network to accommodate the movement of harvested logs from the plantations to the woodchip mill. Logs will be transported to the mill by road as a consequence of the diverse locations of the plantations and the long cycle, periodic nature of the harvest. The major haul routes are shown in Figure 2.

Truck transport routes from plantations to the mill will vary throughout the life of the project. The South West BOND Report (BOND, 2000) note that this traffic will be distributed over approximately 1577km of local roads in addition to over 825km of State funded Main Roads as shown in Table 6.

TABLE 6
SW ROADS USED FOR TIMBER HAULAGE

SHIRE	NUMBER OF ROADS	TOTAL KM
Augusta/Margaret River	16	77
Boyup Brook	59	409
Boddington	3	9
Bridgetown	16	82
Busselton	16	76
Capel	11	47
Collie	11	66
Dardanup	6	37
Donnybrook	21	127
Harvey	11	60
Manjimup	20	233
Murray	9	44
Nannup	12	97
Waroona	5	27
West Arthur	21	167
Williams	1	19
TOTAL	238	1577
Main Roads (State roads)	14	825

SOURCE BOND SW (2000)

Impacts on roads and adjacent residents will depend on the location of plantations being harvested at the time. On an eight to ten year rotation, heavy road utilisation can be anticipated during intensive campaigns coinciding with harvesting, followed by minimal utilisation periods during the establishment and growth phases for each individual plantation.

Transport of logs will not follow a single route. Certain critical feeder routes, such as the Boyup Brook Rd and the South Western Highway can be anticipated to carry a disproportionate amount of heavy traffic associated with this project.

The South Western Highway, both north and south of the mill site, is a main road with a high existing traffic volume that, based on the current road network, will carry all the logs harvested by this project.

Donnybrook-Boyup Brook Rd, connecting the South Western Highway and Mumballup town is a State Government road with a lower traffic volume where the heavy vehicle load associated with this project will add significantly to existing traffic.

Current vehicle flow rates along the South Western Highway and Donnybrook-Boyup Brook Rd (ie Preston Valley, where about 145 houses are located within 1.5km of the road), are listed in Table 7. This flow rate (excluding the influence of the project) is expected to increase at around 5% pa as shown in Section 5.3.1, Table 14. This growth rate is based on MRWA road counts for the South West which for 1995-1999 (WA Dept of Local Gov. and Regional Development, last assessed November 2001).

TABLE 7
EXISTING TRUCK MOVEMENTS

Road Segment	Current Vehicles Per Day			
	Average Daily	Class 1+2	Class 3-12	% heavy
SW Highway-North of Site (2000)[1]	3629	3230	399	11
SW Highway-South of Site (1999)[2]	1925	1673	252	13
Donnybrook-Boyup Brook Rd (1997)[3]	1479	1301	177	12[4]

Notes:
1. Ray Buchholz DPI , 2001.
2. MRWA June 2001
3. Ray Buchholz DPI , 2001
4. Average of % heavy on SW Highway north and south as breakdown not supplied. Eastern section of Donnybrook-Boyup Bk Rd (1999) % heavy = 11.7%

The expansion of heavy traffic brought about by this proposal will be discussed in Section 5.3.1.

Currently, around 20 B-Doubles directly related to the transportation of bluegum plantation timber to the mill in Picton transit per day through the Preston Valley (ie along the Donnybrook-Boyup Brook Rd between the South Western Highway and Mumballup) out of a daily total of 192 heavy vehicles (DPI, 2001).

4.3 The Mill Site

The mill is proposed to be located at Preston AA Lot 262, approximately 6km south east of Donnybrook and about 600m off the South Western Highway (Figure 1). Access to the site from the South Western Highway will be constructed across Preston AA Lots 296 and 351 (Figure 4).

4.3.1 Climate

The region has a Mediterranean climate with wet cool winters and dry warm summers. Temperatures range from a mean of 28-30 °C in December to February and 16-17°C for June to September (Figure 7). Rain extends from May to September (136-101mm) and rainfall averages around 998mm pa.

Wind rose data for Donnybrook was obtained from the Bureau of Meteorology, and is presented in Figure 8. It demonstrates that Donnybrook's wind regime is highly seasonal. In summer mornings, morning winds are dominated by easterlies, with significant southerly components and afternoon winds from all compass points except the north and north-east. Winter is dominated by afternoon winds from the north west and west.

The wind regime suggests that, averaged over a year, there would be a generally equal distribution of any airborne particles in all directions, but with greater influence on properties to the south-east in winter and west and north-west in summer.

4.3.2 Geology and Hydrogeology

The Donnybrook townsite straddles the Darling Fault. The Darling Fault delineates the eastern periphery of the South Perth basin and separates the crystalline Archaen granitic rocks of the Yilgarn Block to the east from sediments in the Bunbury Trough, a structural sub division of the Perth Basin to the west (Dames and Moore, 1991). The area is mantled by a thin covering of superficial formations overlying the Leederville formation.

Several aquifers have been identified in this area of the Perth basin including the early Cretaceous Leederville formation and the late Jurassic Yarragadee Formation (Water Authority of WA, 1987). All current production bores draw water from the Donnybrook Sandstone which is a lateral equivalent of the Leederville Formation and consists of an alternating sequence of sandstone, siltstone and shale. The Leederville Formation outcrops throughout the area and is locally overlain by minor quaternary river alluvium. Six production wells are located on the western edge of the town (Dames and Moore, 1991).

The Yarragadee Formation, an alternating sequence of sandstone, siltstone and shale is unconformably overlain by the Cretaceous Bunbury Basalt and the Leederville Formation.

Recharge of the Donnybrook Formation is by direct infiltration of rainfall and runoff from the south and west of the town. Recharge of the Leederville Formation is by direct infiltration of rainfall on the Blackwood Plateau. Groundwater flow in the Leederville Formation is towards the north west and is strongly controlled by the Darling Fault which acts as a hydraulic barrier along the eastern margin of the Bunbury trough. Groundwater quality is generally fresh to marginal and commonly high in iron content.

Recharge to the Yarragadee Formation occurs through vertical leakage from the overlying Leederville Formation. Groundwater flow is towards the northwest with the Darling Fault again acting as a hydraulic barrier. Groundwater quality is generally fresh although high iron and manganese concentrations have been recorded.

Depth to water table on the proposed site is likely to be in the order of 20-30m, given the proximity of the site to the seasonal creek lines and small dams on the property directly to the east of the site.

4.3.3 Surface Water

The site has a gentle slope draining east towards unnamed seasonal tributaries that flow into Thomson Brook which later joins the Preston River. The railway reserve lies between the site and the Thomson Brook. Two small dams lie about 200m across the railway reserve to the east on Preston AA Lot 18. The seasonal Breakneck Creek lies about 800m to the south of the site. Limited water quality data exists for the relevant sections of Thomson Brook and Preston River (Appendix 11). Based on existing data, water quality in Thomson Brook and the Preston River is reasonable.

The Preston River catchment is not proclaimed under the Country Areas Water Supply Act, and is not considered a potential catchment for potable water supplies.

However, it is proclaimed as a surface water area (under the Rights in Water and Irrigation Act) which requires licensing of non-riparian use.

4.3.4 Vegetation and Flora

The flora and vegetation survey of the proposed mill site was undertaken by ATA Environmental on 26 October 2001 and the full report is provided in Appendix 9. Preston AA Lot 262 is a largely cleared, comprising 2 stands of remnant native vegetation of about 3.2 and 2.7ha. A thin strip of vegetation follows the boundary with the railway reserve from the NE corner of the block southwards for approximately 400m. Part of the Road No. 2506 reserve is lined with marri and jarrah with a floristically diverse understorey.

The majority of the vegetation structure within the study area has been modified as a result of sheep and cattle grazing, weed invasion and past old logging. There was no evidence of Dieback (*Phytophthora* sp.) on the site.

In general, weed invasion is restricted to the pastured portion of the site, where dense patches of Lupin (*Lupinus* sp.), Blowfly Grass (*Briza minor, B. maxima*), Flatweed (*Hypochaeris glabra*) were the most common weeds recorded during the site investigation and were found scattered over parts of the site. In addition, Bracken Fern (*Pteridum esculentum*), although native to WA, forms dense stands in places along the rail corridor to the exclusion of other native flora.

Flora

A total of 73 species were recorded from the site. This included 64 native species and 9 introduced species. A complete list of the species recorded is provided in Appendix 9. The majority of these taxa were recorded from the vegetated portion of Road No. 2506 (the Old Brookhampton Rd) road reserve, part of which is relatively undisturbed by grazing pressures and remains largely intact.

The dominant families were the Proteaceae (Banksia, 10 species) family, the Papilionaceae family (Pea family, 8 species) and the Orchidaceae family (Orchid family, 6 species). Five of the orchids species were recorded from the large remnant of Marri dominated woodland situated in the middle of the site. This relatively high number can be attributed to the fact that the remnant has been fenced off from stock for about the past two years.

A search was made of the CALM Threatened (Declared Rare) Flora and Priority Species List and the Western Australian Herbarium Specimen databases within the area bounded by the coordinates 33°32' - 33°39' and 115°49' - 115° 55' (CALM 2001). Five significant species were recorded in the area. Although all of the species identified above could potentially occur at the site as a result of the preferred soil and vegetation types, none were identified during the October 2001 flora survey.

Tetratheca hirsuta, which was recorded in the Marri dominated Forest remnant in the central portion of the site, is similar in appearance to and often mistaken for the Priority 3 taxa *Tetratheca parvifolia*. *Tetratheca parvifolia* has previously been recorded in the vicinity of the study area (Reserve C26238, about 6.5km to the north of the site (G M^{c}Cutcheon, June 2001).

4.3.5 Fauna

A fauna and habitat assessment of the site was undertaken by ATA Environmental on 26 October 2001 and the full report provided in Appendix 9. A search of CALM's Threatened Fauna database in the vicinity of the subject land identified several Schedule and Priority Taxa as having the possibility of occurring in the vicinity of Preston AA Lot 262. These included four Schedule 1 species (Long billed black Cockatoo, Short billed black Cockatoo, Western Ring Tailed Possum, Chuditch), one Priority 2 (Barking Owl), 1 Priority 3 (Brush-tailed Phascogale), seven Priority 4 (Quenda, Black or Black Gloved Wallaby, Rakali or Water Rat, Crested Shrike Tit, Masked Owl, Forest Red Tailed Black Cockatoo, Square tailed Kite) and two Schedule 4 (South West Carpet Python, Peregrine Falcon).

Specially Protected Threatened Fauna are defined pursuant to Section 14(2) of the *Wildlife Conservation Act 1950*, and are listed in *Wildlife Conservation (Specially Protected Fauna) Notices* that are published periodically in the Government Gazette. Schedule 1 designates fauna, which are "rare or likely to become extinct", and Schedule 4 designates fauna, which are "otherwise specially protected" but are not considered to be rare or likely to become extinct.

The Priority Fauna list is a working list maintained by CALM and is regularly updated. Species included on the list do not have any special protection afforded them, other than that conferred to all native fauna under the *Wildlife Conservation Act, 1950.* Species included on the list are noted as species in need of monitoring or for which there are insufficient data to justify inclusion in a *Wildlife Conservation (Specially Protected Fauna) Notice.*

No Specially Protected or Priority Fauna was noted either within the remnants identified for removal or in the surrounding area during the site survey undertaken by ATA Environmental. The Specially Protected or Priority Fauna identified on the Register are mobile and are considered to occasionally visit the area.

Although no other native vertebrate fauna species were recorded during the survey, the Western Grey Kangaroo is likely to pass through the site. The Brush-tailed Possum is likely to occur on the site, as are Echidnas with an abundance of termites noted in the fallen timber and as termite mounds. Bat species may use tree hollows for roosting or may roost under loose bark.

4.3.6 Aboriginal and European Heritage

The siting of the woodchip mill and associated facilities on Preston AA Lot 262 will result in minimal clearing of native vegetation. There are no indications that Preston AA Lot 262 includes any Aboriginal sites as it is predominantly cleared farmland without surface water or dominant landforms, where stock have grazed for many years.

A search of the Department of Aboriginal Affairs Register of Historical Sites has been undertaken. Although no sites were identified in the broader area assessed at the time, it is possible that sites that have not yet been entered on the Register, exist.

The land is privately owned freehold and not subject to Native Title.

No sites of European heritage significance are known to be present on Preston AA Lot 262.

4.4 Transport Route from the Mill to the Port

The portion of the Manjimup-Bunbury rail-line to be used by this project is indicated in Figure 1 and the siding, that may be required to connect the mill to the railway, is shown in Figures 4 and 5.

Current average use of the Manjimup-Bunbury line by the timber industry is twice daily, with native and plantation sourced woodchips segregated in separate trainloads. Australian Western Railroad LTD (AWR) provide a fleet of 39 wagons and three locomotives organised into two trains consisting of two locomotives and 19 wagons. Each train is capable of transporting 800 tonnes of bluegum woodchips with a turnaround time of around 11hrs.

4.5 The Existing Port Export Facility, Bunbury

The Port of Bunbury Inner Harbour is a working port with considerable waterside infrastructure. The shiploading facility is located on approximately 9.6ha of leased land adjacent to Berth 3 (Figure 6).

4.5.1 Existing Facilities at the Port Facilities

Existing facilities and infrastructure include Berth 3 (Woodchips Export facilities), Berth 4 (ALCOA Alumina and Worsley: ship loader for alumina and caustic soda, 8 large storage bins, 3 additional tanks) Berth 5 (General Purpose, 6 hoppers, mobile ship loader) and Berth 8 (Mineral Sands, mechanical ship loader).

The Cable Sands mineral sands stockpile and processing facility is located directly to the north-west of the site. A Port Authority block of land, a portion of which is currently leased to WAPRES, lies to the south east. Log stocking, chipping and chip stockpiles currently occupy this site and the site adjacent to the General Purpose Berth.

Development opportunities are expected to mirror port growth with capital expansion expected to be in excess of $127.5 million by the year 2020 (Bunbury Port Authority, 2000).

Trade statistics for the Bunbury Port are presented in Table 8. With the exception of the year ended 30 June 1998, the statistics indicate an increasing trend in export commodities.

TABLE 8
BUNBURY PORT AUTHORITY TRADE STATISTICS (tonnes)

	1996	1997	1998	1999	2000	2001
TOTAL IMPORTS	783764	693610	810490	759002	889118	1160347
TOTAL EXPORTS	7741206	7867196	8083330	8221599	9127107	10112902
TOTAL WOODCHIPS	918257	915175	851665	759443	769918	982842
TOTAL PORT TRADE[1]	8525010	8560836	8894045	8980679	10016225	11273438
NUMBER VESSELS[2]	274	273	294	275	304	341

Source : Port of Bunbury-Trade Statistics and Port Charges 2000-2001 Brochure

1. Include bunker oils
2.Commercial only

On current trends, in excess of about 374 vessels can be anticipated to visit the Port in the coming year (excluding additional ships related to the expansion of the woodchip project).

4.5.2 Water Quality

Water quality data from the Inner Harbour (Sinclair Knight Merz, 1998) is provided in Table 9.

TABLE 9
WATER QUALITY IN BUNBURY HARBOUR

	Inner Harbour µg/L 7/5/98	ANZECC Guidelines For Coastal and Marine Ecosystems µg/L
NO_3-N	7.5±0.7	<60
Total nitrogen	<50	<350
NH_4 nitrogen	22±1.4	<40
Total phosphorus	<10	<55
PO_4-P	<4*	<6
Chlorophyll "a"	<1*	<0.3

*One replicate above detection limits and one below
Source: Bunbury Port Authority 15 Nov 2001

The water quality in 1998 complied with the ANZEC Guidelines for Coastal and Marine Ecosystems.

4.5.3 Noise

A review of the DEWCP's complaint database indicates there have been 4 complaints regarding noise at the Bunbury Port woodchip pile over the period 1/8/00 to 1/8/01.

WAPRES undertook a noise assessment of current noise levels at the existing Port facilities (Appendix 10b, Herring Storer, Dec 2001). Monitors at strategic locations

around the Port area registered the noise levels from the export facilities together with road and rail traffic noise. The results are discussed in Section 5.5.3.

From the data collected, noise emissions from the WAPRES facilities as monitored from the Koombana Resort comply with the *Environmental Protection (Noise) Regulations 1997 (As Amended)* at all times especially given the noise emissions from traffic along Koombana Drive, which dominated the monitored noise levels.

However, noise received at the nearest residence (5 Austral Parade) from the noise emissions from the dozer activities at night on top of the stockpile can exceed the assigned night period noise level by up to 12dB(A). A Noise Management Plan has been prepared accordingly (Appendix 10a). Amongst other commitments, the Plan will review working the bulldozers at limited speeds and for limited hours on top of the stockpile under certain wind conditions.

4.5.4 Air Quality

At present no atmospheric monitoring is undertaken at the Bunbury Inner Harbour Port facilities and therefore it is not possible to determine compliance with existing standards and guidelines. A review of the DEWCP's complaint database indicates there has been one complaint in relation to the performance of the Bunbury Port with regard to air quality over the period 1/08/00 to 1/08/01.

On the basis of visual inspections by ATA Environmental (29 Oct 2001), it would appear that general housekeeping and site management practices are sufficient to minimise dust and particulates. Water sprays are effective at keeping dust levels down during dry and windy spells when the piles are being moved extensively. It is likely that compliance with DEWCP guidelines is being achieved. Various management procedures are proposed in Section 5.5.2 when the quantity of bluegum woodchips is increased.

5. THE IDENTIFICATION AND MANAGEMENT OF ENVIRONMENTAL IMPACTS

5.1 Introduction

Should this proposal be implemented, the development and operation of the mill site and ship loading facility, and the environmental impacts of the transport of logs and product, will result in changes to the biophysical and social environment. Consideration of these possible impacts has led to the consideration of the following 16 factors that are relevant to the three components of this proposal:

TABLE 10
ENVIRONMENTAL FACTORS CONSIDERED
FOR THE COMPONENTS OF THE PROJECT

	TRANSPORT	MILL SITE	PORT
Biophysical			
vegetation communities		X	
specially protected fauna		X	
Pollution Management			
groundwater quality		X	X
liquid and solid waste disposal		X	
stormwater discharge		X	X
surface water quality		X	
air quality	X	X	
dust		X	X
odour		X	
noise	X	X	X
light overspill		X	
Social Surroundings			
public health and safety	X	X	
heritage		X	
visual amenity		X	X
public consultation	X	X	

This section of the report considers the factors relevant to the transport of the logs and woodchips (Section 5.3), the construction and operation of the chip mill (Section 5.4) and the operation of the facility at the Bunbury Inner Harbour (Section 5.5). Those factors considered significant are further discussed in relation to the EPA objectives. A brief overview of issues in relation to the operation of the plantations is also provided below.

5.2 The Plantations

A description of the practices undertaken in the establishment and harvesting of a typical bluegum plantation was presented in Section 4.1.

The environmental impacts of the plantations, though not considered directly in this proposal document, however remain a concern within some segments of the community.

Bluegum plantations offer considerable benefits to traditional crops including helping combat the spread of salinity, increasing erosion protection, improving the rural landscape appearance and providing shelter for stock. Salinity prevention through plantation establishment is discussed in Section 2.3.4.

Good plantation and land management practices require the reduction in competition to young plantation stock through the application of herbicides, and the control of insect pests through the application of pesticides. Mineral fertilisers are often applied during plantation establishment, and at critical times during the growth cycle (Section 4.1).

Bluegum plantations can be aerial sprayed for both insects (pesticides) and weeds (herbicides). However, the frequency of spraying is considerably less than traditional broad acre cropping). The forest industry and other broad acre cropping industries address the over-spray issue through management of contractors and use of chemicals that are formulated specifically for targeted species, and have developed and implemented the *Protocol for the Aerial Application of Insecticides*.

Matters in relation to the impacts of plantation forestry on traditional farming communities were briefly discussed in Section 2.3.1.

It is considered there are no other significant environmental factors that require additional analysis with respect to the bluegum plantations.

5.3 Assessment of Relevant Environmental Factors - Transport Issues

Environmental factors considered in the evaluation of impacts of the transport of logs and woodchips are presented in Table 11.

TABLE 11
ENVIRONMENTAL ISSUES RELATING TO THE TRANSPORT OF LOGS TO THE WOODCHIP MILL BY TRUCK AND WOODCHIPS TO BUNBURY PORT BY TRAIN

Assumes 1.0 mtpa woodchips from mill sited on Preston AA Lot 262, Donnybrook

Factor	Relevant Area	EPA Objective	Proposal Characteristics and Potential Impact	Proposed Management – Work Required for Environmental Review	Predicted Outcomes/Relevance of Factor
POLLUTION MANAGEMENT					
Air Quality	Area within 100m of transport route (road or rail), and in the vicinity of the chip mill site.	Ensure that gaseous emissions do not adversely affect the environment of health, welfare and amenity of nearby land users by meeting statutory requirements and acceptable standards.	Truck transport routes from plantations will vary throughout the life of the project. Greatest potential impact will occur at major arterial nodes (including townsites) and intersections where traffic may come to a stop. There are at present in excess of 1577 km of local roads in the South West that will, on occasion, be used for log transport. A further 825 km of State roads are impacted. Areas affected include: Shires of Rockingham, Murray, Waroona, Mandurah, Dardanup and Collie to the north, Harvey, Williams, West Arthur and Boyup Brook to the east, Kojonup, Donnybrook-Balingup, Bridgetown-Greenbushes, Plantaganet, Cranbrook and Nannup to the south and Augusta, Margaret River, Busselton and Capel to the east and south east. Emission from heavy road and train transport will include odour, smoke, carbon monoxide, unburnt hydrocarbons, oxides of nitrogen and noise. Accelerated road damage also occurs from heavy road vehicle use. Along with engine design, maintenance is closely linked to emissions. A variety of legal truck configurations are proposed for log transport. Standard loads will be 45 tonnes average. Plantations are generally harvested every 10 years, so although a considerable number of short term truck movements may be required during harvesting, long periods will occur between harvesting. Number of truck movements carrying logs to the mill: • Truck movements - Initially (0.75 mtpa), 0.80 million tonnes of logs will be transported annually (based on 94% recovery). Equates to 35554 truck movements including return (17777 loaded truck movements), or about 9 truck movements per hour (or 4.5 loaded truck movements per hour) based on 230 days per year, 17 trucking hours per day. • At full export capacity (1.0 mtpa), 1.06 million tonnes of logs will be transported annually. This equates to 47281 truck movements per annum, including return, requiring 12 trucks per hour, (or around 6 loaded truck movements per hour) based on 230 days per year, 17 trucking hours/day. The plantations lie north, south, west and east of the Donnybrook site. Hence the transport of the logs cannot follow a single route. Elements of the routes will vary depending upon which plantation is being harvested. Certain critical feeder routes, such as the Boyup Brook Rd and the SW Highway can be anticipated to carry a disproportionate amount of heavy traffic associated with this project.	1. Select low emission equipment for components under project control. 2. Implement a preference for contractors that demonstrate regular vehicle maintenance schedules through accreditation under a recognised QA scheme or *Trucksafe* program. 3. Selection of rail over road for transport of woodchip products from Donnybrook to the Port of Bunbury.	Given the scale of proposal, distribution of source plantations, relatively low numbers of residents living along the extended transport route, ambient weather conditions and impacts on dispersion, and results of previous air quality modelling undertaken (for a project of a similar scale, type and transport logistics), this factor will meet the EPA criteria.

Factor	Relevant Area	EPA Objective	Proposal Characteristics and Potential Impact	Proposed Management – Work Required for Environmental Review	Predicted Outcomes/Relevance of Factor
			The preferred option for the transport of woodchips to the Port of Bunbury is by rail. A locomotive operating on the existing rail infrastructure between a new rail siding at the Donnybrook site and the Bunbury Port, and hauling up to 19 bottom discharge wagons is proposed. Each train will carry on average 800 tonnes of woodchips. Currently around 2 trains daily carry chips from Manjimup to Bunbury. The number of trains movements carrying chip product from Donnybrook to the Port will be: -initially (0.75mtpa) 3-4 new train movements per day (approx. 250 days per year). -full production (1.00 mtpa) 4-5 train movements per day 280 days per year).		
Noise and dust	Area within 100m of transport route (road or rail), and in the vicinity of the chip mill site.	Protect the amenity of residents along the transport route and in the vicinity of the mill site from noise impacts resulting from activities associated with the transportation of raw materials and product by road and rail respectively. There are currently no statutory regulations that govern traffic noise. *The Environmental Protection (Noise) Regulations* 1997 specifically exclude 'noise emissions from trains or aircraft'. Guidelines for road traffic from the NSW EPA are most often applied.	Noise will be generated by transport operations. Tonal noise elements can result from vacuum air brakes, engine and gearbox noise on accelerating and gear changing. Dust from transport operations can originate from the logs being carried, or re-suspended from the road surface and shoulders as a consequence of the passage of the vehicle. Residential densities along the transport routes are generally very low. Densities in townsites are higher, however bypass routes will be considered for townsites such as Boyup Brook. The train and truck logistics are reported under 'Air Quality'. The plantations lie north, east, south and west of Donnybrook – but predominantly from the east and south. Some towns with low current heavy traffic levels will experience a noticeable increase in heavy traffic. Donnybrook local wind regimes are highly seasonal, with summer morning winds dominated by easterlies with significant southerly components, followed by strong afternoon breezes from the south and west. Winter winds are dominated by NW winds in the morning, tending W in the afternoon. These variable winds will tend to disperse dust and mask truck noise.	• Minimise noise by implementing a preference for road transport contractors with quieter equipment and acceptable maintenance practices. • Only contractors that conform to the industry code of practice (such as *Trucksafe)* will be employed.	Given the widespread location of the plantations, the harvesting cycle around 10 years, prevailing weather conditions and low residential densities along much of the transport routes, this factor will meet EPA criteria.
Vibration	Area within 100m of transport route (road or rail), and in the vicinity of the chip mill site.	Protect the amenity of nearby residents from vibration impacts resulting from activities associated with the proposal by ensuring that noise and vibration levels meet statutory requirements and acceptable standards.	Members of the public may be inconvenienced by vibration from the transport of logs to the Donnybrook chip mill by truck, and transport of woodchips to the Port of Bunbury by train. Vibrations of certain strength (amplitude), when transmitted through the ground, may damage nearby residences (cracks or failures), impact on the natural environment, or affect the amenity of members of the public. The train and truck logistics are described under 'Air Quality" above. Mostly, vibration sensitive premises are well set back from the transport routes with overall low residential densities. The use of trains as opposed to trucks will also limit vibration from product transport.	The causes of vibration are normally temporary and unless extreme, are unlikely to cause any permanent damage to sound buildings • Implement a preference for contractors that can demonstrate regular vehicle maintenance schedules.	Given the widespread location of the plantations, the harvesting cycle around 10 years), and average low residential densities and set back of housing along the transport routes, this factor is unlikely to be relevant.

