

PCU034330



MANILDRA GROUP OF COMPANIES
 Australia and New Zealand Banking Group Limited
 AUBURN, 28 AUBURN ROAD, NSW



395383

PAY THE
SUM OF

Five Thousand Dollars and Zero Cent

DATE 23/05/2012

TO THE
ORDER OF

DEPT PLANNING & INFRASTRUCTURE

\$*****5,000.00

Not negotiable
 Credit Department of Planning Account Only
 NOT NEGOTIABLE

FOR AND ON BEHALF OF
 MANILDRA FLOUR MILLS PTY. LIMITED. ACN 000 217 523

B. A. Stanley

⑈395383⑈012⑈2201⑈7754⑈10734⑈

Information Centre
 23-33 Bridge St, Sydney
 A.B.N. 38755709681

TAX INVOICE

Suspense Account	5000.00
(Nett Priced Item)	
Total less GST	5000.00
Total GST	0.00
Total Sale	5000.00
Cheque Tender Amount	5000.00
Change	0.00
GST Exempt Sale	

Department of Planning
 Received
 31 MAY 2012
 Scanning Room

Ph: 02 9228 6333 31/05/2012 14:42 7
 Dept of Planning

CH# 395383



100% Australian Owned

MANILDRA GROUP

Postal Address:
P.O. Box 123, Nowra
N.S.W. Australia 2541
Telephone: (02) 4423 8200
Facsimile: (02) 4421 7760

SHOALHAVEN MILLING COMPANY - MANILDRA FLOUR MILLS PTY. LTD. - MANILDRA STARCHES PTY. LTD. - MANILDRA SUGARS
SHOALHAVEN STARCHES PTY. LTD. - TASMAN STARCHES PTY. LTD. - MANILDRA STOCKFEED PTY. LIMITED
NAMOI FLOUR MILLS PTY. LIMITED - MANILDRA ENERGY AUSTRALIA PTY. LTD. - MANILDRA MILLING CORPORATION - U.S.A.

30 May 2012

The Director-General
Department of Planning & Infrastructure
23-33 Bridge Street
SYDNEY NSW 2001

Attention: Chris Ritchie & Andrew Hartcher


Dear Sir

**Re: Modification Application
Shoalhaven Starches Expansion Project
Proposed Relocation Application of Staff Car Park
To Project Approval MPO6_0228 MOD 3**

Please find enclosed:

1. Four (4) copies of the Modification application for the Proposed Relocation of Approved Staff Car Park dated May 2012.
2. Four CD's of the above.
3. Application to Modify a Development Consent dated 30 May 2012.
4. Owners Letter of Consent Authority dated 29 May 2012.
5. The Political Donations Disclosure Statement.
6. Cheque No 395383 for \$5,000 dated 23 May 2012 being the application fee for the modification.

Yours faithfully


BRIAN A HANLEY
MANAGER
ENERGY & SUSTAINABILITY
SHOALHAVEN STARCHES PTY LTD

Application to modify a development consent

Date lodged: 30/5/12



NSW GOVERNMENT
Department of Planning

DA modification no. _____
(Office use only)

1. Before you lodge

This form is to be used for applications to modify Part 4 development consents under section 96 or 96AA of the *Environmental Planning and Assessment Act 1979* (EP&A Act). This form is also to be used for Part 4 development consents that are to be modified under section 75W of the Act.

Disclosure statement

Persons lodging modification applications are required to declare reportable political donations (including donations of or more than \$1,000) made in the previous two years. For more details, including a disclosure form, go to www.planning.nsw.gov.au/donations.

Lodgement

Anyone wishing to lodge an application is recommended to call the Department of Planning to discuss their proposal and modification application requirements prior to lodging their application. You can lodge your completed form, together with attachments and fees at the relevant Department of Planning office listed below. Please lodge Part 4 modification applications with the Department of Planning head office or, for modification applications that are within the Kosciuszko ski resorts area, the Department's Alpine Resorts team.

NSW Department of Planning
Head Office
Ground Floor, 23–33 Bridge Street, Sydney NSW 2000
GPO Box 39 Sydney NSW 2001
Phone: 1300 305 695 Fax: (02) 9228 6555
Email: information@planning.nsw.gov.au

NSW Department of Planning
Alpine Resorts Team
Shop 5A, Snowy River Avenue
PO Box 36, Jindabyne NSW 2627
Phone: (02) 6456 1733 Fax: (02) 6456 1736
Email: alpineresorts@planning.nsw.gov.au

To minimise delay in receiving a decision about your application, please ensure you submit all relevant information to the Department. When your application has been assessed, you will receive a notice of determination.

2. Applicant and contact details

Company/organisation/agency

Shoalhaven Starches Pty Ltd

ABN

94000045045

☒ Mr ☐ Ms ☐ Mrs ☐ Dr ☐ Other

First name

Brian

Family name

Hanley

STREET ADDRESS

Unit/street no.

36

Street name

Bolong Road

Suburb or town

Bomaderry

State

NSW

Postcode

2541

POSTAL ADDRESS (or mark 'as above')

PO Box 123

Suburb or town

NOWRA

State

NSW

Postcode

2541

Daytime telephone

02 44238 200

Fax

02 44210098

Mobile

0412672783

Email

brian.hanley@manildra.com.au

3. Property description

Unit/street no. (or lot no. for Kosciuszko ski resorts)

220

Street or property name

Bolong Road

Suburb, town or locality

BOMADERRY

Postcode

2541

Local government area

Shoalhaven

Lot/DP or Lot/Section/DP or Lot/Strata no.

Please ensure that you put a slash (/) between lot, section, DP and strata numbers. If you have more than one piece of land, you will need to separate them with a comma e.g. 123/579, 162/2.

Lot 143 DP1069758

Note: You can find the lot, section, DP or strata number on a map of the land or on the title documents for the land, if title was provided after 30 October 1983. If you have documents older than this, you will need to contact the NSW Department of Lands for updated details. If the subject land is located within the Kosciuszko ski resorts area, DP and strata numbers do not apply.

4. Details of the original development consent

Briefly describe your approved development in the space below. If the development has been modified previously you must list all previous modifications and the relevant determination date(s).

Shoalhaven Starches Expansion Project MP06-0228 Mod3
Proposed Relocation of Approved Staff Carpark.

What was the original development application no.?

MP06-0228

What was the date consent was granted?

28/1/2009

What was the original application fee?

\$270,745

5. Type of modification

An application under section 96 of the EP&A Act is an application to modify a development consent. Modifications to a development consent can also be made under section 75W of the EP&A Act, or section 96AA for court granted consents.

There are five types of modification applications. Please tick the type of modification application that is being sought:

- ☐ Section 96(1) involving minor error, misdescription or miscalculation.
- ☐ Section 96(1A) involving minimal environmental impact, where the development as originally approved remains substantially the same.
- ☐ Section 96(2) other modification, where the development as originally approved remains substantially the same.
- ☐ Section 96AA modification of consent granted by the Land and Environment Court, where the development as originally approved remains substantially the same.
- ☒ Section 75W modification, involving use of Part 3A processes to modify the Part 4 consent.

Note: If the proposed modification will lead to the consented development being not 'substantially the same' (except in the case of a proposed modification under section 75W) then you will need to submit a new development application.

6. Extent of modification

Will the modified development be substantially the same as the development that was originally approved?

No ☐ Please submit a new development application.

Yes ☒ Please provide evidence that the development will remain substantially the same. (If you need to attach additional pages, please list below the material attached).

Refer attached Application

Note: Question 6 does not apply to proposed modifications under section 75W.

7. Description of modification

- In the case of a section 96(1) application, indicate the nature of the minor error, misdescription or miscalculation in the space below.
- In the case of a section 96(1A), section 96(2) or section 96AA application describe the impact of the modification in the space below. A statement of environmental effects will need to accompany the application, which includes an assessment of the development as proposed to be modified in accordance with section 79C(1) of the EP&A Act. Provisions of the *Heritage Act 1977* may also apply for works to a heritage item or works adjoining a heritage item.
- In the case of a section 75W application under clause 8J(8) of the Environmental Planning and Assessment Regulation 2000, a development consent in force immediately before the commencement of Part 3A of the Act may be modified under section 75W as if the consent were an approval under that Part. However, approval from the Minister is required to lodge a section 75W application. **Applicants should contact the Department first if they are considering applying for a modification under section 75W.**

Regardless of the type of modification, please state below the specific conditions of consent to be modified, deleted or additional conditions request, and details of any other changes being sought.

Condition 31(B)

Proposed Relocation of approved staff car park - refer to Modification Application prepared by Cowman Stoddart Pty Ltd dated May 2012.

Note: If your proposal is within Kosciuszko ski resorts area, please attach a copy of the Interim Lease Variation Approval received from the Department of Environment and Climate Change to your application.

8. General terms of approval from State agencies

If the original development application was classified as integrated development and required approval from one or more State agencies, list them in the space below and their respective general terms of approval. Depending on the type of modification, it may be necessary to refer the modification application to the approval body.

EPA - EPL Protection of the Environment Operations Act.

9. Number of jobs to be created

Please indicate the number of jobs the proposed development will create. This should be expressed as a proportion of full time jobs over a full year, (e.g. a person employed full time for 6 months would equal 0.5 of a full time equivalent job; six contractors working on and off over 2 weeks equate to 2 people working full time for 2 weeks, which equals approximately 0.08 of an FTE job).

Construction jobs (full time equivalent)

10

Operational jobs (full time equivalent)

25

10. Application fee

Part 15 of the Environmental Planning and Assessment Regulation 2000 sets out how to calculate the fees for an application for modification of a development consent. If your development needs to be advertised to the public you may also need to include an advertising fee.

Note: Advertising fees attract GST, all other fees do not.

Please contact the Department in order to calculate the fee for your modification application.

Estimated cost of the development

\$405,000

Original application fee

\$270,745

Total fees lodged

\$5,000

11. Political donation disclosure statement

Persons lodging modification applications are required to declare reportable political donations (including donations of or more than \$1,000) made in the previous two years. Disclosure statements are to be submitted with your application.

Have you attached a disclosure statement to this application?

Yes ☒

No ☐

Note: For more details about political donation disclosure requirements, including a disclosure form, go to www.planning.nsw.gov.au/donations.

12. Owner's consent

The owner(s) of the land to be developed must sign the application. If you are not the owner of the land, you must have all the owners sign the application. If the land is Crown land, an authorised officer of the NSW Department of Lands must sign the application. **An original signature must be provided.**

As the owner(s) of the above property, I/we consent to this application:

Signature

See attached Owner
Consent Letter

Name

Date

Signature

Name

Date

Note: For applications within the Kosciuszko ski resorts area, the approval of the lessee rather than the owner is required.

13. Applicant's signature

The applicant, or the applicant's agent, must sign the application. Only an original signature will be accepted (photocopies or faxed copies will not be accepted).

Signature

B. A. Stanley

Date

30/5/12

In what capacity are you signing if you are not the applicant

Name, if you are not the applicant

14. Privacy policy

The information you provide in this application will enable the Department, and any relevant state agency, to assess your application under the *Environmental Planning and Assessment Act 1979* and other applicable state legislation. If the information is not provided, your application may not be accepted.

If your application is for designated development or advertised development, it will be made available for public inspection and copying during a submission period. Written notification of the application will also be provided to the neighbourhood. You have the right to access and have corrected any information provided in your application. Please ensure that the information is accurate and advise the Department of any changes.

Political donations disclosure statement



NSW GOVERNMENT
Department of Planning

Office use only:

Date received: ____/____/____

Planning application no. MP06_0228m003

This form may be used to make a political donations disclosure under section 147(3) of the *Environmental Planning and Assessment Act 1979* for applications or public submissions to the Minister or the Director-General.

Please read the following information before filling out the Disclosure Statement on pages 3 and 4 of this form. Also refer to the 'Glossary of terms' provided overleaf (for definitions of terms in *italics* below). Once completed, please attach the completed declaration to your planning application or submission.

Explanatory information

Making a planning application or a public submission to the Minister or the Director-General

Under section 147(3) of the Environmental Planning and Assessment Act 1979 ('the Act') a person:

- (a) who makes a *relevant planning application* to the Minister or the Director-General is required to disclose all *reportable political donations* (if any) made within the *relevant period* to anyone by any *person with a financial interest* in the application, or
- (b) who makes a *relevant public submission* to the Minister or the Director-General in relation to the application is required to disclose all *reportable political donations* (if any) made within the *relevant period* to anyone by the person making the submission or any *associate of that person*.

How and when do you make a disclosure?

The disclosure to the Minister or the Director-General of a *reportable political donation* under section 147 of the Act is to be made:

- (a) in, or in a statement accompanying, the relevant planning application or submission if the donation is made before the application or submission is made, or
- (b) if the donation is made afterwards, in a statement of the person to whom the relevant planning application or submission was made within 7 days after the donation is made.

What information needs to be included in a disclosure?

The information requirements of a disclosure of reportable political donations are outlined in section 147(9) of the Act.

Pages 3 and 4 of this document include a Disclosure Statement Template which outlines the information requirements for disclosures to the Minister or to the Director-General of the Department of Planning.

Note: A separate Disclosure Statement Template is available for disclosures to councils.

Warning: A person is guilty of an offence under section 125 of the *Environmental Planning and Assessment Act 1979* in connection with the obligations under section 147 only if the person fails to make a disclosure of a political donation or gift in accordance with section 147 that the person knows, or ought reasonably to know, was made and is required to be disclosed under section 147.

The maximum penalty for any such offence is the maximum penalty under Part 6 of the *Election Funding and Disclosures Act 1981* for making a false statement in a declaration of disclosures lodged under that Part.

Note: The maximum penalty is currently 200 penalty units (currently \$22,000) or imprisonment for 12 months, or both.

Glossary of terms (under section 147 of the *Environmental Planning and Assessment Act 1979*)

gift means a gift within the meaning of Part 6 of the *Election Funding and Disclosures Act 1981*. Note. A gift includes a gift of money or the provision of any other valuable thing or service for no consideration or inadequate consideration.

Note: Under section 84(1) of the *Election Funding and Disclosures Act 1981* gift is defined as follows:

gift means any disposition of property made by a person to another person, otherwise than by will, being a disposition made without consideration in money or money's worth or with inadequate consideration, and includes the provision of a service (other than volunteer labour) for no consideration or for inadequate consideration.

local councillor means a councillor (including the mayor) of the council of a local government area.

relevant planning application means:

- a) a formal request to the Minister, a council or the Director-General to initiate the making of an environmental planning instrument or development control plan in relation to development on a particular site, or
- b) a formal request to the Minister or the Director-General for development on a particular site to be made State significant development or declared a project to which Part 3A applies, or
- c) an application for approval of a concept plan or project under Part 3A (or for the modification of a concept plan or of the approval for a project), or
- d) an application for development consent under Part 4 (or for the modification of a development consent), or
- e) any other application or request under or for the purposes of this Act that is prescribed by the regulations as a relevant planning application, but does not include:
 - f) an application for (or for the modification of) a complying development certificate, or
 - g) an application or request made by a public authority on its own behalf or made on behalf of a public authority, or
 - h) any other application or request that is excluded from this definition by the regulations.

relevant period is the period commencing 2 years before the application or submission is made and ending when the application is determined.

relevant public submission means a written submission made by a person objecting to or supporting a relevant planning application or any development that would be authorised by the granting of the application.

reportable political donation means a reportable political donation within the meaning of Part 6 of the *Election Funding and Disclosures Act 1981* that is required to be disclosed under that Part. Note. Reportable political donations include those of or above \$1,000.

Note: Under section 86 of the *Election Funding and Disclosures Act 1981* reportable political donation is defined as follows:

86 Meaning of "reportable political donation"

- (1) For the purposes of this Act, a reportable political donation is:
 - (a) in the case of disclosures under this Part by a party, elected member, group or candidate—a political donation of or exceeding \$1,000 made to or for the benefit of the party, elected member, group or candidate, or
 - (b) in the case of disclosures under this Part by a major political donor—a political donation of or exceeding \$1,000:
 - (i) made by the major political donor to or for the benefit of a party, elected member, group or candidate, or
 - (ii) made to the major political donor.
- (2) A political donation of less than an amount specified in subsection (1) made by an entity or other person is to be treated as a reportable political donation if that and other separate political donations made by that entity or other person to the same party, elected member, group, candidate or person within the same financial year (ending 30 June) would, if aggregated, constitute a reportable political donation under subsection (1).
- (3) A political donation of less than an amount specified in subsection (1) made by an entity or other person to a party is to be treated as a reportable political donation if that and other separate political donations made by that entity or person to an associated party within the same financial year (ending 30 June) would, if aggregated, constitute a reportable political donation under subsection (1). This subsection does not apply in connection with disclosures of political donations by parties.
- (4) For the purposes of subsection (3), parties are associated parties if endorsed candidates of both parties were included in the same group in the last periodic Council election or are to be included in the same group in the next periodic Council election.

a person has a financial interest in a relevant planning application if:

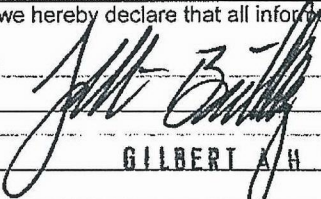
- a) the person is the applicant or the person on whose behalf the application is made, or
- b) the person is an owner of the site to which the application relates or has entered into an agreement to acquire the site or any part of it, or
- c) the person is associated with a person referred to in paragraph (a) or (b) and is likely to obtain a financial gain if development that would be authorised by the application is authorised or carried out (other than a gain merely as a shareholder in a company listed on a stock exchange), or
- d) the person has any other interest relating to the application, the site or the owner of the site that is prescribed by the regulations.

persons are associated with each other if:

- a) they carry on a business together in connection with the relevant planning application (in the case of the making of any such application) or they carry on a business together that may be affected by the granting of the application (in the case of a relevant planning submission), or
- b) they are related bodies corporate under the *Corporations Act 2001* of the Commonwealth, or
- c) one is a director of a corporation and the other is any such related corporation or a director of any such related corporation, or
- d) they have any other relationship prescribed by the regulations.

Political Donations Disclosure Statement to Minister or the Director-General

If you are required under section 147(3) of the Environmental Planning and Assessment Act 1979 to disclose any political donations (see Page 1 for details), please fill in this form and sign below.

Disclosure statement details				
Name of person making this disclosure		Planning application reference (e.g. DA number, planning application title or reference, property address or other description)		
Your interest in the planning application (circle relevant option below)				
You are the APPLICANT		YES / NO	OR	You are a PERSON MAKING A SUBMISSION IN RELATION TO AN APPLICATION
				YES / NO
Reportable political donations made by person making this declaration or by other relevant persons				
<p>* State below any reportable political donations you have made over the 'relevant period' (see glossary on page 2). If the donation was made by an entity (and not by you as an individual) include the Australian Business Number (ABN).</p> <p>* If you are the applicant of a relevant planning application state below any reportable political donations that you know, or ought reasonably to know, were made by any persons with a financial interest in the planning application, OR</p> <p>* If you are a person making a submission in relation to an application, state below any reportable political donations that you know, or ought reasonably to know, were made by an associate.</p>				
Name of donor (or ABN if an entity)	Donor's residential address or entity's registered address or other official office of the donor	Name of party or person for whose benefit the donation was made	Date donation made	Amount/ value of donation
See Appendix 1 Attached.				
Please list all reportable political donations—additional space is provided overleaf if required.				
By signing below, I/we hereby declare that all information contained within this statement is accurate at the time of signing.				
Signature(s) and Date				
				
22-5-2012				
Name(s)				
GILBERT A H BRATBY - COMPANY SECRETARY.				

Donations - period May 2010 to May 2012

Donor	Donor Address	Date	Date	Date	\$
		Day	Month	Year	Amount
Lib	140 William St East Sydney	2	5	2010	2,727
ALP	PO Box K408 Haymarket NSW 1240	2	5	2010	1,818
ALP	PO Box 622 Kingston ACT	10	5	2010	7,500
Lib	Locked Bag 2 Kings Cross NSW	10	5	2010	13,636
ALP	PO Box K408 Haymarket NSW 1240	17	5	2010	33,500
ALP	PO Box 622 Kingston ACT	26	5	2010	9,900
ALP	PO Box K408 Haymarket NSW 1240	26	5	2010	4,545
Lib	Locked Bag 2 Kings Cross NSW	1	6	2010	1,773
Nat	GPO Box 4558 Sydney NSW	3	6	2010	5,000
ALP	PO Box K408 Haymarket NSW 1240	3	6	2010	900
ALP	PO Box 622 Kingston ACT	7	6	2010	9,091
Lib	140 William St East Sydney	17	6	2010	6,000
ALP	PO Box K408 Haymarket NSW 1240	30	6	2010	182
Lib	Locked Bag 2 Kings Cross NSW	15	6	2010	1,136
ALP	PO Box 622 Kingston ACT	20	7	2010	10,000
ALP	PO Box 622 Kingston ACT	21	7	2010	150,000
Lib	Locked Bag 2 Kings Cross NSW	22	7	2010	10,000
ALP	PO Box 622 Kingston ACT	22	7	2010	10,000
ALP	PO Box 622 Kingston ACT	22	7	2010	10,000
ALP	PO Box 622 Kingston ACT	22	7	2010	5,000
ALP	PO Box 622 Kingston ACT	22	7	2010	5,000
Lib	Locked Bag 2 Kings Cross NSW	26	7	2010	100,000
ALP	PO Box 622 Kingston ACT	22	7	2010	5,000
ALP	PO Box 622 Kingston ACT	22	7	2010	5,000
Nats	PO Box 6190 Kingston ACT	26	7	2010	100,000
Lib	Locked Bag 2 Kings Cross NSW	26	7	2010	10,000
ALP	PO Box 622 Kingston ACT	29	7	2010	9,090
ALP	PO Box 622 Kingston ACT	1	8	2010	1,818
Independent	P O Box 1638 Innisfail QLD	2	8	2010	10,000
Lib	Locked Bag 2 Kings Cross NSW	9	8	2010	5,000
ALP	PO Box 622 Kingston ACT	9	8	2010	5,000
Lib	Locked Bag 2 Kings Cross NSW	9	8	2010	5,000
ALP	PO Box 622 Kingston ACT	11	8	2010	1,363
Nat	GPO Box 4558 Sydney NSW	31	8	2010	136
Lib	Locked Bag 2 Kings Cross NSW	31	8	2010	1,136
Lib	140 William St East Sydney	10	9	2010	3,000
Nat	GPO Box 4558 Sydney NSW	7	9	2010	50,000
Nat	GPO Box 4558 Sydney NSW	30	9	2010	2,727
ALP	PO Box 622 Kingston ACT	30	9	2010	1,363
Nat	GPO Box 4558 Sydney NSW	3	6	2010	150
Nat	PO Box 6190 Kingston ACT	3	8	2010	4,000
ALP	PO Box 622 Kingston ACT	7	12	2010	2,000
Lib	140 William St East Sydney	15	12	2010	3,000
ALP	PO Box 622 Kingston ACT	21	12	2010	5,000
ALP	PO Box 622 Kingston ACT	23	12	2010	40,000
ALP	PO Box 622 Kingston ACT	28	2	2011	2,000
Lib	140 William St East Sydney	1	3	2011	3,636
Lib	Locked Bag 2 Kings Cross NSW	28	4	2011	20,000
ALP	PO Box 622 Kingston ACT	29	4	2011	20,000
Nat	PO Box 6190 Kingston ACT	31	5	2011	2,272
ALP	PO Box 622 Kingston ACT	31	5	2011	1,500
ALP	PO Box 622 Kingston ACT	30	2	2011	4,545
Nat	PO Box 6190 Kingston ACT	15	6	2011	9,000
LNP	PO Box 940 Spring Hill QLD	17	6	2011	6,250
ALP	PO Box 622 Kingston ACT	21	7	2011	6,600
Nat	PO Box 6190 Kingston ACT	7	7	2011	20,000
Lib	Locked Bag 2 Kings Cross NSW	1	7	2011	20,000
Lib	PO Box 701 Balwyn VIC	9	8	2011	5,000
Lib	PO Box 6004 Kingston ACT	12	9	2011	5,500
Nat	GPO Box 4558 Sydney NSW	20	9	2011	10,000
LNP	P O Box 940 Spring Hill QLD	30	9	2011	200
Lib	Locked Bag 2 Kings Cross NSW	27	10	2011	109
Nat	PO Box 6190 Kingston ACT	8	11	2011	500
Nat	PO Box 6190 Kingston ACT	5	1	2012	11,900
ALP	PO Box 622 Kingston ACT	25	10	2011	11,250
KAP	P O Box 386 Banyo QLD	26	1	2012	50,000
ALP	PO Box 622 Kingston ACT	8	2	2012	30,000

May 2010 to 2012

\$ 907,755



100% Australian Owned

MANILDRA GROUP

Postal Address:
P.O. Box 123, Nowra
N.S.W. Australia 2541
Telephone: (02) 4423 8200
Facsimile: (02) 4421 7760

SHOALHAVEN MILLING COMPANY - MANILDRA FLOUR MILLS PTY. LTD. - MANILDRA STARCHES PTY. LTD. - MANILDRA SUGARS
SHOALHAVEN STARCHES PTY. LTD. - TASMAN STARCHES PTY. LTD. - MANILDRA STOCKFEED PTY. LIMITED
NAMOI FLOUR MILLS PTY. LIMITED - MANILDRA ENERGY AUSTRALIA PTY. LTD. - MANILDRA MILLING CORPORATION - U.S.A.

29 May 2012

The Director-General
Department of Planning & Infrastructure
GPO Box 39
SYDNEY NSW 2001

Dear Sir


The Manildra Group of Companies consists of several corporate entities and we hereby authorise Brian Hanley, Manager, Energy & Sustainability of Shoalhaven Starches Pty Ltd to act on behalf of the following companies which are part of the Manildra Group, namely:


- Shoalhaven Starches Pty Ltd
- Hookers Milk Products Pty Ltd
- Manildra Energy Australia Pty Ltd
- Manildra Grain Trust
- Manildra Grain Company Pty Ltd
- Manildra Flour Mills Retirement Fund
- Manildra Flour Mills Retirement Fund Pty Ltd

and has the authority to sign on behalf of the above companies Development Applications, Building Applications and Applications for Construction Certificates required by Department of Planning for approval and construction of developments on the Nowra site.

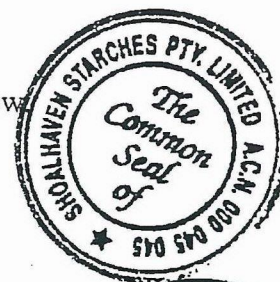
Authority from these Company's Directors and Company Seal is listed below

Shoalhaven Starches Pty Ltd

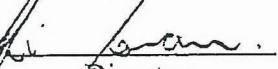

Director



Director

Company Seal

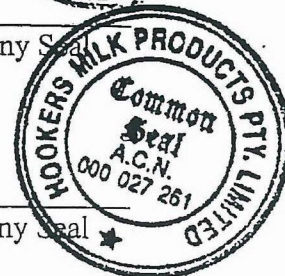


Hookers Milk Products Pty Ltd


Director

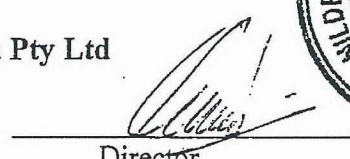

Director

Company Seal

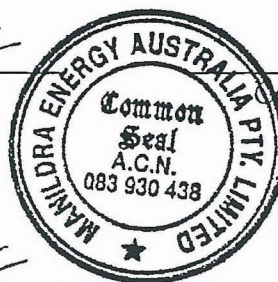


Manildra Energy Australia Pty Ltd

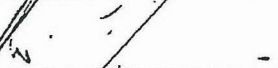

Director



Director

Company Seal



Manildra Grain Trust


Director


Director

Company Seal

Manildra Grain Company Pty Ltd


Director



Director

Company Seal



Manildra Flour Mills Retirement Fund



Director


Director

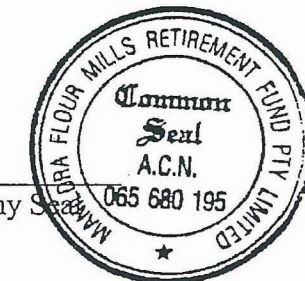
Company Seal

Manildra Flour Mills Retirement Fund Pty Ltd


Director


Director

Company Seal



S.75W MODIFICATION APPLICATION

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**APPLICATION PURSUANT TO SECTION 75W
OF THE ENVIRONMENTAL PLANNING
AND ASSESSMENT ACT 1979
(MODIFICATION NO. 3)**

SHOALHAVEN STARCHES

**PROPOSED RELOCATION
OF APPROVED STAFF CAR PARK
PROJECT APPROVAL MP06_0228**

SHOALHAVEN STARCHES EXPANSION PROJECT

Prepared for

Shoalhaven Starches Pty Ltd

May 2012



Prepared by:

COWMAN STODDART PTY LTD

Town Planning, Agricultural & Environmental Consultants

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EXECUTIVE SUMMARY

Shoalhaven Starches is a member of the Manildra Group of companies. The Manildra Group is a wholly Australian owned business and the largest processor of wheat in Australia. It manufactures a wide range of wheat based products for food and industrial markets both locally and internationally.

The Shoalhaven Starches factory located on Bolong Road, Bomaderry produces a range of products for the food, beverage, confectionary, paper and motor transport industries including: starch, gluten, glucose and ethanol.

The use of ethanol as a fuel (or fuel additive) has many benefits including:

- it is a renewable fuel and lessens reliance on fossil fuels;
- it reduces greenhouse gas emissions and other air pollutants such as carbon monoxide and particulates;
- it reduces imports of oil and stimulates regional and local economies if produced locally.

Given the above benefits, the Federal and State Governments have introduced a range of initiatives to encourage the increased use of ethanol as a fuel additive.

Since 2007 the NSW Government has progressively increased the mandated ethanol content by volume in petrol in NSW to 6% from 1st October 2011.

In 2009 the Minister for Planning issued Project Approval for an application made by Shoalhaven Starches to increase its ethanol production capacity to meet the expected increase in demand for ethanol arising from the NSW Government's ethanol mandate by upgrading the existing ethanol plant located at the Shoalhaven Starches Plant at Bomaderry. This Project Approval has allowed Shoalhaven Starches to increase its ethanol production at its Bomaderry Plant to 300 million litres per year subject to certain conditions.

Condition 31(b) of Schedule 3 of the Project Approval required the provision of 60 car parking spaces on the factory site to the south of Bolong Road. Shoalhaven Starches had originally intended with the original Project Application that these spaces would be provided to the rear of the old Moorehouse buildings located off Bolong Road.

Following the issue of the Project Approval; and as construction of the project proceeds it has become apparent to Shoalhaven Starches that this original intended location for parking will not be the ideal location in terms of the Company's operational requirements.

The Manildra Group of Companies have since Project Approval subsequently acquired the former Dairy Farmers factory complex which adjoins the existing Shoalhaven Starches factory to the east. This adjoining site contains empty land which immediately adjoins the Shoalhaven

Starches factory site. Shoalhaven Starches propose to modify their Project Approval to enable the 60 parking spaces required to be provided by condition 31(b) to be located on this land.

The application is made pursuant to Section 75W of the Environmental Planning & Assessment Act 1979.

The preparation of this Environmental Assessment has been undertaken following consultation with:

- The Department of Planning and Infrastructure; and
- Shoalhaven City Council.

This submission is supported by a Traffic Impact Assessment prepared by ARC Traffic & Transport, traffic consultants. In summary this assessment concludes:

- The Proposal provides for a minor redistribution of trips between the Shoalhaven Starches factory site and the former Dairy Farmers site. The Proposal will not however increase overall vehicle generation.
- The redistribution of trips along Bolong Road is very minor, and would not impact upon the operation of the site intersections.
- The assessment of future flows prepared by ARC indicates that the intersection of Bolong Road and the former Dairy Farmers site is required to be upgraded to accommodate the Proposal. These include:
 - An upgrade of the existing CHR(S) Bolong Road to the former Dairy Farmers site to a CHR
 - An upgrade of the existing BAL Bolong Road to the former Dairy Farmers site to an AUL
- The internal design for the site will provide for safe and efficient access for heavy vehicles and light vehicles; appropriate priorities; and will minimise queuing demands.
- The car park design will necessarily reference AS 2890.1:2004 and make provision for the safe departure of vehicles in a forward direction, as well as allowing vehicles to turn at the western end of the car park so as to remove potential reversing movements.

The Minister's approval is sought for the modification application.

1.0 INTRODUCTION

Shoalhaven Starches is a member of the Manildra Group of companies. The Manildra Group is a wholly Australian owned business and the largest processor of wheat in Australia. It manufactures a wide range of wheat based products for food and industrial markets both locally and internationally.

The Shoalhaven Starches factory located on Bolong Road, Bomaderry produces a range of products for the food, beverage, confectionary, paper and motor transport industries including: starch, gluten, glucose and ethanol.

The use of ethanol as a fuel (or fuel additive) has many benefits including:

- it is a renewable fuel and lessens reliance on fossil fuels;
- it reduces greenhouse gas emissions and other air pollutants such as carbon monoxide and particulates;
- it reduces imports of oil and stimulates regional and local economies if produced locally.

Given the above benefits, the Federal and State Governments have introduced a range of initiatives to encourage the increased use of ethanol as a fuel additive.

Since 2007 the NSW Government has progressively increased the mandated ethanol content by volume in petrol in NSW to 6% from 1st October 2011.

In 2009 the Minister for Planning issued Project Approval for Shoalhaven Starches to enable the Company to increase its ethanol production capacity to meet the expected increase in demand for ethanol arising from the abovementioned ethanol mandate by upgrading the existing ethanol plant, located at the Shoalhaven Starches Plant at Bomaderry. Subject to certain conditions this Project Approval has enabled Shoalhaven Starches to increase its production at its Bomaderry Plant to 300 million litres per year.

Condition 31(b) of Schedule 3 of the Project Approval required the provision of 60 car parking spaces on the factory site to the south of Bolong Road. Shoalhaven Starches had originally intended with the original Project Application that these spaces would be provided to the rear of the old Moorehouse buildings located off Bolong Road.

Following the issue of the Project Approval; and as construction of the project proceeds it has become apparent to Shoalhaven Starches that this original intended location for parking will not be the ideal location in terms of the Company's operational requirements.

The Manildra Group of Companies have since Project Approval subsequently acquired the former Dairy Farmers factory complex which adjoins the existing Shoalhaven Starches factory to the east. This adjoining site contains empty land which immediately adjoins the Shoalhaven

Starches factory site. Shoalhaven Starches propose to modify their Project Approval to enable these 60 parking spaces to be located on this land.

The application is made pursuant to Section 75W of the Environmental Planning & Assessment Act 1979.

2.0 THE SITE AND SURROUNDING LOCALITY

The Project Approval issued by the Minister related to the following parcels of land (**Table 1**):

Table 1
Shoalhaven Starches Property

Factory		Packing Plant	
<i>Lot</i>	<i>Deposited Plan (DP) / FP</i>	<i>Lot</i>	<i>Deposited Plan (DP) / FP</i>
1	838753	16	1121337
A	334511	2	538289
B	334511	Overhead Bridge – Bolong Road Reserve	
B	376494		
62	1078788	2	538289
201	1062668	Fire Services	
1	385145		
241	1130535	241	1130535
Wastewater Treatment Plant & Environmental Farm			
<i>Lot</i>	<i>Deposited Plan (DP) / FP</i>	<i>Lot</i>	<i>Deposited Plan (DP) / FP</i>
4	610696	211	854764
	131008	Pt 212	
1	842231	213	
2	842231	214	
3	235705	248	
1	235705	2	
2	235705	42	
Part 2	854837	63	
4	1109510	Pt 2	
22	811233	3	
164	4469	2	
2	854764	1	
210	6131	2	

The Shoalhaven Starches factory site is situated on various allotments of land located along Bolong Road, Bomaderry within the City of Shoalhaven. The factory site, which is located on the south side of Bolong Road on the northern bank of the Shoalhaven River, has an area of approximately 12.5 hectares.

The proposed car park is to be located on the adjoining Lot 143 DP 1069758. This adjoining land was previously the Dairy Farmers Factory complex which Shoalhaven Starches have recently acquired.

Figure 1 is an aerial photograph showing the location of the Shoalhaven Starches and former Dairy Farmers factory complexes.



Figure 1: Aerial view of Shoalhaven Starches and former Dairy Farmers factory sites.

The town of Bomaderry is located 0.5 km (approx.) to the west of the factory site, and the Nowra urban area is situated 2.0 km to the south west of the site. The “Riverview Road” area of the Nowra Township is situated approximately 600 metres immediately opposite the factory site across the Shoalhaven River.

The village of Terara is situated approximately 1.5 kilometres to the south east of the site, across the Shoalhaven River. Pig Island is situated between the factory site and the village of Terara and is currently used for cattle grazing.

There are a number of industrial land uses, which have developed on the strip of land between Bolong Road and the Shoalhaven River. Industrial activities include a metal fabrication factory, the Shoalhaven Starches site, Shoalhaven Dairy Co-op (formerly Australian Co-operative Foods Ltd – now owned by the Manildra Group) and the Shoalhaven Paper Mill (Australian Paper). The industrial area is serviced by a privately owned railway spur line that runs from just north of the Nowra-Bomaderry station via the starch plant and Dairy Co-op site to the Paper Mill.

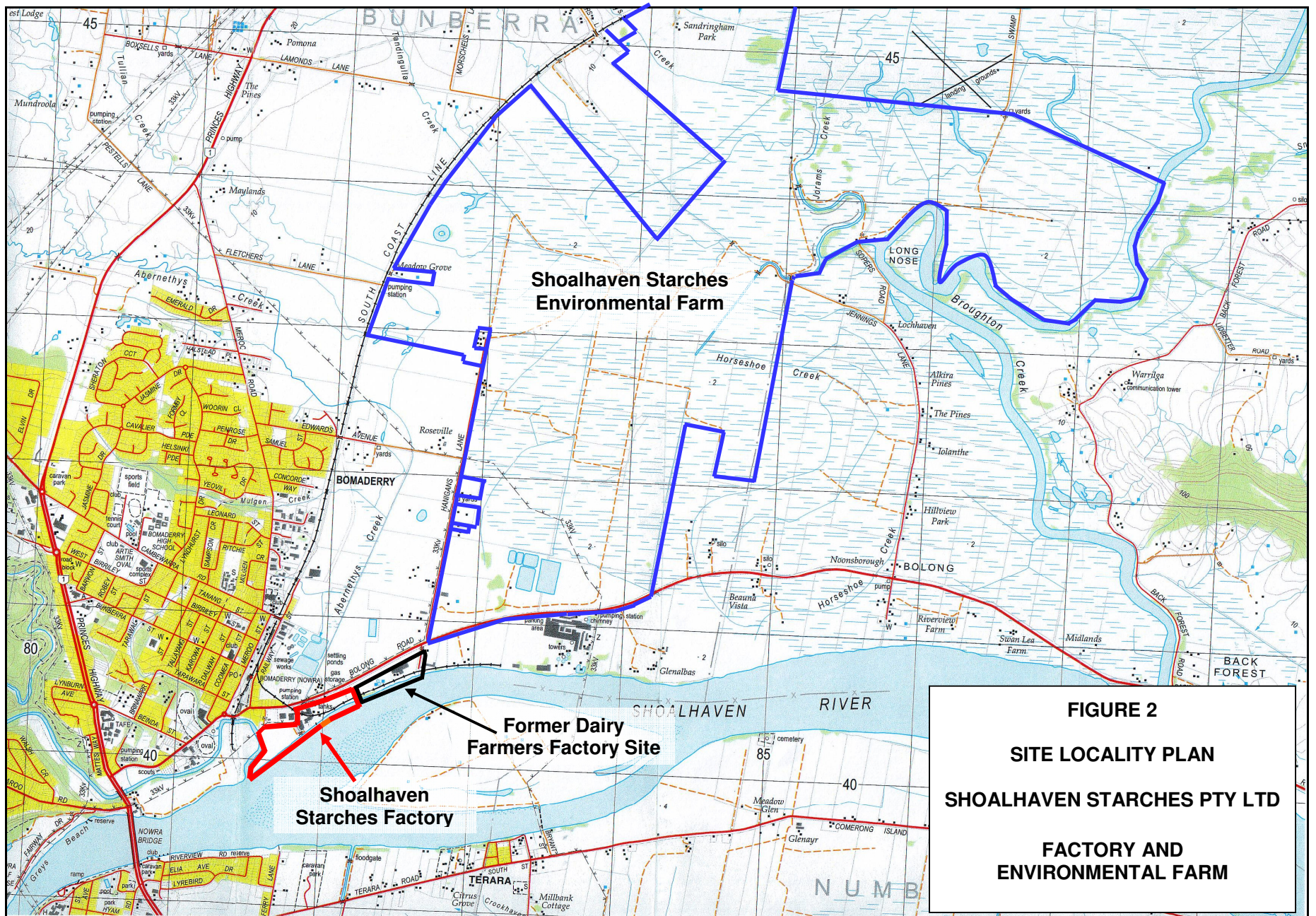
The state railway terminates at Bomaderry Railway Station with a separate, privately owned spur line to the factory site. Shoalhaven City Council sewerage treatment works is situated between the railway station and the factory.

The Company also has an Environmental Farm located over 1000 hectares on the northern side of Bolong Road. This area is cleared grazing land and contains spray irrigation lines and wet weather storage ponds (total capacity 925 Mega litres). There are at present 6 wet weather storage ponds on the farm that form part of the waste water management system for the factory. A seventh pond approved in 2002 was converted into the biological section of the new wastewater treatment plant.

The Environmental Farm covers a broad area of the northern floodplain of the Shoalhaven River, stretching from Bolong Road in the south towards Jaspers Brush in the north. Apart from its use as the Environmental Farm, this broad floodplain area is mainly used for grazing cattle. The area comprises mainly large rural properties with isolated dwellings, although there is a clustering of rural residential development along Jennings Lane (approximately 1 kilometre away) and Back Forest Road (approximately between 500 metres to 1.2 kilometres away) to the east of the Environmental Farm; and Jaspers Brush Road, approximately 1.2 kilometres to the north of the Environmental Farm.

Figure 2 is a site locality plan depicting the location of the factory site and Environmental Farm as well as the surrounding locality.

Figure 3 is a plan of the existing factory site depicting the layout of existing plant on the site as well as plant that has been previously approved as part of the Shoalhaven Starches Expansion Project (MP06_0228).



3.0 BACKGROUND

3.1 PRODUCTION PROCESSES

The production process at the Shoalhaven Starches plant has developed over a number of years. Originally the plant was primarily concerned with the production of starch and gluten from flour. However the Company has pursued a number of technological innovations particularly with respect to reducing the environmental impacts of the Company's operations. As a result Shoalhaven Starches has been moving towards a "closed" system of production. Essentially this entails the efficient use of end products to ensure wastage is reduced to a minimum.

The first step in the production process is the delivery of flour and grain, by rail, from the Company's flour mills at Manildra, Gunnedah and Narrandera. The trainloads are brought into the plant via the switching yard at Bomaderry.

The Company received approval from the Minister for Planning for the erection of a flour mill on site to enable the milling of part of the Company's flour requirements to be processed directly on the site. This flour mill has now been commissioned. The remainder of the Company's flour requirement will continue to be sourced from the Company's off-site flour mills.

Flour is transferred via storage to the "wet end" of the plant where fresh water is added. The subsequent mixing and separation process produces starch and gluten.

The gluten is dried to enable it to be packaged and distributed as a high protein food additive for human consumption. This product is then taken from the site after packaging for both local and export markets. Apart from food and other products starch is also used in the fermentation and distillation process to produce ethanol.

The starch that is separated from the flour is either dried or remains in liquid form. The dried and liquid starch are sold to the paper and food industries. The starch is used for food, cardboard, paper and other industrial purposes, and is also used in the ethanol production process.

Starch is also used in the production of syrups on the site. The syrups plant products include glucose and brewer's syrup. These are used for food, chocolates, confectionery, beer, soft drinks and fruit juice. The syrups plant products can also be used in the ethanol process.