Factor	Relevant Area	EPA Objective	Proposal Characteristics and Potential Impact	Proposed Management – Work Required for Environmental Review	Predicted Outcomes/Relevance of Factor
Public Health & Safety	Local and Regional public roads between the plantations and Donnybrook site, and Manjimup-Bunbury rail corridor to the Port of Bunbury.	To ensure that road and rail traffic associated with the project do not result in unacceptable levels of safety on the existing road and rail network.	The major public hazard associated with this project relates to the increase in movement of heavy vehicles along public roads. Logistics of log and chip transport are described under 'Air Quality'. The use of rail to transport woodchips to the Bunbury Port is the most efficient and safe bulk haulage strategy. However the dispersed location of the plantations makes the transport of logs on public roads the only viable option for raw material transport. Hazards to the public range from direct (collision) to indirect (road damage from heavy vehicle use). These issues have been addressed in both the Department of Planning and Infrastructure Report (2001) and the BOND (2000) Study. The conclusions of the Department of Planning and Infrastructure study supports Donnybrook as an area that minimises transport related impacts while remaining an economically viable site. An outcome from the SW BOND (2000) study has been to develop strategies and pursue findings to maintain or upgrade existing road services, particularly in light of the fact that local road maintenance will fall to the local government authorities. A need for significant funding has been identified to construct or upgrade critical roads. The WAPRES Code of Conduct for Log Haulage is included in Appendix 12. The matter of road construction and maintenance is for state and local Government to resolve.	• In relation to vehicles under WAPRES control, to manage public health and safety through selection of the safest route and travel time. • Ensure that heavy vehicle drivers employed by WAPRES are experienced and competent. • Implement a preference for contractors that demonstrate regular vehicle maintenance schedules through accreditation under a recognised QA scheme or *Trucksafe* program. • Recommend to contractors to avoid heavy transport activities coinciding with school and school bus activities on logging truck routes. • Only contractors that conform to the Industry Code of Practice will be employed. • Lobby appropriate government bodies for funding of road improvements and maintenance. • Design of the access road intersection with SW Highway to meet requirements of Ausroads Guide to traffic Engineering Practice Part 5, Intersection of Grade.	Given the identification of the problem, the widespread locations of the plantation, the harvesting cycle (around 10 years), the use of rail for chip transport and generally the low level of utilisation of the nominated transport routes, this factor is unlikely to be relevant in relation to possible environmental impacts.
SOCIAL SURROUNDINGS					
Public Consultation	Area within 100m of transport route (road or rail), and in the vicinity of the chip mill site.	To provide the public with ample opportunity to fully understand the environmental aspects of the proposed facility	Although the implications of plantation establishment are clearly understood, the advent of additional heavy traffic along local and major arterial routes is clearly of concern to a significant proportion of potentially affected residents. Issues in relation to impacts on historical rural and tourist activities and other potential benefits such as employment, opportunities for value adding, long term sustainability etc also need to be presented.	• Continue the public consultation program which both informs and educates the wider community generally, and addresses the concerns of those likely to be directly affected. • Where possible, modify the project to take into account community concerns.	Given the site is located well outside Donnybrook, the extended period that this or similar projects have been broadly discussed in the Region, and the implementation of an effective public consultation process, this factor will meet the EPA criteria.

5.3.1 Air Quality - Transport

A summary of the proposal characteristics was presented in Table 11.

Relevant Area

Area within 100m of transport route (road or rail).

EPA Objective

Ensure that gaseous emissions do not adversely affect the environment or health, welfare and amenity of nearby land users by meeting statutory requirements and acceptable standards.

Applicable Standards, Guidelines or Procedures

Standards and goals for ambient air quality are given in the National Environmental Protection Measure (NEPM) for Ambient Air Quality (NEPC 1998). These values are summarised in Schedule 2 of the document and are presented in Table 12 below.

TABLE 12
STANDARDS AND GOALS

Pollutant	Averaging Period	Maximum Conc^{n} ppm (µg/m^3)unless otherwise stated	Goal within 10 years Max. allowable exceedences
Carbon monoxide	8 hours	9.0 ppm (11.25 mg/m^3)	1 day a year
Nitrogen dioxide	1 hour 1 year	0.12 ppm (246) 0.03 ppm (61)	1 day a year none
Photochemical oxidants (as ozone)	1 hour 4 hour	0.10 ppm (214) 0.08 ppm (171)	1 day a year 1 day a year
Sulfur dioxide	1 hour 1day 1 year	0.20 ppm (572) 0.08 ppm (228) 0.02 ppm (57)	1 day a year 1 day a year none
Lead	1 year	0.50 µg/m^3	none
Particles as PM 10	1 day	50 µg/m^3	5 days a year

Notes: Modified from Schedule 2, NEPC 1998
Refer to the full document for definitions

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The emissions from diesel engines include odour, smoke (particulates), carbon monoxide, unburnt hydrocarbons, oxides of nitrogen and noise. Noise is discussed separately in Section 5.3.2. All of the emissions are complex functions of the following basic variables:

- combustion chamber design;
- fuel injector design;
- fuel composition, including additives;
- fuel-air ratio;
- naturally aspirated or supercharged engine; and
- engine condition.

Emissions are dispersed and diluted in the atmosphere before reaching people or air pollution samplers or monitors (receptor points). Air quality monitoring seeks to combine knowledge of pollutant source strengths with meteorological data to estimate concentrations at the receptor point. Models have varying degrees of sophistication, and accuracy is rarely greater than plus or minus 20-30 % of the actual value.

Typical spatial scales relevant to air pollution impacts from mobile sources, and related sources of pollution in urban areas, are shown in Table 13.

TABLE 13
SPATIAL SCALE OF AIR POLLUTION

Location	Spatial Scale	Pollutant	Source
Local	10 – 100 m	SO_x,NO_2, PM_{10}/TSP, CO.	Elevated stationary point sources, low level area sources, nearby auto traffic.
Urban	10 – 40 km	SO_x,NO_2, PM_{10}/TSP, Photochemical oxidants.	Multiple point sources, low level area sources, Auto traffic, industrial processes.
Regional	100 – 1000 km	SO_x, PM_{10}/TSP, Secondary Pollutants.	Industrial areas, densely populated area, urban area, transportation system.

Notes: From Air Pollution, its origin and control (3rd Ed) Kenneth Wark, Cecil F Warner and Wayne T Davis Addison Wesley Longman Inc 1998.
TSP refers to total suspended particulate materials
PM_{10} refers to that component of TSP with an aerodynamic diameter of less than 10 μm

In the context of vehicle numbers, air quality impacts from traffic from all sources, including this proposal, are unlikely to extend beyond the local (10 to 100m) area.

This referral assesses the impact on the air quality in two ways: firstly, by comparing the predicted air quality with the air quality modelled for a similar type and scale project in Albany (which was approved by the EPA), and secondly, by calculating a cost in dollar terms for the air pollution.

A. Road Side Air Quality

The two worst case sections of road that will experience the greatest increase in heavy traffic are:

1. the Donnybrook-Boyup Brook (Preston Valley) local road; and

2. the South Western Highway with an existing high proportion of heavy traffic.

Table 7 (Section 4.2) presented existing truck movements as supplied by MRWA without any additional traffic from this project. Table 14 presents the breakdown of anticipated daily traffic along these two routes, with and without the traffic from the woodchip mill for the year 2006.

TABLE 14
PREDICTED INCREASE IN DAILY TRAFFIC MOVEMENTS [1]

Location	2006- road utilisation excluding mill traffic[2]				2006 – including mill traffic[3] (incl return trucks)			
	Light Classes 1-6	Heavy Classes 6-12	Total Vehicles	% Heavy of Total	Light Classes 1-6	Heavy Classes 6-12	Total Vehicles	% Heavy of Total
Donnybrook-Boyup Bk Rd	2000	294	2294	12.8	2000	387	2387	16.2
SW Hwy north of Mill [4]	4318	545	4863	11.2	4318	560	4878	11.5
SW Hwy south of Mill	2354	355	2709	13.1	2354	402	2756	14.6

Notes:

1. The predicted daily log truck numbers have been averaged over a year and do not reflect campaign cartage which may occur for a short duration.
2. Total vehicle counts excl. Donnybrook woodchip traffic are based on current Main Roads Western Australia road counts (Table 7) escalated at 5% pa from when they were recorded.
3. The predicted heavy vehicle increase due to woodchip trucks are based on WAPRES forecasts and differ from the DPI report (2001) which takes into account all woodchip based activities anticipated in the Region over the period modelled.
4. As the mill's contribution to any increase in traffic on this section of road is small, this case falls away in spite of it carrying the largest number of heavy vehicles.

Based on WAPRES forecasts for log flows in 2006, around 800 000tonnes of logs will arrive at the mill, 60% along the Donnybrook-Boyup Brook Rd, 30% from the south along the SW Highway and up to 10% from the north along the SW Highway. Table 14 assumes trucks haul 5 days per week, 48 weeks per year, up to 230 actual days per year and 17hr/days.

In 2006, the daily number of bluegum trucks on the Boyup Brook Rd (including return trucks) will be 93, increasing the number of heavy vehicles from 294 to 387 (ie 32% increase in heavy vehicles and 4% increase in total traffic). On the SW Highway north of the site, the daily number of heavy vehicles increases by 15 from 545 to 560 (ie 3% increase in heavy vehicles and 0.3% increase in total traffic). On the SW Highway south of the site, the daily number of heavy vehicles increases by 47 from 355 to 402 (ie 13% increase in heavy vehicles and 1.7% increase in total daily traffic).

Meteorological data and knowledge of physical and chemical reactions in the atmosphere can be used to calculate the air concentrations of one or more pollutants as a function of time and space. The Donnybrook winds are seasonal and from most points of the compass (Section 4.3.1).

Specific air quality models such as USEPA's *Highway* have been developed to calculate the impact of traffic on areas surrounding linear pollution sources such as roads. *Highway* is a Gaussian dispersion model that calculates dispersion brought about by the turbulence of passing cars, wake effects due to buildings and vegetation adjacent to the roadways, and dispersive characteristics of the gas or particulate in question under selected weather conditions. The spatial scale of impacts are commonly determined within a length of 20 to 100 m from the roadway, and full impacts of the emission mitigated by transport of the pollutants to a distance of up to 1km.

Data relevant to the transport of woodchips for the Donnybrook proposal was compared to the data used in the Albany woodchip mill (ATA Environmental, 1999). The Albany woodchip mill has a capacity of 1mtpa woodchips, similar logistics for truck deliveries, the same type of trucks used, similar total volume of total traffic on worst affected roads and similar meteorological conditions. The Albany project predicts a worst case of 428 heavy vehicles and total traffic count of 2884 daily (14.8% of all traffic) on the worst affected section of road. This is similar to the 402 heavy vehicles in Donnybrook's worst case of 2756 total vehicles (14.6% of all traffic) for the section of the South Western Highway south of the mill site.

The air emissions along the Albany project's worst affected road were found to be well within NEPM values (peak one hour concentrations of NO_2 of 119 $\mu g/m^3$). Maximum values were recorded within 22m of the carriageway. These values are less than half of the NEPM's criteria of 246 $\mu g/m^3$. Given the similarities with the Albany logistics, the worst affected stretches of road for the Donnybrook option are likewise likely to be well within the NEPM criteria for NO_2.

The predicted maximum concentrations of SO_2 for the Albany proposal were similar to that of the NO_2, assuming O.5% sulphur in the diesel fuel. These values are less than one quarter of the NEPM criteria of 572 $\mu g/m^3$. Again, the Donnybrook option is likely to fall well within the NEPM criteria.

In relation to rail, it is widely recognised that rail generates a third of the Greenhouse emissions of road transport (DPI, 2001). Given a maximum of 4-5 rail journeys per day (8-10 including return) are anticipated at full production, with one train transporting the equivalent load of 18 B-Double trucks, no modelling of these impacts has been carried out.

B. Pollution, Greenhouse Gases and Congestion Costs in Dollar Terms

The costs of air pollution and greenhouse gas emissions associated with 7 possible mill sites in the South West were calculated in the Department for Planning and Infrastructure Report (DPI, 2001). In this study, it was assumed that a B-Double truck uses 0.5L/km of diesel (train uses about 4L/km) and that 1L of diesel produces 2.9kg CO_2. This equates to a greenhouse gas emission rate of 1.45kg/km.

The Australian Greenhouse Office advises that under the carbon sequestration and carbon trading rights schemes, a market value at 2010 when the number of woodchip trucks peaks, between $A10-$A50 per ton can be expected. Using a halfway point of A$30, it is possible to calculate a greenhouse emission value of 4.35c/km travelled or 0.22c/ntk. The ntk (**n**et **t**onne cartage **k**ilometre) for any transport task is calculated by multiplying the distance travelled by the tonnage transported.

The Donnybrook site option accumulated around 162 million rural road ntks, 1.5 million urban road ntks, 53.4 million rural rail ntks and 10.3 million urban rail ntks. Using these figures and the externality costs, the annual average cost in dollar terms of air pollution and greenhouse gas over the three year sample period was calculated by the study (DPI, 2001).

The DPI then compared the cost in dollar terms of air pollution and greenhouse gas of the seven sites assessed. With the exception of Bunbury, Donnybrook had the lowest air pollution cost. The Donnybrook option also had lower Greenhouse gas costs than Hester, Wilga, Greenbushes, Hester/Collie and Kirup. This is largely due to Donnybrook having the lowest diesel fuel consumption (which is because of the requirement to operate dual locomotive trains to sites south of Donnybrook due to the increase in rail gradient) and Donnybrook's central location within the plantation resource.

WAPRES has made a number of commitments with respect to Transport Air Quality which are shown below:

Transport Air Quality Commitments

1. Select low emission equipment for components under project control.
2. Implement a preference for contractors that demonstrate regular vehicle maintenance schedules through accreditation under a recognised QA scheme or *Trucksafe* program.
3. Selection of rail over road for transport of woodchip products from Donnybrook to the Port of Bunbury.

Comments on Relevance of Factor

Implementation of this proposal will increase the amounts of traffic on main and local roads. Given the scale of proposal, distribution of source plantations, relatively low numbers of residents living along the extended transport route, ambient weather conditions and impacts on dispersion, and results of previous air quality modelling undertaken (for a project of a similar scale, type and transport logistics), this factor is unlikely to be relevant.

5.3.2 Noise - Transport

A summary of the proposal characteristics was presented in Table 11.

Relevant Area

Noise sensitive premises along the various transport routes.

EPA Objective

To protect the amenity of nearby residences from noise and vibration impacts resulting from activities associated with the transportation of raw materials and product by road and rail.

Applicable Standards, Guidelines or Procedures

There are currently no statutory regulations that govern traffic noise. *The Environmental Protection (Noise) Regulations* 1997 specifically exclude 'noise emissions from trains or aircraft'.

Transport noise is specifically excluded from the Environmental Protection (Noise) Regulation 1997. The Environmental Protection Authority has produced a draft policy for Road and Rail Transportation Noise issued on the 9 July 1999. Section 4.3 of the draft policy *Criteria for proposed increase in road or rail traffic* would apply in this case. Section 4.3 states: "The objectives are:

1. that the noise emissions of the vehicles associated with the proposal should comply with 'best practice'; and

2. that the noise levels inside noise-sensitive premises associated with the proposed traffic should meet acceptable levels."

Noise level criteria to be used in the assessment are the Noise Level Objectives specified in Table 15 below. Objectives are specified upper limits of traffic noise which it is intended shall not be exceeded.

TABLE 15
TRAFFIC NOISE LEVEL OBJECTIVES

Base Criteria	Objective
ambient	Ambient + 3 dB(A)

Noise levels stated above are $L_{10\ (18hour)}$ values. The $L_{10\ (18hours)}$ value is the arithmetic average of the hourly L_{10} percentile levels (the level exceeded for 10% of the time) between 0600 and 2400 hours.

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Logs will be supplied from a variety of sources throughout the South West of Western Australia. Traffic increases independent of the project are presented in Table 7, with the number of additional heavy vehicle journeys due to the proposal presented in the discussion of air quality impacts (Section 5.3.1, Table 14).

The Albany woodchip proposal (same scale production of 1mtpa woodchips, similar transport logistics, existing traffic counts on worst affected roads) calculated likely noise impacts using the computer program T_{noise} for a location 30 metres from the worst affected roads (Albany Highway). T_{noise} is a computer program developed by the Main Roads Western Australia, based on the Welsh or CRTN Method. The $L_{A10(18hour)}$ noise levels were calculated for both the existing traffic movements and the increase in traffic movements associated for the initial and full production output of the Albany Woodchip Mill. The increase in noise level due to the additional truck movements and the overall $L_{A10(18hour)}$ noise level (including truck movements associated with initial production) are presented in Table 16.

TABLE 16
CALCULATED NOISE LEVELS ASSOCIATED WITH ADDITION OF THE ALBANY WOODCHIP PLANT TRAFFIC MOVEMENTS

Road Segment	Increase in Noise Level dB(A)		Total $L_{A10(18hour)}$ Noise Level dB(A)*	
	2001[1]	2007[2]	2001[1]	2007[2]
Albany Highway	2	2.2	59.5	60

1 First year of operation which assumes the transport of 0.23 mtpa of logs over a six month period, the equivalent of 0.46 mtpa transported over this period. Assumes 60% of woodchip trucks use this section of road. (Cf to Donnybrook SW Highway, south of the site: 0.35 mtpa of logs, but only 30% of the trucks use this section of Highway).

2 Full production assumes the transport of 1.15mtpa logs (cf to Donnybrook max of 1.06mtpa).

* $L_{A10(18hour)}$ due to all traffic and includes truck movements associated with this project.

Results

In relation to the transport of logs by road to the Albany woodchip mill, the increase in noise levels at residences located along the worst affected stretches due to log trucks, comply with Main Roads Western Australia Criteria (recommended increase in noise to be less than 3 dB(A)). Noise levels at the residences 30m from the highway would also comply with Main Roads Western Australia base criteria of an $L_{A10(18hour)}$ of 63 dB(A).

The Albany project predicts a worst case of 428 heavy vehicles and total traffic count of 2884 daily (14.8% of all traffic) on the worst affected section of road. This is similar to the 402 heavy vehicles in Donnybrook's worst case of 2756 total daily vehicles (14.6% of all traffic) for the section of the South Western Highway south of the mill site.

Given the similarities in the predicted traffic for the worst affected stretches of road for the Albany and Donnybrook projects (and the topography, prevailing wind etc for those sections of road), the increase in noise levels along the sections of SW Highway south of the mill site and the Donnybrook-Boyup Brook Rd are likely to comply with Main Roads WA base criteria of an $L_{A10(18hour)}$ of 63 dB(A).

Note the increase in truck movements associated with the increase in output of the woodchip mill also coincides with the general increase in road traffic along the road network.

Transport Noise Commitments

- Minimise noise by implementing a preference for road transport contractors with quieter equipment and acceptable maintenance practices.
- Only contractors that conform to the industry code of practice (such as *Trucksafe)* will be employed.

Comments on Relevance of Factor

Given the widespread location of the plantations, the extended cropping time (up to 10 years), and low residential densities along much of the transport routes, prevailing weather conditions, and commitments proposed, this factor can be managed to meet the EPA criteria.

5.3.3 Public Health & Safety - Transport

A summary of the proposal characteristics was presented in Table 11.

Relevant Area

Local and Regional public roads between the plantations and the Donnybrook site, and the Manjimup-Bunbury rail corridor to the Port of Bunbury.

EPA Objective

To ensure that road and rail traffic associated with the project does not result in unacceptable levels of safety on the existing road network.

Applicable Standards, Guidelines or Procedures

Ausroads is the association of Australian and New Zealand road transport and traffic authorities. Ausroads produce a series of publications that identify best practice in road safety design construction and management practice, including:

- AP-1/89 Rural Road Design.
- AP11 Guide to Traffic Engineering Practice.
- AP-12/91 Road Maintenance Practice.

Assessment and Discussion of Management

This factor relates to the construction of a road of suitable standard into the Donnybrook mill site, the preservation and improvement requirements for local and main roads which will carry the bulk of the log feedstock traffic and issues in relation to the rail transport of chip product to the Port of Bunbury. WAPRES management has committed to the implementation of the Code of Conduct for Log Haulage for the truck drivers under their employment as provided in Appendix 12.

BOND Studies

The BOND South West group (Bond, 2001) with support from the then Department of Transport and Main Roads Western Australia initiated an assessment of the impact of the transportation of the bluegum timber resource on the local and main road network.

These studies have encompassed probable haul routes (such as Figure 2) and have assumed some minimum geometric standards for log haul roads in order to ascertain the order of magnitude of road improvements required to the local network. The outcome of these studies has been to identify a number of deficiencies in the local

road network with a view to identifying opportunities to gain funding for maintenance and improvement in support of long-term sustainability of the plantation timber industry.

Table 17 (BOND, 2000) summarises the distribution of road improvement requirements within the local Government areas in which plantations have been established.

TABLE 17
SUMMARY OF THE DISTRIBUTION OF ROAD IMPROVEMENT REQUIREMENTS WITHIN THE LOCAL GOVERNMENT AREAS

SHIRE	PRESERVATION WORKS ONLY (KM)	IMPROVEMENT WORKS REQ'D (KM)	TOTAL (KM)
Augusta-Margaret River	36.52	14.85	51.37
Boyup Brook	45.65	110.73	156.38
Bridgetown –G'bushes	-	18.24	18.24
Capel	4.58	1.14	5.72
Collie	18.36	-	18.36
Donnybrook-Balingup	17.79	-	17.79
Harvey	1.54	8.17	9.71
Manjimup	68.60	35.3	103.9
Murray	10.75	-	10.75
Nannup	17.89	66.53	84.42
Waroona	11.98	-	11.98
West Arthur	19.49	21.98	41.47
Williams	19.47	-	19.47
TOTAL LENGTH	272.62	276.94	549.56

Source: BOND 2000
It should be noted that the results of this initial review of requirements are based on a desk top study in the first instance and will be more fully refined as Plantation data becomes more refined, and field assessments are undertaken.

The Log Haul Networks (Figure 2) are subject to further refinement through MRWA, local government and the mill Proponent.

Funding in support of the road preservation and improvement works is being sought from a number of sources. Investment on road infrastructure upgrading will be on those roads carrying large tonnages on an annual basis. Other roads (where the tonnage impact is not so great and cartage irregular are not likely to attract capital investment. Timber cartage on those roads is likely to be conditional upon industry managing this task to the satisfaction of the relevant local authority. According to The Hon Alannah Mc Tiernan (Minister for Planning and Infrastructure, 20/6/01):

> *".....Main Roads and the Transport Department in consultation with the Timber industry generally and Local Government, intend to spend up to $67 million upgrading significant local roads in the Great Southern and South Western Regions to service the entire plantation industry....."*

Specific Roads of Concern

MRWA (MRWA, 2 July 2001) has planned an upgrade of the SW Highway between Donnybrook and Bridgetown over the next eight years. This work will include re-constructing the surface, installing seven overtaking lanes, raised and widened in places and the sealing of shoulders. The work will go ahead regardless of whether the mill goes ahead.

Currently 192 heavy vehicles per day (DPI, 2001) negotiate the South Western Highway-Boyup Brook Rd intersection, considered by many locals to be a dangerous junction. MRWA advise an improvement of this intersection will cost approximately $0.4 million (DPI, 2001). MRWA likewise advises the bluegum trucks through Boyup Brook town could use an alternative route through the town, developed at the cost of around $0.6 million.

On the Donnybrook-Boyup Brook Road, the road is of sufficient standard to cater for the increase in traffic without major improvements. However, a number of improvements such as slipways, and overtaking lanes would lessen the impact on the residents and improve the safety for all road users. The cost of one set of overtaking lanes midway along the valley and three slipways located at the Collie-Mumballup, Wellington-Lowden and Sandhills Road will cost around $1.1 million (DPI, 2001).

Design of the access road and intersection with SW Highway will meet requirements of Ausroads Guide to Traffic Engineering Practice Part 5, Intersection of Grade. It is important in the design of the intersection that the Safe Intersection Distance of 290m and Entering Site Distance of 500m be achieved.

Other Concerns

Trucks will be using school bus routes during school hours (0715-0845 and 1500-1630). The public has concerns over the safety issues and lack of suitable bus stops (eg. along the Donnybrook – Boyup Brook Road). This is an issue of current community concern irrespective of the location of the mill.

Transport Public Safety Commitments

1. In relation to vehicles under WA Plantation Resources control, to manage public health and safety through selection of the safest route and travel time.
2. Ensure that heavy vehicle drivers employed by WA Plantation Resources are experienced and competent.
3. Implement a preference for contractors that demonstrate regular vehicle maintenance schedules through accreditation under a recognised QA scheme or *Trucksafe* program.
4. Recommend to contractors to avoid heavy transport activities coinciding with school and school bus activities on logging truck routes.
5. Only contractors that conform to the Industry Code of Practice will be employed.
6. Design of the access road intersection with SW Highway to meet requirements of Ausroads Guide to traffic Engineering Practice Part 5, Intersection of Grade.
7. Implementation of the WAPRES Code of Conduct for Log Haulage.

Comments on Relevance of Factor

Local Authorities and State Government Departments, together with the timber industry recognises the extra load the plantation bluegum industry and downstream processing of the timber will place upon the road system. Road hazards are increased by virtue of the additional amount of heavy vehicles resulting, and deterioration of the road surface. Studies are being undertaken to determine critical road segments and recommend remedial measures. Funding is being sought from State and Federal sources to ensure the sustainability and improve affected roads.

Given the identification of the problem, the widespread locations of the plantation feedstock, the harvesting cycle (averaging every 10 years), and generally low level of utilisation of the nominated transport routes, this factor needs to be brought to the attention of Government, but is unlikely to be relevant in relation to possible environmental impacts.

5.3.4 Public Consultation - Transport

A summary of the proposal characteristics was presented in Table 11.

Relevant Area

Residents along the heavy transport routes associated with this project.

EPA Objective

To provide individual community members, Non Government Organisations (NGO's), the private sector and other interested parties with ample opportunity to be fully informed and participate with Government at various levels of decision on this project.

Assessment and Discussion of Management

There are several broad levels of community involvement:

- **information dissemination** is a one way flow, usually involving disclosure of information about a proposed project to interested parties;
- **consultation** is a two-way information exchange, between stakeholders, where decision making authority remains with the promoter but other groups provide feedback on decisions; and
- **participation** is a process by which the Government or Developer and other stakeholders collaboratively define objectives, identify issues, evaluate alternatives, negotiate solutions and manage and evaluate outcomes.

In practice, in industrial or infrastructure based projects, the emphasis is usually on information dissemination and consultation. Formal, structured participation exercises are less common but may occur, for example in environmental audits or in industrial monitoring activities.

WAPRES has undertaken a high degree of public involvement in the development of this proposal resulting in time penalties. However the benefits have been considered significant. Potential benefits included:

- better information to the community resulting in more informed decision making;
- reduction in delays due to a lack of or inaccurate information;
- avoidance of misconceptions and confusion;
- greater community ownership of the project;
- better targeting of institutional resources; and
- to allow the Proponent and implementing agencies to accommodate community expectations in the project design.

The Community Consultation process undertaken in relation to this project has been described in Section 3. A summary of the issues raised by stakeholders and members of the community is presented in Section 3.2.1 and 3.2.6, and further presented as a matrix in Appendix 4. WAPRES's responses to public submissions are presented in Section 7.

In summary, many of the concerns expressed are in relation to transport the logs to the mill. Many stakeholders and members of the community identified the increase in traffic around Donnybrook, on the Donnybrook-Boyup Brook Rd and South Western Highway as an issue of concern. The MRWA advises that modifications to the intersection of these two key roads are included in the current 5 year plan and will consider an acceleration lane on that portion of the South Western Highway immediately after the intersection moving south (Section 5.3.3: Specific Roads of Concern). Rail of woodchips to the Port has been favoured over trucking to minimise trucks through the larger towns such as Donnybrook and Boyanup and the City of Bunbury.

The new access road from the South Western Highway across Preston AA Lots 351and 296 to Preston AA Lot 262, will be designed such that there is sufficient space for trucks to safely turn in/out and/or wait and there is good visibility to oncoming traffic. The intersection will comply with Ausroads Guide to Traffic Engineering Practice Part 5, Intersection of Grade.

Local Government Authorities and community members have identified local road maintenance and safety as major issues. Timber 2002 and the BOND South West groups have been involved in the selection of preferred log haulage networks and the development of strategies to identify and secure road funding opportunities to maintain or enhance the road network.

A public consultation program has been developed and the initial stages completed. The Proponents have attended and made presentations at public meetings, had meetings with stakeholders and nearby affected land owners, had placed or delivered newspaper advertisements, press releases and information leaflets, undertaken interviews on the electronic media, and presented a two day and a single day public information display.

Stakeholders and members of the public have been invited to make comment on the proposal, and the outcomes have either been reflected in the planning of this proposal or in the text in this document. The major concern relating to the transport of product through the town of Donnybrook has been addressed through the adoption of rail for this component. Further major concerns relate to the impact of log transport on local roads.

Public Consultation Commitments

1. Continue the public consultation program which both informs and educates the wider community generally, and addresses the concerns of those likely to be directly affected
2. Where possible, modify the project to take into account community concerns.

Comments on Relevance of Factor

Given the site is located well out of Donnybrook, the extended period that this or similar projects have been broadly discussed in the Region, and the implementation of an effective public consultation process, this factor is unlikely to be limiting.

5.4 Assessment of Relevant Environmental Factors regarding the Donnybrook Woodchip Mill

Environmental factors considered in the evaluation of the impacts of the construction and operation of the Donnybrook woodchip mill is presented in Table 18.

TABLE 18
ENVIRONMENTAL AND SOCIAL FACTORS RELATING TO THE ESTABLISHMENT AND OPERATION OF THE DONNYBROOK WOODCHIP MILL
Preston AA Lot 262 (18.69ha)

Factor (Site Specific Factor)	Relevant Area	EPA Objective	Proposal Characteristics	Proposed Management	Predicted Outcome/Relevance of Factor
BIOPHYSICAL					
Vegetation communities	Proposal site (18.69ha), including access road	To maintain the abundance, species diversity, geographic distribution and productivity of vegetation communities.	Subject land comprises 18.69ha of farmland currently used for grazing sheep. Remnant native vegetation comprises two stands of jarrah-marri woodland with minimal understorey, of approximately 3.2ha (central stand) and 2.7ha (south eastern stand). A narrow stand of vegetation follows the railway line along the eastern boundary for approx 400m and lines the road reserve of Road No.2506. The land slopes down from the west, with the eastern boundary abutting a curved portion of the existing Manjimup to Bunbury narrow gauge railway line. A new siding of approx 500m may be required to adjoin the site and existing railway. The mill and stockpile will be sited on the cleared land south of the central marri-jarrah stand. Negligible remnant vegetation will be cleared for the administration office or access road. The access road will follow the existing Road No. 2506 and will be extended over cleared agricultural land to have a new intersection with the South Western Highway. A desktop review of CALM Rare and Priority Flora indicates that the subject land falls within an area that could include the presence of a number of plant species considered poorly known or rare. The site survey undertaken has not identified the presence of any CALM Rare and Priority Flora.	The central portion of the site will be modified with the implementation of this proposal. Less than 1ha of remnant vegetation will be cleared for the mill, associated facilities and access road. Principles in management will include: 1. The design and layout of the mill, associated buildings and access roads will be such that the clearing of native vegetation is minimised. 2. To develop and implement a Vegetation Management Plan that includes but is not limited to: • Management of the remnant vegetation: • Management of weeds and control of Dieback. • If Specially Protected flora is identified in vegetation identified for removal, advise CALM and develop a management plan for the population's protection. • Develop and implement a Fire Management Plan. • Management of topsoil.	Given the effect of past agricultural activities in the area, the limited clearing of vegetation required, the results of the site survey, and the Proponent's commitments, this factor will meet the EPA criteria.
Fauna (Specially protected (threatened) fauna)	Proposal site (18.69ha), including access road	Protect Specially Protected (Threatened) Fauna species and their habitats, consistent with the provisions of the *Wildlife Conservation Act 1950.*	The mill and transport corridor will be sited on cleared agricultural land and existing road reserves. Minimal remnant vegetation will be removed, resulting in negligible habitat loss. A desktop review of the CALM Specially Protected (Threatened) Fauna database indicates that the subject land is included in the known range of a number of rare or priority taxa. These included four Schedule 1 species (Long billed black Cockatoo, Short billed black Cockatoo, Western Ring Tailed Possum, Chuditch), one Priority 2 (Barking Owl), 1 Priority 3 (Brush-tailed Phascogale), seven Priority 4 (Quenda, Black or Black Gloved Wallaby, Rakali or Water Rat, Crested Shrike Tit, Masked Owl, Forest Red Tailed Black Cockatoo, Square tailed Kite) and two Schedule 4 (South West Carpet Python, Peregrine Falcon). The site faunal habitat survey has been undertaken. No evidence of Specially Protected (Threatened) Fauna was recorded.	1. The design and layout of the mill and associated buildings and access roads will be such that the clearing of native vegetation is minimised. 2. Develop and implement a Vegetation Management Plant. 3. If Specially Protected fauna are identified in vegetation outliers identified for removal, advise CALM and develop a management plan for the population's protection, including trapping and relocation to other areas.	Given the historical use of the land for agricultural activities, the limited size the remnant vegetation to be removed, and the lack of and highly mobile nature of Specially Protected or Priority Fauna recorded for the area, this factor will meet the EPA criteria.
Odour	Proposal site and surrounding area within a radius of 1km	Odours emanating from the proposed development should not adversely affect the welfare and amenity of nearby land users.	Tree resin odours can result from the chipping process. The nearest residence is approximately 160m east of the NE corner of the block.	◆ Use of ATUs or amended septics with well maintained reticulation for treatment of sewage. ◆ If unreasonable odours should be emitted from the operation, develop and implement an Odour Management Plan. ◆ All putrescible wastes, litter and office waste collected and disposed of off-site.	Given the low potential for odours and the proposed management, this factor is unlikely to be relevant.

Factor (Site Specific Factor)	Relevant Area	EPA Objective	Proposal Characteristics	Proposed Management	Predicted Outcome/Relevance of Factor
POLLUTION MANAGEMENT					
Groundwater Quality	Groundwater below the site and down hydraulic head for a distance of 200m from the subject land	To ensure that the beneficial uses of groundwater can be maintained, consistent with the Australian and New Zealand Guidelines for fresh and marine water quality (Oct. 2000) and the NHMRC / ARMCANZ Australian Drinking Water Guidelines- National Water Quality Management Strategy 1996.	Depth to groundwater is anticipated to be approximately 20-30m at the proposed mill site, based on the surrounding landforms. There is at present no reticulated water supply on site. Operational water requirements are limited to log watering, drinking water and sanitary requirements. Log watering can contribute particulate materials and tannins to the groundwater. No soluble nutrients or pesticides will result from log watering. Sanitary requirements for an operational workforce of 14 (modified septic or ATU) will be required. An anticipated daily volume of about $20m^3$ summer make-up will be required (preliminary calculations), and will be supplied from combinations of dams, neighbouring bores, mains supply, and/or trucked supplies. The feasibility of a site bore will be assessed. Stormwater will be captured in a series of interception bunds and dams down gradient of the log stockpile and chipper. Collected water will be recycled for log watering. Release of uncontaminated water from holding basins may be required during periods of high rainfall.	To develop and implement a Water Management Plan that details potential impacts on groundwater quality, and how impacts will be addressed, including, but not limited to: • Use of ATUs or modified septics for treatment of sewage, complying with the relevant statutory and LGA requirements. • Recycle all water on-site wherever possible. • Use of holding basins for stormwater. • Management of bulk fuels in accordance with AS1940. • Used oils will be disposed of off site by a licensed contractor. • Routine monitoring of surface and groundwater. • Any proposed abstraction of groundwater.	Given the minimal water requirements on site, depth to water table, the lack of large quantities of hazardous and/or hydrocarbon materials stored on site, and the commitment to develop and implement a Water Management Plan, this factor will meet the EPA criteria.
Liquid and Solid Waste Disposal	Proposal site (18.69ha)	Liquid and solid wastes should be contained and isolated from groundwater and surface surrounds. Waste disposal requirements are required to meet the *Environmental Protection Act, 1986.* Sanitation requirements will be designed to meet the *Health Act, 1911* and the *Occupational Health & Safety Act, 1984.*	There are minimal solid wastes generated on site that require disposal. Logs are predominantly de-barked at the plantation prior to transport. Accumulated fines and residual bark can be disposed of offsite as mulch or soil conditioning agents, returned to the plantations or disposed of at the municipal landfill if required. Kitchen and office wastes will be disposed of at the municipal landfill. Wastewater management for an anticipated operational workforce of 14 per shift will be required on site, with occasional additional contractor employees. Sewage and grey waters will be directed to an ATU or modified septic on an elevated portion of the subject land. Used oil will be collected and transport off site by a licensed contractor. The site will be kept clean and free of litter. Where feasible, wastes will be recycled.	1. See above. • Disposal of accumulated fines and residual bark off site. • No burning of rubbish or green waste. • Rubbish will be segregated and stored in bins for appropriate disposal. • All domestic waste will be disposed of at the municipal landfill. • Concrete, reinforcing steel and other construction material waste produced on site shall be collected and disposed of at a local landfill facility. • Any hazardous waste will be disposed of at an approved disposal site. • To avoid damage or littering on trafficked roads, trucks hauling material over public roads will be loaded in a manner that minimises the possibility of spillages.	Given that all solid wastes will be transported offsite, and liquid waste will either be disposed onsite to the satisfaction of the LGA or transported offsite for recycling (oil), this factor will meet EPA objectives.
Surface Water Quality	Seasonal surface water on the subject site	To ensure that surface water is managed to prevent discharge of contaminated water from site or to groundwater.	Soils on the site are generally well drained. It is anticipated that intermittent creeks will flow from the subject land eastwards toward the Thomson Brook which is across the railway reserve to the east (the nearest significant water feature that may be impacted). This creek feeds the Preston River. Water recycling on site will be a major focus, with bunds on lower slopes directing storm and wastewaters to holding basins. Water will be pumped from these holding basins to storage tanks for re-use on sites. Likely contamination of surface waters will be limited to suspended particulate materials and some tannins, with the potential for hydrocarbons from above ground diesel storage for on-site activities. Hydrocarbons will be kept to a reasonable minimum in a bunded, above ground storage tanks to DME requirements. In the event of oil or diesel contamination occurring, sufficient capacity will be provided to allow for isolation and treatment or recovery	See Groundwater quality and Solid and Liquid Waste Disposal above. Holding basins will be constructed for the retention of stormwater. 1. Release of stormwater from the interception dams will only occur if water quality meets ANZECC *Guidelines for Protection of Aquatic Ecosystems.* 2. To develop and implement a Water Management Plan that details potential impacts on surface water quality, and how impacts will be addressed, and monitored.	Given the proposal to intercept and re-use all surface water flows by a series of bunds and basins, the proposed monitoring program, the commitment to correct storage and handling of all environmentally hazardous materials, the limited volumes of bulk fuels stored on site, the commitment to release stormwater only if it meets ANZECC *Guidelines,* and to develop and implement a Water Management Plan, this factor will meet EPA requirements.

Factor (Site Specific Factor)	Relevant Area	EPA Objective	Proposal Characteristics	Proposed Management	Predicted Outcome/Relevance of Factor
Dust	The subject area, access road, surrounding agricultural properties including nearby residences and surface waters	(i) Ensure that dust generated during construction and operation does not cause any environmental or human health problem or significantly impact on amenity; and (ii) Use all reasonable and practicable measures to minimise airborne dust.	Dust may be created during construction due to vehicle movement on unsealed roads and ground disturbing construction activities. Site operational activities that may contribute to dust generation include the movement of vehicles, the chipping activity itself, woodchip sorting and transfer to stockpile and train loading. The nearest dust sensitive premises are located about 160m east of the NE corner of the block. Further residences are located about 360m west of the SW corner. Wind rose data for Donnybrook indicates that local wind regime is highly seasonal, with summer morning winds dominated by easterlies with a southerly component, with a possible afternoon breeze coming equally from the west, east and south. Winter winds are dominated by NW winds tending W in the afternoons. A new tarred access road will be constructed from the SW Highway to the mill General dust prevention during construction will include using stabilising agents (such as mulches) on areas of cleared land as required to prevent dust lift off, the prompt removal of mud etc deposited on access roads and the washing down of truck wheels before leaving site to remove dust creating material.	Blue gum logs and chips are less prone to dust lift-off than aged native forest products. Management commitments include: 1. Apply EPA Policies, Guidelines and Criteria for EIA No 18, *Air Quality Impacts from Development Sites* during construction of the plant. 2. Abide by the National Environmental Protection Measure (NEPM) for Ambient Air Quality (NEPC 1998) during operations. 3. Develop and implement a Dust Management Plan for construction and operation that will specify dust actions in the case of unreasonable dust lift-off during windy dry conditions. This will include but is not limited to the following management practises: • Using water sprays to control and prevent excessive dust from earthworks operations and roads. • Limiting soil stockpiles in extent and using water or stabilising agents to control dust. • Minimising land clearing to avoid creating large areas of disturbed soil. • Planning work to ensure construction or stabilisation proceeds immediately following clearing wherever possible. • Regular maintenance of dust suppression equipment to ensure effective operation. • Ensure all trucks used for hauling material over public roads are fitted with tight tailgates, not overloaded and are tarped where necessary.	Given the relatively remote location of the proposed site, the low dust generating potential of the activities when considered in relation to the rainfall, the commitment to comply with EPA guidelines and develop and implement a Dust Management Plan for the construction and operational phases, this factor is unlikely to be relevant.
Hazardous Materials	The subject site	The handling of hazardous materials and dangerous goods is covered by: Explosives and Dangerous Goods Act, 1995; the Occupational Health and Safety Act, 1984 and the Environmental Protection Act, 1986.	Primary requirements for the project are to: • minimise spillages from the storage and handling of hazardous materials and dangerous goods; and • ensure storage of hazardous materials and dangerous goods is confined to specially designated areas away from drains and wetlands. Fuel; oils; lubricants; chemicals; paints; solvents; concrete curing compounds; sealants; and cleaning products are examples of hazardous substances commonly used on construction sites. Potential spillage risks include: oil spillage from vehicle servicing, accidental spillage due to equipment or tankage failure, malfunction or refuelling operations, accidental spillage during handling of hazardous materials; or accidental spillage during transport of containers. Hazardous substances shall be stored separately in a weatherproof and fire resistant building on an impervious base and bunded. Hazardous material stores shall be located well away from sensitive areas such as wetlands and other surface water bodies. External areas on site where significant quantities of hazardous substances are handled, loaded or unloaded will have an impervious base. All staff on site shall be trained in the hazards associated with the stored hazardous substances and procedures to follow in the event of an emergency. MSDS sheets will be kept on site for all hazardous substances stored on site. Trucks used to transport hazardous substances to site will be appropriately signed, identifying the substance in accordance with the Explosive and Dangerous Goods Act.	The following management practices shall be adopted to minimise spillages and environmental impacts from hazardous materials. ***i) Refuelling*** Refuelling shall be limited to mobile plant equipment only. Refuelling associated equipment shall to be maintained in good working order, without leaks and with appropriate level alarms, shutdown and dry break systems. All equipment shall be refuelled and lubricated within a bunded area and away from natural surface drainage features. Spill containment facilities such as earthen bunds, compacted pads or drip trays shall be provided at refuelling stations, oil and chemical storage sites and vehicle maintenance areas as per Australian Standard AS1940. Stormwater from refuelling and maintenance areas shall drain to a oil separation trap.	Given the lack of large quantities of hazardous materials and the proposed management thereof, this factor will meet the EPA criteria.

Factor (Site Specific Factor)	Relevant Area	EPA Objective	Proposal Characteristics	Proposed Management	Predicted Outcome/Relevance of Factor
			A detailed spill response procedure should be prepared for use in the field. The procedure shall include: • a list of spill response equipment including the type, quantity and location of storage, containment and clean up equipment to be used on the construction site; and • procedures and impact minimisation measures to be used in response to a spill, taking into account the characteristics of the affected terrain as well as the sources, types and amounts of material that could potentially be spilled.	***ii) Equipment Maintenance*** Fuel and lubricating systems on mobile machinery shall be provided and maintained in good working order, without leaks. Drums containing oils shall be maintained in a sealed condition and stored on an impervious base such as sealed concrete. ***iii) Fuel and/or Oil Spills*** In the event of a fuel or oil spillage, the spill shall be recovered immediately using absorbent materials, which shall then be placed in disposable drums or containers for later removal to an approved waste disposal facility. Any contaminated soil resulting from a fuel or oil spillage shall be excavated and removed to an authorised waste disposal site or a site approved by the Local Government Authority. All significant spills shall be reported to the relevant government authority as soon as practicable and the contaminated soil removed within three hours of its reported existence.	
Noise	The subject area, surrounding agricultural properties including nearby residences	To ensure noise emissions from the plants operations are as low as reasonably practical and comply with the Environmental Protection (Noise) Regulations 1997.	The chipper and de-barker will be installed in an attenuated enclosure. With the exception of maintenance downtime, two shift (20 hour) operation of the chipper will be required when capacity approaches 1 mtpa. Log delivery is proposed for 17 hours /day. Train movements will be scheduled as required. Noise can be generated at the site by the operation of the fixed plant including the various saws, chippers, conveyors and de-barkers. Debarking is generally undertaken at the plantation. Mobile plant operations at the site will include rubber tyred loaders, log delivery trucks, mobile grab and train movements. At full development, a gantry stacker and loader may replace the mobile grab and rubber tyred loaders (except as a consequence of mechanical break down of the gantry). The nearest noise sensitive premise is located approximately 160m E of the NE corner of the block. A second residence is located approximately 360m west of the SW corner. In Donnybrook, local wind regimes are highly seasonal, with summer morning winds dominated by easterlies with significant southerly components, followed by strong afternoon breezes from the south, east and west equally. Winter winds are dominated by NW winds in the morning, tending W in the afternoon. The results of modelling show that noise emissions from the attenuated woodchip plant will comply with the night time criteria in the *Regulations* of 30dB(A) Measures may need to be implemented to reduce the impacts of mobile plant movement during evening and night time activities. Noise control will be incorporated into the design and will include any or all of the following: ♦ Enclosing major plant items; ♦ Selection of lower emitting mobile equipment; ♦ Construction of earthen bunds or barriers; ♦ Selective location of major openings away from neighbouring residences; ♦ Insulation of plant enclosures; ♦ Maintenance and possibly extension of existing vegetated barriers.	From the results of the site specific noise assessment, the following commitments are proposed: 1. Design and install sound shields around chipper, debarker and conveyor such that at all times, noise emissions comply with all requirements of the *Environmental Protection (Noise) Regulations 1997*. 2. Ensure compliance with noise requirements during acceptance testing from equipment suppliers. 3. Develop and implement the Noise Management Plan for Construction and Operation. 4. Manage train loading operations and truck unloading activities through scheduling and engineering design such that noise emissions comply with all requirements of the *Environmental Protection (Noise) Regulations 1997* at the nearest residence all the time.	Given the operation of the chipper during the evening and night, issues relating to noise are likely to concern the EPA. Given the results of noise modelling to date, the relatively remote location of the proposed site with respect to housing, and the commitment to develop and implement a Noise Management Plan for construction and operation, this factor can be managed to ensure noise emissions at the nearest residences always comply with EPA criteria.

Factor (Site Specific Factor)	Relevant Area	EPA Objective	Proposal Characteristics	Proposed Management	Predicted Outcome/Relevance of Factor
Light Overspill	The subject area, surrounding agricultural properties including views from nearby residences	Manage potential impacts from light overspill and comply with Standard AS 4282.	The proposed site is relatively isolated with low levels of background lighting. Adequate illumination of the mill and stockpile area is required for safe operation. Maintaining existing stands of marri-jarrah will assist in limiting impacts. The conservation of a vegetated buffer along the railway on the NE boundary, together with site lighting design and distance from the SW Highway, can limit any obtrusive effects of outdoor lighting. Key design points include directing lighting downwards rather than upwards wherever possible, using specifically designed lighting equipment to minimise the spread of near to or above the horizontal, prevention of over-lighting and ensuring the angle of the main beam of light and any observer is less than 70^0.	Management opportunities include: ♦ Planting of vegetation along the boundary, where practical, to screen the plant. ♦ Strategic use of light poles and directional lighting. ♦ Management of remnant vegetation and vegetation buffer along the NE boundary. ♦ Design of light overspill to comply with AS 4282.	Given the location of the site with respect to nearby residences, the commitment to limit light overspill by the use of directional lighting and the development and maintenance of vegetation, this factor is unlikely to be a concern.
Public Health & Safety	The subject site (18.69ha)	Ensure that risk is as low as reasonably achievable and complies with the requirements in EPA Policies, Guidelines and Criteria for EIA No 2, *Guidance for Risk Assessment and Management: Offsite Individual Risk from Hazardous Industrial Plant (July 2000).*	Major hazards at the site relate mainly to the movement of the mobile plant and trucks. Minimal hazardous flammable and/or materials will be held on site. Public access to the site will be limited by perimeter fencing and hazards indicated by signage using accepted practice.	♦ Storage of bulk fuels to comply with AS1940. ♦ Fencing of the site in compliance with *Occupational Health and Safety Regulations* ♦ Develop and Implement an Emergency Management Plan to the acceptance of the DEWCP and Department of Minerals and Energy Resources prior to commencement of construction.	Given the intrinsic nature of the proposed operation, lack of large volumes of hazardous or highly flammable material stored on site, and commitment to excluding the public from general operations, this factor will meet EPA criteria.
SOCIAL SURROUNDINGS					
Heritage	The subject area (18.69ha) and access road	To comply with statutory requirements, *Aboriginal Heritage Act 1972,* in relation to areas of cultural and historical significance.	The land is privately owned freehold. The siting of the woodchip mill and associated facilities on Preston AA Lot 262 will result in minimal clearing of native vegetation. A search of the Department of Aboriginal Affairs Register of Historical Sites has been undertaken. Although no sites were identified in the area assessed at the time, it is possible that sites that have not yet been entered on the Register, exist.	1. To develop and implement a site heritage protocol within the EMP. 2. Construction work will be stopped in the event that a site of suspected Aboriginal significance is found and an archaeologist shall be notified to examine the site. 3. If a site is positively identified to be of Aboriginal significance, the site will be fenced with "Keep Out" signage and the Aboriginal Sites Department of the WA Museum will be notified of the site within a timely manner.	Given much of the site has been cleared for agricultural activities, the findings of the desk top review and the commitment to protect any site discovered of ethnographic and archaeological significance, this factor is unlikely to be relevant.
Visual Amenity	The subject area, surrounding agricultural properties including the view from public roads and nearby residences	Visual amenity of the area adjacent to the project should not be unduly affected by the proposal	The proposed site is relatively isolated, has a low surrounding neighbourhood density and with limited visibility from the SW Highway. The location of the woodchip mill against a wooded landscape will assist in limiting visual impacts. Screen plantings are proposed for the site that will ensure the amenity of the views of the plant and stockpile. Visual amenity is affected by building design, choice of materials and landscaping. The buildings and plant will be designed to minimise impact on the landscape by using the site topography to advantage.	• While some screening exists, consideration will be given to planting vegetation along boundaries and on adjoining properties, if required, to minimise the visual impact of the development on the adjoining properties. • Retaining and developing existing vegetation buffer zones.	Given the site is not visible from major roads and the commitment to develop and maintain visual amenity, this factor will meet the EPA criteria.
Public Consultation	Residences of Donnybrook-Balingup including residents of properties adjacent to site	To provide the public with ample opportunity to fully understand the environmental aspects of the proposed facility	Extensive consultation is ongoing with the general community and particularly neighbouring residents. The main issues of public concern are the number and noise of the log trucks and potential noise from the mill. Advice from MRWA and Department of Planning and Infrastructure indicates that the South West Hwy could sustain the additional heavy road transport and the Donnybrook site minimises many of the transport impacts. The main reasons for supporting the project are the direct and indirect local benefits, reduced dependency on old growth forests and land improvement issues.	An extensive Public Consultation Program has been undertaken. Management proposes to maintain the Program and accommodate comments in the design and implementation of the project.	Given the extended period that this or similar projects have been broadly discussed in the Region, the limited area directly affected, and the implementation of an effective public consultation process, this factor is likely to meet the EPA criteria.