The products from the starch, gluten and syrup production processes are combined to feed the fermentation and distillation stage of ethanol production. The outputs are fuel

and industrial grade ethanol. Industrial grade ethanol is used in producing pharmaceuticals, printer's ink and methylated spirits.

Ethanol production results in some liquid and solid by-products, which are processed through the stillage recovery process plant (which was approved as part of PRP No. 7 in 2005). The solids in the stillage are recovered as DDGS (Dried Distillers Grains Syrup), dried and sold as a high protein cattle feed with the remaining water used for irrigation. The waste water resulting from the ethanol production is treated in the wastewater treatment plant and is re-used in the Starch Plant and the surplus is irrigated onto Shoalhaven Starches Environmental Farm to the north of Bolong Road. This farm land is used for fodder crops, pasture and cattle grazing.

3.2 OPERATING WORKFORCE

3.2.1 Operations

The existing factory operates 24 hours per day, 7 days a week, 365 days of the year.

3.2.2 Workforce

The plant employs a total of 300 staff, covering all components of production - operators, administrative personnel and maintenance staff. Employee breakdown and hours of shifts are as follows:

A total of around 300 employees	Management, Technical & Administration	– 60
	Day Workers	– 65
	Shift Production (spread over 4 shifts)	– 175

Hours of Shifts

Plant:	6:00 am to 6:00 pm	- 88 employees	
	6:00 pm to 6:00 am	- 88 employees	
	Day – 7:00 am to 3:00 pm	but variable	66 employees, 60 Management, Technical & Administration
Farm:	5:00 am to 5:00 pm	- 3 employees	
	5:00 pm to 5:00 am	- 3 employees	
	7:00 am to 3:00 pm	- 3 employees	

Shift work at both the factory and farm is undertaken on a continuous roster basis.

3.3 RAW MATERIALS

Raw material and energy components used in the Shoalhaven Starches processes are flour, grain for ethanol production and wheat for milling; coal, natural gas, fresh water and salt water.

Flour is delivered to the site by rail from the Company's mills at Manildra, Gunnedah and Narrandera each day of the week. The flour arrives into the plant by Company owned and hired rail wagons. From the silos, the flour is moved into the plant by air as required. The current approved flour consumption of the plant is 20,000 tonnes per week.

Grain is delivered to the site by rail. The approved grain consumption is 6650 tonnes per week. The grain is used in the production of ethanol and DDG. The grain is discharged from the rail wagons into an underground hopper and conveyed by screw conveyors and bucket elevator into silos.

3.4 HISTORY OF DEVELOPMENT ON THE SITE

The Shoalhaven Starches wheat starch and gluten plant at Nowra was originally constructed in 1970. The Manildra flour mills, at Manildra, Narrandera and Gunnedah, supply the Shoalhaven Starches factory, which currently produces wheat starch, gluten, syrups and ethanol (industrial and fuel grades). The Shoalhaven Starches operation provides direct on-site employment for 300 employees. Through the use of contractors it also indirectly creates employment for many more people in the local and regional economies.

In order to address the issue of waste water disposal, in 1984 Shoalhaven Starches installed a spray irrigation system, using farmland it owned on the northern side of Bolong Road at Bomaderry.

In June 1991, two storage ponds were built (Ponds No. 1 and 2) resulting in the cessation of waste water discharge to the Shoalhaven River.

To further reduce product wastage, Shoalhaven Starches sought to use starch for the production of ethanol. Ethanol production began at the Shoalhaven site in June 1992.

In 1994, the NSW Government approved the installation of a larger ethanol distillery within the existing site. The new distillery and its associated facilities enabled production of ethanol to increase from 20 million litres per annum to a production capacity of 100 million litres per year.

Subsequent to this approval Shoalhaven City Council issued development consent for:

- a protein isolate plant and DDGS Dryer; and
- a sorghum grinding plant.

Shoalhaven City Council issued development approval for the construction of a wet weather storage pond (Pond No. 6) on the 27th April 2001. At present, with the

completion of Pond No. 6, Shoalhaven Starches has a combined waste water storage capacity within the existing ponds of 925 ML. A further wet weather storage pond (Pond No. 7) was approved by the Minister for Planning on the 23 December 2002 and subsequently modified by the approval by the Minister for Planning to form the anaerobic and aerobic parts of the wastewater treatment plant.

On the 1st June, 2001 the Minister for Urban Affairs & Planning, Dr Andrew Refshauge MP, declared both the Shoalhaven Starches factory and Environmental Farm as being State Significant Development for the purposes of the then Section 76A(7) of the Environmental Planning & Assessment Act.

In 2003 the Minister for Planning issued development consent (D223) for Shoalhaven Starches Pollution Reduction Program (PRP) No. 7. This approval enabled the implementation of the Company's Waste Water Management Strategy, and essentially sought to remove solids (suspended and soluble) from the Company's waste water, prior to its irrigation on the Environmental Farm.

This process, known as Stillage Recovery (to be further discussed in Section 4.1 of this report), essentially involved the introduction of additional decanters, the installation of an evaporation plant and additional dryers, to remove solids from the waste water. It is the remaining solids in the waste water that when sprayed onto the Environmental Farm, or stored in the wet weather storage ponds, which had the potential to result in the generation of odours.

The recovery of the suspended and soluble solids from the waste water could not be undertaken by the dryers in this process, without firstly providing additional coarse solids. Additional coarse solids (grain) were required to be imported to the site.

As a consequence of the additional grain, the starch contained in the grain resulted in a need to increase ethanol production to 126 million litres per year. This increase in ethanol production required the installation of additional fermenters, associated cooling towers and molecular sieves.

The increase in ethanol production also resulted in an increase in waste water, which was required to be disposed on the environmental farm. In this regard this previous proposal also included an increase in waste water disposal area on the Environmental Farm.

The plant associated with this previous approval has now been substantially installed and commissioned.

Shoalhaven Starches have subsequently received the following development approvals:

- The establishment of a flour mill on the factory site. This proposal provides for the transportation of wheat directly to the site by train for processing into industrial grade flour for the use in the production of starch and gluten at the factory site.
- An application pursuant to Section 96 of the Environmental Planning & Assessment Act seeking to modify the development approval for the PRP No. 7 project to enable a DDGS Dryer to be installed in a slightly different location in the same building as previously approved; and the installation of an additional evaporator (a redundant piece of equipment located at the Company's Altona Plant in Victoria) to provide standby capacity for the existing evaporator plant when sections of the existing plant are out of service or cleaning.
- A Section 96 modification application for a standby fermenter tank to be installed on the site, to enable the existing fermenter tanks to be taken out of service for maintenance one at a time.

A full list of all approvals that apply to the Shoalhaven Starches site are detailed within Section 2.4 of the EA prepared by our firm, in relation to the Shoalhaven Starches Expansion Project (MP 06_0228).

3.5 PROJECT APPROVAL MP 06_0228

On the 28th January 2009 the then Minister for Planning, Kristina Keneally issued Project Approval MP 06_0228 for the Shoalhaven Starches Expansion Project.

The primary objective of the Shoalhaven Starches Expansion Project is to increase the Company's ethanol production capacity to meet the expected increase in demand for ethanol primarily, arising from the NSW Government's mandate to increase ethanol content by volume in petrol in NSW from 2% to 6% from October 2011, by upgrading the existing ethanol plant.

The approval has enabled, subject to conditions, Shoalhaven Starches to increase ethanol production at its Bomaderry Plant to 300 million litres per year.

To accomplish the increase in ethanol production, the Project Approval has enabled Shoalhaven Starches to upgrade plant and increase throughput of raw materials, principally comprising flour and grain.

The following additions and alterations have been approved to the existing factory site as part of this Project Approval:

- the provision of an additional dryer for the starch/gluten plant;

- additional equipment and storage vessels for the ethanol plant including 3 additional fermenters, additional cooling towers and molecular sieves;
- upgrades to the Stillage Recovery Plant including 6 additional Dried Distillers Grains Syrup (DDGS) dryers; 10 decanters; chemical storage and two evaporators. The proposal includes the installation of a DDGS Pelletiser Plant within this part of the site; and
- the establishment of a new packing plant, container loading area and a rail spur line. The establishment of this facility on the northern side of Bolong Road will require the provision of an overhead bridge structure to allow product and safe pedestrian movement across Bolong Road.

In addition, as part of the Project Approval, Shoalhaven Starches has undertaken comprehensive odour reduction measures for both the existing factory site and the works associated with the Expansion Project. In 2006, the Land and Environment Court required Shoalhaven Starches to engage a suitably qualified person to conduct a comprehensive environmental audit of the factory and Environmental Farm. This environmental audit was undertaken GHD Pty Ltd. The audit report includes a number of recommendations for the implementation of works to the existing site, some of which require development approval. These works were included within this Project Approval.

The Project Approval has enabled a staged implementation of the expansion project; the Bomaderry Plant eventually increasing up to 300 million litres p.a.

Condition 31(b) of Schedule 3 of the Project Approval stipulates:

31. *The Proponent shall:*

(b) *construct at least 60 new parking spaces on the factory site to the south of Bolong Road within 12 months of this approval.*

Following the issue of the Project Approval; and as construction of the project proceeds it has become apparent to Shoalhaven Starches that this original intended location for parking will not be the ideal location in terms of the Company's operational requirements.

The Manildra Group of Companies have subsequently acquired the former Dairy Farmers factory complex which adjoins the existing Shoalhaven Starches factory to the east. This adjoining site contains land which immediately adjoins the Shoalhaven Starches factory site. Shoalhaven Starches proposes to modify their Project Approval to enable these 60 parking spaces to be located on this land.

4.0 STATUTORY SITUATION

4.1 PART 3A OF THE EP&A ACT

The introduction of Part 3A to the Environmental Planning & Assessment Act 1979, and the introduction of *State Environmental Planning Policy (Major Development)* in 2005, brought about a change in the regime concerning the assessment of state significant development. Part 3A initially targeted the streamlining of the assessment of projects deemed to be of state significance, including critical infrastructure projects.

Following the 2011 election, the NSW Government have implemented measures seeking to change the planning legislative and policy regime applicable to projects previously subject to Part 3A.

Under these legislation changes no new applications for any of the development that was previously identified as Part 3A in the Major Development SEPP will be accepted and assessed during this interim period.

Projects currently awaiting declaration will not be declared. Generally, applications for the assessment of these projects will be able to be lodged once the new legislation has commenced, provided the category of development is one to which the new system of state significant development applies.

The NSW Parliament have subsequently passed amendments to the *Environmental Planning & Assessment Act 1979* (the EP&A Act). These amendments have created an alternative assessment system which allows the NSW Government to assess and determine projects which are of State significance.

The amended EP&A Act establishes two separate assessment frameworks for either State Significant Infrastructure (SSI) or State Significant Development (SSD). Projects that fall under these two categories will be assessed by the Department of Planning and Infrastructure (the 'Department').

To this end, the Act largely returns to the situation before Part 3A where two separate assessment pathways were in place for projects to be assessed by the State, namely

- Linear public infrastructure projects such as railways, water supply systems, pipelines and transmission lines, or other development by a State agency which has a significant environmental effect; and
- Significant development types which require consent such as mines, chemical and manufacturing plants, warehousing and distribution facilities, hospitals and associated ancillary development.

The Act also introduces a number of changes to the operation and make-up of the Planning Assessment Commission (PAC) and Joint Regional Planning Panels (Regional Panels), seeking to provide additional transparency and greater local government input.

Supporting regulations and an associated new State Environmental Planning Policy (SEPP) have been introduced and come into effect from the 1st October 2011. These supporting provisions provide additional detail with respect to the classes and thresholds for development to be considered as State Significant.

This new SEPP is called *State Environmental Planning Policy (State and Regional Development) 2011* and is known as the “State and Regional Development SEPP”. This new SEPP approximately halves the number of proposals dealt with by the State when compared with the former Part 3A system.

The *Environmental Planning and Assessment Regulation 2000* (EP&A Regulation) has also been amended to update a number of procedural and administrative arrangements.

This is an interim assessment system which will be reviewed as part of the proposed overall review of the NSW planning system that the new NSW Government has also instigated.

The approved Shoalhaven Starches Expansion Project however is termed a *Transitional Part 3A Project* under the amended EP&A legislation.

These circumstances are clarified in Planning Circular PS 11-021 issued by the Department of Planning & Infrastructure on the 30th September 2011. This Circular confirms that Part 3A continues to apply to certain projects subject to transitional provisions identified in Schedule 6A of the Act.

Schedule 6A of the *EP&A Act* makes provisions for such projects. Essentially a *Transitional Part 3A Project* includes:

- (a) *an approved project (whether approved before or after the repeal of Part 3A),*
- (b) *a project for which environmental assessment requirements were notified or adopted before the repeal of Part 3A,*
- (c) *a project that is the subject of a Part 3A project application and that the regulations declare to be a transitional Part 3A project.*

As the Shoalhaven Starches Expansion Project was approved on the 28th January 2009 this project is considered a *Transitional 3A Project* for the purposes of this legislation.

Clause 3 of Schedule 6A provides for the continuation of Part 3A and Transitional Part 3A projects. Essentially it states that Part 3A continues to apply to and in respect of *Transitional Part 3A* projects. Clause 3 reads:

3 Continuation of Part 3A – transitional Part 3A projects

- (1) *Part 3A continues to apply to and in respect of a transitional Part 3A project.*
- (2) *For that purpose:*
 - (a) *any State environmental planning policy or other instrument made under Part 3A, as in force on the repeal of that Part and as amended after that repeal, continues to apply to and in respect of a transitional Part 3A project, and*
 - (b) *declarations, orders, directions, determinations or other decisions with respect to a transitional Part 3A project continue to have effect and may continue to be made under Part 3A (including for the purpose of the application or continued application of Part 4 or 5 or other provisions of this Act in relation to the project).*
- (3) *The regulations may modify provisions of Part 3A (and the instruments or decisions referred to in subclause (2)) as they apply to a transitional Part 3A project.*
- (4) *The declaration of development as a project under Part 3A (or as a critical infrastructure project) is revoked if the development is not, or ceases to be, a transitional Part 3A project.*
- (5) *A transitional Part 3A project is not State significant development or State significant infrastructure.*
- (6) *This clause is subject to the other provisions of this Schedule.*

Part 3A continues to apply to the Shoalhaven Starches Expansion Project. State Environmental Planning Policy (Major Projects) continues to support Part 3A of the Act.

Section 75W of the Environmental Planning & Assessment Act makes provision for the modification of Major Projects to which Part 3A applied and continues to apply.

4.2 SECTION 75W AND MODIFICATION PROPOSALS

Section 75W of the EPA Act relates to modifications to approvals issued by the Minister for Planning and states:

75W Modification of Minister's approval

(1) *In this section:*

Minister's approval means an approval to carry out a project under this Part, and includes an approval of a concept plan.

modification of approval means changing the terms of a Minister's approval, including:

- (a) *revoking or varying a condition of the approval or imposing an additional condition of the approval, and*
 - (b) *changing the terms of any determination made by the Minister under Division 3 in connection with the approval.*
- (2) *The proponent may request the Minister to modify the Minister's approval for a project. The Minister's approval for a modification is not required if the project as modified will be consistent with the existing approval under this Part.*
- (3) *The request for the Minister's approval is to be lodged with the Director-General. The Director-General may notify the proponent of environmental assessment requirements with respect to the proposed modification that the proponent must comply with before the matter will be considered by the Minister.*
- (4) *The Minister may modify the approval (with or without conditions) or disapprove of the modification.*
- (5) *The proponent of a project to which section 75K applies who is dissatisfied with the determination of a request under this section with respect to the project (or with the failure of the Minister to determine the request within 40 days after it is made) may, within the time prescribed by the regulations, appeal to the Court. The Court may determine any such appeal.*
- (6) *Subsection (5) does not apply to a request to modify:*
- (a) *an approval granted by or as directed by the Court on appeal, or*
 - (b) *a determination made by the Minister under Division 3 in connection with the approval of a concept plan.*
- (7) *This section does not limit the circumstances in which the Minister may modify a determination made by the Minister under Division 3 in connection with the approval of a concept plan.*

This application is made pursuant to Section 75W of the EPA Act.

4.3 PROTECTION OF THE ENVIRONMENT OPERATIONS ACT

The existing Shoalhaven Starches factory site and Environmental Farm has an Environmental Protection Licence (EPL) under the Protection of the Environment Operations Act 1997 (POEO Act) (EPL No. 883). The licence imposes requirements in terms of:

- discharges to air, water and land;
- irrigation controls;
- management of irrigation;
- maintenance of irrigation reticulation;
- odour control.

If approved, the proposed modification will necessitate the terms/provisions of this licence to be also reviewed.

5.0 THE MODIFICATION PROPOSAL

As outlined in Section 3.5 above, Condition 31(b) of Schedule 3 of the Project Approval required the provision of 60 car parking spaces on the factory site to the south of Bolong Road.

Shoalhaven Starches had originally intended with the original Project Application that these spaces would be provided to the rear of the old Moorehouse buildings located off Bolong Road.

Following the issue of the Project Approval; and as construction of the project proceeds it has become apparent to Shoalhaven Starches that this original intended location for parking will not be the ideal location in terms of the Company's operational requirements.

The Manildra Group of Companies have subsequently acquired the former Dairy Farmers factory complex which adjoins the existing Shoalhaven Starches factory to the east. This adjoining site contains land which immediately adjoins the Shoalhaven Starches factory site.

Shoalhaven Starches proposes to modify their Project Approval to enable these 60 parking spaces to be located on this land.

The proposed new car park will be set back eight (8) metres from Bolong Road, approximately 45 metres from the present eastern boundary of the Shoalhaven Starches factory complex, and approximately 70 metres from the southern boundary of the site.

The car park will contain 60 parking spaces contained in two aisles of 30 spaces each. The parking spaces will be separated by a driveway with a width of 8 metres. The individual parking spaces will have dimensions of 2.4 metres width by 5.5 metres length. It is proposed that an area at the western end of the parking area will provide an area for reversing vehicles to manoeuvre from parking spaces.

Vehicle access to the parking area will be provided by a two way driveway (8.0 metres wide) and will connect the parking area to an upgraded vehicle access intersection with Bolong Road.

Annexure 1 are site plans showing the modified location and layout of the proposed car park.

6.0 CONSULTATION

During the preparation of this submission consultation has been undertaken by Shoalhaven Starches with staff from:

- Department of Planning & Infrastructure; and
- Shoalhaven City Council

The Department of Planning & Infrastructure required that the proposal be treated as a modification to the Project Approval MP06_0228. In doing so however the Department did not consider the Director-General was required to issue requirements for an Environmental Assessment for this matter. The Department did however request that Shoalhaven Starches consult with Shoalhaven City Council with respect to the proposal.

Shoalhaven Starches have met with staff from Shoalhaven City Council over several meetings to discuss this specific proposal. The main issues raised by Council concerned:

- The need to make provision for pedestrian access from the car park to the Shoalhaven Starches factory complex.
- The traffic impacts to the intersection of the site with Bolong Road associated with locating the car park in this location.
- The potential loss of landscape plantings and the need to consider the provision of further landscape plantings along the frontage of the site to screen proposed car park from view.

The proposal associated with this modification application has addressed the issues raised by Council staff:

- The proposal makes provision for a pedestrian pathway that will extend from the proposed car park to Bolong Road and then link with the newly constructed pathway along the Bolong frontage of the overall Shoalhaven Starches factory complex. In discussions, Council staff have given their conceptual approval to this pathway alignment.
- This submission is supported by a Traffic Impact Assessment prepared by ARC Traffic and Transport traffic consultants addressing the traffic impacts associated with this proposal.
- The submission is also supported by a landscape plan prepared by Peter Phillips Landscape Architect which makes provision for the planting of landscape screen plantings along the entire Bolong Road frontage of the site to reduce any visual impact of the car park when viewed from Bolong Road.

7.0 RISK ASSESSMENT OF POTENTIAL ENVIRONMENTAL IMPACTS

The purpose of this section of the submission is to provide a risk assessment of the potential environmental impacts associated with the project. This section (**Table 2**) compares the potential impacts from the proposed modification against the approved project. The comparison uses the key environmental impacts assessed in the original EA and summarises the relative change in environmental impacts associated with the proposed modification.

Table 2
Risk Assessment

Issue	Relative Change in Environmental Impact	Additional Management or Mitigation Measures Required	Significance of Issue with this Modification Proposal
Air Quality (including Odour) Assessment	One of the primary issues that was addressed in the original EA for the Shoalhaven Starches Expansion Project concerned the need for a comprehensive odour assessment and reduction as part of the project. The modification of the location of the required 60 parking spaces as proposed will have no impact on air quality.	No additional management or mitigation measures are recommended.	Not a key issue.
Greenhouse Gas Emissions	The modification of the location of the required 60 parking spaces as proposed will have no impact on in terms of the overall greenhouse gas emissions from the development.	No additional management or mitigation measures proposed.	Not a key Issue.
Wastewater Treatment	No change in environmental impacts from that originally identified in EA.	No additional management or mitigation measures proposed.	Not a key Issue.
Effluent Irrigation and Storage	No change in environmental impacts from that originally identified in EA.	No additional management or mitigation measures proposed.	Not a key Issue.
Water & Soils	No change in environmental impacts from that originally identified in EA.	No additional management or mitigation measures proposed.	Not a key Issue.
Noise	Shoalhaven Starches are licensed under the POEOP Act (Environment Protection Licence No. 883) which sets noise limits for the operation of the overall factory complex. Noise goals have been designed for the site to ensure existing noise levels are not increased by additional plant. The modification of the location of the required 60 parking spaces as proposed will however have no impact in terms of the overall noise emissions from the development.	No additional management or mitigation measures proposed	Not a key Issue.