5.4.1 Vegetation Communities – Chipmill Site

A summary of the proposal characteristics was presented in Table 18.

Relevant Area

Proposal site of 18.69ha and access road.

EPA Objective

(i) To maintain the abundance, species diversity, geographic distribution and productivity of vegetation communities.

Protect specially protected (threatened) fauna species and their habitats, consistent with the provisions of the *Wildlife Conservation Act 1950.*1).

Applicable Standards, Guidelines or Procedures

EPA Preliminary Position Statement No. 2 (December 1999): Environmental Protection of Native Vegetation in Western Australia and EPA Preliminary Position Statement No. 3 (May 2000): General Requirements for Terrestrial Biological Surveys for Environmental Impact Assessment in Western Australia.

A number of generally accepted guidelines have been developed on the management of vegetation in rural areas, including *Managing Your Bushland* (Hussey and Wallace (1993) and Main Roads WA (1997) in EPA May (2000) Environmental Management Manual especially the section on Dieback control.

Under *The Soil and Land Conservation Act* 1945, clearing native vegetation greater than one hectare in size is notifiable to the Commissioner for Soil and Land Conservation.

Assessment and Discussion of Management

The existing vegetation on Preston AA Lot 262 and along part of Road No. 2506 is described in Section 4.3.4. The proposed mill site is located predominantly on cleared agricultural land and less than one hectare of native vegetation will be removed (Figure 4). Negligible native vegetation will be cleared in the preparation of the mill access along the existing Road No. 2506 road reserve and to the proposed new intersection with the South Western Highway.

A search was made of the CALM threatened (Declared Rare) Flora and Priority Species List and the Western Australian Herbarium Specimen databases. The search did not reveal the presence of any known populations of threatened flora within the proposed plant site. No flora of conservation significance (ie listed on the CALM Declared Rare and Priority Flora database) was recorded during the site survey within the study area.

The design and layout of the mill, associated facilities and access roads will be such that the clearing of native vegetation is minimised. The access road along the section

of Old Brookhampton Rd/Road No. 2506 will be upgraded within the existing road reserve, with a typical pavement width of 8 metres. As the road reserve is 20 metres wide, the pavement can be located to protect as far as practicable the existing vegetation (Figure 4).

Comments on Relevance of Factor

Given the effect of past agricultural activities in the area, the limited clearing of vegetation required, the results of the site survey, and the commitments proposed, this factor is unlikely to be relevant.

Vegetation Commitments

1. The design and layout of the mill, associated buildings and access roads will be such that the clearing of native vegetation is minimised.
2. To develop and implement a Vegetation Management Plan that includes the management of the remnant vegetation.

5.4.2 Fauna – Chipmill Site

A summary of the proposal characteristics is presented in Table 18.

Relevant Area

Proposal site of 18.69ha and access road.

EPA Objective

Protect specially protected (threatened) fauna species and their habitats, consistent with the provisions of the *Wildlife Conservation Act 1950.*

Applicable Standards, Guidelines or Procedures

Matters in relation to the preservation and conservation of fauna are identified in the *Wildlife Conservation Act 1950.* The *Commonwealth Endangered Species Protection Act* also provides for the protection of endangered and protected species.

Assessment and Discussion of Management

The proposed plant site on Preston AA Lot 262 is predominantly cleared agricultural land. Section 4.3.5 describes the outcome of a search of CALM's Threatened Fauna database, and the full report in Appendix 9 comments on the likelihood for impacting on significant animal populations as a result of the implementation of this proposal. Specially Protected or Priority Fauna identified on the Register are mobile and considered to occasionally visit the area. None were recorded during the site survey.

Implementation of the project will result in the removal of less than a hectare of native vegetation. The remaining vegetation on site will be maintained and additional trees planted along boundaries to protect against erosion and to enhance the visual amenity.

Comments on Relevance of Factor

Given the historical use of the land for agricultural activities, the limited size the remnant vegetation to be removed, and the lack of and highly mobile nature of Specially Protected or Priority Fauna recorded for the area, this factor is unlikely to be relevant.

Fauna Commitments

1. The design and layout of the mill and associated buildings and access roads will be such that the clearing of native vegetation is minimised.
2. Develop and implement a Vegetation Management Plan.
3. If Specially Protected fauna are identified in vegetation outliers identified for removal, advise CALM and develop a management plan for the population's protection, including trapping and relocation to other areas.

5.4.3 Groundwater Quality – Chipmill Site

A summary of the proposal characteristics was presented in Table 18.

Relevant Area

Groundwater below the site and down hydraulic head for a distance of 200m from the subject land.

EPA Objective

Maintain or improve the quality of groundwater to ensure that existing and potential uses, including ecosystem maintenance are protected, consistent with the *Australian Drinking Guidelines* (1996)-National Water Quality Management Strategy and the NHMRC/ARMCANZ *Australian and New Zealand Guidelines for Fresh and Marine Water Quality 2000- National Water Quality Management Strategy.*

Applicable Standards, Guidelines or Procedures

Management of water related issues on site such that ground waters comply with the *Australian Drinking Guidelines* (1996)-National Water Quality Management Strategy and the NHMRC/ARMCANZ *Australian and New Zealand Guidelines for Fresh and Marine Water Quality 2000 - National Water Quality Management Strategy.*

Assessment and Discussion of Management.

Operational water requirements are limited to log watering, drinking water and sanitary requirements. Log watering waters can contribute particulate materials and tannins. No soluble nutrients or pesticides will result from log watering. Given the

operating nature of the mill the resultant water requirements are minimal. An energy efficient 'on demand' pumping system is proposed to reticulate water from the storage facility to within the battery limits of the mill, for the purposes of dust control, washdown and log yard management.

Proposed storage and pumping facilities for firewater are in accordance with FESA requirements. Similarly rain water and or point of use disinfection of suitable stored water for potable and sanitary purposes are proposed.

A discussion of the characteristics of the existing groundwater is presented in Section 4.3.2. The existence of paleochannels in the vicinity will limit any effect the proposal may have on surrounding local users of the groundwater.

An anticipated daily volume of about 20 m^3 summer make-up will be required, and supplied from a combination of local extraction bores, dams on site, recycled water and/or trucked supplies.

Sewage and Grey Water

Wastewater management for an anticipated workforce (operation) of 14 per shift with occasional additional contractor employees, will be required on site. Sewage and grey waters will be directed to an Aerobic Treatment Unit (ATU) or modified septic system on an elevated portion of the subject land.

Monitoring of Groundwater

The measures undertaken to protect both surface and groundwater will minimise the risks of contamination. However, as a precaution, WAPRES will monitor both the surface and groundwater quality. Four monitoring bores, two up gradient (with respect to groundwater) from the site and two down gradient from the plant will be installed. These will be monitored quarterly for the first year of operation then results reviewed and an appropriate monitoring frequency established. Baseline results will also be taken prior to operation. Analyte selection will be determined in conjunction with DEWCP.

Groundwater Commitments

1. To develop and implement a Water Management Plan that will provide details of potential impacts on groundwater quality, and how they will be addressed, including, but not limited to:
    - Use of ATUs or modified septics for treatment of sewage.
    - Recycle all water on-site wherever possible.
    - Use of holding basins for stormwater.
    - Management of bulk fuels in accordance with AS1940.
    - Used oil disposed of off-site by a licensed contractor.
    - Routine monitoring of surface and groundwater.
    - Any proposed abstraction of borewater.

Comments on Relevance of Factor

Given the minimal water requirements on site, depth to water table, the lack of large quantities of hazardous and/or hydrocarbon materials stored on site, and the commitment to develop and implement a Water Management Plan, this factor will meet the EPA criteria.

5.4.4 Surface Water Quality – Chipmill Site

A summary of the proposal characteristics was presented in Table 18.

Relevant Area

Seasonal surface water in the Thomson Brook tributary (about 300m from the eastern boundary of the site).

EPA Objective

Maintain or improve the quality of surface water to ensure that existing and potential users, including ecosystem maintenance, are protected, consistent with the *Australian Drinking Guidelines* (1996)-National Water Quality Management Strategy and the NHMRC/ARMCANZ *Australian and New Zealand Guidelines for Fresh and Marine Water Quality 2000 – National Water Quality Management Strategy.*

Applicable Standards, Guidelines or Procedures

Management of water related issues on site such that surface waters comply with the *Australian Drinking Guidelines* (1996)-National Water Quality Management Strategy and the NHMRC/ARMCANZ *Australian and New Zealand Guidelines for Fresh and Marine Water Quality 2000 - National Water Quality Management Strategy.*

Assessment and Discussion of Management

Operations Wastewater and Stormwater

The relatively high rainfall of the area and proximity of the Thomson Brook tributary (albeit across the railway reserve), elevate the importance of on-site containment of stormwater.

Operation water requirements are limited to log watering, drinking water and sanitary requirements. Log watering wastewater can contribute particulate materials and tannins. No soluble nutrients or pesticides will result from log watering.

An anticipated daily volume of about $20m^3$ make-up water will be required during summer, and supplied from town water and/or a combination of local extraction bores, dam supply and/or trucked supplies. The existence of paleochannels in the vicinity lowers the risk of the contamination of neighbours water supplies (WRC, pers con, 2001). In addition, downward percolation of surface water is retarded by the presence of low permeability siltstone present in the Donnybrook Sandstone layer.

Water recycling on site will be undertaken, with bunds on lower slopes directing storm and wastewater to holding basins. Water will then be pumped from these holding basins to a storage tank for re-use on the site. Sufficient capacity will be provided in the holding basins to allow for isolation and treatment or recovery should an oil or diesel spill occur. It is possible that bore water will be abstracted for make up water, and/or water bought from neighbouring dams or bores.

Drainage

In general, drainage basin overflow shall be designed for a Minimum Average Reoccurrence Interval of 20 years and a one in 10 year event of 72 hour duration. Treatment of overflow from ponds will be in accordance with Water Sensitive Design principles.

Construction activities may affect water tables or impact on the quality of surface or ground waters. Measures shall be implemented to control the discharge of stormwater from construction areas.

The storage and handling of hazardous and dangerous substances during construction and operations shall be managed to minimise the possibility of impacts on surface or ground water (see Table 18). Other issues that will require careful management and monitoring are the abstraction of ground water and its influence on the surrounds.

Any waters treated on site will only be released from the site if water quality meets ANZEC Guidelines for the Protection of Aquatic Ecosystems.

Management of Bulk Fuels

All bulk fuel storage tanks will be designed and constructed (including bunding) in accordance with Australian Standard AS 1940 (Standards Australia, 1993 "The Storage and Handling of Flammable and Combustible Liquids") and requirements of the Department of Minerals and Energy's Dangerous Goods Division and the *Explosives and Dangerous Goods Act*, 1961.

Used oil will be collected and transported off-site by a licensed contractor as required.

Monitoring of Discharge and Surface Waters

Any scheduled release of water from the site will only occur following monitoring of the water and determination of compliance with ANZECC Standards for the Protection of Aquatic Ecosystems. Monitoring of water quality upstream and downstream of the plant (in the Thomson Brook or Preston River, depending on flows) will initially be undertaken quarterly, with the monitoring frequency reviewed after one year of operation, followed by review. This monitoring may be done in conjunction with DEWCP.

Surface Water Commitments

1. Release of stormwater from the interception dams will only occur if water quality meets *ANZECC Guidelines for Protection of Aquatic Ecosystems*.

2. To develop and implement a Water Management Plan that will provide details of potential impacts on surface water quality, and how they will be addressed and monitored.

3. All bulk fuel storage tanks will be designed and constructed (including bunding) in accordance with Australian Standard AS 1940.

Comments on Relevance of Factor

Given the proposal to intercept and re-use all surface water flows by a series of bunds and basins, the proposed monitoring program, the commitment to correct storage and handling of all environmentally hazardous materials, the limited volumes of bulk fuels stored on site, the commitment to release stormwater only if it meets ANZECC *Guidelines* develop and to implement a Water Management Plan, this factor is unlikely to be relevant.

5.4.5 Dust – Chipmill Site

A summary of the proposal characteristics was presented in Table 18.

Relevant Area

The subject area, surrounding agricultural properties including residences and surface waters.

EPA Objective

During Construction: To protect surrounding land users such that dust emissions will not adversely impact upon their welfare and amenity, or cause health problems, and to meet EPA Guidelines for *Assessment and Control of Dust and Windborne Material from Land Development Sites*.

During Operations: Ensure that gaseous emissions do not adversely affect the environment or health, welfare and amenity of nearby land users by meeting the requirements of the National Environmental Protection Measure (NEPM) for Ambient Air Quality (NEPC 1998) and acceptable standards.

Applicable Standards, Guidelines or Procedures

The EPA Policies, Guidelines and Criteria for EIA No 18, *Air Quality Impacts from Development Sites* are applicable to the control of dust from construction activities. As fines are not produced in the process and the proposed mill is in a rural setting, other particulate standards are unlikely to apply.

Assessment and Discussion of Management

Dust impacts shall be minimised through the adoption of dust control procedures in accordance with the typical requirements of the Local Authority and the EPA. Dust control measures shall be utilised on all cleared and exposed areas of land within the Project area.

Details of the prevailing wind direction are presented in Section 4.3.1. The nearest residential premises is located 160m east of the NE from the boundary of the subject land. In addition, the nearest vineyards lie about 1km north of the site and the two dams about 200m east of the site boundary.

The access road leading off the South Western Highway through Lots 296 and 351 to Road No 2506 and into the site will be bituminised. Mill roads will also be sealed. Initial log storage area will either be sealed or compacted to create a stabilised surface. The log store beneath the crane will be earthen.

Construction

Dust may be created during construction due to vehicular movement on unsealed roads and ground disturbing construction activities. As a management response, water carts will be used for dust suppression if deemed appropriate by the Construction Manager.

Dust generated during construction will be minimised by the application of DEWCP guidelines and best practice in dust suppression (including watering of surfaces and rehabilitation of disturbed areas).

Operation

Site operational activities that may contribute to dust generation include the movement of mobile plant, the chipping activity itself, woodchip sorting, transfer to stockpile and loading. For lubrication purposes, log stockpiles will be kept damp when required.

Dust generated during operation will be minimised by the application of DEWCP guidelines and best practice in dust suppression (including watering of surfaces, if necessary).

Chip Mill Dust Commitments

1. Apply EPA Policies, Guidelines and Criteria for EIA No 18, *Air Quality Impacts from Development Sites* during construction of the plant.
2. Abide by the National Environmental Protection Measure (NEPM) for Ambient Air Quality (NEPC 1998) during operations.
3. Develop and implement a Dust Management Plan will be developed and implemented that will specify dust actions in the case of unreasonable dust lift-off during windy dry conditions.

Comments on Relevance of Factor

Given the relatively remote location of the site, the low dust generating potential of the activities when considered in relation to the rainfall, the commitments made to comply with EPA guidelines, and develop and implement a Dust Management Plan for the construction and operational phases, this factor is unlikely to be limiting.

Comments on Relevance of Factor

Given the relatively remote location of the site, the low dust generating potential of the activities when considered in relation to the rainfall, the commitments made to comply with EPA guidelines, and develop and implement a Dust Management Plan for the construction and operational phases, this factor is unlikely to be limiting.

5.4.6 Noise – Chipmill Site

A summary of the proposal's noise characteristics is presented in Table 18. In order to determine noise impacts associated with the Donnybrook Woodchip Mill a noise specialist was employed to carry out a noise baseline monitoring and modelling study. The full noise assessment report (Herring Storer, Nov 2001) is provided in Appendix 10c.

Relevant Area

Proposal area and surrounding properties including nearby residences.

EPA Objective

Protect the amenity of nearby residents from noise impacts resulting from activities associated with the proposal by ensuring that noise levels meet the *Environmental Protection (Noise) Regulations 1997 (As Amended)*.

Applicable Standards, Guidelines or Procedures

Noise emissions from the woodchip plant are required to comply with the assigned noise levels as determined in the *Environmental Protection (Noise) Regulations, 1997* at any noise sensitive premises. Under these regulations the assigned outdoor noise levels for the noise received at any noise sensitive premises during various times of day is determined by the calculation of an influencing factor, which is then added to base levels. The influencing factor is calculated for the usage of the land within two circles, having radii of 100 and 450 metres from the premises of concern.

The influencing factor for residences located around the plant is 0. Therefore, the maximum allowable L_{A10} , L_{MAX} and L_{A1}noise levels are as listed in Table 19.

TABLE 19
ASSIGNED L_{A10} NOISE LEVELS AT RESIDENCES LOCATED AROUND PROCESSING PLANT

Time of Day	Assigned L_{A10} Noise Level	Assigned L_{A1} Noise Level	Assigned L_{max} Noise Level
0700 - 1900 hours - Monday to Saturday	45	55	65
0900 - 1900 hours - Sunday & Public Holidays	40	50	65
1900 - 2200 hours - All Days	40	50	55
2200 - 0700 hours - Monday to Saturday	35	45	55
2200 - 0900 hours - Sunday & Public Holidays	35	45	55

Assessment and Discussion of Management

Modelling

Modelling of the noise emission propagation for the woodchip mill was carried out using "SoundPlan". The model assumes the plant operating 24 hours per day and train movement only occurs in the day. Hence, the most stringent regulatory criteria is the night period assigned L_{A10} noise level of 35 dB(A) at the nearest residence. Noise emissions from the train loading and the plant will need to comply with the assigned L_{A10} period noise level of 45 dB(A) at the neighbouring residences.

Noise contours were calculated for day and night scenarios (night contours shown in Figure 10). Single point calculations were determined for each scenario for the closest resident located to the north east, and the results are listed in Table 20.

TABLE 20
CALCULATED NOISE LEVEL AT CLOSEST RESIDENCES

Location	Noise Level dB(A)			
	Day Period		Night Period	
	No Noise Control	With Noise Control	No noise Control	With Noise Control
Closest Residence (Lot 18)	49 (54)	39	43 (48)	30

( ) Includes a +5 dB(A) penalty for a tonal element

Noise received at the closest residence from the chip mill without noise control would be tonal and a +5dB(A) penalty added to the calculated noise level.

Results

Noise emissions comply with the Regulations at all residences and at all times, provided the following noise controls are implemented:

- Manage train loading operations to minimise impacts on the nearest resident through scheduling and engineering design.
- Control dozer operations, by limiting dozer movements on the side facing the closest residence during the day period and limiting noise emissions to 87 dB(A) at 7m.
- Limit noise emissions from the Front End loaders to 85 dB(A) at 7m.
- Enclose the de-barker to limit noise to 85 dB(A) at 1m.
- Enclose the chipper to limit noise emissions to 82 dB(A) at 1m.
- During the night period, carry out truck unloading activities behind a barrier (log stock pile).
- Noise emissions from the conveyor to be limited to 70 dB(A) at 1m.

Chip Mill Noise Commitments

1. Develop and implement the Noise Management Plan for Construction and Operation.
2. Design and install sound shields around equipment as necessary so that at all times, noise emissions comply with all requirements of the *Environmental Protection (Noise) Regulations 1997.*
3. Ensure compliance with noise requirements during acceptance testing from equipment suppliers.
4. Manage train loading operations and truck unloading activities through scheduling and engineering design such that noise emissions comply with all requirements of the *Environmental Protection (Noise) Regulations 1997* at the nearest residence all the time.

Comments on Relevance of Factor

Given the results of noise modelling to date, relatively remote location of the proposed site with respect to housing and the commitment to develop and implement the Noise Management Plan for construction and operation, this factor can be managed to ensure noise emissions at the nearest residences always comply with EPA criteria.

5.4.7 Heritage – Chipmill Site

A summary of the proposal characteristics was presented in Table 18.

Relevant Area

Proposal site of 18.69ha and access road.

EPA Objectives

Ensure that the proposal complies with the requirements of the *Aboriginal Heritage Act,* 1972.

Applicable Standards, Guidelines or Procedures

Applicable legislation in Western Australia is the *Aboriginal Heritage Act* 1972, and amendments made in 1980 and 1995. This legislation makes provision for the recording and preservation of places and objects used by or traditionally linked to the original inhabitants of Australia or their descendants or associated therewith, or for other incidental purposes. Unauthorised interference with Aboriginal sites is an offence under the *Aboriginal Heritage Act.*

Assessment and Discussion of Management

The subject land consists predominantly of cleared agricultural land with two stands of jarrah and marri, a thin strip of vegetation following the eastern boundary along the railway and a thin strip of remnant vegetation along Road No.2506. Development of the proposed site will require removal of less than a hectare of remnant native vegetation. Site benching and construction of plant roads and services will impact on some of the site.

A search of the Department of Aboriginal Affairs Register of Historical Sites was undertaken. Although no sites were identified in the broader area assessed, it is possible that sites that have not yet been entered on the Register may exist.

Contractors shall receive training with regard to Aboriginal Heritage. In the event that any archaeological material (including human skeletal material) or a suspected Aboriginal site is uncovered, work should stop immediately in the vicinity of the site. The suspected site shall be reported immediately to the Construction Manager and an archaeologist shall be notified and examine the suspected site.

In the event that the suspected site is considered to be of Aboriginal significance by the archaeologist, the site will be fenced and "Keep Out" signage will be erected on the fence. The Aboriginal Sites Department of the WA Museum will be notified of the site. If required, the necessary clearances to disturb the site will be obtained under Section 18 of the *Aboriginal Heritage Act.*

Ethnographic and Archaeological Commitments

1. To develop and implement a site heritage protocol within the EMP.
2. Construction work will be stopped in the event that a site of suspected Aboriginal significance is found and an archaeologist shall be notified to examine the site.
3. If a site is positively identified to be of Aboriginal significance, the site will be fenced with "Keep Out" signage and the Aboriginal Sites Department of the WA Museum will be notified of the site within a timely manner.

Comments on Relevance of Factor

Given much of the site has been cleared for agricultural activities, the findings of the desk top review and the commitment to protect any site discovered of ethnographic and archaeological significance, this factor is unlikely to be relevant.

5.4.8 Public Consultation – Chipmill Site

A summary of the proposal characteristics was presented in Table 18.

Relevant Area

Residents of the Donnybrook community.

EPA Objective

To provide individual community members, Non Government Organisations (NGO's), the private sector and other interested parties with ample opportunity to be fully informed and participate with Government at various levels of decision on this project.

Assessment and Discussion of Management

Matters presented in Section 5.3.4 (Transport Issues: Community Consultation) are also relevant to this section. The Community Consultation process undertaken in relation to this project has been described in Section 3. A summary of the issues raised by stakeholders and members of the community is presented in Section 3.2.1 and further presented as a matrix in Appendix 4. WAPRES responses to public submissions are presented in Section 7.

Many of the concerns expressed in relation to the chip mill site are addressed through project design or the pollution prevention strategies proposed. A number of stakeholders and members of the community identified noise and surface water quality as issues of concern. Experience at the Diamond Chip Mill near Manjimup and the Wesfi pine processing complex at Dardanup would indicate that acoustic enclosures and treatments can reduce noise at noise sensitive premises to within accepted criteria. The site noise emissions will comply with *The Environmental*

Protection (Noise) Regulations 1997 (As Amended) when operating under the noise controls specified in Section 5.4.6.

Strategies for the protection of surface waters are presented in Section 5.4.4 above, and include the interception and re-use of all surface water flows using a series of bunds and basins, and the commitment to develop and implement a Water Management Plan.

Public Consultation Commitments

As for 5.3.4 and 5.4.8

Comments on Relevance of Factor

A public consultation program has been developed and the initial stages completed. Components have included representation at and presentation to public meetings, stakeholder meetings and discussions with potentially affected nearby land owners, placement of newspaper advertisements, preparation of press releases and information leaflets; interviews on the electronic media and the preparation of two day public information display events (one for two days, the second a single day) etc.

Stakeholders, members of the public, and nearby residents have been invited to comment on the proposal, and the outcomes have either been reflected in the planning of this proposal or in the text in this document. Nearby land owners and residents and business owners were contacted, the proposal described and comments sought. Major concerns related to the potential loss of amenity due to noise (Section 5.4.6) and increased heavy vehicle traffic (Section 5.3).

Given the extended period that this or similar projects have been broadly discussed in the Region, the limited area directly affected, and the implementation of an effective public consultation process, this factor is likely to meet the EPA criteria.

5.4.9 Proponent's Commitments relating to other Factors – Chipmill Site

A number of other factors have been considered in the review of the impacts from the construction and operation of the Donnybrook chip mill. These are important in the context of the minimisation of the impacts of the overall project and are summarised below.

Overall Environmental Management Plan

1. Develop and implement an Environmental Management Plan that will incorporate the Management Plans for the individual factors.

Odour Commitments

1. Use of ATUs or amended septics for treatment of sewage.
2. All putrescible wastes, litter and office waste collected and disposed of off-site.
3. If unreasonable odours should be emitted from the operation, develop and implement an Odour Management Plan.

Liquid and Solid Waste Disposal Commitments

1. Accumulated fines and residual bark will be disposed of off-site.
2. Other forms of solid waste will be disposed of at municipal landfill sites or where appropriate, recycled.

Light Overspill Commitments

1. Planting of vegetation along the boundary where practical to provide a visual screen of the mill.
2. Strategic use of light poles and directional lighting.
3. Design of light overspill to comply with AS 4282.

Public Health and Safety Commitments

1. Storage of bulk fuels to comply with AS1940.
2. Fencing of the site in compliance with *Occupational Health & Safety Regulations.*
3. Develop and Implement an Emergency Management Plan to the acceptance of the DEWCP and Department of Minerals and Energy Resources prior to commencement of construction.

5.5 Assessment of Relevant Environmental Factors – Bunbury Port Facilities

Environmental factors considered in the evaluation of the impacts of the expansion of operations at the Bunbury Port Export Woodchip Facility are presented in Table 21. Descriptions of the existing port facilities, port services and port environment are presented in Sections 2.7, 2.8 and 4.5 respectively.

The premises are prescribed and is licensed (No. 5774/5) under Section 62 of the *Environmental Protection Act* (1986).

TABLE 21
EXISTING WOODCHIP LOADING FACILITY – BUNBURY INNER HARBOUR

Storage of up to approx. 240,000 tonnes on site.
40,000 tonne vessels of approx. 12m max draught. Fixed mechanical loader operated by Sotico.
Woodchip transport option is predominantly by rail to Bunbury Port.
Ship loading rate approx. 1000 tonnes per hour.

Factor (Site Specific Factor)	Relevant Area	EPA Objective	Proposal Characteristics and Potential Impact	Proposed Management	Predicted Outcomes/Relevance of Factors
BIOPHYSICAL					
1. Marine Flora	Bunbury Inner Harbour	To maintain the ecological function, abundance, species diversity and geographic diversity of seagrasses	No impact to the marine flora and fauna due to increase in export quantities.	Occasional monitoring of the Inner Harbour water quality to be discussed with the EPA/DEWCP.	Given the nature of the proposal, this factor is unlikely to be relevant.
2. Marine Fauna	Bunbury Inner Harbour	To maintain the ecological function, abundance, species diversity and geographic diversity of marine faunal communities			
POLLUTION MANAGEMENT					
3. Odour	Proposal site and adjoining area within a radius of 1km.	Odours emanating from the proposed development should not adversely affect the welfare and amenity of nearby land users.	Tree resin odours can result from the stacking and loading of woodchips. These and other odours are not anticipated to impact on the nearest residences that are approximately 0.5km south of the existing site. The DEWCP's complaint base ((1/8/00 to 1/8/01) does not record any odour complaint.	• Sewage and grey water is directed to the existing septic tanks. • Any putrescible wastes, litter and office waste collected and disposed of off-site.	Given the minor strength, intensity and offensiveness of any odours potentially emitted, and the distance to sensitive premises, this factor will meet the EPA criteria.
4. Liquid and Solid Waste Disposal	Proposal site of approximately 9.6ha	Liquid and solid wastes should be contained and isolated from groundwater and surface water flow to Harbour.	There are no solid wastes generated on site. Putrescible wastes, litter and office waste is collected and disposed of at Municipal landfills through licensed contract waste management services. Wastewater management exists for the current workforce of 9. An additional 1-2 employees may be required. No upgrades to the existing septic system are required. Minimal equipment and vehicle maintenance and vehicle fuelling is undertaken on site and only in bunded areas. Oil wastes are transported offsite by a licensed oil recycler. Major servicing is undertaken off-site as a requirement of the operational contracts.	See (3) above and (5) below. • Drainage to harbour and surrounds is currently through a series of perimeter drains and a retention sump with sufficient capacity to allow recovery of accidental hydrocarbon loss. • The bunded maintenance and fuelling area drain into a separate sump with a lockable valve. This will normally be closed off for the recovery of any accidental hydrocarbon spill.	Given that all solid wastes are transported offsite, and liquid waste is disposed to the existing septic system, this factor will meet the EPA criteria.
5. Stormwater Discharge	Bunbury Inner Harbour offshore of Berth 3, to a distance of 50m.	To ensure that surface water is managed to prevent discharge of contaminated water from site or to groundwater. To ensure that the beneficial uses of groundwater can be maintained, consistent with the Australian and New Zealand Guidelines for fresh and marine water quality (Oct. 2000) and the NHMRC / ARMCANZ Australian Drinking Water Guidelines- National Water Quality Management Strategy 1996.	Stormwater has the potential to leave the site and drain to the Bunbury Harbour. Stormwater can carry a fine particulate load. There remains further potential that, in the event of the loss of engine oil or hydraulic fluid from vehicles or equipment, this could be directed to the harbour. Woodchips are stored on a hardstand area (currently being expanded to cover the entire stockpile area), that is drained to the harbour and surrounds through a series of perimeter drains and retention sumps with sufficient capacity to allow recovery of any accidental hydrocarbon losses. Due to the water absorbing characteristics of the woodchips, water run off in even the heaviest rainfall events is minimal. The runoff from the woodchip pile is captured by a perimeter drain. This water is directed into a large sump to allow the suspended solids to fall out. It has a mesh screen on the inlet and outlet of the stormwater drain to act as a backup capture point. All other areas have the stormwater directed into drains and sumps where mesh screens on the outlets capture any floating or suspended material.	Harbour Discharge of Stormwater Commitments: 1. Sewage and grey water is directed to the existing septic tank system. 2. Any putrescible wastes, litter and office waste is collected and disposed of off-site at municipal landfills. 3. Storage of bluegum woodchip product will be on a hardstand (currently being constructed) 4. Drainage to harbour and surrounds is through series of perimeter drains and a retention sump with sufficient capacity to allow recovery of accidental hydrocarbon loss. 5. Industrial mesh grates cover all stormwater inlets/outlets. 6. Twice annual monitoring of stormwater and groundwater to ensure discharge meets criteria for ANZECC Water Quality Guidelines.	Given the potential to impact on marine waters is limited by the nature of the project and the commitment to manage water appropriately, this factor will meet the EPA criteria.

Factor (Site Specific Factor)	Relevant Area	EPA Objective	Proposal Characteristics and Potential Impact	Proposed Management	Predicted Outcomes/Relevance of Factors
6. Dust	The subject area, surrounding industrial lots, residences and near shore marine waters	(i) Ensure that dust generated during construction and operation does not cause any environmental or human health problem or significantly impact on amenity; and (ii) Use all reasonable and practicable measures to minimise airborne dust.	The nearest dust sensitive premises is located approximately 0.5km to the south. Surrounding dust sensitive industrial premises include the Cable Sands stockpiles approx 200m to the NW. The ALCOA and Worsley Alumina facilities about 600m ENE have dust suppression equipment to limit dust pollution during loading. Dust impacts can occur during product stacking and loading. The woodchips are dropped from the train wagons into a below ground receival pit and transported by conveyor to be stacked by a permanent stacking gantry and jetslinger on the chip pile. Chips are moved on the pile by a combination of rubber tyred loaders and bulldozers. To load the ships, bulldozers push woodchips into a receival hopper that leads to the fixed loading conveyor. At any one time, an anticipated maximum of about 240 000tonnes can be held on site. Wind rose data for Bunbury indicate that local wind regime is highly seasonal, with summer morning winds dominated by easterlies with significant southerly components, followed by strong afternoon sea breezes from the south and west. Winter winds are primarily easterlies in the morning, tending W or N in the afternoons. Winds with a northerly and particularly a NE component have the potential to impact on private residences along the Leschenault Inlet. Adjacent industries would most likely be affected by winds with S and E components.	• Blue gum chips less prone to dust lift-off than older aged native forest products. • Dust suppression water sprays located on the stacking gantry assist in preventing any dust lift off by wind. The permanent stacking conveyor and conveyor transfer points have water sprays fitted to minimise dust lift off as the woodchips are transferred to the stockpile. • Perimeter vegetation will be maintained to assist visual amenity and limit local wind influence. • Contingency plans include modifications to the stockpile design (to minimise the movement of chips required), additional water sprays and sweeping of the hardstand and roads. Management commitments include: • Undertake abatement measures as necessary such that the proposal meets the requirements in EPA/DEWCP Policies, Guidelines and Criteria. • Continue to support the Bunbury Port Authority and Port Users Group initiatives with the high volume air sampling program, to monitor environmental dust levels.	Given the relatively low dust generating potential of the activity, the current effective use of water sprays and the commitment to develop contingencies for dust management should the need arise, this factor will meet the EPA criteria.
7. Noise	Proposal area and surrounding properties including adjacent industries and nearby residences	To ensure noise emissions from the plants operations are as low as reasonably practical and comply with the Environmental Protection (Noise) Regulations 1997.	Woodchip stockpiling and ship loading operations are currently achieved by 1 rubber tyre loader and up to 3 bulldozers working with the conveyors. Hours of operation are dictated by ship, truck and train movements, but can be anticipated at all hours. At maximum production approximately 25 ship movements will be required to export the bluegum woodchips annually. Each vessel is in port for approximately 2 days. Trucks usually operate between 7am and around sundown while currently 2-3 trains operate daily every 8-11hrs (with one on Sundays) for 24hr/day. This may increase to 4-5 trains a day carrying bluegum woodchips at 1mtpa bluegum woodchip production. Rail delivery from the woodchip mill is the preferred option. Rail wagons discharge chip product to a below ground hopper, where a conveyor transfers the chips to the stockpiles. Bulldozers push the woodchips into the shiploading hopper and a conveyor loads them into the ship. Noise is generated principally by the bulldozers, front end loaders, stacker and conveyors. The nearest noise sensitive premises are residences located approximately 450m south of the site perimeter across the Leschenault Inlet and the Koombana Resort, about 500m west. Wind rose data for Bunbury indicate that local wind regime is highly seasonal, with summer morning winds dominated by easterlies with significant southerly components, followed by strong afternoon sea breezes from the south and west. Winter winds are largely from the E in the morning, tending W or N in the afternoon	In consultation with the DEWCP, develop and implement the Noise Management Plan (Appendix 7a) that will ensure compliance with the *Environmental Protection (Noise) Regulations* 1997 at any noise sensitive premises at all times. In the Noise Management Plan, strategies to ensure compliance with the *Regulations* include but are not limited to the following: • limits on the hours of operation, method of operation and speed of the bulldozers on the chip pile depending on the prevailing winds, • limit operations of the front end loaders, • modifications to the height and shape of the woodpile • appropriate maintenance schedules for all mobile equipment, • installation of a barrier to the stacker drive located at the top of the stacker. Practices to be reviewed in order to maintain acceptable noise emissions include: • methods of stockpiling, • implementation of bulldozer noise controls, and • installation of acoustic barriers for the conveyors.	Given the experience gained from existing woodchip export operations and commitments to comply with all statutory requirements through the development and implementation of a Noise Management Plan, noise from the Port can be managed to meet the EPA's requirements.

Factor (Site Specific Factor)	Relevant Area	EPA Objective	Proposal Characteristics and Potential Impact	Proposed Management	Predicted Outcomes/Relevance of Factors
			Noise from the facility, particularly bulldozers on the stockpile, has the potential to impact on nearby residences. Monitoring shows that noise emissions from the WAPRES facilities received at the Koombana Resort comply with the Regulations but dozer emissions as received along the Leschenault Inlet exceed the assigned levels. Modelling predicts that, with the proposed noise control practices, the WAPRES operations will comply with the *Regulations* at all times.		
8. Light Overspill	Proposal area and surrounding properties including the view from nearby residences	Manage potential impacts from light overspill and comply with AS 4289	The proposed site is located within the operating port complex. of Bunbury Inner Harbour and relatively close to the City of Bunbury. Adequate lighting is an occupational requirement to allow safe operations at the proposed woodchip site and the stockpile area.	1. Confirm lighting towers are strategically located and use directional lighting. 2. Maintain and promote the vegetation buffer along Koombana Drive.	Given the physical features of the proposed site, distance to nearby sensitive premises and the commitment to limit light overspill by the continued use of directional lighting and vegetation buffer maintenance, this factor will meet the EPA criteria.
9. Public Health & Safety	Proposal site of approximately 9.6ha	Ensure that risk is as low as reasonably achievable and complies with the requirements in EPA Policies, Guidelines and Criteria for EIA No 2, *Guidance for Risk Assessment and Management: Offsite Individual Risk from Hazardous Industrial Plant* (2000).	Major hazards at the site relate to the movement of bulldozers, trucks and trains. No hazardous materials and a minimum of flammable materials are held on site. Public access to the site is limited by perimeter fencing and hazards are indicated by signage using accepted practice.	♦ Continue to store bulk fuels in compliance with AS1940. ♦ Maintain existing fencing of the site. ♦ Continue current compliance with Occupational Health and Safety Regulations.	Given the intrinsic nature of the existing operation, lack of hazardous or highly flammable material stored on site, and commitment to continue to exclude the public from general operations, this factor will meet the EPA criteria.
SOCIAL SURROUNDINGS					
10. Visual Amenity	Proposal area and surrounding properties including the view from public roads, tourist walks and nearby residences	Visual amenity of the area adjacent to the project should not be unduly affected by the proposal	The loading facility is located within an operating port complex that includes the ALCOA and Worsley Alumina operations and existing WAPRES facilities. These ALCOA and Worsley buildings and structures are a similar height or higher than the chip pile and associated WAPRES facilities. The loading facility is located in reasonable proximity to the Bunbury City site, but is generally well screened from Koombana Drive by existing perimeter vegetation and from the foreshore by other harbour storage and industries. Only the chip pile is prominent from most viewpoints. The increase in export capacity of bluegum will not necessarily bring an increase in stockpile height as the vessels will be arriving more frequently and the amount of marri/karri stored (currently the highest stockpile) will decrease as the amount of stockpiled bluegum increases. The height of the bluegum pile will not exceed that of the current marri/karri woodpile.	The facility is against a backdrop of other harbour structures, some a similar height or even higher. ♦ Confirm lighting towers are strategically located and use directional lighting. ♦ Maintain and promote the vegetation buffer along Koombana Drive. ♦ Limit the height of the bluegum stockpiles to the current marri/karri stockpile height.	Given the existing lighting and physical features, the location of the site within a working port environment and the fact that the stockpile height is determined by the shipping frequency and product distribution (not by the bluegum export rate alone), this factor will meet the EPA criteria.
11. Public Consultation	Key stakeholders and Residents within a 5km radius of the proposed Port facility	To provide the public with ample opportunity to fully understand the environmental aspects of the proposed facility	Current noise and dust problems at the existing woodchip pile are a public concern – any expansion of operations will require careful management. Public declarations of improving current noise and dust problems and the achievement of promised improvements are likely to allay many of the concerns regarding an increase in port activities.	A Public Consultation Program will be undertaken.	Given the location of the site within an operating Port environment and the implementation of a public consultation program, this factor will meet the EPA criteria.

5.5.1 Discharge of Contaminated Stormwater (Marine Water Quality) - Port

This section combines the potential impacts of solid and liquid waste disposal, and stormwater discharge. A summary of the proposal characteristics is presented in Table 21.

Relevant Area

Proposal site of approximately 9.6ha.

EPA Objective

Maintain or improve the quality of surface water to ensure that existing and potential users, including ecosystem maintenance, are protected, consistent with the draft *WA Guidelines for fresh and marine waters* (EPA 1993) and the NHMRC/ARMCANZ *Australian Drinking Water Guidelines – National Water Quality Management Strategy*.

Applicable Standards, Guidelines or Procedures

Stormwater discharges should be managed to meet the draft *WA Guidelines for Fresh and Marine Waters* (EPA 1993), and the NHMRC/ARMCANZ *Australian Drinking Water Guidelines - National Water Quality Management Strategy*.

Assessment and Discussion of Management

Solid Waste

There are no solid wastes of appreciable quantity generated on site. Putrescible wastes, litter and office waste is currently collected and disposed of at an approved Municipal landfill by a licensed contract waste management service.

Liquid Waste

Wastewater management for the current operational workforce of 9 exists on site. Sewage and grey waters are directed to existing septic tanks and there is capacity to accommodate the expected 1-2 increase in the workforce.

All vehicle maintenance and refuelling are undertaken in a bunded area (Figure 6). Oil wastes are transported offsite by a licensed oil recycler. Major vehicle servicing is undertaken off-site as a requirement of the operational contracts. Kerosene and fuels are stored in drums within a bunded area in accordance with the requirements of AS1940.

Stormwater Discharge and Monitoring

Stormwater leaves the site via stormwater drains and soak beds before sinking into the surrounds (Figure 6) from where it can drain to the Bunbury Harbour. Potential contaminants in stormwater include woodfibre particulates and the possibility of hydrocarbons (for example, engine oil or hydraulic fluid from machinery or vehicles).

Due to the water absorbing characteristics of the woodchips, experience at the WAPRES Port facility has shown that water run off from stockpiles, even the heaviest rainfall events, is minimal. However, in order to mitigate the potential off-site effects, the woodchips are stored on a hardstand area (currently being extended to include the bluegum stockpile). The hardstand has been designed to include a series of perimeter drains and a lined retention sump. These drains have with sufficient capacity to allow recovery of any accidental hydrocarbon losses. The retention sump also allows for settling of any solids. In addition, industrial mesh grates cover all stormwater inlets and outlets, thereby further minimising fibre content in the stormwater. These grates are cleaned on a regular basis. The major output drains have slam shut gates in place.

To ensure that discharge water is meeting the ANZECC Water Quality Guidelines for Protection of Aquatic Ecosystems, a monitoring program for stormwater and groundwater is undertaken every six months.

Harbour Discharge of Contaminated Stormwater Commitments

1. Sewage and grey water is directed to the existing septic tank system.
2. Any putrescible wastes, litter and office waste is collected and disposed of off-site at municipal landfills.
3. Storage of bluegum woodchip product at Port facility is on a hardstand.
4. Drainage to harbour and surrounds is through series of perimeter drains and a retention sump with sufficient capacity to allow recovery of accidental hydrocarbon loss.
5. Industrial mesh grates cover all stormwater inlets/outlets.
6. Monitoring of stormwater and groundwater to ensure discharge meets criteria for ANZECC Water Quality Guidelines.

Comments on Relevance of Factor

The harbour is protected from any contaminated solid and liquid wastes and there is adequate provision to hold and treat stormwater. Given the potential to impact on marine waters is limited by the nature of the project, solid wastes are disposed of off site and liquid waste directed to the existing septic tanks and the commitment to manage water appropriately, this factor is unlikely to be relevant.

5.5.2 Dust – Port Facilities

A summary of the proposal characteristics is presented in Table 21. The premises is prescribed and licensed under Section 62 of the *Environmental Protection Act* (1986). The export facility is located centrally within Inner Harbour adjacent to the Cable Sands mineral sand processing facility and across the harbour from the ALCOA/Worsley Alumina operations (approx 600m). All three sites and associated operations have dust generating potential. The nearest dust sensitive premises are the residences are about 500m south of the site. In addition, the Cable Sands stockpile lies about 200m north west of the subject land fence.

Relevant Area

The subject area, surrounding industrial lots, residences and near shore marine waters

EPA Objectives

To protect the surrounding land users such that dust emissions will not adversely impact upon their welfare and amenity or cause health problems.

Applicable Standards, Guidelines or Procedures

Ensure that the proposal meets the requirements in EPA Policies, Guidelines and Criteria for EIA No 18, *Air Quality Impacts from Development Sites*.

Assessment and Discussion of Management

Site operational activities that may contribute to dust generation include the movement of vehicles, transfer of chips to the stockpile and loading. Wind rose data for Bunbury (Appendix 10 Figure2) indicate that local wind regime is highly seasonal, with summer morning winds dominated by easterlies with significant southerly components, followed by strong afternoon westerly sea breezes. Winter winds are primarily easterlies in the morning, tending westerly or northerly in the afternoons. Winds with a northerly component have the potential to impact on the private residences along the Leschenault Inlet. Adjacent industries would most likely be affected by winds with southerly and south-easterly components.

At any one time, an anticipated maximum stockpile of about 240 000 tonnes of total woodchip product (marri, karri, bluegum and pine) will be held on site. The current stockpile maximum is 240 000 tonnes. This amount may on exceptional occasion be exceeded to meet operational requirements or dictated by shipping schedules. Woodchips are unloaded onto a below ground receival pit and moved to storage by a combination of rubber tyred loaders, bulldozers and conveyors. The product is stacked using a stacking gantry and bulldozers. Loading is achieved by bulldozers pushing product into a hopper below the stockpile that leads to the fixed ship loading conveyor.

Current operations of the WAPRES port facility have previously been subject to complaints in relation to dust during stacking operations. Further concerns relate to the impact of wind blown fines on product quality at the adjacent Cable Sands stockpile.

Dust management will in the first instance be restricted to the continued use of directional water sprays from the stacking gantry. Current experience at the WAPRES Port facility has shown this technique, together with good housekeeping (such as the regular sweeping and/or hosing of the hardstand and roads) is highly effective at minimising dust. Should additional reductions in dust be required, changes to the stacker design can be investigated to minimise disturbance to the chips as they are stockpiled.

Implementation of these procedures will also limit dust deposition in harbour waters.

Port Dust Management Commitments

1. Undertake abatement measures as necessary such that the proposal meets the requirements in EPA/DEP Policies, Guidelines and Criteria.
2. Continue to support the Bunbury Port Authority and Port Users Group initiatives with the high volume air sampling program, to monitor environmental dust levels.

Comments on Relevance of Factor

Given the relatively low dust generating potential of the activity, the current effective use of water sprays and the commitment to develop contingencies for dust management should the need arise, this factor is unlikely to be limiting.

5.5.3 Noise – Port Facilities

Relevant Area

Proposal area and surrounding properties, including adjacent industries and residences.

EPA Objective

Protect the amenity of nearby residents from noise impacts resulting from activities associated with the proposal by ensuring that noise levels meet the *Environmental Protection (Noise) Regulations* 1997 (As Amended).

Applicable Standards, Guidelines or Procedures

Noise emissions from the port woodchip export facility are required to comply with the assigned noise levels as determined in *the Environmental Protection (Noise) Regulations* 1997 (As Amended) at any noise sensitive premises. Under these regulations the assigned outdoor noise levels for the noise received at any noise sensitive premises during various times of day is determined by the calculation of an influencing factor, which is then added to base levels. The influencing factor is calculated for the usage of the land within two circles, having radii of 100 and 450 metres from the premises of concern. In this case, the influencing factor for noise sensitive premises located around the port facility ranges from 0, at residences located at more than 450m from the port, to 4 at residences located on Oliver Street. The resultant assigned noise levels and the location of residences are shown in Appendix 10a and 10b.

Under the Regulations, noise emissions from an industry located in an industrial area are not considered to be significantly contributing to the noise received at another premises if the noise is at least 5 dB(A) below the assigned noise level. As there are only two other industries in the area that would contribute to the noise received at noise sensitive premises, compliance to the *Regulations* can be achieved by controlling noise emissions to 3 dB(A) below the assigned levels.

Assessment and Discussion of Management

Currently WAPRES exports marri, karri, bluegum and pine woodchips from their existing facilities at the Bunbury Inner Harbour. Operation noise levels have on occasion caused complaints to the Department of Environment, Catchment and Water Protection (DEWCP) especially in relation to the operation of the bulldozers on top of the woodchip stockpiles at night during ship loading.

WAPRES intend to increase the amount of bluegum woodchips by up to 1mtpa through the construction and operation of a new woodchip mill at Donnybrook and in so doing replace some of the hardwood woodchips currently exported. This will result in an increase in the number of trains and vessels arriving at the facility as shown in Table 22

TABLE 22
CURRENT AND PROJECTED WOODCHIP EXPORT

WOODCHIP EXPORTS	TRAINS (PER WEEK)		SHIPS (PER YEAR)	
	Low	High	Low	High
0.75-0.99mtpa total (2001)	14	19	17	21
1mtpa gum 0.15 mtpa karri 0.08 mtpa pine (2005)	19	31	25	32

Key WAPRES facilities that can generate noise include:

- Bulldozers;
- Stacker;
- Front end loaders
- Conveyors (minor); and
- Trucks (minor).

Train unloading does not occur on the premises and therefore has been excluded from the assessment of noise of the port facilities for the purpose of this management strategy. Currently there are up to three trains daily. Equipment associated with train unloading that can cause noise are the stacker and conveyor.

Ship loading activities include the operation of the mobile plant, including bulldozers and front end loaders on or surrounding the stockpile, conveyors and ship loaders. The latter two activities are generally located behind (ie on the northern side) of the stockpile and are therefore screened from the nearest noise sensitive premises.

Noise Monitoring

WAPRES undertook a noise assessment of current noise levels at the existing Port facilities (Appendix 10b, Herring Storer, Dec 2001). Monitors located at strategic locations around the Port area registered the noise levels from the export facilities together with road and rail traffic noise. The monitors were located at the residence on 5 Austral Parade (about 450m south of the site on the Leschenault Inlet) and at the Koombana Resort (about 600m to the west of the site). The monitor at Austral Parade

ran from 12-25 Oct, 2001 and the monitor at the Koombana Resort for 19-29 June, 2001 and 12-25 October, 2001. During the October period, two ships were loaded.

Results show background noise from Koombana Drive dominates the noise levels monitored at the nearest residence on Austral Parade. Monitored noise levels at this residence ranged from 42-45dB(A) under low winds and no significant port activity to 50dB(A) under strong winds and limited port activity. When ship loading commenced, there was no increase in noise levels and when the wind dropped noise emissions decreased to a base level of 36-41dB(A).

The short term hand held measurements show the traffic tends to mask the noise received from the dozer working the top of the chip stockpile. The only noise audible was the noise emission from the tracks when the dozer was accelerating down the stockpile. Adjusting for background noise, noise from the dozer would be 53 dB(A). This noise occurs for less than 10% of the time, and is therefore required to comply with the L_{A1} assigned noise level.

During the most sensitive night period, when background noise levels are lower, the track noise would be considered tonal. Therefore, based on the adjusted noise level, noise received at the residences across Leschenault Inlet from a dozer on top of the stockpile would exceed the assigned night period noise level by up to 12 dB(A). During this period, other port activities complied with the *Regulations*.

At the second nearest noise sensitive land use, Koombana Resort, background noise was between 35-40 dB(A) under low winds and limited port activity. Under stronger winds and no significant port activity levels background noise levels rose to 45 dB(A). There was no change in noise levels when ship loading commenced and ceased. From the data collected at this location, noise at the port facilities complies with the *Regulations*, especially given the noise emissions from traffic along Koombana Drive that dominates the monitored noise levels.

Noise Modelling

Modelling of the sound emission propagation of the proposed change in the WAPRES operations was carried out using the computer program "SoundPlan". Both single point and noise contour calculations were used to determine the noise level resulting at the nearest noise sensitive premises. The calculated noise levels results are shown in Table 23.