Table 2 (continued)

<i>Issue</i>	<i>Relative Change in Environmental Impact</i>	<i>Additional Management or Mitigation Measures Required</i>	<i>Significance of Issue with this Modification Proposal</i>
Transport & Traffic	The modification of the location of the required 60 parking spaces to the former Dairy Farmers site as proposed will result in changes to traffic movements associated with the overall operations; and will have potential impacts on intersections of the site with Bolong Road. This is an issue that has been raised following consultation with staff from Shoalhaven City Council.	<p>The Traffic Impact Assessment prepared by ARC traffic and transport makes the following recommendations with respect to this proposal:</p> <ul style="list-style-type: none"> i. That Shoalhaven Starches develop a plan of management for the use of the new car park to assist in the allocation of staff to specific parking areas across the SS Site and DF Site. ii. That a new pedestrian path be provided between the new car park and AP1 which includes appropriate lighting and markings across AP1. iii. That Shoalhaven Starches examine the provision of marked pedestrian paths across the broader SS Site. 	The traffic impacts associated with the modified location of the required 60 parking spaces is an issue that is addressed in Section 8.1 of this submission.
Hazards	The modification of the location of the required 60 parking spaces as proposed will have no impact on in terms of the overall hazards associated with the Shoalhaven Starches operations from the development.	No additional management or mitigation measures proposed	Not a key Issue.

Table 2 (continued)

<i>Issue</i>	<i>Relative Change in Environmental Impact</i>	<i>Additional Management or Mitigation Measures Required</i>	<i>Significance of Issue with this Modification Proposal</i>
River bank stability and Riparian Management	The proposed siting of the new car park associated with this proposal is to be located more than 70 metres from the banks of the Shoalhaven River. This modification proposal will therefore result in no change in environmental impacts from that originally identified in EA.	No additional management or mitigation measures proposed	Not a key Issue
Flooding	The modification of the location of the required 60 parking spaces as proposed will have no impact in terms of the overall flood hazards associated with the Shoalhaven Starches site	No additional management or mitigation measures proposed	Not a key Issue
Waste Management	No change in environmental impacts from that originally identified in EA.	No additional management or mitigation measures proposed	Not a key Issue
Visual Impact	The visual impacts associated with this proposal have been raised as an issue that needs to be addressed following consultation with staff from Shoalhaven City Council are addressed in Section 8.2 of this EA.	This submission includes the landscape plans prepared by Peter Phillips Landscape Architecture which makes provision for landscape screening along the Bolong Road frontage of the site. This screening will assist in screening the proposed car park from view.	The visual impacts associated with the modified location of the required 60 parking spaces is an issue that is addressed in Section 8.2 of this submission
Flora and Fauna	The modification of the location of the required 60 parking spaces as proposed will have minimal impact on flora and fauna. The proposed new access driveway to serve the car park will require some existing landscape plantings to be removed; however significantly more native vegetation is proposed to be planted as outlined in the landscape plan prepared by Peter Phillips Landscape Architectures (Annexure 3). No change in environmental impacts from that originally identified in EA.	No additional management or mitigation measures proposed	Not a key Issue

Table 2 (continued)

<i>Issue</i>	<i>Relative Change in Environmental Impact</i>	<i>Additional Management or Mitigation Measures Required</i>	<i>Significance of Issue with this Modification Proposal</i>
Heritage and Archaeological Issues	The proposed car park and driveway is situated within an existing cleared paddock that has been used previously for industrial purposes. It is not anticipated that this proposal will have any adverse heritage or archaeological impacts. No change in environmental impacts from that originally identified in EA.	No additional management or mitigation measures proposed	Not a key Issue

Following the above risk assessment of the potential environmental impacts of the proposed modification the key issues for are:

- Traffic Impacts; and
- Visual impact.

8.0 KEY ISSUES

8.1 TRAFFIC IMPACTS

This submission is supported by a Traffic Impact Assessment prepared by ARC Traffic and Transport consultants. A copy of this Traffic Impact Assessment is included within **Annexure 2** to this submission. This section of the submission is based upon the findings of this assessment.

8.1.1 Existing Traffic Network

According to ARC the proposal will result in very minor trip distribution changes within the immediate vicinity of the Shoalhaven Starches and former Dairy Farmers sites. Further afield – and specifically east of the former Dairy Farmers site and west of the Shoalhaven Starches site – the proposal would not alter the generation and distribution of approved trips.

It is ARC's view that it is only necessary to examine the operation of those roads and intersections which would experience changed traffic conditions. These include:

Bolong Road and Access Point 1

Access Point 1 (AP1) is located at the eastern end of the Shoalhaven Starches site. The intersection of Bolong Road and AP1 is designed as an AustRoads Type C intersection and was originally developed after consultation with the RTA and Council as part of a past upgrade of the Shoalhaven Starches site. A deceleration lane from the west to the BOC CO2 gas facility on the northern side of Bolong Road has been recently completed, and a central median with pedestrian fencing has been built which extends from the immediate east of the Shoalhaven Starches site through to Access Point 1. Both these new facilities were constructed further to design approval.

With reference to the Council approval of DA 10/1843, departure trips from the BOC CO2 facility are provided at the subject site, ie. vehicles departing to the west are permitted to depart to the east to the subject site, turn around, and return to the west. A recently completed upgrade of the former Dairy Farmers site access point to Bolong Road was also provided for in DA 10/1843.

ARC notes that an informal access point remains at the subject site from Bolong Road, lying almost immediately east of AP1. This informal access point will be removed as part of the proposal.

Bolong Road and Access Point 2 (Central)

Access Point 2 (AP2) is located to the east of the railway line, and directly adjacent to (east of) a drainage culvert. AP2 has been upgraded to provide only for left in and left out movements, with a central median with pedestrian fencing in Bolong Road preventing right turn movements.

A short left turn from the east has also been provided to facilitate arrival trips from the east which – again with reference to the Council approval of DA 10/1843 – are provided for at the former Dairy Farmers site, ie. vehicles arriving from the west accessing AP2 travel east to the former Dairy Farmers site, turn around, and return to AP2 utilising the short left turn lane.

Bolong Road and Access Point 3 (Western)

Access Point 3 (AP3) is located at the end of a spur that leads from the south-east portion of the Shoalhaven Starches site to a point adjacent (west) of the Cleary Bros Concrete site, and then an intersection with Bolong Road. AP3 also provides access to a small office and training building, and to staff car parking.

AP3 has recently been upgraded to a Council approved design which provides an extension of the formal driveway on-site; widening turning path (left hand turn to Bolong Road); and a broader formalisation of the widened carriageway within Bolong Road (which extends to the east past Access Point 4) to provide for passing of [the low volume of] right hand turning vehicles.

Bolong Road and Access Point 4 (Car Park)

The former “Moorehouse” industrial site is located west of the railway spur off Bolong Road, and was specifically purchased by Shoalhaven Starches to provide a central staff car parking location as well as ancillary storage and workshop space. Access Point 4 (AP4) has recently been upgraded to a Council approved design to provide a single two-way driveway.

As described above, the formalisation of the widened Bolong Road past AP4 provides for passing of [the low volume of] right hand turning vehicles. More recently, the on-site parking capacity accessed via AP4 has been further formalised.

Bolong Road and Packing Plant Site

The traffic assessment for the Shoalhaven Starches Expansion Project examined a left turn only access point (previously referred to as Access Point 5 – AP5) from Bolong Road to a proposed (and approved) Packing Plant on the northern side of Bolong Road

opposite the Shoalhaven Starches site. However, with the recent purchase of the former Dairy Farmers site to the east of the Shoalhaven Starches site – and the recent approval of the Interim Packing Plant – Shoalhaven Starches are currently reviewing options for the final packing plant location. AP5 will not be developed unless the approved Packing Plant is developed.

Bolong Road and Interim Packing Plant

The Interim Packing Plant (Access Point 6 – AP6) has two access driveways which loop via a wide apron providing separate ingress (eastern driveway) and egress (western driveway) for the site. This intersection has also been recently upgraded to a Council approved design and provides a short right hand turn lane to the AP6 eastern driveway, with the western egress driveway retained for departing trips.

Bolong Road and Former Dairy Farmers Site

The intersection of Bolong Road and the subject site previously provided an Auxiliary Right (AUR) intersection with Bolong Road, but as part of the Council approval of DA 10/1843 this intersection was recently upgraded to a Channelised Right (Short) or CHR(S) intersection, which provides a protected right turn bay to the subject site. The CHR(S) design was considered an appropriate design based on the low potential generation of turning vehicles generated by AP2 and by the BOC CO2 facility.

A merge lane for the left turn from the subject site to Bolong Road was also developed following consultation with the RMS and Council, and with reference to the proximity of the reduced speed environment to the west of the former Dairy Farmers site.

8.1.2 Trip Redistribution

According to ARC from a general traffic perspective the proposal will not generate additional traffic flows to the road network away from Bolong Road above current approved flows.

Rather, staff trips (both current and approved) to use car parking on the Shoalhaven Starches factory site – and specifically parking areas accessed via Access Point 3 (AP3) – will be redistributed to the proposed new car park. ARC notes that a similar redistribution of approved trips occurred when Shoalhaven Starches purchased the “Moorehouse” site (now used as a central staff car park off AP4) and again a similar redistribution of trips occurred as a result of the Interim Packing Plant approval.

As a worst case – assuming the total redistribution of trips occurred from AP3 – according to ARC the proposal would result in increased passing (eastbound or westbound) trips along Bolong Road past AP1, AP2, AP4 and AP6.

In determining the percentage of trips which would be redistributed, it is important to acknowledge that approximately 60 - 70 parking spaces will remain accessed via AP3; as such, it is reasonable to estimate that approximately 50% of light vehicle trips currently generated to/from AP3 could be redistributed to the subject site (60 parking spaces, ie. taking just over half the approved AP3 light vehicle generation).

The parking currently provided off AP4 (and indeed the other parking areas located around the Shoalhaven Starches site) would not be affected by this proposal. While the potential exists for some of the staff currently parking off AP4 (or in the other areas) to redistribute to the subject site, the capacity of the AP4 car park (and the other areas) is still required by the Shoalhaven Starches operations and will therefore continue to be utilised. The broader staff complement may also be moved around the future available parking (in accordance with work locations for example) but there is no information to suggest that the surveyed arrival and departure profiles – particularly in the peak periods – would be affected other than by the locality of available parking across the broader site.

In summary – and with specific reference to the redistribution of vehicle trips along Bolong Road - ARC estimates that the proposal would result in approximately 50% of the approved AP3 arrival and departure trips being redistributed to the subject site. This redistribution would apply only to light vehicle trips, and result in the addition/reduction of trips to and past the various access points as outlined below:

- 50% of trips currently entering the Shoalhaven Starches site from the west at AP3 will in the future continue past AP3, AP4, AP6, AP2 and AP1 and then enter at the subject site.
- 50% of trips currently entering the Shoalhaven Starches site from the east at AP3 will in the future enter at AP7, and therefore not be generated past AP1, AP2, AP6, AP4, nor enter at AP3.
- 50% of trips currently departing the Shoalhaven Starches site to the west from AP3 will in the future depart via AP7 and continue past AP1, AP2, AP6, AP4 and AP3.
- 50% percentage of trips currently departing the Shoalhaven Starches site to the east from AP3 will in the future depart via AP7, and therefore not be generated from AP3 or past AP4, AP6, AP2 and AP1.

The resulting changed flows along Bolong Road adjacent to the Shoalhaven Starches site and former Dairy Farmers site are shown in **Figure 4**.

8.1.3 Total Future Trips

Further to the redistribution outlined above ARC has prepared future total traffic flow estimates which include: -

- The redistribution of trips resulting from the Proposal, using the maximum approved Shoalhaven Starches site traffic flows in the designated 120th Hour AM and PM peak hours (as per **Figure 4**).
- The 2012 120th Hour base traffic flows.
- An additional 2022 future forecast which provides for 10 years of average annual traffic growth (at 2% per annum) along Bolong Road as agreed with Council for earlier assessments.

The resulting flows are shown in the following figures:

- **Figure 5** Total 2012 flows further to the Proposal
- **Figure 6** Total 2022 flows, with Bolong Road through flows factored by 2% per year over 10 years.

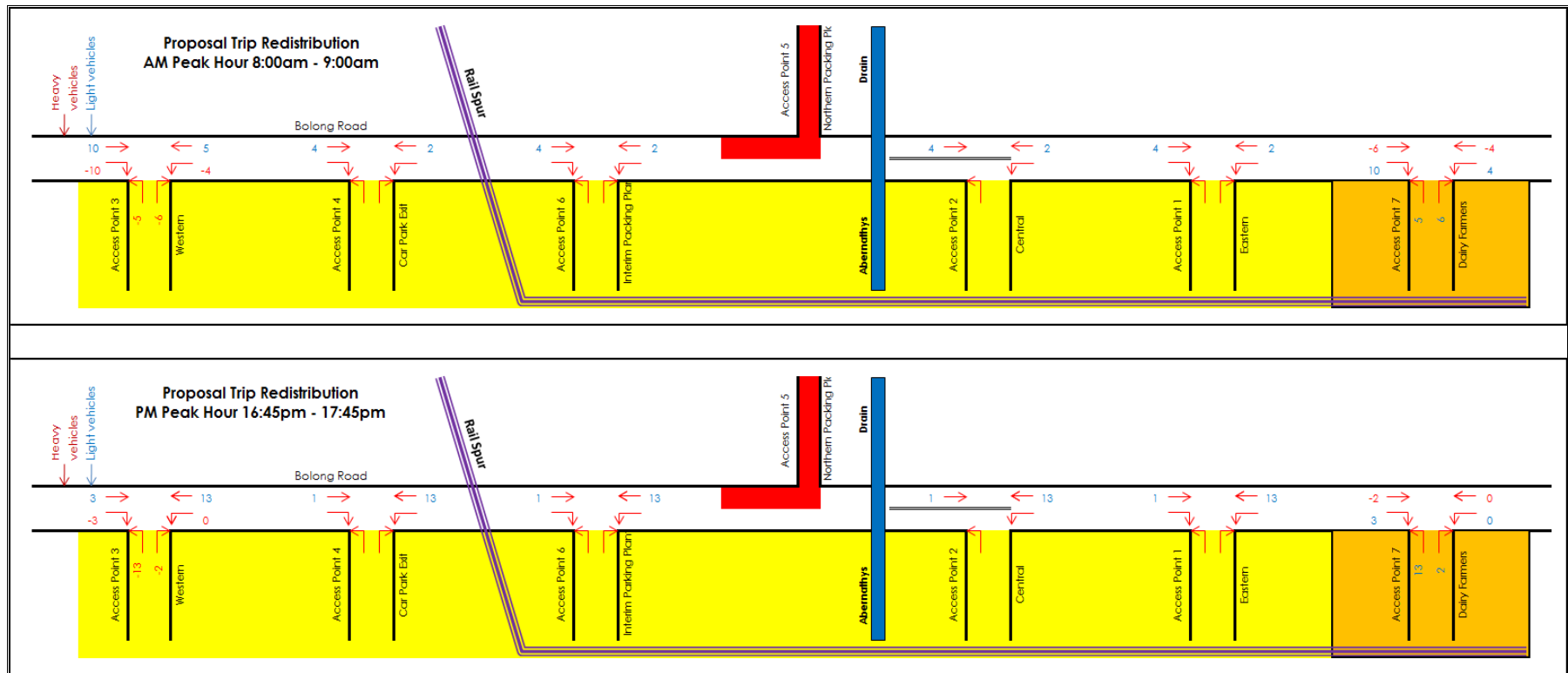


Figure 4: Proposed Trip Distribution Changes

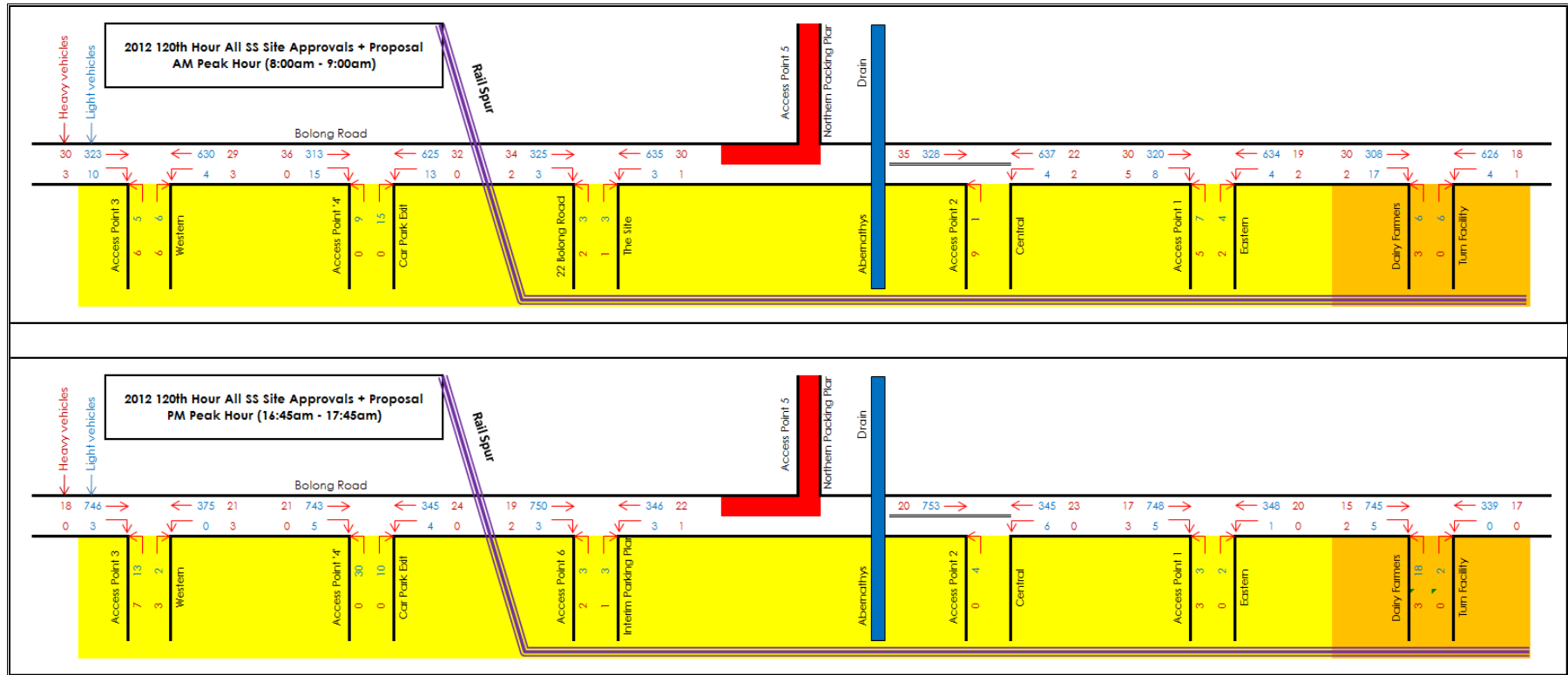


Figure 5: Total 2012 Trips

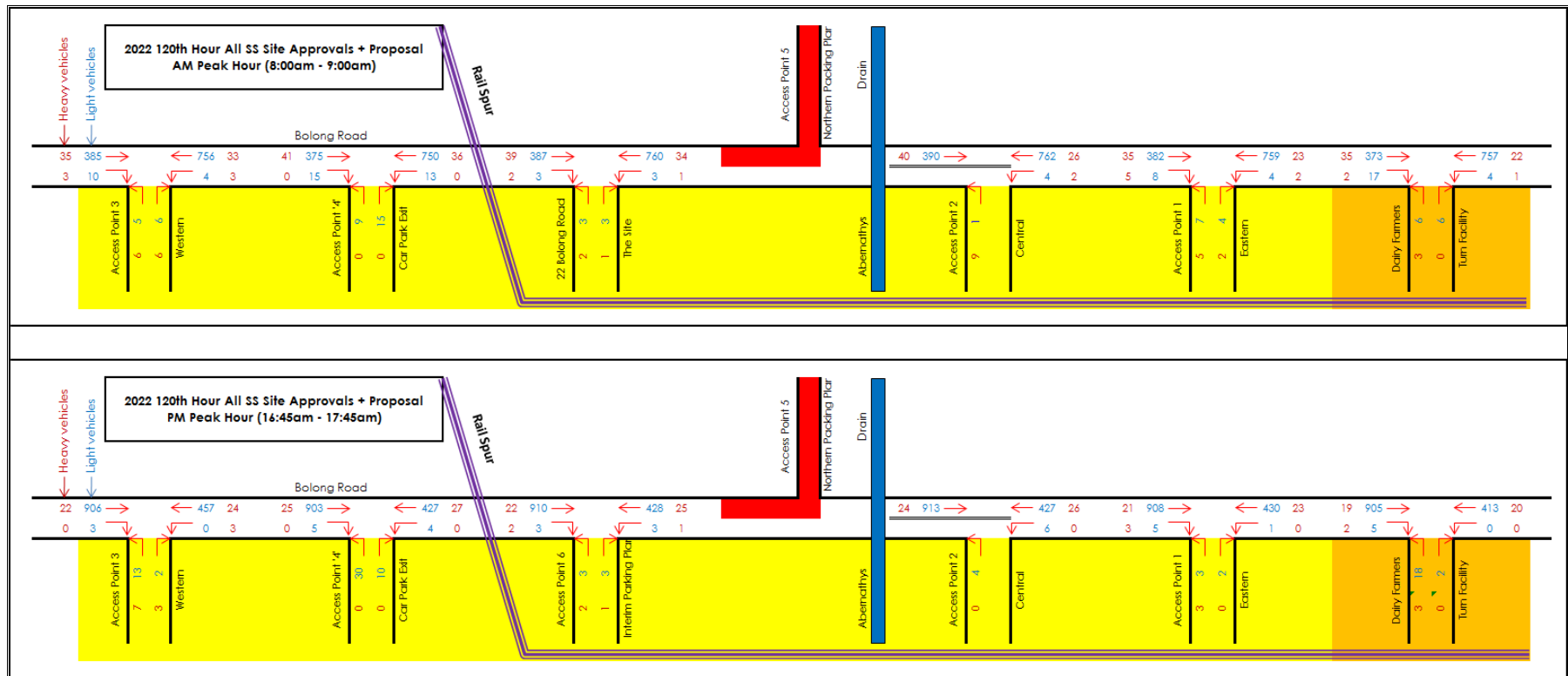


Figure 6: Total 2022 Trips

8.1.4 Future Traffic Conditions – Shoalhaven Starches Factory Site Intersections

It is ARC's view that the proposal would have no significant impact on the local road network; specifically, the Shoalhaven Starches Factory site access intersections would operate at very similar Levels of Service as previously determined and approved. According to ARC this conclusion is based upon the following factors:

- The total trips redistributed by the proposal are very low; along the section of Bolong Road between AP3 and the former Dairy Farmers site, approximately 6 'additional' AM peak hour trips would be generated, and approximately 14 'additional' PM peak hour trips would be generated. Outside this section of Bolong Road, trip generation would be no different from that approved.
- The redistribution of trips would reduce the turning movements at one of the busier Shoalhaven Starches Factory site intersections (AP3).
- The redistributed trips would have a low impact as through trips on the operation of the other Shoalhaven Starches Factory site intersections.