TABLE 23
CALCULATED NOISE LEVELS AT THE CLOSEST RESIDENCES

Receiver Location	Calculated Noise Level dB(A)		
	Assigned Night Noise Level	Without Noise Control	With Noise Control
Koombana Resort	35	45	29
5 Austral Parade	36	49	31
Oliver Street	39	51	34

The noise contours are attached in the Herring Storer Report (Appendix 10b, Dec 2001).

Noise received at the neighbouring residences from the WAPRES Port facilities would exceed the assigned L_{A10} noise levels during the day and night periods by approximately 4 and 14 dB(A) respectively. Noise received at the closest residence is dominated by noise emissions from the dozers, front end loader and stacker.

The Noise Management Plan (Appendix 10a) lists management commitments required to ensure compliance with the *Regulations*. These include:

- Limiting movements of bulldozers on top or southern side of the stockpile to the day period or when winds are from 90^0 (easterly) through 180^0 (southerly) to 270^0 (westerly).
- To reduce bulldozer track noise, review the speed of bulldozers working the top of the stockpile particularly when reversing down the stockpile.
- Limiting movements of front end loaders to the northern side of the stockpile to the day period or when winds are from 90^0 (easterly) through 180^0 (southerly) to 270^0 (westerly).
- Ensure the shape of the stockpile is maintained to provide an effective barrier between operations and residences.
- Install a barrier to the stacker drive located at the top of the stacker.
- Regular maintenance of all mobile equipment.

Port Site Noise Commitments

In consultation with the DEP, develop and implement the Noise Management Plan that will ensure compliance with the *Environmental Protection (Noise) Regulations* 1997 at any noise sensitive premises at all times.

Comments on Relevance of Factor

An increase in the export tonnage of bluegum woodchips and the associated activities would not increase the noise levels at the WAPRES facility. However, the extended receival of woodchips and increase in number of ship loadings will extend the length of time the noise levels of these activities impact on the nearest residences.

Given the experience gained from existing woodchip export operations, the reasonable distance to noise sensitive premises and commitments to comply with all statutory requirements through the development and implementation of the Noise Management Plan, noise from the Port can be managed to meet the EPA's requirements.

5.5.4 Visual Amenity – Port Facilities

A summary of the existing characteristics is presented in Table 21. The export facility buildings are mostly screened from public vantage points along Koombana Drive by a dense vegetation buffer and from the Koombana Beach foreshore by the Cable Sands facilities. The woodchip stack is prominent from most areas in the Bunbury and from most public vantage points in the vicinity.

Future developments within the Inner Harbour include additional berth developments towards the south east end of the Inner Harbour and the associated infrastructure of railways and roads.

Relevant Area

Proposal area and surrounding properties including the view from public roads, tourist walks and nearby residences.

EPA Objective

Visual amenity of the area adjacent to the project should not be unduly affected by the proposal.

Assessment and Discussion of Management

The stockpile and Berth 3 is located within an operating port complex, which includes the Cable Sands mineral sands processing facilities and ALCOA/Worsley Alumina operations, storage and loading facilities, and various other port related buildings and structures to the same height or higher than that the existing woodchip facility. The facility is located in reasonable proximity to the Bunbury City site, but is generally (other than the stockpile) well screened by vegetation and other harbour storage and industries.

The increase in export capacity of bluegum will not necessarily increase the stockpile height as the vessels will be arriving more frequently and the amount of marri/karri stored (currently the highest stockpile) will decrease as the amount of stockpiled bluegum increases. The height of the bluegum pile will not exceed that of the current marri/karri woodpile.

Adequate lighting is required to allow a safe operation at the proposed woodchip site. In order to minimise impacts from light overspill the existing light poles and towers are strategically located and utilise directional lighting. No changes to the site lighting are anticipated with the increase in bluegum export.

Port Site Visual Amenity Commitments

1. Confirm lighting towers are strategically located and use directional lighting.
2. Maintain and promote the vegetation buffer along Koombana Drive.
3. Limit the height of the bluegum woodchip stockpiles to that of the current marri/karri stockpile height.

Comments on Relevance of Factor

Given the existing lighting and physical features, the location of the site within a working port environment and the fact that the stockpile height is determined by the shipping frequency and product distribution (not by the bluegum production rate alone), this factor is unlikely to be limiting.

5.5.5 Proponents Commitments Relating to other Factors - Port Facilities

Other factors have been considered in the review of impacts of increased export of bluegum woodchips at the Port. These are summarised below:

Public Health and Safety Commitments

1. Continue to store bulk fuels in compliance with AS1940.
2. Maintain existing fence around the site.
3. Continue compliance with Occupational Health and Safety Regulations.

Light Overspill Commitments

1. Confirm lighting towers are strategically located and use directional lighting.
2. Maintain and promote the vegetation buffer along Koombana Drive.

6. CONSOLIDATED LIST OF COMMITMENTS

Whole Of Project Public Consultation Commitments

1. Continue the public consultation program which both informs and educates the wider community generally, and addresses the concerns of those likely to be directly affected.

2. Where possible, modify the project to take into account community concerns.

TRANSPORT

Air Quality Commitments

1. Select low emission equipment for components under project control.

2. Implement a preference for contractors that demonstrate regular vehicle maintenance schedules through accreditation under a recognised QA scheme or *Trucksafe* program.

3. Selection of rail over road for transport of woodchips from Donnybrook to the Port of Bunbury.

Noise Commitments

1. Minimise noise by implementing a preference for road transport contractors with quieter equipment and acceptable maintenance practices.

2. Only contractors that conform to the Industry Code of Practice such as *Trucksafe*, will be employed.

Public Safety Commitments

1. In relation to vehicles under WAPRES control, to manage public health and safety through selection of the safest route and travel time.

2. Ensure that heavy vehicle drivers employed by WAPRES are experienced and competent.

3. Implement a preference for contractors that demonstrate regular vehicle maintenance schedules through accreditation under a recognised QA scheme or *Trucksafe* program.

4. Recommend to contractors to avoid heavy transport activities coinciding with school and school bus activities on logging truck routes.

5. Only contractors that conform to the industry Code of Practice will be employed.

6. Design of the access road intersection with SW Highway to meet requirements of Ausroads Guide to traffic Engineering Practice Part 5, Intersection of Grade.

7. Implementation of the WAPRES Code of Conduct for Log Haulage.

DONNYBROOK MILL SITE

General

1. Develop and implement an overall Environmental Management Plan that will incorporate the Management Plans for the individual factors.

Vegetation Commitments

1. The design and layout of the mill, associated buildings and access roads will be such that the clearing of native vegetation is minimised.

2. To develop and implement a Vegetation Management Plan that includes the management of the remnant vegetation.

Fauna Commitments

1. The design and layout of the mill and associated buildings and access roads will be such that the clearing of native vegetation is minimised.

2. Develop and implement a Vegetation Management Plan.

3. If Specially Protected fauna are identified in vegetation outliers identified for removal, advise CALM and develop a management plan for the population's protection, including trapping and relocation to other areas.

Groundwater Commitments

1. To develop and implement a Water Management Plan that will provide details of potential impacts on surface and groundwater quality, and how they will be addressed, including, but not limited to:

    - Use of ATUs or amended septics for treatment of sewage.
    - Recycle all water on-site wherever possible.
    - Use of holding basins for stormwater.
    - Management of bulk fuels in accordance with AS 1940.
    - Used oil disposed of off-site.
    - Routine monitoring of surface and groundwater.
    - Any proposed abstraction of borewater.

Surface Water Commitments

1. Release of stormwater from the interception dams will only occur if water quality meets *ANZECC Guidelines for Protection of Aquatic Ecosystems*.

2. To develop and implement a Water Management Plan that will provide details of potential impacts on surface water quality, and how they will be addressed and monitored.

Dust Commitments

1. Apply EPA Policies, Guidelines and Criteria for EIA No 18, *Air Quality Impacts from Development Sites* during construction of the plant.

2. Abide by the National Environmental Protection Measure (NEPM) for Ambient Air Quality (NEPC 1998) during operations.

3. Develop and implement a Dust Management Plan that will specify dust actions in the case of unreasonable dust lift-off during windy dry conditions.

Noise Commitments

1. Design and install sound shields around equipment as necessary so that at all times, noise emissions comply with all requirements of the *Environmental Protection (Noise) Regulations* 1997.

2. Ensure compliance with noise requirements during acceptance testing from equipment suppliers.

3. Develop and implement the Noise Management Plan for Construction and Operation.

4. Manage train loading operations and truck unloading activities through scheduling and engineering design such that noise emissions comply with all requirements of the *Environmental Protection (Noise) Regulations* 1997 at the nearest residence all the time.

Ethnographic and Archaeological Commitments

1. To develop and implement a site heritage protocol within the EMP.

2. Construction work will be stopped in the event that a site of suspected Aboriginal significance is found and an archaeologist shall be notified to examine the site.

3. If a site is positively identified to be of Aboriginal significance, the site will be fenced with "Keep Out" signage and the Aboriginal Sites Department of the WA Museum will be notified of the site within a timely manner.

Odour Commitments

1. Use of ATUs or amended septics with well maintained reticulation for treatment of sewage.

2. If unreasonable odours should be emitted from the operation, develop and implement an Odour Management Plan.

3. All putrescible wastes, litter and office waste collected and disposed of off-site.

Liquid and Solid Waste Disposal Commitments

1. Accumulated fines and residual bark will be disposed of off-site.

2. Other forms of solid waste will be disposed of to the municipal landfill sites or where appropriate recycled.

Light Overspill Commitments

1. Planting of vegetation along the boundary, where practical to screen the plant.

2. Strategic use of light poles and directional lighting.

3. Management of remnant vegetation and vegetation buffer along the NE boundary.

4. Design of light overspill to comply with AS 4282.

Public Health and Safety Commitments

1. Storage of bulk fuels to comply with AS 1940.

2. Fencing of the site in compliance with *Occupational Health & Safety Regulations*.

3. Develop and Implement an Emergency Management Plan to the acceptance of the DEWCP and Department of Minerals and Energy Resources prior to commencement of construction.

PORT FACILITIES

Discharge of Contaminated Stormwater Commitments

1. Sewage and grey water is directed to the existing septic tank system.

2. Any putrescible wastes, litter and office waste is collected and disposed of off-site at municipal landfills.

3. Storage of bluegum woodchip product at Port facility is on a hardstand.

4. Drainage to harbour and surrounds is through series of perimeter drains and a retention sump with sufficient capacity to allow recovery of accidental hydrocarbon loss.

5. Industrial mesh grates cover all stormwater inlets/outlets.

6. Monitoring of stormwater and groundwater to ensure discharge meets criteria for ANZECC Water Quality Guidelines.

Dust Management Commitments

1. Undertake abatement measures as necessary such that the proposal meets the requirements in EPA/DEWCP Policies, Guidelines and Criteria.

2. Continue to support the Bunbury Port Authority and Port Users Group initiatives with the high volume air sampling program, to monitor environmental dust levels.

Noise Commitments

1. In consultation with the DEWCP, develop and implement the Noise Management Plan that will ensure compliance with the *Environmental Protection (Noise) Regulations* 1997 at any noise sensitive premises at all times.

Visual Amenity Commitments

1. Confirm lighting towers are strategically located and use directional lighting.

2. Maintain and promote the vegetation buffer along Koombana Drive.

3. Limit the height of the bluegum stockpile to the height of the current marri/karri stockpile.

Public Health and Safety Commitments

1. Continue to store bulk fuels in compliance with AS1940.

2. Maintain existing fence around the site.

3. Continue compliance with Occupational Health and Safety Regulations.

Light Overspill Commitments

1. Confirm lighting towers are strategically located and use directional lighting.

2. Maintain and promote the vegetation buffer along Koombana Drive.

7. RESPONSE TO PUBLIC COMMENTS

7.1 Summary

Comments in support of the project are noted in the Issue Table included in Appendix 4 and a list of 266 signatures of people supporting the proposal is included in Appendix 6. Likewise a list of 21 signatures of people opposing the proposal is included in Appendix 7.

The following summary of issues and responses generally reflect the nature and intent of written and verbal comments made during the public consultation program. References are primarily made to relevant sections in the text to avoid repetition.

A Justification for chosen/preferred options

B Uncertainty Amongst Public Regarding Proposal and Expectations

C Road Transport Concerns relating to transport route logs to mill, road maintenance, road funding, road safety and tourist impacts.

D Noise Impacts relating to noise from increased truck and rail transport, train frequency and timing, noise from chip mill operations, truck reversing warning devices and noise from Port activities.

E Water Resource Protection relating to the Thompson Brook and Preston River and potential impacts from Port operations.

7.2 Responses to Questions Arising from Written or Verbal Submissions.

A Justification for chosen/preferred options

A number of public submissions raised the issue of selection of the preferred Donnybrook site.

This document builds on earlier site definition studies (ATA Environmental, 2001) which presented a comparative environmental analysis of five potential sites for the woodchip plant within the South West region and within reasonable proximity to the Port of Bunbury (Section 2.2). Table 2, taken from this document, summarises the comparative advantages of each site, and rates their significance. The advantages of Preston AA Lot 262 over the initial Donnybrook site considered, Reserve 7859, are listed in Section 2.2.

The Department for Planning and Infrastructure (DPI, 2001) assessed 7 locations in the South West as part of a woodchip site strategic assessment : Kirup, Greenbushes, Hester, Wilga, Picton Industrial Estate, Donnybrook and Bunbury Port. The Donnybrook site is favoured for the reasons summarised in Section 2.2.

In consideration of the findings of the technical assessments undertaken during the preparation of this review, and those of the earlier ATA Environmental comparative

review, this proposal, as modified during the consultation phase, can be managed to meet the most stringent requirements of the EPA.

B Uncertainty Amongst Public Regarding Proposal and Expectations

The matter of uncertainty as to what this proposal actually entailed was raised by a number of stakeholders during early consultations.

The public perception of the mill in the early development of this proposal was of a paper pulp mill rather than a woodchip mill. A pulp mill would have large inventories of hazardous materials on site, and generate considerable amounts of both liquid and solid wastes that must be managed to limit environmental degradation.

The proposed chipping of *E globulus* logs described in this document is purely mechanical in nature. There are no chemicals used in the process, nor is there any effluent produced. All products are to be transported overseas without further processing, and at this stage is considered as a potential feed stock for other wood fibre based industries. The issue of the impact of chemical use on farming and other properties adjacent to tree plantations is not relevant to this proposal, being an export project based on material supplied to the gate. Notwithstanding, this subject is of concern to some members of the community, and accordingly a brief overview of key points is provided in Section 4.0 and 4.1 covering crop establishment, fertilising etc.

- Confusion over pulp versus woodchip mill

The then Department for Resources Development identified a potential opportunity to develop a kraft pulp mill or a number of chemical-mechanical pulp mills in the Southern province. In order to produce 0.75 mtpa of high grade pulp, the pulp mill would require around 3mtpa bluegum chips. As this volume exceeds supplies in both the Great Southern and the South West, these areas would have to be combined to make the mill viable. The Shire of Boyup Brook was identified as the most likely location as it represented a midway point between the two regions in respect to transport costs (DPI, 2001).

The timing and financing of the pulp mill would be reliant on the support of existing chip exporters and their Japanese owners. This support would only be forthcoming if the Australian mill was more cost effective than overseas operations and in the best interests of the Japanese pulp mill owners.

At present, there is no indication that WAPRES and the Albany Plantation Export Company or their Japanese parent companies are interested in a pulp mill in Western Australia. Furthermore, there are no guarantees that Australia would be a more cost effective and attractive destination for pulp mill investors in the future.

WAPRES has since undertaken an extensive public consultation program to inform the community about the proposal (Section 3).

C Road Transport Concerns - route for transportation of logs to mill

Many submitters identified the issue of the location of transport routes between the plantation and the woodchip mill as being of concern.

All transport of logs to the mill will be by road as a consequence of the diverse locations of the plantations and long cycle, periodic nature of the harvest. Truck transport routes from plantations to the mill will vary throughout the life of the project. The BOND South West Log Haul Road Transport Study Stage 2, 2000 indicates that the Bluegum plantation timber road haulage task for the next 10 years will be distributed over approximately 1577km of local roads in addition to about 825km of Main Roads.

All transport associated with the log haulage aspect of this project cannot be anticipated to follow a single route although certain critical feeder routes can be anticipated to carry a disproportionate amount of heavy traffic associated with this project. Predictions of existing and anticipated heavy vehicle movements without and with the implementation of Donnybrook woodchip project are presented in Tables 7 and 14 respectively.

MRWA working with the BOND South West group has undertaken to assess the impact of the transportation of the bluegum timber resource on the local and Main Roads road network and to cost the improvements required to ensure road quality. Participation in the working groups includes local Government and the timber industry. These studies have encompassed probable haul routes and have specified the minimum standards for log haul roads. These log haul routes will constantly be updated and optimised.

The outcome of these studies has been to identify a number of deficiencies in the local road network with a view to identifying opportunities to gain funding for improvement. Improvement works such as widening, overlay, reconstruction, realignment, sealing, and the construction of structures of traffic management devices have been identified for road segments identified as deficient (BOND, 2000).

- *Road maintenance*
- *Road funding;*
- *Road safety;*

The matter of road maintenance, funding and related road safety issues was raised by a number of stakeholders during early consultations.

Comments in relation to transport route maintenance in C above, and Section 5.3.3 apply to these issues. Likewise funding is discussed in Section 5.3.3.

The issue of road safety was raised in the context of road quality and accordingly is directly related to road maintenance schedules and funding arrangements. Section 3.3.3 lists specific roads where safety issues are a concern.

WAPRES have made a number of commitments in relation to the selection of contractors under their control. These include preferences for operators that can demonstrate best practice management of their vehicle fleets and compliance with quality systems.

- *Tourist impacts*

The impact of increased heavy traffic and related road safety issues on the tourist industry was raised by a number of stakeholders during early consultations

This issue related to the potential negative impacts of log haulage on tourism development in the South West generally as a consequence of safety concerns, and specific concerns relating to additional heavy transport in the Bridgetown-Donnybrook area.

Some of the road safety concerns have been addressed in the issue above. Transport of logs to the mill will be by road as a consequence of the diverse locations of the plantations and long cycle, periodic nature of the harvest. Similarly, heavy transport impacts on road based tourism in the South West cannot be accurately predicted as truck transport routes from plantations to the mill will vary throughout the life of the project.

Potential impacts in the South West will be reduced by Government funded road reconstruction and maintenance programs, particularly on the major highway and feeder routes most often travelled by tourists, and Proponent commitments to require best management practices in transport of contractors under their control.

Options such as bypassing certain towns (eg Boyup Brook), using rail from plantations located near to railway lines (and chipping at the port) where possible and optimising the use of existing chipping facilities for plantations nearest will be reviewed.

There is potential for tourism to actually benefit from the presence of the mill. The Manjimup Diamond Woodchip Mill has visits from approximately 500 tourists per year. The Deanmill Sawmill in Manjimup attracts about 600 tourists per year and the Pemberton Sawmill attracts around 9000 visitors per year. See Section 3.3 regarding the tourist potential of the proposal.

D Noise Impacts

- *Noise from increased truck and rail transport*

Traffic noise was identified as a concern by both decision makers and a number of submitters who live close to the existing Manjimup-Bunbury railway.

Details of truck and rail traffic movements associated with the implementation of this project are provided in Table 1. The noise impacts and the proposed management are discussed in Section 5.3.2.

Predictions of existing and anticipated heavy vehicle movements without and with the implementation of the Donnybrook woodchip project are presented in Tables 7 and 14 respectively.

- *Train frequency and timing*

A number of residences living in close proximity to the existing Bunbury-Manjimup rail line provided submissions relating to train noise

Section 5.3.2 assesses the noise impacts of the trucks and trains. Where possible, the early hours of the morning will be avoided for product transport from the proposed woodchip mill.

The amount of power applied by the locomotive to haul the load is a function of the load, grade of the track and in response to any traffic signals. Optimum performance of the locomotive is enhanced by smooth operating practices that are considerate of these factors, and may require acceleration in built up areas.

Locomotive engine drivers are required to sound their horn upon approaching an unprotected level crossing or pedestrian crossing, or optionally to warn drivers or pedestrians of their approach at protected crossings. Audible warning devices are understandably intrusive.

Many of these concerns are beyond the control of the Proponent as they relate to safety or efficient operating practice.

- *Noise from chip mill operations*

This matter was identified as of general public concern by several key stakeholders.

Noise is discussed in Section 5.4.6. Noise modelling undertaken indicates that under all conditions, the EPA's most stringent criteria can be met.

- *Truck reversing warning devices*

This matter was identified as of general public concern by several key stakeholders, particularly in relation to Port operations.

As for the discussion of train audible warning devices, reversing beepers are both a safety requirements and necessarily intrusive. Similarly to use of external horns used in public address systems or ringers on telephones, the beepers provide a safety function in a workplace.

In relation to train and mobile plant audible warning devices, reversing beepers are both a safety requirements and necessarily intrusive. Similarly to use of external horns used in public address systems or ringers on telephones, the beepers provide a safety function in a workplace.

There are various methods that have been accepted in controlled situations as an alternative for such devices. External telephone horns, public address and ringers can be replaced by personal paging systems. With approval, flashing lights or personal vibrating beepers can be used in place of reversing alarms in cases where it can be proven that public access to the site is limited, together with limited operator access. These opportunities will be investigated with the Port operator and Site Manager, and changes made if appropriate.

- *Noise from Port activities*

This matter was identified as of general public concern by several key stakeholders;

Port activity noise is discussed in Section 5.5.3. and the Noise Management Plan to ensure compliance with the *Regulations* is included in Appendix 10a.

E Water Resource Protection - tributaries of Thomson Brook and Preston River

This matter, particularly as it related to the Donnybrook site, was identified as of general public concern by submitters.

The process to be employed at the Mill site comprises the mechanical chipping of bluegum logs into chips of a certain size range. There are no chemicals used in the process.

Potential impacts on the creek comprise an increase in tannins from the logs and chip product, suspended solids, and the potential for hydrocarbon contamination.

Site characteristics and proposed management commitments are given in Section 5.4.4.

- *Potential impacts to Bunbury Harbour from Port operations*

This matter, particularly as it related to the existing facility at the Port, was identified by a few key stakeholders.

Stormwater has the potential to leave the site and drain to the Bunbury Harbour. Stormwater could carry a fine particulate load or in the event of a spill, engine oil or hydraulic fluid from vehicles or equipment.

Drainage and monitoring is described in Section 5.5.1.Woodchips are stored on a hardstand so that stormwater is drained away from the harbour through a series of perimeter drains and a retention sump with sufficient capacity to allow recovery of any accidental hydrocarbon losses. Due to the water absorbing characteristics of the woodchips, water run off in even the heaviest rainfall events is minimal.

7.3 Proponent's Response to the Mitigation Measures Suggested in the SIA

The Proponent's responses to the mitigation measures raised in the SIA are best read in the context of the report provided in Appendix 8. The italics below are the Proponent's responses.

Rural Identity and Expectations: Impact/Issue

- Impact on rural setting.
- Development of a future defacto industrial estate.

Rural Identity and Expectations : Mitigation

I. Mitigation measures against potential adverse impacts on the rural identity and character should be considered in the detail design and operation of the mill. These measures could involve screening the mill, vegetation buffers, noise, dust and lighting control. *The activities that may have potential significant environmental impacts will be designed and managed to comply with the relevant EPA/DEWCP criteria and all environmental regulations. Implementation of these measures will be elements of an Environmental Management Plan (EMP) following the requirements of ISO 14000.*

II. Pollution impacts should be controlled at source. However where this is not technically or economically feasible, it is recommended that an expanded buffer zone should be secured to reduce adverse impacts further. *The objective of WAPRES is to manage all of the impacts of the plant within the plant boundary. With this in mind, the practicality and expense to a company must be considered, and the securing of a more extensive buffer considered on this basis, as must the physical boundaries/limits of such a buffer zone.*

III. Implementation of the proposal will have the effect of concentrating heavy road transport in the vicinity the mill site. An increase in heavy vehicle traffic potentially impacts the rural identity and character of the area and this would require measures to minimise traffic volumes, particularly on the Donnybrook-Boyup Brook Rd and South Western Highway. *This issue is a concern and its management will be addressed where practical by the Proponent. However, road transport is not a site specific issue as regardless of where the mill is sited, there will be an increase in the heavy vehicle traffic bringing logs from the already established plantations. WAPRES will work with MRWA and Council to identify opportunities to minimise heavy road transport on the major routes of concern within the operational constraints of the project. Bypass issues are addressed in Section 5.3.3 of the PER and XVI - XIX below.*

IV. Concerns about the possibility of further industrial development on the mill site in the future should be addressed with an open and direct account by the Proponent in regard to any future plans and the possibility and likelihood of further industrial expansions on the site. In respect to industrial development on adjacent land, it is not possible to predict this with any certainty, however with the precedent set by the proposed mill, the approval of similar or related industries could not be ruled out with any certainty. *The Proponent recognise*

the concern and have publicly stated that there are no plans to develop the site other than those laid out in this PER. The responsibility and authority for issuing further industrial approvals to the land immediately surrounding the proposed woodchip site lies with the Shire Council, and any developments that have the potential to impacts on the environment (or of a prescribed nature) must be referred to the EPA for consideration.

V. It is recommended that potential adverse impacts of the operation of the mill and transport task on rural and agricultural industries, including viticulture be monitored and pro-actively addressed by the Proponent in partnership with these industries. *The Proponent has committed to an ongoing Public Community Consultation program. This will include establishing a Group that meet regularly with the public to discuss and resolve community issues. The results of environmental monitoring will be presented to this group if they so wish. Environmental performance will be measured against accepted criteria as identified in the site EMP and implemented prior to commissioning.*

Lifestyle Impacts/Issues

- Noise
- Mill operation
- Truck/train movements
- Air quality
- Dust
- Light overspill
- No respite
- Devaluation of land
- Recreation
- Contamination of dams
- livelihood

Lifestyle Mitigation

VI. It is recommended that WAPRES identify proposed measures to manage the noise, air quality, dust and light overspill associated with this proposal. *The activities that may have potential significant environmental impacts will be designed and managed to comply with the relevant EPA/DEWCP criteria and all environmental regulations. Mitigation of these measures is identified in section of 5.0 of this PER. The EPA in drafting it Report and Recommendations will consider these measures.*

VII. In the event that these measures are unable to achieve satisfactory mitigation for those landowners in closest proximity to the mill, a commitment should be made to further measures to reduce the adverse impacts of the mill. In the event that impacts on surrounding communities cannot managed, these measures should include house treatments or purchase to form part of the buffer. *WAPRES is committed to minimising the potential environmental impacts arising form the implementation of this proposal. In doing so, the practicality and expense to a company must be considered, as must the definition and measurability of 'adverse affects' brought about directly by the mill's*

operations, be established. The Environmental Protection Act (1986) lists prescribed premises that cannot operate without licensing. Operations such as wood chip mills and sawmills are not prescribed under the Act as it is not considered that their potential environmental impacts are of such a magnitude as to require this instrument. The purchase of affected properties with a view to establishing a buffer is one of the mechanisms open to the Company.

VIII. With a potential 24hour, seven day a week operation, there is little respite from the potential impacts of noise from the mill operation and truck or train movements. This exacerbates the adverse impact of these factors considerably. It is recommended that the feasibility of reducing proposed operating hours should be considered to avoid impact during sensitive times. *Opportunities to reduce noise impacts from fixed and mobile plant at the mill are being considered. Clearly the purchase of quiet plant and noise attenuation are being implemented, as is consideration of work practices that will minimise night time mobile plant operation. The receival of logs, milling operations and administration activities are not 24hr/day activities. Site options south of Donnybrook relieve heavy transport congestion through the townsites of Donnybrook, Boyanup and the outskirts of Bunbury The location of the mill in reasonable proximity to the Port of Bunbury will allow most, if not all rail loading and transport activities to occur during daylight hours or in the early evening, considerate of the logistics of transporting the chips to the port. Implementation of the proposal at Donnybrook (or any location adjacent to the railway line) replaces a major proposition of road transport of wood chip product by road to the Port of Bunbury..*

IX. With varying perceptions about noise impacts, it is recommended that additional education and 'user friendly' information on noise levels proposed by the operation of the mill, from various distances and with comparative noise levels for other commonly known noise generators be developed. *Noted and agreed. Demonstrations of sound power can be developed. This can be progressed through the Community Consultation Group (see V). In the past, the Proponent has undertaken background monitoring of the existing sound levels for a private property relatively close to the initial site considered on Reserve C7859. The results were presented to the property owner. Recent measurements of an equivalent operating wood chip mill have been taken and these will be provided to the community.*

X. With the recent commissioning of an equivalent wood chip mill in Albany, it is recommended that Landowners living in the vicinity of the mill and Council/other interest residents be given an opportunity to visit the mill to gain a practical appreciation of how the mill is likely to impact on their lifestyle. *The Proponent has given the Community Action Group Against the Proposal as well as supporters, an opportunity to view the chipper operations at Bunbury Port and at Moore Rd, Dardanup (24 July 2001). The Proponent has offered to repeat the offer should it be requested. Ongoing invitations will be arranged by the Community Consultation Group (see V). Further opportunities will be provided to visit the recently commissioned Albany Wood Chip Mill.*

XI. A Community Monitoring and Advisory Committee should be established to allow community issues to be fed back to the Proponent during the construction and operation phase. The committee should be presented with regular monitoring reports on noise, dust, air and water quality. The committee will also provide advise in the development of the Community Register. *The value of conveying monitoring results and project information through a community group is acknowledged and supported. WAPRES is committed to the establishment and support for the Community Consultation Group (see V), and would suggest that this group, or a subset thereof, would be best placed to receive and impart such information without duplication.*

XII. As impacts on land value is a major concern in the community, WAPRES should consider the development and implementation a system for monitoring and quantifying the impact of the proposal on land values as an ongoing measure. This should include compensation methods for the devaluation of land. *Concerns in the community relating to land values are acknowledged. WAPRES will implement a range of controls (section 5.0) with a view to fully complying with all statutory requirements, including the requirements of the Environmental Protection Act. It is considered that maintenance of these standards will limit pressures to depress land prices. The practical application of assessing land values and the impacts of single developments on them is difficult. WAPRES will however look at mechanisms by which this can be achieved and applicability to the Donnybrook situation.*

XIII. Further consultation with the residents in Brookhampton should occur to identify any affected walk and horse trails and where possible these will be preserved or reinstated. *Such issues can be addressed through the Community Consultation Group (see V) and through the Tourist Office. The Old Brookhampton Rd is within a road reserve and is not a designated recreational area, although it is recognised that this does not diminish its value for this activity.*

XIV. Various measures to manage the potential impacts on road safety, noise and air quality are identified in the PER. However the adverse impacts of a significant increase in heavy vehicle traffic remains a major concern. It is recommended that WAPRES consult with MRWA and Council to identify further measures to reduce the volume of traffic, particularly on the Donnybrook-Boyup Brook Road. *The Proponent has made a number of commitments regarding road safety issues that are within their control (See Section 5.3in the PER). The BOND South West group (2000, 2001) with support from the then Department of Transport and Main Roads Western Australia initiated an assessment of the impact of the transportation of the bluegum timber resource on the local and main road network. The outcome of these studies has been to identify a number of deficiencies in the local road network with a view to identifying opportunities to gain funding for maintenance and improvement in support of long-term sustainability of the plantation timber industry. In addition, the Proponent has expressed a willingness to work with MRWA and local government on an ongoing basis to address road safety (such as possible by-passes, road improvements, routes etc). This issue is not site specific and the inevitability of the increase in heavy traffic is a result of the location of the already established plantations with respect to the port, not entirely the location of the mill.*

Road Safety and Movement Impacts/issues

- Traffic volumes
- Trucks converging and massing up
- Donnybrook – Boyup Book Rd
- Intersection of Donnybrook–Boyup Brook Rd/South Western Hwy
- The access point to the site
- South Western Highway
- Road Safety
- School buses
- Safety of children
- Older road users
- Noise and air quality
- Primary producers

Road Safety Mitigation

XV. The construction of one set of overtaking lanes, partial road realignment and the construction of three slipways is proposed for this road, together with improvements to the South Western Highway intersection. However, this scope of work was commonly considered of limited merit in achieving adequate road improvements to cater for the increase in heavy traffic and public safety on this road. Opportunities to increase the scope of road improvement should be further addressed in conjunction with the MRWA and Council. *The Proponent has made a number of commitments regarding road safety issues that are within their control (See Section 5.3). In addition they have expressed a willingness to work with MRWA and local government on an ongoing basis to address road safety (such as possible by-passes, road improvements, routes etc). This issue is not site specific and the inevitability of the increase in heavy traffic is a result of the location of the already established plantations with respect to the port, not entirely the location of the mill.*

XVI. Designated set down areas are proposed for school buses. It is recommended that further consultation with parents, schools and bus operators should occur in the determining the most appropriate location for these. *The Proponent has made a number of commitments regarding road safety issues that are within their control (See Section 5.3). Designated set down areas are entirely consistent with these views. In addition, they have expressed a willingness to work with MRWA, local government and concerned groups (such as parents, schools, etc) on an ongoing basis to address road safety. Many of these issues can be addressed through the Community Consultation Group (see V).*

XVII. Road safety and movement is also a potential impact for primary producers in transporting produce off their property. This impact is heightened for those operating on both sides of a road where their operation requires frequent crossing of the road in moving machinery, stock or in attending to irrigation pumps, plant and equipment. It is recommended that affected primary producers should be identified and a proactive approach taken to address these issues. *Notwithstanding the implementation of this proposal, both heavy and other traffic will increase on the identified routes and in the South West generally.*

BOND has identified improvements to address impacts from the timber industry. MRWA engages in strategic planning to assess future needs. The Proponent has made a number of commitments regarding road safety issues that are within their control (See Section 5.3). In addition, they have expressed a willingness to work with MRWA, local government and concerned groups (such as primary producers etc) on an ongoing basis to address road safety. Many of these issues can be addressed through the Community Consultation Group (see V).

Local Economic Capacity Impacts/Issues

- diversification of local economic base
- revitalise the local economy
- increase employment opportunities
- spin off to local business in providing service/maintenance
- encourages other related businesses to establish or relocate
- increases tourism to the district
- undermines existing tourism capacity and theme

Local Economic Capacity Mitigation

XVIII. To maximise the potential benefits to the local economy the mill needs to operate as an integral part. It is recommended that opportunities for maximising the employment of local people at the mill be considered, together with ways of ensuring local businesses can achieve a high share in providing for the repairs and maintenance, service and equipment needs associated with the mill. The advice of the Community Monitoring and Advisory Committee will be sought in this. *This sentiment is agreed and WAPRES will work toward achieving sustainability within the Donnybrook area in local content. The Proponent is willing to implement a local supply policy to support local contractors and equipment needs where possible. It is also the Proponent's intention to have most mill workers and their families residing in the Donnybrook region. In relation to the best mechanism by which information may be received and disseminated, WAPRES offer the view that the Community Monitoring and Advisory Committee form a subset of the Community Consultation Group.*

In addition, the Proponent believe that in a period of declining primary produce prices and consolidation of holdings into larger management units, the establishment and operation of a robust woodchip industry provides an opportunity to redress the movement of people away from the country areas and provide a diversified income. The Proponent would expect the Donnybrook Mill to generate a similar amount of local business as the Proponent's Diamond Mill in Manjimup, where over $1.5 million is spent on local contractors and suppliers who are responsible for maintenance and servicing of the mill, in addition to the local economic input of mill workers and log truck drivers, harvesting operators and supervisors who live in and spend most of their disposable income in Manjimup.

XIX. Positive tourism benefits primarily relate to attracting people to the district to view the mill in operation. This provides an alternative to traditional tourism opportunities. It is recommended that the potential of this tourism market should be developed further should there be demand. This could include an interpretative centre/ display at the mill site in the wider context of a sustainable timber industry. *Comments are noted and agreed. There remains a significant potential to promote the built environment as a tourism attraction and relate this to the plantation industry as a whole. This matter is discussed in Section 3.3, and a commitment made to implement a tourism support strategy.*

XX. Adverse impacts generally relate to the increase in heavy traffic movement and the reduction in scenic resources. This does have the potential to undermine the existing tourism capability and development opportunities. It is recommended that WAPRES consult with MRWA and Council to identify further measures to reduce the volume of traffic, particularly on the Donnybrook-Boyup Brook Road. *Noted and agreed. WAPRES will work with MRWA and Council to identify opportunities to minimise heavy road transport on the major routes of concern within the operational constraints of the project.*

XXI. Without a comprehensive tourism strategy for the district, the impact on the existing tourism capability is difficulty to assess with any certainty. Given that tourism is a growing part of the local economy the impact this project has on this should be assessed, it is recommended that tourism trends be monitored and managed in conjunction with Council, the Community Monitoring and Advisory Committee and other key tourism operators. *Tourism is one of a number of growth areas within the south west. Addressing the needs of all these growth areas must be considered to provide a sustainable basis for future development in the Region. The Proponent is willing to address and support this issue through the Community Consultation Group (V) and appropriate parties such as the Tourist Office.*

Community Cohesion Impacts/Issues

- Social cohesion
- community conflict

Community Cohesion Mitigation

XXII. Polarised views are a relatively typical occurrence in a community characterised by diversity in land uses and human populations. However, polarised positions within a community have an adverse impact on the social cohesion. A careful and proactive approach will be taken to ensure that the way in which the project proceeds, promotes equanimity between all parties. It is recommended that this approach be reflected in the Community Register. *The Proponent recognises the relevance of this issue with respect to establishing new industries and has thus committed to an ongoing Public Community Consultation program. This will include establishing a Group that meet regularly with the public to discuss and resolve community issues. Issues raised in XXIII will be addressed by this Group. Relevant parties will be identified in a Community Register that will use as its starting point, correspondent and submitters to the SIA.*

Community Dividend Impacts/Issues

- Questionable benefits
- Cost to the community

XXIII. The local economy is anticipated to benefit from this proposal and these benefits should be demonstrated and reported annually, to include the number of local people employed, and the proportion and value of work placed with local businesses. *Noted and agreed. The Community Consultation Group is an appropriate group through which this information can be disseminated.*

XXIV. It is recommended that community support brought about by implementation of this proposal be formalised. A Community Development Program is an appropriate mechanism to coordinate interaction provide financial and 'in kind' support to local community based initiatives such as projects that promote the local identity, road safety initiatives, tourism initiatives, community events, services and organisations. It is recommended that this Community Development Program will be developed in conjunction with the Community Monitoring and Advisory Committee, Council and will be established during construction and the first two years of operation. *The Proponent has already shown an ongoing support for community events such as the Donnybrook Marathon Relay, the Donnybrook Apple Festival Horse Extravaganza, and the ongoing support of the Donnybrook Recreation Centre. Protocols for the identification of community based programs to be supported and a registry of events are na appropriate method for integration of community benefits. The Community Consultation Group is an appropriate group through which this information can be disseminated. Also see XX, XXI and V.*

Community Involvement Impacts/Issues

- Information about the project
- Level of community consultation
- Identification of affected landowners

Community Involvement Mitigation

XXV. It is recommended a Community Register be developed which will detail the individuals and stakeholder groups to be kept informed during the construction and operation of the project and include proposed strategies to do so. This should include the general community, those living in the vicinity of the mill, those on main transport routes, primary producers and business operators. This Plan will be formulated in consultation with the Community Monitoring and Advisory Committee. *Establishment of the Register is also relevant to response XXVI and XXVII below.*

XXVI. It is further recommended that target communities that may be impacted by this proposal should be clearly defined and any maps used should reflect an accurate perspective of these. A 1km radius was drawn around the proposed site to identify affected land owners for the Shire's notification of this

proposal and 22 landowners were identified within this 1km radius. In mapping the location of families who believe they will be impacted, a 2km radius from the site is more likely to define this target community. *The need to establish and effectively communicate with the group of residents most impacted by the development is acknowledged. WAPRES commit the development of a Community Register for this purpose, under the auspices of the .Community Consultation Group. Identification of affected land owners and protocols for communication will be developed.*

XXVII. Ongoing consultation and liaison should occur with the Brookhampton Action Group and the Preston Valley Road Safe group to ensure that key issues identified by these groups are adequately addressed. *Responses to submissions XXV and XXVI are clearly relevant to this recommendation. The Brookhampton and Preston Valley groups are clearly integral to the effective management of social impacts arising form the implementation of this proposal and will be represented on the Community Consultation Group.*

Alternative Options

- Site justification

Alternative Option Mitigation

XXVIII. As the Kirup site was consistently put forward as a more appropriate site to locate the chip mill, it is recommended a precise publication will be prepared to explain the rationale for the selection of the Donnybrook site. This will be made available to each household in Donnybrook. *A overview of the site selection process has been provided in section 2.2, and site characteristics included in Table 2.*

The criteria against which this early consideration of sites was assessed, are illustrative in respect of any Kirup site. Like the proposed Donnybrook site, potential sites at Kirup can provide access to the railway line. However, track gradients are such that a dual locomotive configuration would be required to haul loads to the Port of Bunbury. This has clear cost implications, as well as impacts resulting from fuel use (air pollution, greenhouse gas emissions etc), noise and vibration. The additional distance for rail will result in the desire to conduct all train transport during daylight hours to be unattainable. This will impact on the amenity of residents along the rail route.

Kirup has a number of disadvantages that have been taken into account in the potential site assessment process. This has been announced at several public meetings and in the media (Donnybrook Bridgetown Mail 11th December, Kirup Public Meeting 4th December 2001, Yabberup Public Meeting 4th December 2001, Brookhampton Progress Association Meeting 11 December 2001).

8. CONCLUSIONS

This Environmental Appraisal and Management Plan provides an analysis of the environmental implications of the construction and operation of the Donnybrook Woodchip Mill, the expansion of the existing Bunbury port woodchip export facility and the transportation of logs to the mill and woodchips to the port. Logs from bluegum plantations established primarily on private land in the South West Region, will be delivered by truck to the proposed chip mill at the Preston AA Lot 262, Donnybrook site. The woodchip product will then be transported by rail to the existing storage, handling and loading facility established at the Bunbury Port.

Should this project not proceed, the bluegum resource will continue to be chipped by various portable mills and both logs and wood chip product will continue to be transported on public roads. Implementation of this proposal has the potential to significantly reduce the total number of truck movements resulting from this activity.

The project has a number of very real benefits both to the environment and people of the South West region. Environmental benefits through providing an economic market for tree plantation establishment and management includes soil protection from wind and water erosion, salinity control and water resource protection. From an economic and financial perspective, there are direct benefits to the families employed either directly in growing the trees, producing or transporting the woodchips or indirectly in related support or service areas. Other benefits relate to the diversification in primary production and as a stimulus for revitalising rural and regional communities.

Significant and extensive community consultation has already been undertaken with the community of the Donnybrook region, residents in the vicinity of the site, the Shire of Donnybrook-Balingup and various decision making authorities. This consultation has resulted in improvements to the project that will reduce and limit many environmental and social impacts.

Truck transport routes from the plantations to the site will vary throughout the life of the project. An independent assessment of seven possible sites in the South West by the Department for Planning and Infrastructure (DPI, 2001) favoured Donnybrook in terms of total transport issues (lowest total transport costs). Other than the Bunbury option, Donnybrook has the lowest total environment cost (Greenhouse gas emissions and air pollution costs) and lowest total resource cost. Much of the road network is likely to be maintained and/or upgraded in the future based on the results of the current BOND Log Haul Road Transport study and state budget announcements. A study of the roads likely to have the greatest impact, show the increase in heavy traffic will comply with EPA and MRWA criteria for noise and air quality.

WAPRES will minimise the impact of the transport of chips to the port by utilising the existing Manjimup-Bunbury railway.

The social and environmental impacts of the Donnybrook Mill will be carefully designed and managed to take into account the closest residences and the rural lifestyle surrounding the proposed site. Strict control measures for noise, dust and groundwater/surface water protection are proposed and commitments regarding the management listed. Thorough ground and surface water protection measures are

important as neighbouring lots use the ground and surface water for agricultural purposes. However, given the relatively benign nature of the woodchipping process and the low potential for ground and surface water pollution, this factor is not considered limiting.

The environmental and social impacts of the increase in port activities will be minimised by noise, dust, groundwater, surface water and visual amenity control measures. In particular, the issue of noise will be carefully managed and monitored as described in the Noise Management Plan to ensure compliance with the *Regulations*. The increase in woodchips export is not expected to increase the level of noise resulting from the WAPRES port operations. However, the extended woodchip receival and vessel loading schedules will increase the length of time these noise levels impact on the nearest residences.

Finally, it is important to recognise that this project provides a downstream use for the burgeoning bluegum plantation industry. Forest industries can be made to be sustainable in the longer term through the adoption of sound and strategic management practices that reflect reasonable community expectations. Donnybrook, being central to the plantation resources minimises many of the impacts associated with the project development.

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M^{c}Cutcheon G, (5 June 2001) personal observation reported at Community Consultation, Donnybrook.

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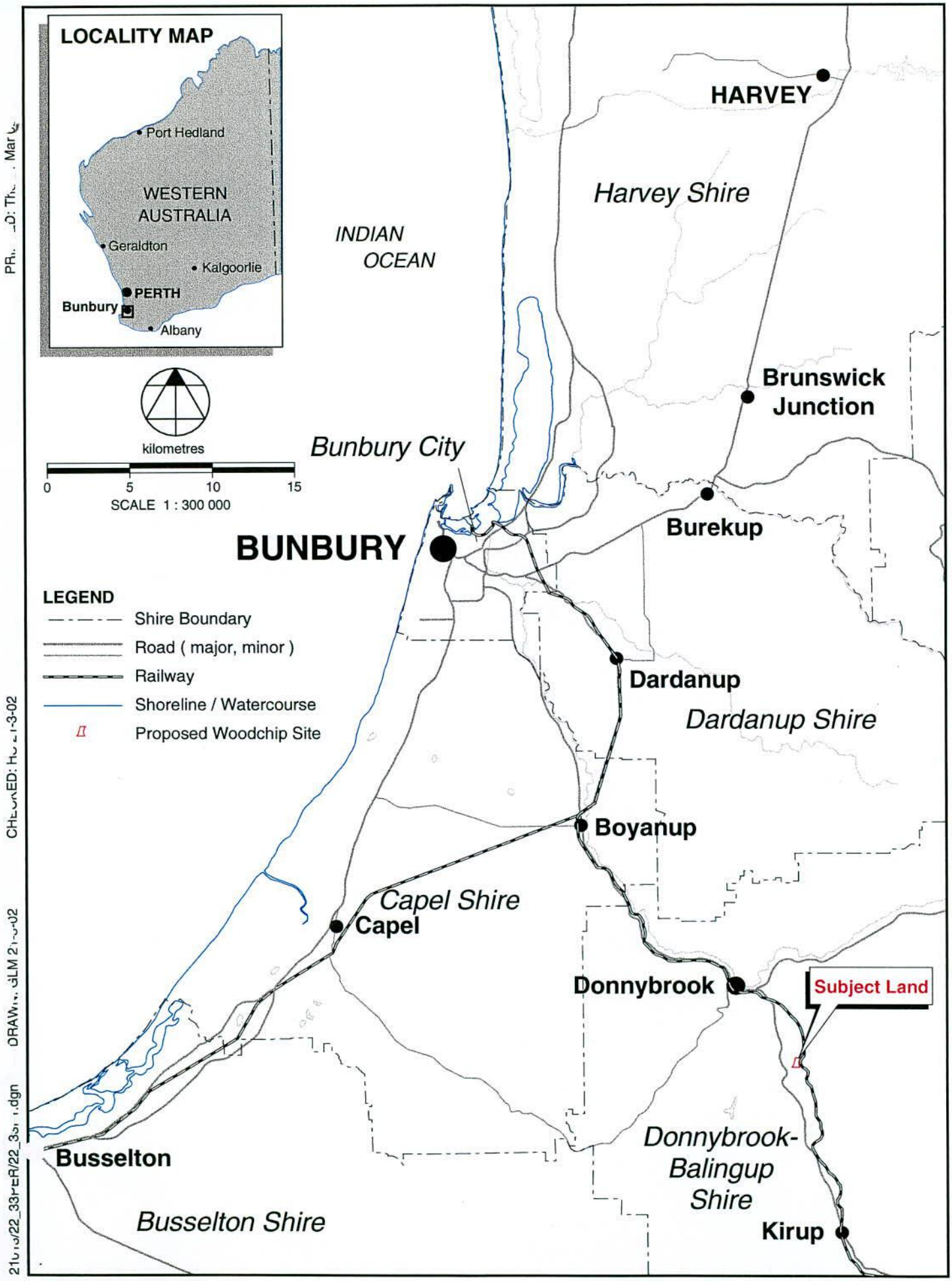
FIGURES



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DONNYBROOK WOODCHIP PROJECT
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REGIONAL LOCATION

FIGURE 1

Legend

- Chipper Sites
- Timber Transport Route
- Mill Resource Boundaries
- Plantation Location

Bluegum Timber Plantation Resources
Log Haul Network
South West Region Western Australia
Donnybrook Option

SCALE: 800,000

10 0 10 20 30

Kilometres

N

Bunbury

Donnybrook

Diamond

Rockingham (c)

Serpentine-jarrahdale (s)

Murray (s)

Mandurah (c)

Waroona (s)

Harvey (s)

Boddington (s)

Williams (s)

Collie (s)

Bunbury (c)

Dardanup (s)

Capel (s)

West Arthur (s)

Donnybrook-Balingup (s)

Busselton (s)

Boyup Brook (s)

Kojonup (s)

Augusta-margaret River (s)

Nannup (s)

Bridgetown-greenbushes (s)

Manjimup (s)

SOURCE: DEPT. OF TRANSPORT, 20-2-01

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LOCATION OF TIMBER RESOURCES & LOG HAUL NETWORK

FIGURE 2

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21013/22_33per/22_33F3.dgn DRAWN: GLM 21-3-02 CHECKED: HS 21-3-02 PRINTED: Thu 21 Mar

SOURCE: DONNYBROOK 1:50 000, 1975

metres
0 250 500 750 1000
SCALE 1 : 20 000

DONNYBROOK

CEMETERY RD

7859
28.7140ha
Govt. Reservation

Minninup Brook

Road No. 2043 OLD BROOKHAMPTON ROAD

Road No. 1498 SOUTH WADE ROAD

Carydale

Closed Road

WESTERN HIGHWAY

BROOKHAMPTON

THOMSON BROOK

Road No. 880

Road No. 10890 TASSONE ROAD

THOMSON HILL

Pt. F 173/25

WELLINGTON

5024
abt 343.9322 ha
(abt 403.8763 ha)

SHIRE OF

262
18.6914ha

320
7.8155 ha

296
40.2485 ha

351
14.1642 ha

18
36.8264 ha

15
44.8189 ha

16
55.3661 ha

13
38.8321 ha

Pt. F 173/25

F 170/25

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CADASTRE & TOPOGRAPHY
FIGURE 3

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AERIAL PHOTOGRAPH OF MILL SITE