Additionally:

- The broader ongoing development and refinement of the Shoalhaven Starches Factory site continues without a current requirement for the development of the Packing Plant on the northern side of Bolong Road, which would trigger a requirement for the development AP5. Any changes to the future location or generation of a new packing plant – or indeed any other development/modification proposals across the broader Shoalhaven Starches Factory site or former Dairy Farmers site - would need to be appropriately assessed.

8.1.5 Future Design Conditions – Former Dairy Farmers Site Intersection

According to ARC the proposed modification will result in additional trips being generated to the intersection of Bolong Road and subject site. The impacts of this additional generation are examined below.

Upgrade Warrants

AustRoads GRD Part 4A (Section 4.8) provides guidance in regard to the warrants for intersection treatments based on traffic volumes and flows for rural conditions. AustRoads GRD Part 4A (Figure 4.9 and Figure 4.10) specifically provides information relating to these warrants, and has been used in our assessment of future upgrade requirements, as detailed below.

Bolong Road to DF Site Right Turn

Using the total proposed traffic flows as reported in **Figure 5**, warrant for a CHR for the right hand turn from Bolong Road to the former Dairy Farmers site can be plotted as shown below in **Figure 7**.

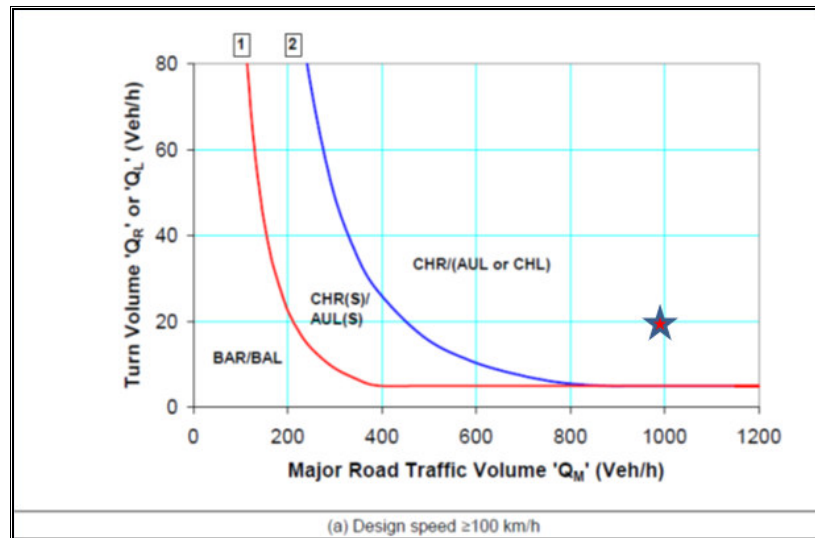


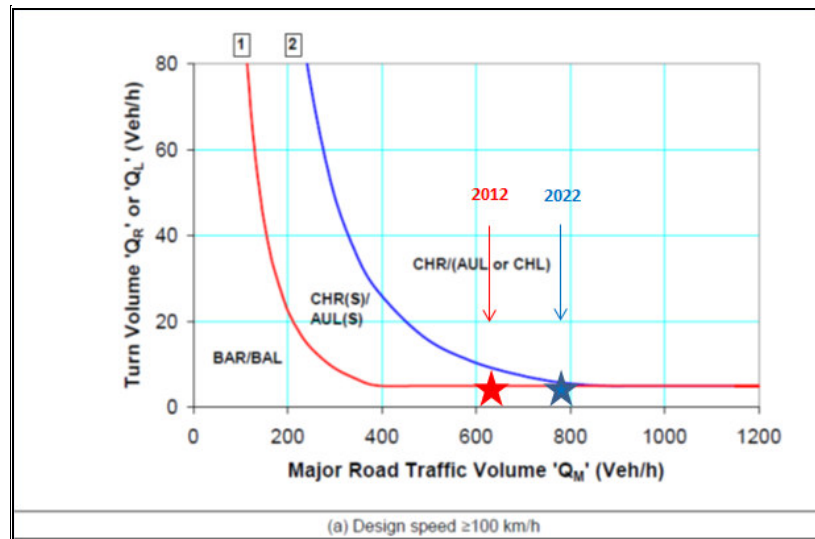
Figure 7: Intersection Warrants, Right Hand Turn to DF Site (AM Peak)

According to ARC the right turn movement from Bolong Road to the former Dairy Farmers site already at times exceeds the warrant for an upgrade from the existing CHR(S) to a full CHR. With the additional generation arising from this proposal, this requirement is only further established.

As such, ARC recommend that a CHR be constructed to provide for the right hand turn movement from Bolong Road to the subject site. The design of the CHR may require further consultation with the RMS and Council (giving consideration to the proximity of the Shoalhaven Starches site AP1 and the lower speed limit west of the former Dairy Farmers site) prior to finalisation.

Bolong Road to Former Dairy Farmers Site Left Turn

Using the 2012 120th Hour traffic flows according to ARC the warrant for an AUL(S) or AUL for the left hand turn from Bolong Road to the former Dairy Farmers site can be plotted as shown below in **Figure 8**.



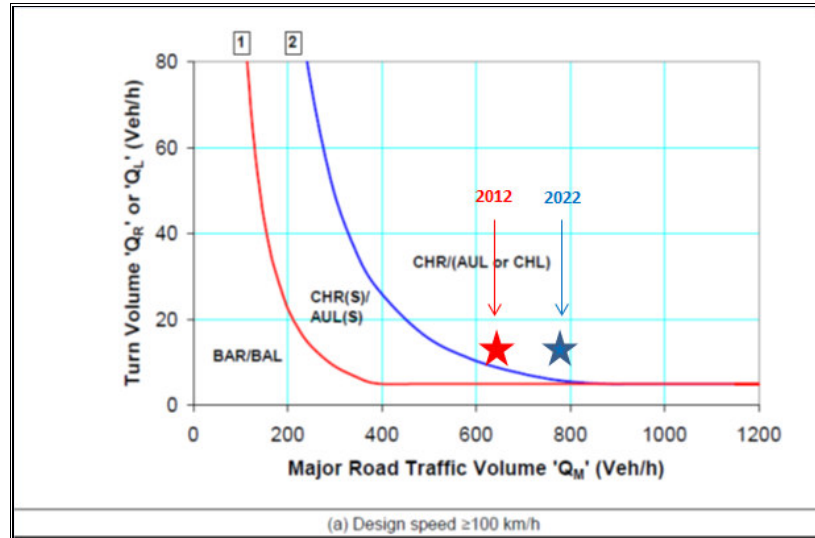
**Figure 8: 2012 & 2022 Intersection Warrants,
 Average Left Turn to DF Site (AM Peak)**

Based on average flows, the left turn movement from Bolong Road to the former Dairy Farmers site could be retained as a simple BAL (as currently provided), ie. no special turning provisions. This would be the same with consideration of the 2022 data if the flow turning left from the east was maintained, ie. if the left turn demand flow remained at or below 5 vehicles per hour.

Notwithstanding, ARC acknowledges that the determination of a flow of 4vph utilising the left turn is based on a statistical average based on the apportionment methodology outlined in Section 2.2 of the Traffic Impact Assessment (**Annexure 2**). ARC has therefore prepared additional analysis of the arrival distribution patterns over the broader peak periods to determine the potential for this estimated low left turn demand to increase as a result of the proposal. To do so, ARC has:

- Determined the percentage of all arrival trips that would potentially use the new car park based on general staff parking provision at the former Dairy Farmers site. In this regard, ARC estimate that the proposed 60 parking spaces would represent approximately 37% of the total (approximate) 240 Shoalhaven Starches site/ former Dairy Farmers site general staff parking accessed via AP3 and AP4.
- Calculated the resulting maximum potential demand for the left turn Bolong Road to former Dairy Farmers site based on the approved flows during the 120th hour peak periods and the peak left turn arrival demand from the 2012 surveys.

This analysis results in a peak potential for 12 vph to turn left into the former Dairy Farmers site. The warrants reflecting this maximum potential flow for the left turn for the years 2012 and 2022 are shown in the figures below in **Figure 9**.



**Figure 9: 2012 & 2022 Intersection Warrants,
 Peak Left Turn to DF Site (AM Peak Hour)**

Based on this analysis – and given that the potential exists for such general redistributions across the three main parking access points (former Dairy Farmers site, AP4 and AP3), according to ARC an AUL or CHL is warranted to provide for the potential left turn movement to the subject site.

ARC therefore recommend the provision of an AUL to provide for the left turn.

The difference between an AUL and CHL treatment relates to the provision of a protected turn at the intersection itself, generally a protective island (to reduce conflicts with the right turning traffic to the same leg of the intersection). The use of a CHL is generally recommended where the intersections lies within a horizontal curve, or where the arriving trips could impede the sight distance for departing trips. In ARC's view the low flows at the intersection (and particularly the low left turn demand) coupled with good sight distances would suggest that an AUL is an appropriate treatment.

Former Dairy Farmers site to Bolong Road Left Turn

Following discussions with Council, ARC indicates that it has been agreed that the existing Channelised Left turn and merge lane providing for the westbound movement from the former Dairy Farmers site to Bolong Road has been designed with reference to

the existing conditions and would appropriately provide for the relatively minor additional generation of the proposal.

Bolong Road and Former Dairy Farmers Site Intersection Performance

In order to determine the future performance of the intersection of Bolong Road and the subject site, ARC has examined the performance of the intersection using SIDRA.

Using the forecast flows for 2012 (**Figure 5**) and 2022 (**Figure 6**) ARC has determined that the intersection will continue to operate at an average Level of Service “C” through 2022, with minimal queues for both the right turn to the subject site and from the subject site as a function of the low traffic demands. Sensitivity testing utilising higher right turn volumes, and higher gap acceptance values, provides similar results simply due to the low traffic demands, specifically for the right turn to the east.

8.1.6 Bolong Road Vehicle Speeds

An issue which ARC are of the view is appropriate to raise is that relating to current speed limits along Bolong Road adjacent to both the subject site and Shoalhaven Starches site. Numerous studies prepared by or for the RMS indicate the need to slow vehicles down in activity areas, and many sections of Bolong Road with activity (*ie.* smaller village centres and the like to the east and north) have speeds of 50 km/h. It is ARC's opinion that a reduced speed limit would be appropriate for this industrial section of Bolong Road, with perhaps a transition zone from the mill to the east of the subject site (reduction to 80 km/h) which would better transition to an extended 60km/h located either east of the Shoalhaven Starches site or at worst at its current location.

The introduction of a transitional speed area would have no significant impact on travel times, and would improve the safety and overall performance of existing intersections into the future. This issue would require further discussions with the RMS but would not in ARC's view have any significant impacts on the operation of the broader sub-regional (or indeed regional) road network.

8.1.7 Internal Access Considerations

Future Vehicle Movements

Further to the recently approved turn restrictions at AP2 and the BOC CO2 facility, a small number of light and heavy vehicles 'loop' via the subject site and then return to the west. Within the subject site, these vehicles utilise the existing wide industrial driveway adjacent to Bolong Road to complete a U-Turn and then return to Bolong Road.

The proposal would generate staff vehicle trips to the proposed car park access road, which would extend to the east from the former Dairy Farmers site main driveway.

Design Considerations

The intersection of Bolong Road & subject site provides an acceleration/merge lane for westbound departure trips, and the turning path provided for this movement at the subject site specifically provides for heavy vehicles to complete a U-Turn immediately from Bolong Road. A separate turn lane for right turning vehicles (a minor existing and future demand) is also provided.

The modification proposal provides an additional approach to the internal turning area from the car park (car park access road), and retains the minor access road to the existing car park east of the main driveway.

In determining an appropriate design for the internal movements, the primary considerations relate to safety (and therefore a reduction to the extent possible in conflicting vehicle movements); and movement efficiency (primarily to ensure arriving vehicles can enter and move to their on-site destination immediately). Accounting for these factors, Allen Price & Associates (APA) has prepared a draft design which provides an internal island which acts to prioritise inbound trips (from Bolong Road) and then provide priority in a similar manner to a roundabout (i.e. give way to the left). The design prepared by APA would in ARC's view:

- Provide an appropriate central control point for all movements.
- Retain the vehicle paths and general priority for the vehicles arriving from AP2 and the BOC CO2 facilities to immediately turn back to the west.
- Allow vehicles entering the car park – the highest potential movement - to have effective priority, with no real opposed movements along their path, thereby reducing queuing potential.
- Retain - for any potential future adaptive reuse of the former Dairy Farmers site – access to the existing car park to the east of the main driveway.

This design proposed will require the removal of existing on-site traffic islands/medians; design plans have been prepared by APA and will be finalised further to consultation with Council.

8.1.8 Car Park Design

The proposed car park will provide a total of 60 spaces, and therefore meet the requirements of the Shoalhaven Starches Expansion Project (06_0228) Approval.

The design of the car park will be finalised by APA further to consultation with Council; ARC provides the following comment in regard to the design of the car park:

- The car park will necessarily be designed to provide compliance with AS 2890.1:2004, with regard to the width of the access aisle (two-way traffic) and space dimensions in particular.
- Preliminary designs indicate a single access road with 60 angle spaces, terminating at the end of the final eastbound spaces. This is referred to as a blind aisle. Given the length of the aisle, it is necessary to provide turning provision at the eastern end of the car park to prevent long reversing movements, ie. to prevent a member of staff travelling to the eastern end of the parking aisle, realising no space is available, and then reversing back along the aisle. This could be achieved either using a small turning circle or turning head, and would also provide for the easternmost spaces to appropriately depart in a forward direction.
- ARC also recommends that Shoalhaven Starches develop a plan of management for the use of the car park, and specifically a plan which ‘assigns’ to as great an extent as possible parking spaces in the new car park to particular staff. This would remove the potential for staff to enter the car park and find no space available; or to travel to the Shoalhaven Starches site and then need to return to a free space.

8.1.9 Pedestrian Access

The proposed car park lies within 400m of the majority of the larger Shoalhaven Starches site, and as such is situated within an appropriate proximity for staff to the this site.

Based on the availability of the pedestrian path along Bolong Road from AP1 to the west, ARC recommend that the new car park be linked to this existing path (along the Shoalhaven Starches site frontage).

ARC notes that there are also a number of informal pedestrian ‘paths’ across the broader SS Site – and specifically within the broad driveway apron off AP1. While pedestrian demands in this area are minor, ARC recommends that the provision of pedestrian access across the Shoalhaven Starches site be the subject of a review, with the goal being to define (mark) pedestrian paths through all areas of potential conflict. For example, a marked pedestrian path through sections of the broad AP1 apron area might provide paths along the side of each vehicle area, linked with simple pedestrian crossing areas. This would further increase pedestrian (staff) safety.

Following a detailed and independent assessment of the access, traffic and parking conditions associated with the modification proposal, ARC conclude:

- *The Proposal provides for a minor redistribution of SS Site access trips between the DF Site and AP3; the Proposal would not increase vehicle generation east of the DF Site or west of AP3.*
- *The redistribution of trips in Bolong Road between the DF Site and AP3 is very minor, and would not impact the previous determined good operation of the SS Site intersections, particularly further to the recent upgrades of*
- *The assessment of future flows prepared by ARC indicates that the intersection of Bolong Road & DF Site requires a number of upgrades to accommodate the Proposal. These include: -*
 - *An upgrade of the existing CHR(S) Bolong Road to DF Site to a CHR*
 - *An upgrade of the existing BAL Bolong Road to DF Site to an AUL*

The design of these upgrades will be prepared by Allan Prices & Associates and finalised further to consultation with the RMS and Council.

- *The internal design of the DF Site, providing for safe and efficient access for heavy vehicles and light vehicles, provides appropriate priorities and will minimise queuing demands. Design plans have been prepared by Allen Price & Associates and will be finalised further to consultation with Council.*
- *The car park design will necessarily reference AS 2890.1:2004 and make provisions for the safe departure of vehicles in a forward direction, as well as allowing vehicles to turn at the eastern end of the car park so as to remove potential reversing movements. The design of the car park will be prepared by Allen Price & Associates and finalised further to consultation with Council.*

Further to the above conclusions, ARC makes the following recommendations:

- ◀ *That SSPL develop a plan of management for the use of the new car park to assist in the allocation of staff to specific parking areas across the SS Site and DF Site.*
- ◀ *That a new pedestrian path be provided between the new car park and AP1 which includes appropriate lighting and markings across AP1.*
- ◀ *That SSPL examine the provision of marked pedestrian paths across the broader SS Site.*
- ◀ *That the existing informal access point immediately east of AP1 be removed.*

8.2 VISUAL IMPACTS

The subject site is located on Bolong Road, one of the main gateway entrances to the Nowra / Bomaderry urban areas, and a significant tourist route along this section of the South Coast.

The site is situated within an area currently containing predominantly industrial land uses, although lands to the north have a rural character. These different land uses contrast with each other and result in a mixed visual character.

The rural areas, much of which comprises the Shoalhaven Starches Environmental Farm, are generally flat to gently undulating and planted with pasture grasses. These areas have a typical rural/agricultural character, common throughout the region. To the north and forming a background to the rural landscape are the timbered slopes of the Cambewarra escarpment.

The Shoalhaven City Council Heritage Study 1995 – 1998 prepared by Peter Freeman Pty Ltd in association with JRC Planning Services identified the rural landscapes north of the Shoalhaven River as the Berry-Bolong Pastoral Landscape. This Study described this area as:

“North of the Shoalhaven River the area is dominated by the close relationship between the Princes Highway (formalised by Berry in 1857/1858) and the railway (1893) which were instrumental in determining the location of new homesteads on Berry estate lands which resulted from drainage schemes implemented by Sir John Hay. In the foothills to the north-west, and towards Cambewarra, settlement patterns were in the main determined by the impact of Free Selection after 1861. Sub-zones include the Cambewarra-Tapitallee area, Bellawongarah and the catchment areas of Broughton Creek north of Berry. The latter are focused around communities which developed outside the Berry Estate: Cambewarra, Tapitallee, Bundewallah, Woodhill and Broughton Vale. The scale and character are dependent on the distribution of small dairy farms, with internal and external boundaries created by modified and natural vegetation (River Oaks), roads, creeks and property boundaries.

Continuing dairy farms has contributed to the survival of the underlying late nineteenth and early twentieth century landscape patterns.”

The former Dairy Farmers factory complex is characterised by typical industrial structures with an overall bulk and scale that dominates the surrounding locality. The factory complex, despite being partially screened by vegetation along Bolong Road and the Shoalhaven River visually dominates the locality. The overall complex is particularly exposed to view along Bolong Road.

Whilst the existing buildings associated with the former Dairy Farmers complex may be visible from a broad area, the proposed car park itself will not be visually prominent

within the broader context. The car park will be constructed at grade and will not involve any structures.

The most relevant vantage points from where the proposed car park will be viewed from will be from along the Bolong Road frontage of the site. Views of the proposed car park will be possible when travelling in both an easterly or westerly direction along Bolong Road.

The car park will be sited within an area of the site that is presently clear of development and vegetation. Similarly the majority of the access driveway that will provide vehicle access to the car park will also largely be sited within an existing cleared area of the site.

The access driveway will however pass through an area that presently contains some landscape trees and an earth mound which presently assists with providing some softening of the scenic impact of the existing buildings on this site.

To compensate for the loss of these trees, this proposal includes a comprehensive Landscape Master Plan which makes provision for a scheme for the provision of a native planting scheme for the full frontage of the site (west of the main vehicle driveway entrance) and extending to and along the Shoalhaven Starches factory complex to the east. The Landscape Master Plan has been prepared by Peter Phillips Landscape Architect and makes provision for a three (3) metre wide landscape setback area within which a range of native trees, shrubs and groundcovers are proposed to be planted.

This landscape setback will not only provide a visual screen of the proposed car park; but will assist in screening significant parts of both the former Dairy Farmers factory development as well as the Shoalhaven Starches factory complex. This landscape screen will provide; a consistent visual element along the street frontage; assist in integrating these two disparate factory sites; and will improve the overall streetscape along this section of Bolong Road.

The provision of this landscape scheme will have a net beneficial visual impact overall when compared to any marginal visual impacts associated with the proposed car park and driveway access.

9.0 CONCLUSION

In 2009 the Minister for Planning issued Project Approval to Shoalhaven Starches to increase its ethanol production capacity at its existing ethanol plant located at the Shoalhaven Starches Plant at Bomaderry. This Project Approval has enabled Shoalhaven Starches to increase its ethanol production at its Bomaderry Plant to 300 million litres per year.

Following the Minister's determination Shoalhaven Starches have been implementing and commissioning works in accordance with this approval.

Condition 31(b) of Schedule 3 of the Project Approval requires the provision of 60 car parking spaces on the factory site to the south of Bolong Road. Shoalhaven Starches had originally intended that these spaces would be provided to the rear of the old "Moorehouse" buildings which form part of the Shoalhaven Starches factory complex located off Bolong Road.

Following the issue of the Project Approval; and as construction of the project proceeds it has become apparent to Shoalhaven Starches that this original intended location for parking will not be the ideal location in terms of the Company's operational requirements.

The Manildra Group of Companies have subsequently acquired the former Dairy Farmers factory complex which adjoins the existing Shoalhaven Starches factory to the east. This adjoining site contains an empty paddock which immediately adjoins the Shoalhaven Starches factory site. Shoalhaven Starches proposed to modify their Project Approval to enable these 60 parking spaces to be located on this land.

This Modification Application has been made pursuant to Section 75W of the Environmental Planning & Assessment Act. The Modification Application has been undertaken following consultation with staff from:

- The Department of Planning & Infrastructure; and
- Shoalhaven City Council.