FIGURE 4

Lot 262

Lot 296

Lot 351

Lot 18

Lot 16

Lot 15

Administration

PROPOSED HAUL ROAD

To South Western Highway

Railway

Train Load-out Bin

Stacker

Screen House

Reclaimer Hopper

Operators Cabin

Debarker

Chip Line

South Stockpile

Log in-feed deck

Loader Pad

Debarker Conveyor & Load-out Bin

Fines Conveyor & Load-out bin

Power Line

Log Storage Yard

Road No.2506

Power Line

Railway

DAM

Approximate location of Proposed Railway Siding

metres

0 25 50 75 100

SCALE 1 : 2 000

Position and layout of mill are approximate and not finalised

BASE SOURCE: Wave Engineering, 21-3-02

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DONNYBROOK WOODCHIP PROJECT
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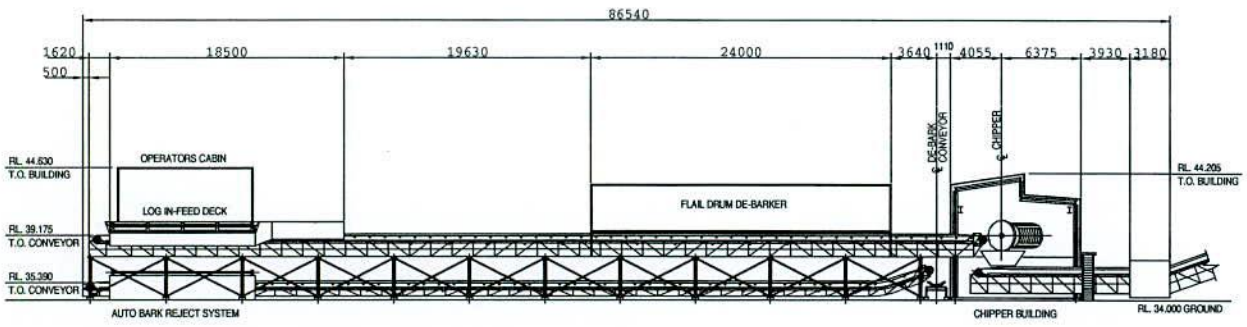
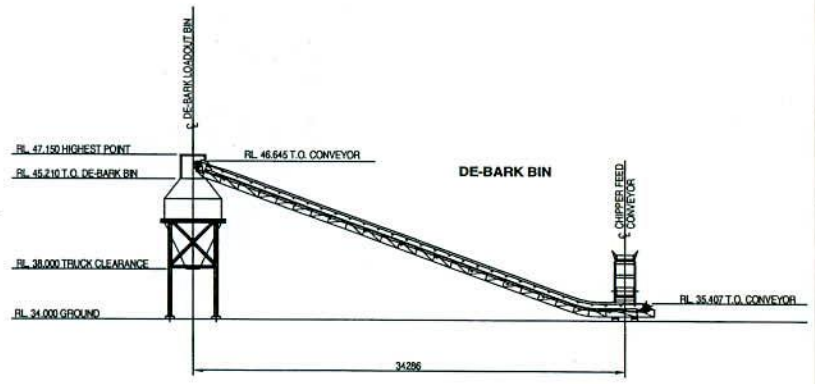
INDICATIVE CHIP MILL LAYOUT
FIGURE 5a

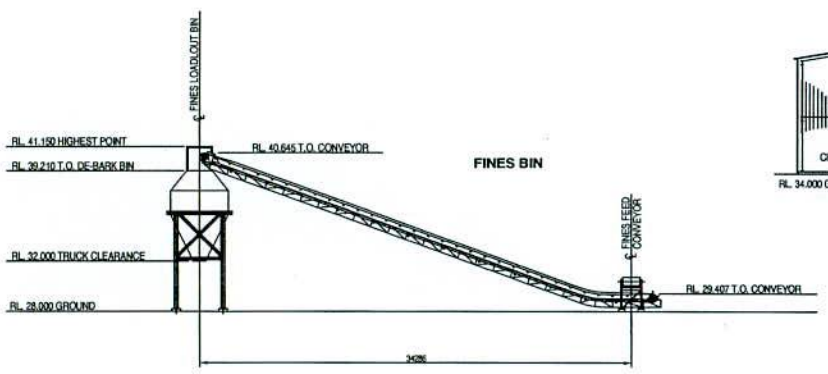


CHIP LINE

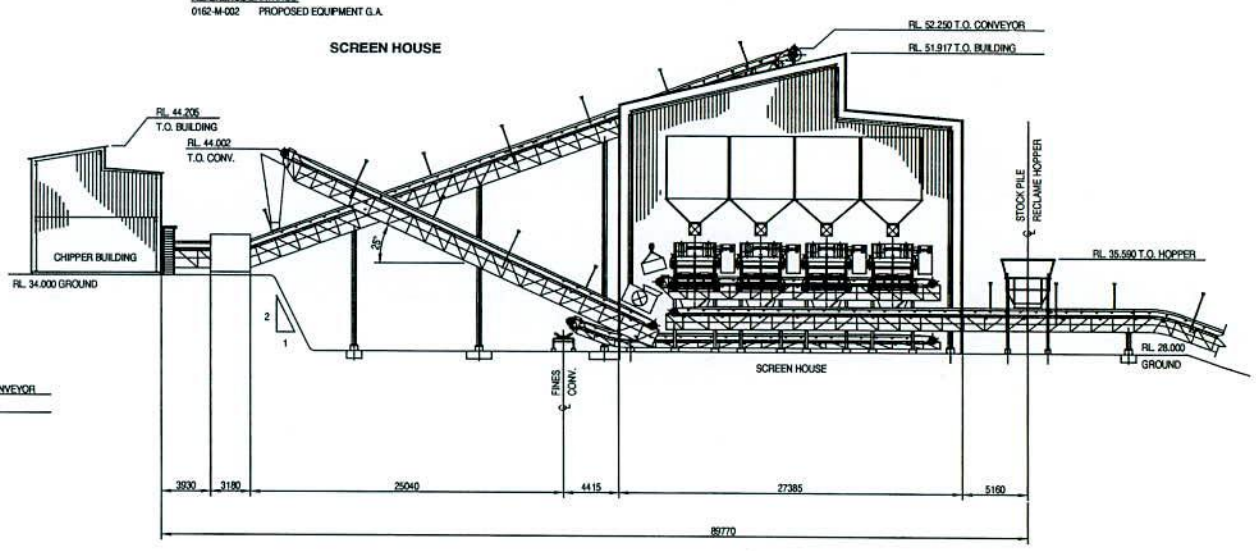


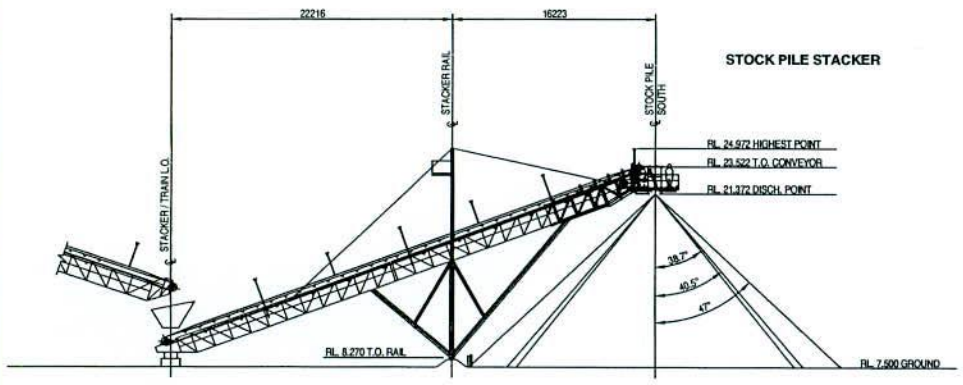
NOTES:
1.ALL CONVEYOR ANGLES ARE 20° U.O.N.
2.ALL DIMENSIONS ARE FOR REFERENCE USE ONLY.

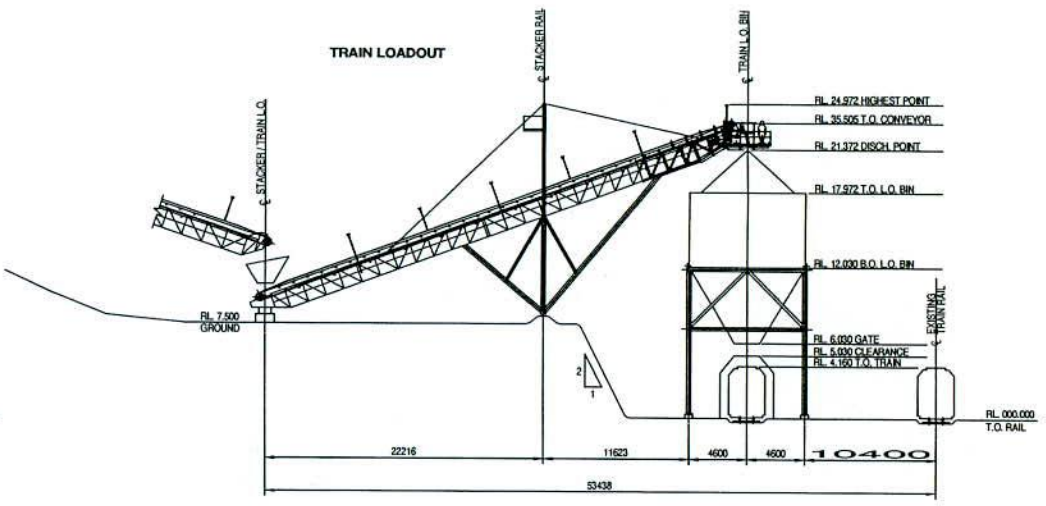
REFERENCE DRAWINGS
0162-M-002 PROPOSED EQUIPMENT G.A.

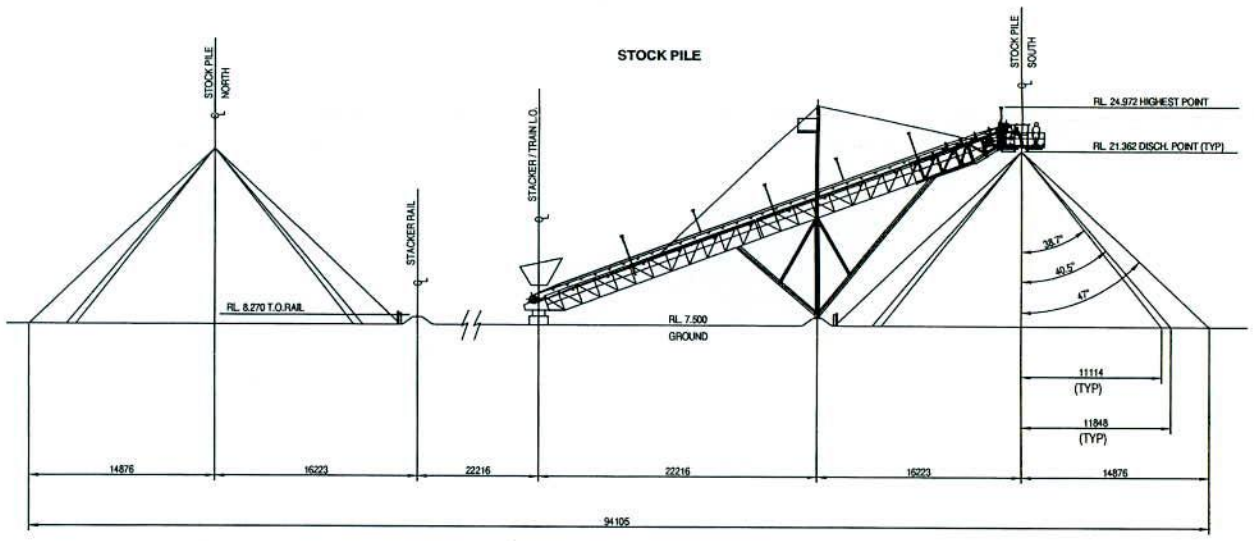


SCREEN HOUSE









NOTES:
1.ALL CONVEYOR ANGLES ARE 20° U.O.N.
2.ALL DIMENSIONS ARE FOR REFERENCE USE ONLY.

REFERENCE DRAWINGS
0162-M-002 PROPOSED EQUIPMENT G.A.

SOURCE: WAVE Engineering, November 2001.

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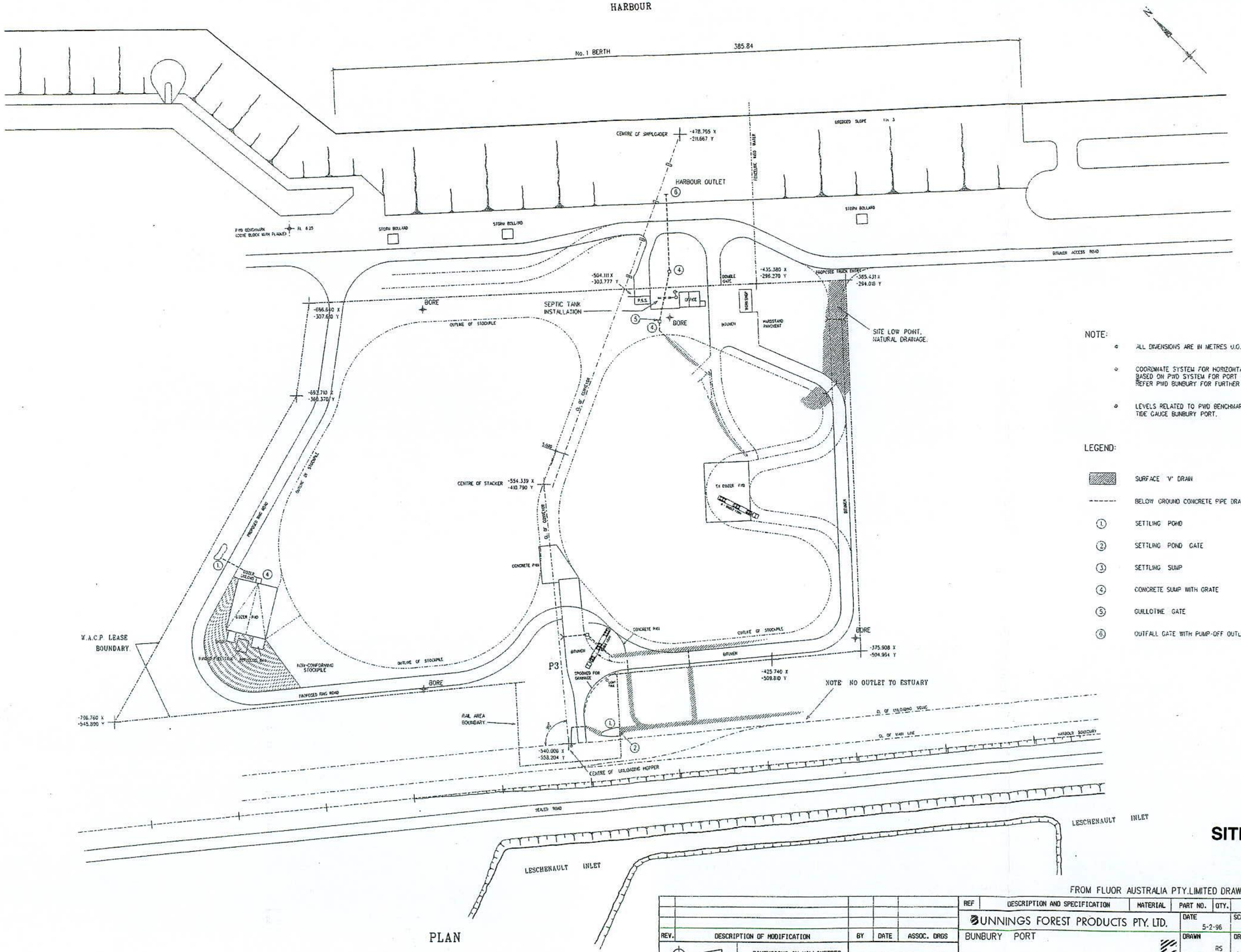
PRELIMINARY PLANT ELEVATIONS
FIGURE 5b

LOCATION - APPLICATION	SECTION	MAT'L LIST	REFERENCE DATA	REV

HARBOUR



PLAN

NOTE:

- ALL DIMENSIONS ARE IN METRES U.O.N.
- COORDINATE SYSTEM FOR HORIZONTAL CONTROL BASED ON PWD SYSTEM FOR PORT AREA. REFER PWD BUNBURY FOR FURTHER DETAILS
- LEVELS RELATED TO PWD BENCHMARK RL 0.00, TIDE GAUGE BUNBURY PORT.

LEGEND:

- SURFACE 'V' DRAIN
- BELOW GROUND CONCRETE PIPE DRAIN
- (1) SETTLING POND
- (2) SETTLING POND GATE
- (3) SETTLING SUMP
- (4) CONCRETE SUMP WITH GRATE
- (5) GUILLOTINE GATE
- (6) OUTFALL GATE WITH PUMP-OFF OUTLET

SITE LAYOUT
FIGURE 6

FROM FLUOR AUSTRALIA PTY.LIMITED DRAWING 1237B-A101, REV.3

REV.	DESCRIPTION OF MODIFICATION	BY	DATE	ASSOC. DRGS
	DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE STATED	IF IN DOUBT... ASK		

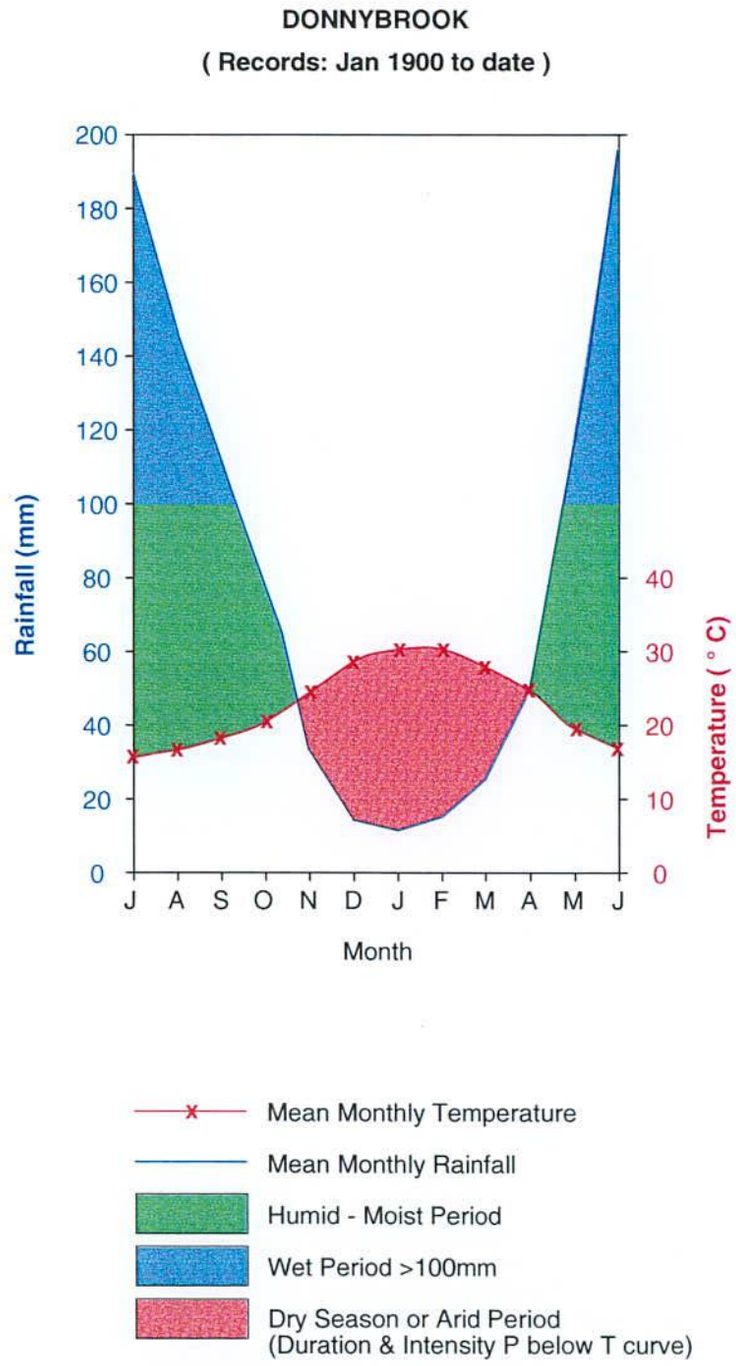
REF	DESCRIPTION AND SPECIFICATION	MATERIAL	PART NO.	QTY.	REFERENCE DATA

BUNNINGS FOREST PRODUCTS PTY. LTD.

BUNBURY PORT

SITE LAYOUT

DATE	SCALE	MAT L LIST
5-2-96	1:1000	
DRAWN: RS	DRG. NO.	REV
CHECKED	AI-31352	



SOURCE: BUREAU OF METEOROLOGY, W.A., 13-11-01

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CLIMOGRAPH FOR DONNYBROOK

FIGURE 7

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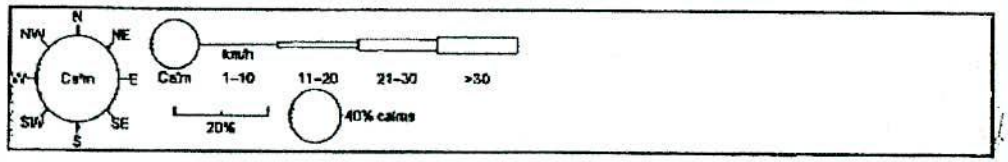
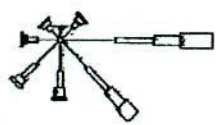
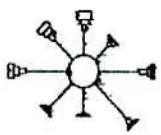
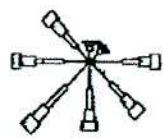
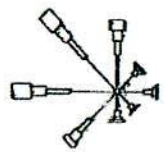
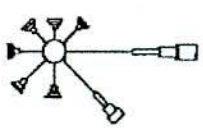
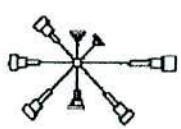
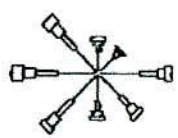
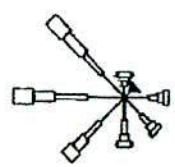
SOURCE: BUREAU OF METEOROLOGY, 2001

Wind Roses using available data between 1957 and 2001 for DONNYBROOK

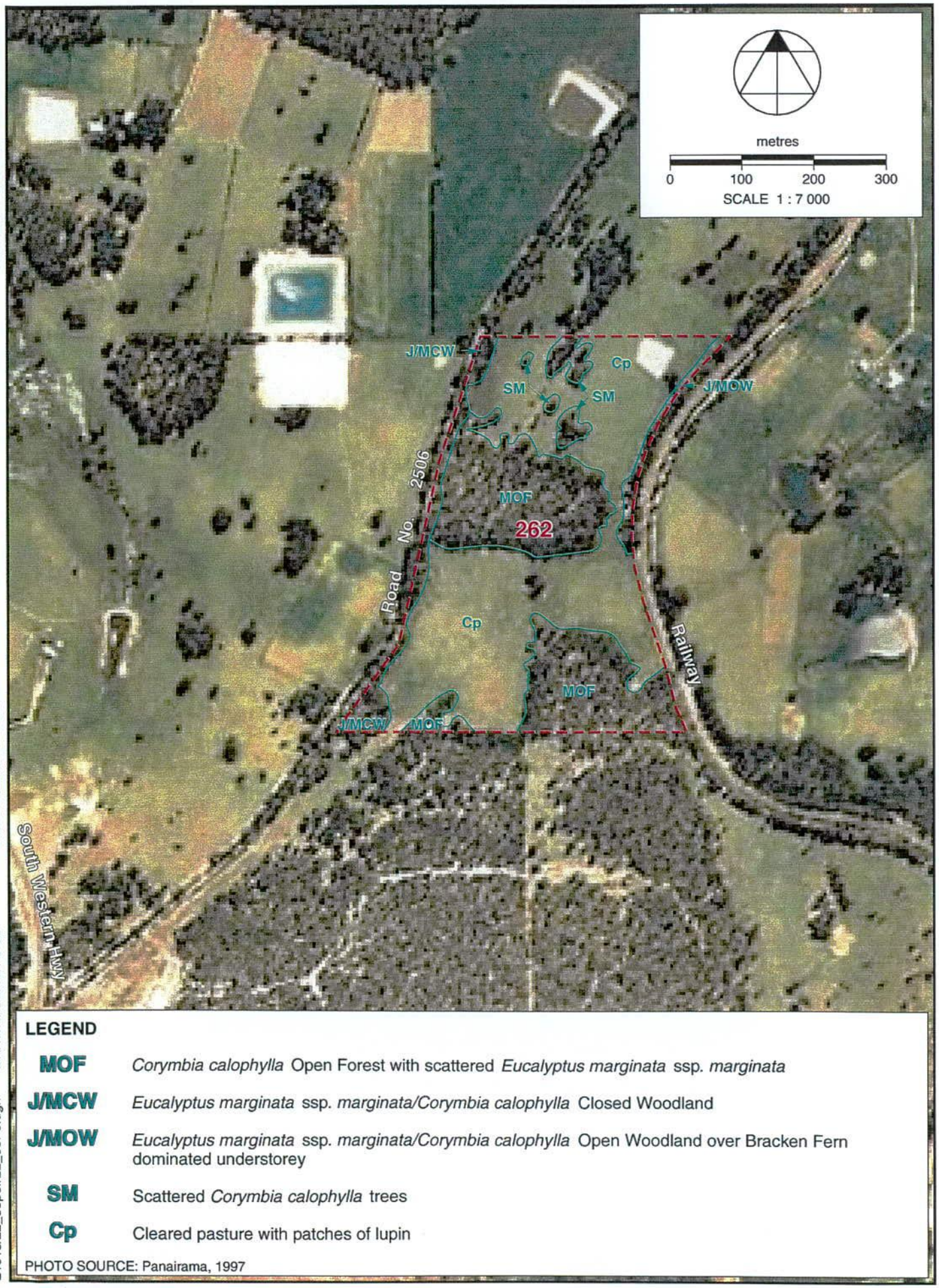
Site Number 009534 • Locality: DONNYBROOK • Opened Jan 1900 • Still Open
Latitude 33°34'23"S • Longitude 115°49'24"E • Elevation 63m

Only the hours 9 am, 3 pm are included.



9 am Summer 3901 observations	9 am Winter 3916 observations	3 pm Summer 3853 observations	3 pm Winter 3993 observations
			
9 am Autumn 3913 observations	**9 am Spring 3958 observations**	**3 pm Autumn 3936 observations**	**3 pm Spring 3924 observations**
			

DONNYBROOK WOODCHIP PROJECT
PUBLIC ENVIRONMENTAL REPORT
WIND ROSES FOR DONNYBROOK
FIGURE 8



LEGEND

MOF	*Corymbia calophylla* Open Forest with scattered *Eucalyptus marginata* ssp. *marginata*
J/MCW	*Eucalyptus marginata* ssp. *marginata/Corymbia calophylla* Closed Woodland
J/MOW	*Eucalyptus marginata* ssp. *marginata/Corymbia calophylla* Open Woodland over Bracken Fern dominated understorey
SM	Scattered *Corymbia calophylla* trees
Cp	Cleared pasture with patches of lupin

PHOTO SOURCE: Panairama, 1997

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VEGETATION ON LOCATION 262

FIGURE 9

SOURCE: HERRING STORER ACOUSTICS, 20-11-01

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NOISE CONTOURS - NIGHT

FIGURE 10