This submission is supported by a Traffic Impact Assessment prepared by ARC Traffic and Transport. This assessment confirms that the modification proposal will not result in adverse traffic impacts and includes recommendations for improvements to the access to the site from Bolong Road to accommodate traffic associated with this new car park.

This submission is also supported by a Landscape Master Plan prepared by Peter Phillip Landscape Architect which proposes a new landscape setback along the frontage of the subject site and extending into the adjoining Shoalhaven Starches factory site. This landscape setback will not only provide a visual screen of the proposed car park but will assist in screening significant parts of both the former Dairy Farmers site as well as the Shoalhaven

Starches factory complex. This landscape screen will provide a consistent visual element along the street frontage integrating these two factory complexes; and will improve the overall streetscape along this section of Bolong Road.

Following an assessment of the key issues associated with this proposal, this submission concludes that the proposal is suitable for the site and this locality and consistent with the objects of the EP&A Act.

The Minister's approval of this proposed Modification No. 3 to Project Approval MP 06_0228 is sought.



Stephen Richardson
TOWN PLANNER CPP MPIA

ANNEXURE 1

Plans supporting Modification Application

**prepared by
Allen price & Associates**

ANNEXURE 2

Traffic Impact Assessment

**prepared by
ARC Traffic and Transport**

ANNEXURE 3

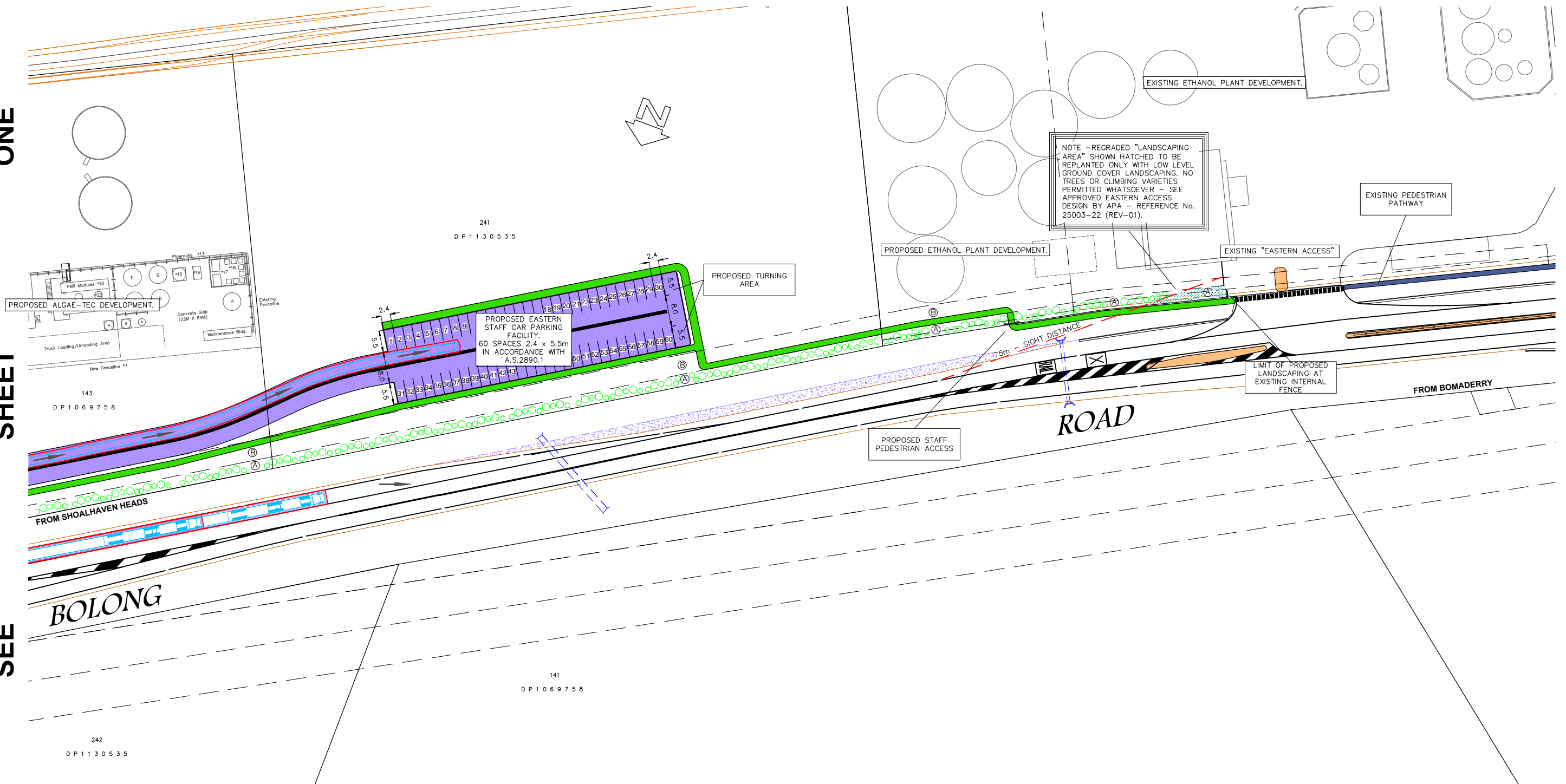
Landscape Master Plan

**prepared by
Peter Phillips
Landscape Architect**

ONE

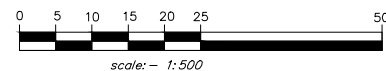
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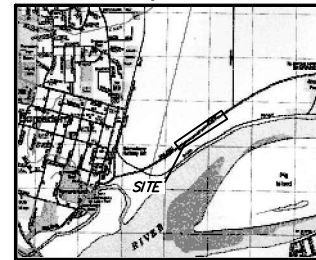
LEGEND

- PROPOSED NEW TRAFFICABLE AREAS
- PROPOSED NEW RAISED MEDIAN AREAS
- EXISTING RAISED MEDIAN AREAS
- EXISTING INTERSECTION MARKING
- PROPOSED PEDESTRIAN FACILITIES
- PROPOSED VEHICLE MOVEMENTS
- PROPOSED NEW LINEMARKING



PLAN SHOWING PROPOSED TRAFFIC ARRANGEMENTS
REDUCTION RATION 1:500

Locality Sketch



Map drawn and published by Cartodraft Aust P/L

- PROPOSED LANDSCAPED BUFFER ZONE 3.0m WIDE
- PROPOSED SERVICES CORRIDOR 5.0m WIDE

NOT FOR CONSTRUCTION



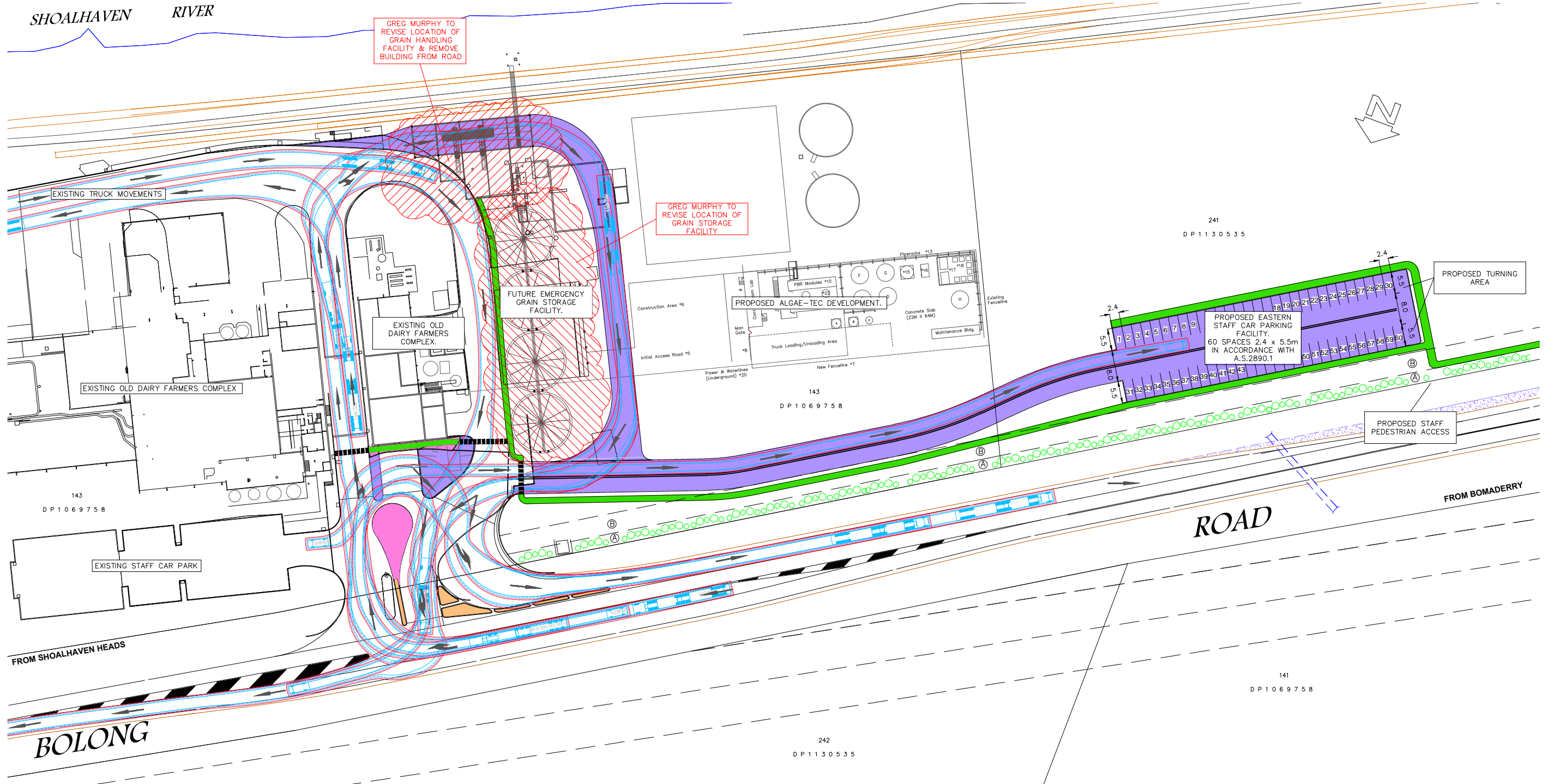
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		DESIGN	AJM		AJM	13/04/2012
		DRAWN	AJM			
		CHECK'D	MJP			

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consultants@allenprice.com.au www.allenprice.com.au

PLAN SHOWING PROPOSED TRAFFIC
ARRANGEMENTS FOR "ACF" DRIVEWAY &
CARPARK UPGRADE AT BOLONG ROAD BOLONG
FOR MANILDRA GROUP LIMITED

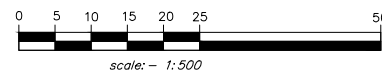
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SHOALHAVEN RIVER

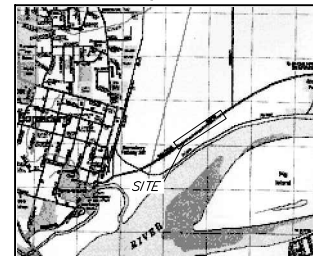


LEGEND

- PROPOSED NEW TRAFFICABLE AREAS
- PROPOSED NEW RAISED MEDIAN AREAS
- EXISTING RAISED MEDIAN AREAS
- EXISTING INTERSECTION MARKING
- PROPOSED PEDESTRIAN FACILITIES
- PROPOSED VEHICLE MOVEMENTS
- PROPOSED NEW LINEMARKING



PLAN SHOWING PROPOSED TRAFFIC ARRANGEMENTS
REDUCTION RATION 1:500
Locality Sketch



Map drawn and published by Cartodraft Aust P/L

- PROPOSED LANDSCAPED BUFFER ZONE 3.0m WIDE
- PROPOSED SERVICES CORRIDOR 5.0m WIDE

NOT FOR CONSTRUCTION

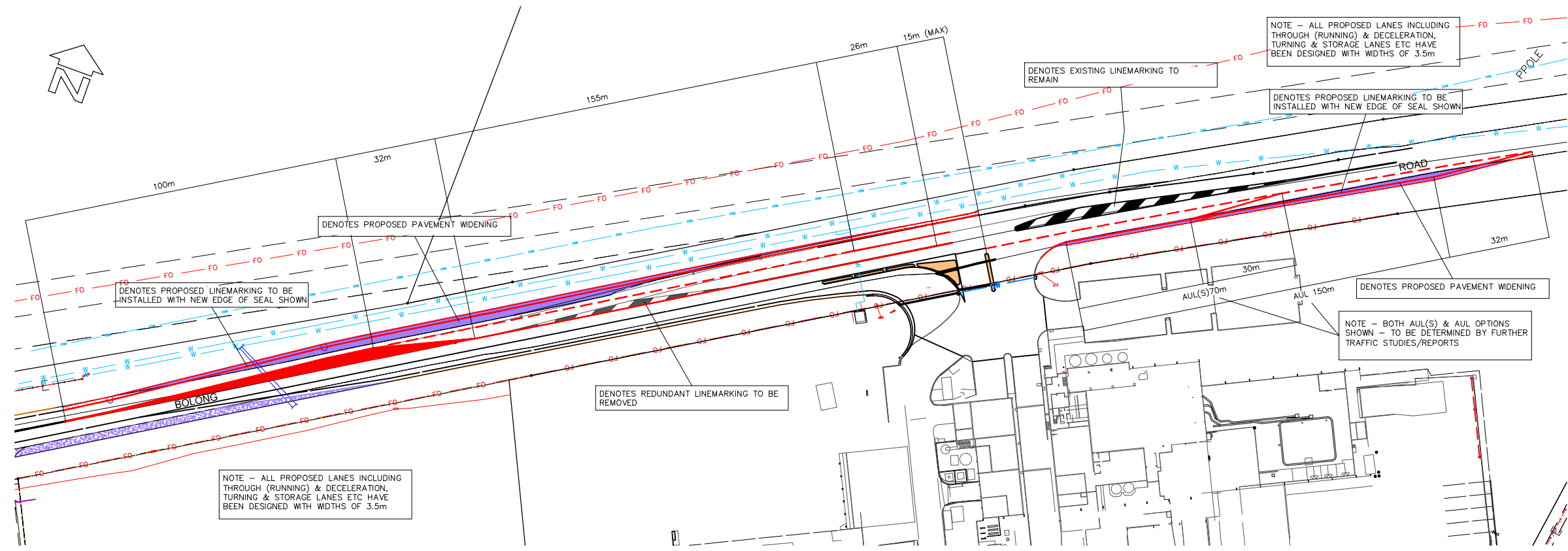
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			CHECK'D	MJP			

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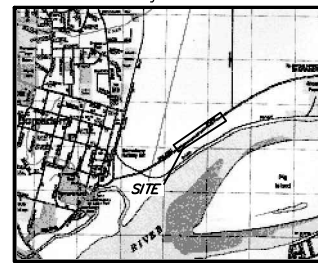
PLAN SHOWING PROPOSED TRAFFIC
ARRANGEMENTS FOR "ACF" DRIVEWAY &
CARPARK UPGRADE AT BOLONG ROAD BOLONG
FOR MANILDRA GROUP LIMITED

REF. No. 25003-106		REVISION 00
SHEET 1	OF 2 SHEETS	

TWO
SHEET
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Locality Sketch



Map drawn and published by Cartodraft Aust P/L

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	DATE OF PLAN: APRIL 2012		DRAWN	AJM				
			CHECK'D	MJP				

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PLAN SHOWING OVERALL PLAN FOR POSSIBLE CHR INTERSECTION AT OLD DAIRY FARMERS SITE BOLONG ROAD, BOMADERRY FOR MANILDRA PTY LTD

REF. No. 25003-107	
SHEET 1	REVISION 00
OF 1 SHEETS	





Shoalhaven Starches
Staff Car Park Proposal
Traffic Impact Assessment
May 2012

prepared for

Shoalhaven Starches Pty Ltd

prepared by

ARC Traffic + Transport

Introduction

Shoalhaven Starches Pty Ltd (**SSPL**) proposes the construction of staff car parking (the **Proposal**) on the recently purchased Dairy Farmers site (the **DF Site**) which lies immediately adjacent to the Shoalhaven Starches Site (the **SS Site**) south of Bolong Road, Bomaderry. The car park (60 spaces) is specifically proposed to provide compliance with the Shoalhaven Starches Expansion Project (06_0228) Approval of 2009, a Condition of which states: -

Internal Roads & Parking

31. The Proponent shall:

- a) ensure that all internal roads and parking on site complies with AS2890.1:2004 and AS2890.2:2002, or their latest versions;*
- b) construct at least 60 new parking spaces on the factory site to the south of Bolong Road within 12 months of this approval*

The Proposal specifically relates to Condition 31.b, which necessarily includes design provisions which meet the requirements (i.e. the Australian Standards) as outlined in Condition 31.a.

ARC Traffic + Transport (**ARC**) has been commissioned to examine the access, traffic and parking issues associated with the Proposal. Specifically, this Traffic Impact Assessment (**TIA**) examines the following key issues: -

- The redistribution of trips in Bolong Road arising from the Proposal
- The operation of the intersection of Bolong Road & DF Site further to the generation of additional trips
- The general design of the internal DF Site roads and intersections
- Pedestrian access between the DF Site and the SS Site
- General access, traffic and parking issues associated with the Proposal.

In preparing this TIA, ARC has referenced detailed traffic data from past assessments prepared by Stapleton Transportation & Planning (STAP), including the following reports: -

- Shoalhaven Starches, Bomaderry Ethanol Upgrade & Packaging Plant Proposal Traffic Impact Assessment May 2008 (SS Upgrade TIA 2008)
- Shoalhaven Starches Access Point 2 Revised Proposal Traffic Impact Assessment August 2009 (AP2 TIA 2009)
- Shoalhaven Starches Pelletiser Traffic Review January 2010 (Pelletiser TR 2010)
- Shoalhaven Starches Interim Packaging Plant Proposal Traffic Impact Assessment March 2011 (IPP TIA 2011)

ARC has also specifically considered the following in this TIA: -

- Recent upgrades along Bolong Road, and specifically upgrades of the carriageway and access intersections adjacent to the DF Site and SS Site, which have been designed in consultation with Shoalhaven City Council (**Council**) to provide compliance with conditions of previous SS Site upgrades.
- Preliminary comments provided by Council and the Department of Planning & Infrastructure (**DPI**) in regard to the Proposal.

General information in regard to the Proposal has been provided by Cowman Stoddart Pty Ltd, who are coordinating the Modification Application for the Proposal on behalf of SSPL; Alan, Price & Associates (**APA**) who are providing design plans; and SSPL. ARC would also acknowledge the assistance of Council (Mr Scott Wells) in regard to determining an appropriate data base and local issues for assessment in this TIA.

From the outset, it is important to state that – as for the recently approved SS Site Interim Packing Plant – the Proposal would not generate additional trips to the sub-regional road network. Rather, the Proposal provides for a redistribution of approved trips in Bolong Road (specifically between Access Point 3 - **AP3** - and the DF Site).

1 The Existing Sites

1.1 Locality

The SS Site and DF Site are located adjacent to each other on the southern side of Bolong Road, Bomaderry. Bomaderry is a mixed residential, commercial and industrial suburb located across the Shoalhaven River from Nowra. Industrial activity is concentrated in the south of the suburb, specifically off Bolong Road east of the Princes Highway, and in the east of the suburb off Meroo Street and Railway Street.

While the SS Site and DF Site are located on the southern side of Bolong Road, the recently approved Packing Plant would be located on the northern side of Bolong Road.

1.2 Existing & Upgraded Traffic Network

With reference to the more detailed review of the Proposal in **Section 2** below, the Proposal will result in very minor trip distribution changes in the immediate vicinity of the SS Site and DF Site, and specifically in Bolong Road between the DF Site and AP3. Further afield – and specifically east of the DF Site and west of AP3 - the Proposal would not alter the generation and distribution of approved trips.

As such, it is our opinion that it is only necessary (as part of this TIA) to examine the operation of those roads and intersections which would experience changed traffic conditions. These include: -

1.2.1 Bolong Road & Access Point 1

Access Point 1 (**AP1**) is located at the eastern end of the SS Site. The intersection of Bolong Road & AP1 is designed as an AustRoads Type C intersection and was originally developed after consultation with the RTA and Council as part of a past upgrade of the SS Site. A deceleration lane from the west to the BOC CO₂ gas facility on the northern side of Bolong Road has been recently completed, and a central median with pedestrian fencing has been built which extends from the immediate east of the SS Site through to Access Point 1. Both these new facilities were constructed further to design approval.

With reference to the Council approval of DA 10/1843, departure trips from the BOC CO₂ facility are provided for at the DF Site, i.e. vehicles departing to the west are permitted to depart to the east to the DF Site, turn around, and return to the west. A recently completed upgrade of the DF Site access point to Bolong Road was also provided for in DA 10/1843 (see **Section 1.2.7** below).

ARC notes that an informal access point remains to the DF Site (to the area earmarked for the proposed car park) from Bolong Road, lying almost immediately east of AP1. **This informal access point will be removed as part of the Proposal.**

1.2.2 Bolong Road & Access Point 2 (Central)

Access Point 2 (**AP2**) is located to the east of the railway line, and directly adjacent to (east of) a drainage culvert. AP2 has been upgraded to provide only for left in and left out movements, with a central median with pedestrian fencing in Bolong Road preventing right turn movements.

A short left turn lane from the east has also been provided to facilitate arrival trips from the east which – again with reference to the Council approval of DA 10/1843 – are provided for at the DF Site, i.e. vehicles arriving from the west accessing AP2 travel east to the DF Site, turn around, and return to AP2 utilising the short left turn lane.

1.2.3 Bolong Road & Access Point 3 (Western)

Access Point 3 (**AP3**) is located at the end of a spur that leads from the south-east portion of the SS Site to a point adjacent (west) of the Cleary Bros Concrete site, and then an intersection with Bolong Road. AP3 also provides access to a small office and training building, and to staff car parking.

AP3 has recently been upgraded to a Council approved design which provides an extension of the formal driveway on-site; a widened turning path (left hand turn to Bolong Road); and a broader formalisation of the widened carriageway in Bolong Road (which extends to the east past Access Point 4) to provide for passing of [the low volume of] right hand turning vehicles.

1.2.4 Bolong Road & Access Point 4 (Car Park)

The former Moorehouse industrial site is located west of the railway spur off Bolong Road, and was specifically purchased by SSPL in order to provide a central car parking location for SS Site staff, as well as ancillary storage and workshop space. Access Point 4 (**AP4**) has recently been upgraded to a Council approved design to provide a single two-way driveway.

As described above, the formalisation of the widened Bolong Road past AP4 provide for passing of [the low volume of] right hand turning vehicles. More recently, the on-site parking capacity accessed via AP4 has been further formalised.

1.2.5 Bolong Road & Packing Plant Site

The SS Upgrade TIA examined a left turn only access point (previously referred to as Access Point 5 – **AP5**) from Bolong Road to a proposed (and approved) Packing Plant on the northern side of Bolong Road opposite the SS Site. However, with the recent purchase of the DF Site to the east of the SS Site – and the recent approval of the Interim Packing Plant (**IPP**) – SSPL are currently reviewing options for the final packing plant location. AP5 will not be developed unless the approved Packing Plant is developed.

1.2.6 Bolong Road & Interim Packing Plant

The Interim Packing Plant (Access Point 6 – **AP6**) has two access driveways which loop via a wide apron providing separate ingress (eastern driveway) and egress (western driveway) for the Site. This intersection has also been recently upgraded to a Council approved design and provides a short right hand turn lane to the AP6 eastern driveway, with the western egress driveway retained for departing trips.

1.2.7 Bolong Road & DF Site

The intersection of Bolong Road & DF Site previously provided an Auxiliary Right (AUR) intersection with Bolong Road, but as part of the Council approval of DA 10/1843 this intersection was recently upgraded to a Channelised Right (Short) or CHR(S) intersection, which provides a protected right turn bay to the DF Site. It is our understanding that the CHR(S) design was considered an appropriate design based on the low potential generation of turning vehicles generated by AP2 and by the BOC CO2 facility.

A merge lane for the left turn from the DF Site to Bolong Road was also developed further to consultation with the RMS and Council, and with reference to the proximity of the reduced speed environment to the west of the DF Site.

1.3 Traffic Data

A key issues for consideration in this TIA is the future design of the intersection of Bolong Road & DF Site, and specifically the potential upgrade requirements further to potential increased traffic generation at the DF Site. As such, ARC has examined available data, and commissioned new data, in order to make an appropriately informed determination in regard to the future intersection design requirements.

1.3.1 Base Data – 120th Peak Hour Peak Period Flows

As part of the SS Upgrade TIA 2008, a series of detailed surveys were commissioned to define the traffic generation of the SS Site (and the local area). The survey locations and peak periods were agreed with Council, and then factored to represent 120th Hour flows, i.e. appropriate higher flows required for design assessment of recreational routes.

Further to our recent discussions with Council, it has been agreed that these flows remain the most appropriate flows for the assessment of future conditions, as they best represent appropriate recreational peak design flows.

1.3.2 SS Site Traffic Flows

In March 2012, ARC commission surveys of the SS Site access points. The purpose of the surveys was to determine the distribution of arrival and departure trips during the broader peak periods, and specifically to ensure that the previously observed distribution of arrival and departure trips (over extended AM and PM peak periods) remained consistent with previous assessments.

The SS Site surveys indicate lower traffic flows (to and from the SS Site over the broader peak periods, and in the specific AM and PM peak hours) than previously determined and approved; this is a result of staff levels at the SS Site having yet to reach the approved peaks determined in earlier assessments. As such, ARC has utilised the peak SS Site traffic generation flows as determined in previous reports – and detailed most recently in the IPP TIA 2011 – for the assessment of future requirements and conditions as these flows represent the maximum approved flows of the SS Site. At the DF Site, ARC has included the peak surveyed flows, as it is our understanding that these reflect ‘approved’ flows further to the use of the DF Site for the AP2 and BOC CO2 facility as per DA 10/1843.

These base assessment flows - with the through flow factored to the 2012 120th Hour - are shown in **Figure 1.3.2** below, while **Table 1.3.2** provides a summary of the March 2012 surveys of SS Site and DF Site generation over extended AM and PM peak periods.

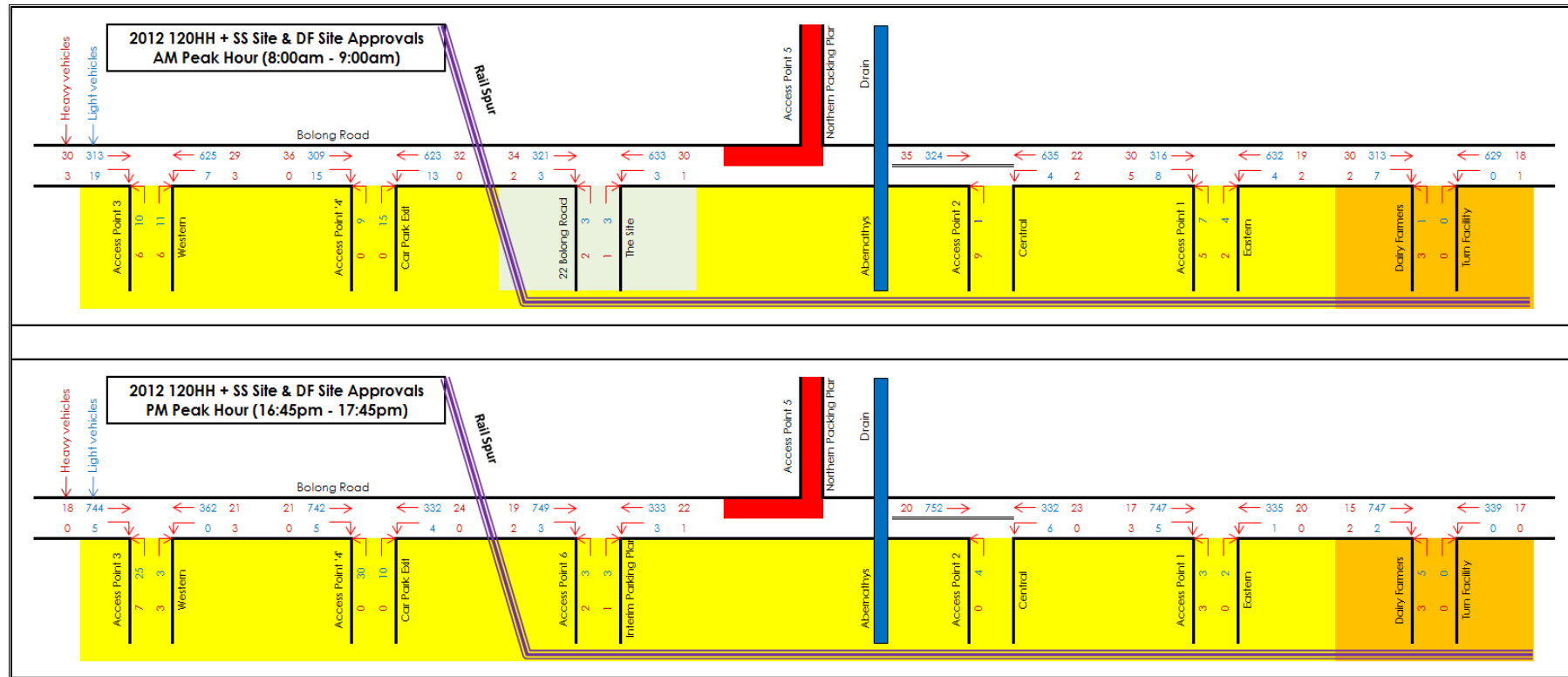
Figure 1.3.2 2012 120th Hour Traffic Flows with All Approved SS Site Flows

Table 1.3.2 SS Site Trip Generation Extended Peak Periods 2012

Arrival from the West	AP1			AP2			AP3			AP4			AP6			AP7			Total Arrivals from the West		
	LV	HV	Total	LV	HV	Total	LV	HV	Total	LV	HV	Total	LV	HV	Total	LV	HV	Total	LV	HV	Total
7:00 - 8:00	3	4	7				10	7	17	23	4	27	0	0	0	8	3	11	44	18	62
7:15 - 8:15	2	3	5				11	5	16	19	2	21	0	0	0	7	3	10	39	13	52
7:30 - 8:30	3	3	6				12	4	16	19	0	19	1	0	1	6	3	9	41	10	51
7:45 - 8:45	3	5	8				12	4	16	15	0	15	1	2	3	7	2	9	38	13	51
8:00 - 9:00	4	4	8				15	4	19	11	0	11	1	2	3	4	2	6	35	12	47
16:00 - 17:00	4	0	4				1	3	4	5	0	5	0	0	0	0	1	1	10	4	14
16:15 - 17:15	4	0	4				0	3	3	5	0	5	0	0	0	1	1	2	10	4	14
16:30 - 17:30	7	1	8				1	6	7	8	0	8	1	0	1	1	2	3	18	9	27
16:45 - 17:45	6	1	7				1	8	9	8	1	9	2	0	2	2	1	3	19	11	30
17:00 - 18:00	5	2	7				1	7	8	7	1	8	2	0	2	2	2	4	17	12	29
Arrival from the East	AP1			AP2			AP3			AP4			AP6			AP7			Total Arrivals from the East		
	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	LV	HV	Total	LV	HV	Total	Light	Heavy	Total
7:00 - 8:00	2	0	2	8	0	8	6	4	10	13	0	13	0	0	0	0	1	1	29	5	34
7:15 - 8:15	1	0	1	8	1	9	4	2	6	11	0	11	1	0	1	0	0	0	25	3	28
7:30 - 8:30	0	0	0	6	2	8	5	2	7	11	1	12	2	0	2	0	0	0	24	5	29
7:45 - 8:45	2	0	2	4	3	7	4	3	7	9	1	10	2	0	2	0	1	1	21	8	29
8:00 - 9:00	2	0	2	3	4	7	3	3	6	9	2	11	3	1	4	0	1	1	20	11	31
16:00 - 17:00	0	0	0	9	0	9	0	1	1	4	0	4	1	0	1	0	0	0	14	1	15
16:15 - 17:15	0	0	0	4	0	4	0	2	2	3	0	3	1	0	1	0	0	0	8	2	10
16:30 - 17:30	0	0	0	3	0	3	0	1	1	3	0	3	0	0	0	0	0	0	6	1	7
16:45 - 17:45	0	0	0	3	0	3	0	1	1	3	0	3	0	0	0	0	0	0	6	1	7
17:00 - 18:00	0	0	0	3	0	3	0	2	2	3	0	3	0	0	0	0	0	0	6	2	8
Depart to the West	AP1			AP2			AP3			AP4			AP6			AP7			Total Departures to the West		
	LV	HV	Total	LV	HV	Total	LV	HV	Total	LV	HV	Total	LV	HV	Total	LV	HV	Total	LV	HV	Total
7:00 - 8:00	3	3	6	3	0	3	6	9	15	4	0	4	0	0	0	2	1	3	18	13	31
7:15 - 8:15	3	2	5	6	0	6	8	10	18	5	0	5	0	0	0	1	1	2	23	13	36
7:30 - 8:30	1	2	3	8	0	8	7	9	16	8	0	8	1	0	1	2	0	2	27	11	38
7:45 - 8:45	3	2	5	6	0	6	8	9	17	9	0	9	1	0	1	2	1	3	29	12	41
8:00 - 9:00	4	2	6	7	2	9	5	9	14	15	0	15	2	2	4	1	3	4	34	18	52
16:00 - 17:00	1	2	3	4	0	4	10	4	14	15	0	15	0	0	0	3	1	4	33	7	40
16:15 - 17:15	1	3	4	3	0	3	9	4	13	17	0	17	0	0	0	2	1	3	32	8	40
16:30 - 17:30	1	2	3	1	0	1	9	4	13	19	0	19	0	0	0	3	1	4	33	7	40
16:45 - 17:45	1	2	3	2	0	2	8	4	12	19	0	19	0	0	0	3	1	4	33	7	40
17:00 - 18:00	2	1	3	2	0	2	6	3	9	20	0	20	0	0	0	5	3	8	35	7	42
Depart to the East	AP1			AP2			AP3			AP4			AP6			AP7			Total Departures to the East		
	LV	HV	Total	LV	HV	Total	LV	HV	Total	LV	HV	Total	LV	HV	Total	LV	HV	Total	LV	HV	Total
7:00 - 8:00	0	0	0				2	3	5	5	2	7	1	0	1	0	1	1	8	6	14
7:15 - 8:15	1	0	1				2	3	5	5	2	7	0	0	0	0	2	2	8	7	15
7:30 - 8:30	1	0	1				3	1	4	6	3	9	0	0	0	0	3	3	10	7	17
7:45 - 8:45	1	0	1				3	1	4	7	2	9	0	0	0	0	2	2	11	5	16
8:00 - 9:00	1	0	1				3	1	4	4	1	5	0	0	0	0	2	2	8	4	12
16:00 - 17:00	0	0	0				2	1	3	7	0	7	1	0	1	1	0	1	11	1	12
16:15 - 17:15	2	0	2				2	0	2	7	0	7	1	0	1	1	0	1	13	0	13
16:30 - 17:30	2	0	2				2	0	2	7	0	7	0	0	0	1	0	1	12	0	12
16:45 - 17:45	2	1	3				2	0	2	6	0	6	0	0	0	0	0	0	10	1	11
17:00 - 18:00	2	1	3				2	1	3	4	0	4	0	0	0	0	0	0	8	2	10

In regard to the arrivals from the east for both light and heavy vehicles, it should be noted that due to the restricted access provisions at AP2 (which attracts both light and heavy trips) 'arrival trips' from the east at AP2 are not necessarily arriving from an eastern origin, but are in most cases vehicles which have either arrived from the west that have turned at the DF Site to enter AP2 from the east.

1.4 Existing Traffic Conditions

With consideration of the completion of the Bolong Road upgrades, it is the opinion of ARC that the access intersections to the SS Site currently operate at appropriate levels of service, and specifically at the levels of service reported in past reports for the SS Site. Notwithstanding – and of specific reference to this TIA - it is important to note the following: -

- The 2012 surveys report a peak flow of 11vph (7:00am – 8:00am) for the right turn Bolong Road to DF Site. This flow would in and of itself exceed the maximum right turn flow provided for by a CHR(S) based on a combined westbound through, eastbound through and westbound left turn movements of more than ~600vph (AustRoads RDG Part 4A Figure 4.9 and Figure 4.10). Significantly higher combined flows than 600vph are shown for the 120th Hour for 2012.

As discussed in **Section 2** below, additional trips will be generated to this movement further to the Proposal, and as such, it is **the conclusion of ARC that the right turn from Bolong Road to the DF Site requires a further upgrade from the current CHR(S) to a full CHR to provide compliance with the AustRoads RDG 4A standards.**

- The existing surveyed flow for the left turn from the east to the DF Site is minimal across both the broader AM and PM peak periods, with a maximum of 1vph surveyed making this movement. This means that there are no current warrants (AustRoads RDG Part 4A Figure 4.9) for the provision of either an Auxiliary Left Short (**AUL(S)**) or Auxiliary Left (**AUL**) upgrade. Notwithstanding, additional trips will be generated to this movement further to the Proposal; the potential for these trips to trigger an upgrade requirements is examined in more detail in **Section 2** below.
- The surveys confirm our past findings that the SS Site does not generate significantly condensed arrival or departure peak periods; rather, staff arrive at and depart from the SS Site over extended peak periods, a result of the shift structures at the SS Site. Further to our discussions with SSPL, there is no proposal to change these shift structures, i.e. there is no evidence to suggest that the arrival/departure peaks for SS Site staff would at some time be condensed.

1.5 Pedestrian Access

Most pedestrian access demand is met on-site, with simple connector links between the formal parking areas and the primary work locations. Internally, most areas of the SS Site have fixed pedestrian walkways – these are generally areas where safety around heavy equipment and machinery is paramount. General access demands from the SS Site parking areas are accommodated by internal roads and pathways, and pedestrian links between

the western end of the Site (offices, training parking areas) and the primary work areas east of Abernathys Creek have been improved through recent upgrade stages.

A moderate pedestrian demand is also generated along Bolong Road, a demand which has been more appropriately provided for by the construction of new pedestrian paths and a pedestrian footbridge over Abernathys Creek in accordance with Council approved designs.

The Proposal will require new pedestrian linkages between the DF Site and the primary SS Site – these are examined in more detail in **Section 2**.

1.6 Parking

With reference to the SS Site Expansion Project Approval Conditions, a minimum of 60 additional formal parking spaces are required to provide for the SS Site parking demands. The Proposal directly responds to this Condition.

General staff parking is provided (or planned) across the SS Site for approximately 240 vehicles via AP3 and AP4. Spaces previously proposed to be located in the southern-central part of the Site, accessed via AP3, will as part of this Proposal be relocated to the proposed car park at the DF Site. This issue is examined in more detailed in **Section 2**. General parking across the broader SS Site will not be affected by the Proposal.

ARC notes that Council has previously identified issues in regard to on-street (or more precisely on-verge) parking occurring in Bolong Road between AP1 and AP2. It is our observation that the recent upgrades in Bolong Road have effectively removed the potential for this parking, and that in any case parking has been provided on-site for all staff.

2 The Proposal

2.1 The Car Park Proposal

The Shoalhaven Starches Expansion Project (06_0228) Approval of 2009 provides a Condition which states: -

Internal Roads & Parking

31. The Proponent shall:

- a) ensure that all internal roads and parking on site complies with AS2890.1:2004 and AS2890.2:2002, or their latest versions;*
- b) construct at least 60 new parking spaces on the factory site to the south of Bolong Road within 12 months of this approval*

The Proposal specifically relates to Condition 31.b, which necessarily includes design provisions which meet the requirements (i.e. the Australian Standards) as outlined in Condition 31.a.

A total of 60 parking spaces are proposed on the southern side of Bolong Road within the DF Site to meet Condition 31.b (and designed in accordance with AS 2890.1:2004 to meet Condition 31.a). The location of the proposed car park is immediately adjacent to the SS Site.

2.2 Trip Redistribution

As discussed in the **Introduction**, from a general traffic perspective the Proposal in and of itself would not generate additional traffic flows to the sub-regional road network away from Bolong Road above currently approved flows.

Rather, staff trips currently or approved to use car parking on the SS Site – and specifically parking areas accessed via AP3 – will be redistributed to the new car park at the DF Site. ARC notes that a similar redistribution of approved trips occurred when SSPL purchased the Moorehouse Site site (now used as a central staff car park off AP4) and again a similar redistribution of trips occurred as a result of the IPP approval.

As a worst case – assuming the total redistribution of trips occurred from AP3 – the Proposal would result in increased passing (eastbound or westbound) trips in Bolong Road past AP1, AP2, AP4 and AP6.

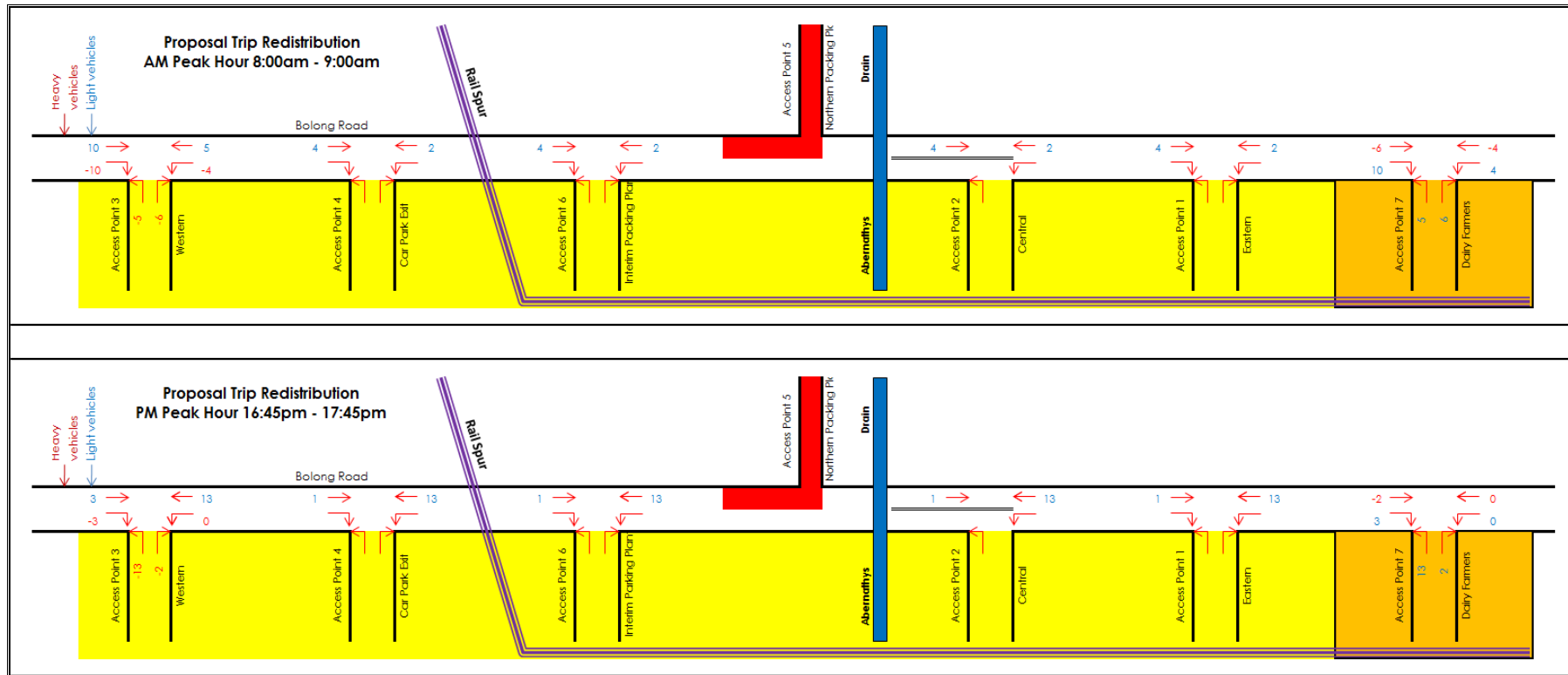
In determining the percentage of trips which would be redistributed, it is important to acknowledge that approximately 60 - 70 parking spaces will remain accessed via AP3; as such, it is reasonable to estimate that approximately 50% of light vehicle trips currently generated to/from AP3 could be redistributed to the DF Site (60 parking spaces, i.e. taking approximately half the approved AP3 light vehicle generation).

The parking currently provided off AP4 (and indeed the other parking areas located around the SS Site) would not be affected by the Proposal. While the potential exists for some of the staff currently parking off AP4 (or in the other areas) to redistribute to the DF Site, the capacity of the AP4 car park (and the other areas) is still required by the SS Site operations and will necessarily therefore be utilised. The broader staff compliment may also be moved around the future available parking (in accordance with work locations for example) but there is no information to suggest that the surveyed arrival and departure profiles – particularly in the peak periods – would be affected other than by the locality of available parking across the broader Site.

In summary – and with specific reference to the redistribution of vehicle trips in Bolong Road - ARC estimates that the Proposal would result in approximately 50% of the approved AP3 arrival and departure trips being redistributed to the DF Site. This redistribution would apply only to light vehicle trips, and result in the addition/reduction of trips to and past the various SS Site and DF Site access points as outlined below: -

- 50% of trips currently entering the SS Site from the west at AP3 will in the future continue past AP3, AP4, AP6, AP2 and AP1 and then enter at the DF Site.
- 50% of trips currently entering the SS Site from the east at AP3 will in the future enter at AP7, and therefore not be generated past AP1, AP2, AP6, AP4, nor enter at AP3.
- 50% of trips currently departing the SS Site to the west from AP3 will in the future depart via AP7 and continue past AP1, AP2, AP6, AP4 and AP3.
- 50% percentage of trips currently departing the SS Site to the east from AP3 will in the future depart via AP7, and therefore not be generated from AP3 or past AP4, AP6, AP2 and AP1.

The resulting changed flows in Bolong Road adjacent to the SS Site and DF Site are shown in **Figure 2.2**.

Figure 2.2 Proposal Trip Distribution Changes

2.3 Total Future Trips

Further to the redistribution outlined above in **Section 2.2**, ARC has prepared future total traffic flow estimates which include: -

- The redistribution of trips resulting from the Proposal, using the maximum approved SS Site traffic flows in the designated 120th Hour AM and PM peak hours (as per **Figure 2.2** above)
- The 2012 120th Hour base traffic flows (as per **Figure 1.3.3** above)
- An additional 2022 future forecast which provides for 10 years of average annual traffic growth (at 2% per annum) along Bolong Road as agreed with Council for earlier assessments.

The resulting flows are shown in the following figures: -

- **Figure 2.3.1** Total 2012 flows further to the Proposal
- **Figure 2.3.2** Total 2022 flows, with Bolong Road through flows factored by 2% per year over 10 years.

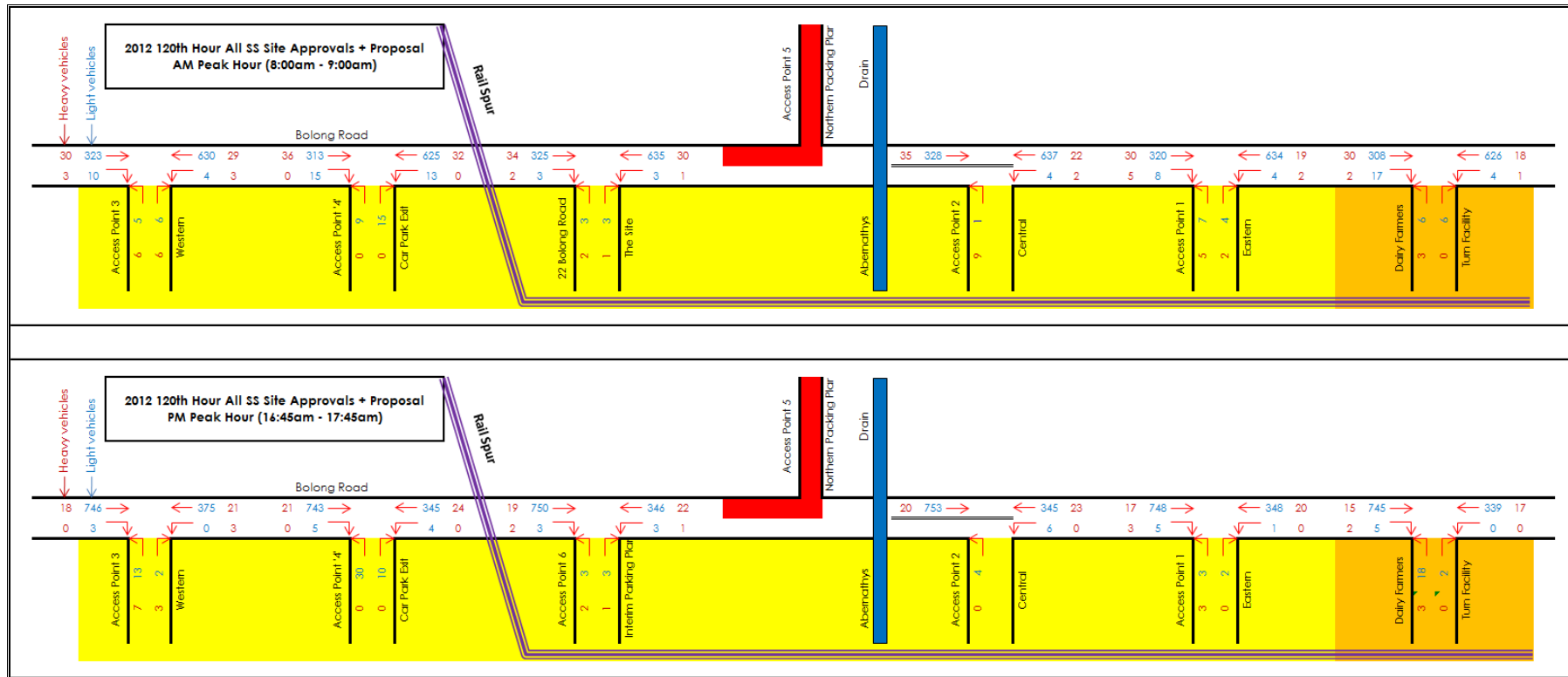
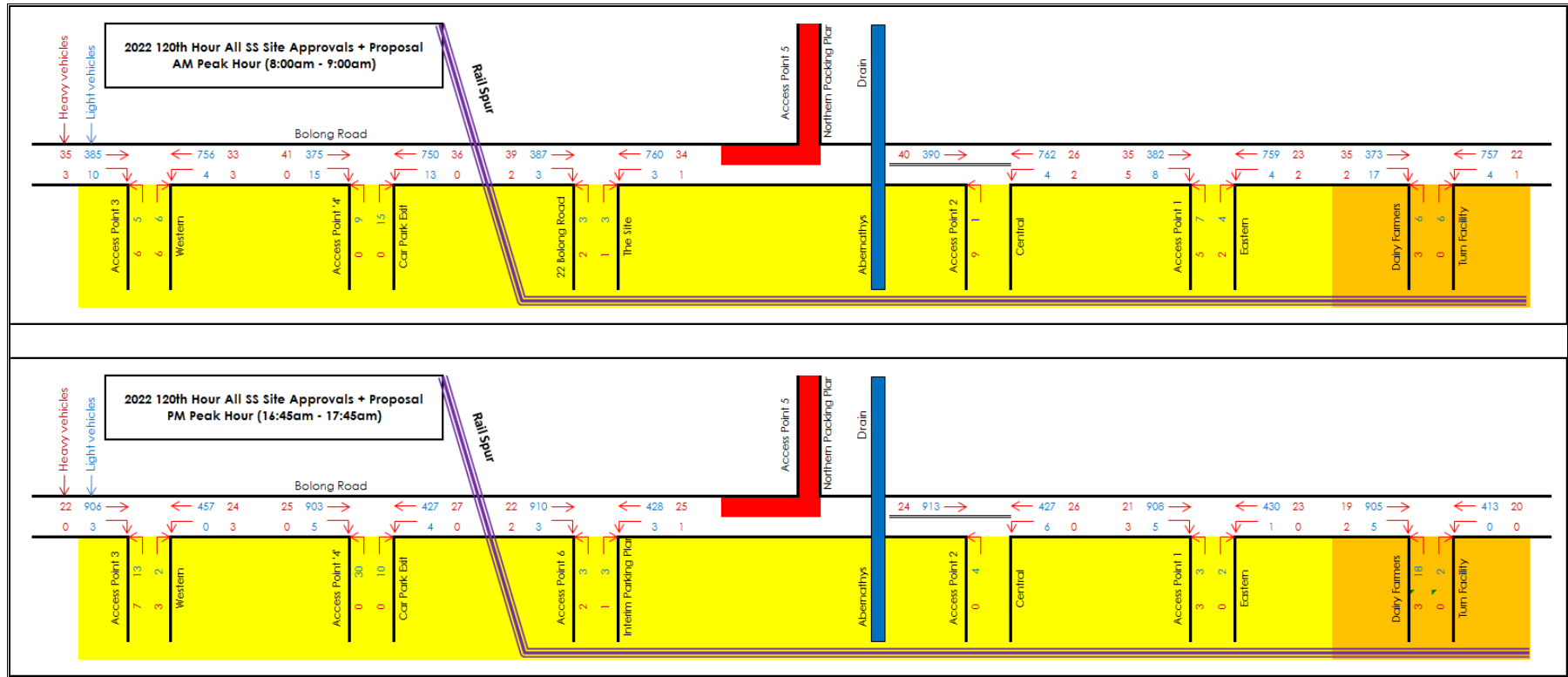
Figure 2.3.1 2012 Total Trips

Figure 2.3.2 2022 Total Trips



2.4 Future Traffic Conditions – SS Site Intersections

It is in our opinion readily apparent (with reference simply to the redistributed traffic flows resulting from the Proposal as shown in **Figure 2.2**) that the Proposal would have no significant impact on the local road network; specifically, the SS Site access intersections would operate at very similar Levels of Service as previous determined and approved. This conclusion results from the following key factors: -

- The total trips redistributed by the Proposal are very low; in the section of Bolong Road between AP3 and the DF Site, approximately 6 'additional' AM peak hour trips would be generated, and approximately 14 'additional' PM peak hour trips would be generated. Outside this section of Bolong Road, trip generation would be no different from that approved.
- The redistribution of trips would reduce the turning movements at one of the busier SS Site intersections (AP3).
- The redistributed trips would have a low impact as through trips on the operation of the other SS Site intersections.

Additionally: -

- The broader ongoing development and refinement of the SS Site continues without a current requirement for the development of the Packing Plant on the northern side of Bolong Road, which would trigger a requirement for the development AP5. Any changes to the future location or generation of a new packing plant – or indeed any other development/modification proposals across the broader SS Site or DF Site - would need to be appropriately assessed.

2.5 Future Design Conditions – DF Site Intersection

The Proposal will result in additional trips being generated to the intersection of Bolong Road & DF Site. The impacts of this additional generation are examined below.

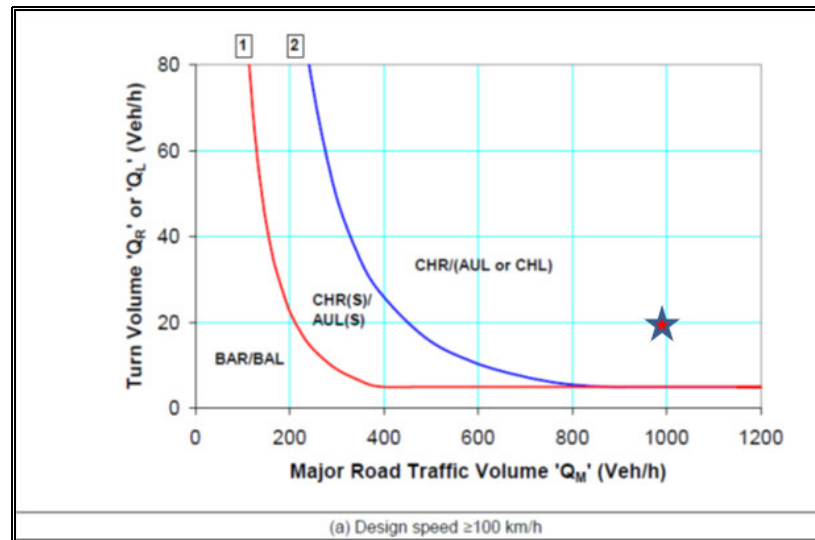
2.5.1 Upgrade Warrants

AustRoads GRD Part 4A (Section 4.8) provides guidance in regard to the warrants for intersection treatments based on traffic volumes and flows for rural conditions. AustRoads GRD Part 4A (Figure 4.9 and Figure 4.10) specifically provides information relating to these warrants, and has been used in our assessment of future upgrade requirements, as detailed below.

2.5.2 Bolong Road to DF Site Right Turn

Using the total Proposal traffic flows as report in **Figure 2.3.1** above, the warrant for a CHR for the right hand turn from Bolong Road to the DF Site can be plotted as shown below in **Figure 2.5.2**.

Figure 2.5.2 Intersection Warrants, Right Hand Turn to DF Site (AM Peak)

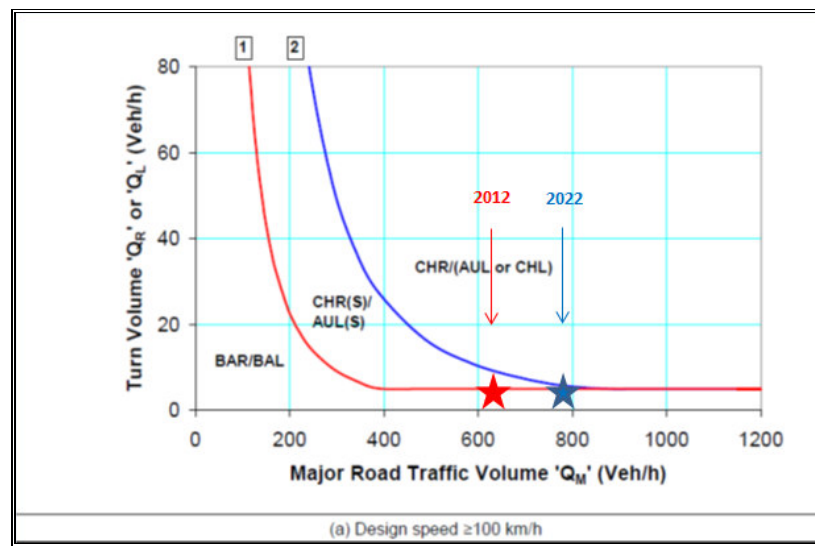


As discussed in **Section 1.4**, the right turn movement from Bolong Road to the DF Site already at times exceeds the warrant for an upgrade from the existing CHR(S) to a full CHR; with the additional generation arising from the Proposal, this requirement is only further established.

As such, ARC recommends that a CHR be constructed to provide for the right hand turn movement from Bolong Road to the DF Site. The design of the CHR may require further consultation with the RMS and Council (giving consideration to the proximity of the SS Site AP1 and the lower speed limit west of the DF Site) prior to finalisation.

2.5.3 Bolong Road to DF Site Left Turn

Using the 2012 120th Hour traffic flows as report in **Figure 2.3.1** above, the warrant for an AUL(S) or AUL for the left hand turn from Bolong Road to the DF Site can be plotted as shown below in **Figure 2.5.3.1**.

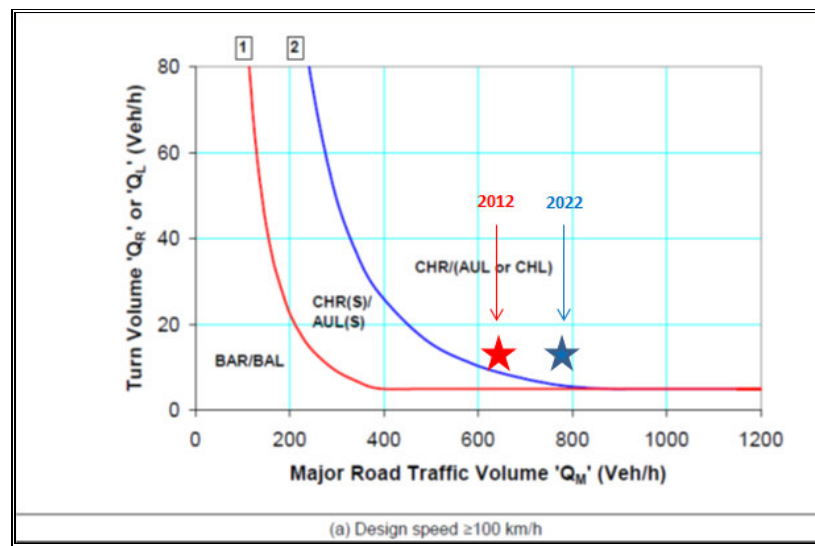
Figure 2.5.3.1 2012 & 2022 Intersection Warrants, Average Left Turn to DF Site (AM Peak)

Based on average flows, the left turn movement from Bolong Road to DF Site could be retained as a simple BAL (as currently provided) i.e. no special turning provisions. This would be the same with consideration of the 2022 data if the flow turning left from the east was maintained, i.e. if the left turn demand flow remained at or below 5 vehicles per hour.

Notwithstanding, ARC acknowledges that the determination of a flow of 4vph utilising the left turn is based on a statistical average based on the parking apportionment methodology outlined in **Section 2.2**. ARC has therefore prepared additional analysis of the arrival distribution patterns over the broader peak periods to determine the potential for this estimated low left turn demand to increase as a result of the Proposal. To do so, we have: -

- Determined the percentage of all arrival trips that would potentially use the new car park based on general staff parking provisions at the DF Site.
- Calculated the resulting maximum potential demand for the left turn Bolong Road to DF Site based on the approved SS Site/DF Site flows during the 120th hour peak periods and the peak left turn arrival demand from the 2012 surveys.

This analysis results in a peak potential for up to 12vph to turn left into the DF Site. The warrants reflecting this maximum potential flow for the left turn for the years 2012 and 2022 are shown in the figures below.

Figure 2.5.3.2 2012 & 2022 Intersection Warrants, Peak Left Turn to DF Site (AM Peak Hour)

Based on this analysis – and given that the potential exists for such general redistributions across the three main parking access points (DF Site, AP4 and AP3), an AUL or CHL is warranted to provide for the potential left turn movement to the DF Site.

ARC would therefore recommend the provision of an AUL to provide for the left turn.

The difference between an AUL and CHL treatment relates to the provision of a protected turn at the intersection itself, generally a protective island (to reduce conflicts with the right turning traffic to the same leg of the intersection). The use of a CHL is generally recommended where the intersections lies within a horizontal curve, or where the arriving trips could impede the sight distance for departing trips. In our opinion the low flows at the intersection (and particularly the low left turn demand) coupled with good sight distances would suggest that an AUL is an appropriate treatment.

2.5.4 DF Site to Bolong Road Left Turn

Further to our discussions with Council, it has been agreed that the existing Channelised Left turn and merge lane providing for the westbound movement from the DF Site to Bolong Road has been designed with reference to the existing conditions and would appropriately provide for the relatively minor additional generation of the Proposal.

2.5.5 Bolong Road & DF Site Intersection Performance

In order to determine the future performance of the intersection of Bolong Road & DF Site, and further to our discussions with Council, ARC has examined the performance of the intersection using SIDRA.

Using the forecast flows for 2012 (**Figure 2.3.1**) and 2022 (**Figure 2.3.2**) ARC has determined that the intersection will continue to operate at an average Level of Service “C” through 2022, with minimal queues for both the right turn to the DF Site and from the DF Site as a function of the low traffic demands. Sensitivity testing utilising higher right turn volumes, and higher gap acceptance values, provides similar results simply due to the low traffic demands, specifically for the right turn to the east.

2.6 Bolong Road Vehicle Speeds

Before moving onto additional issues, it is appropriate to raise the issue of current speed limits in Bolong Road adjacent to the DF Site and SS Site. Numerous studies prepared by or for the RMS indicate the need to slow vehicles down in activity areas, and many sections of Bolong Road with activity (i.e. smaller village centres and the like to the east and north) have speeds of 50km/h. It remains our opinion that a reduced speed limit would be appropriate for this industrial section of Bolong Road, with perhaps a transition zone from the mill to the east of the DF Site (reduction to 80km/h) which would better transition to an extended 60km/h located either east of the SS Site or at worst at its currently location.

The introduction of a transitional speed area would have no significant impact on travel times, and would improve the safety and overall performance of existing intersections into the future. This issue would require further discussions with the RMS but would not in our opinion have any significant impacts on the operation of the broader sub-regional (or indeed regional) road network.

2.7 Internal Access Considerations

2.7.1 Future Vehicle Movements

Further to the recently approved turn restrictions at AP2 and the BOC CO2 facility, a small number of light and heavy vehicles ‘loop’ via the DF Site and then return to the west. Within the DF Site, these vehicles utilise the existing wide industrial driveway adjacent to Bolong Road to complete a U-Turn and then return to Bolong Road.

The Proposal would generate staff vehicle trips to the proposed car park access road, which would extend to the east from the DF Site main driveway.

2.7.2 Design Considerations

The intersection of Bolong Road & DF Site provides an acceleration/merge lane for westbound departure trips, and the turning path provided for this movement at the DF Site specifically provides for heavy vehicles to

complete a U-Turn immediately from Bolong Road. A separate turn lane for right turning vehicles (a minor existing and future demand) is also provided.

The Proposal would provide an additional approach to the internal turning area from the car park (car park access road), and retain the minor access road to the existing car park east of the main driveway.

In determining an appropriate design for the internal movements, the primary considerations relate to safety (and therefore a reduction to the extent possible in conflicting vehicle movements); and movement efficiency (primarily to ensure arriving vehicles can enter and move to their on-site destination immediately). Accounting for these factors, APA has prepared a draft design which provides an internal island which acts to prioritise inbound trips (from Bolong Road) and then provide priority in a similar manner to a roundabout (i.e. give way to the left). The design prepared by APA would in our opinion: -

- Provide an appropriate central control point for all movements.
- Retain the vehicle paths and general priority for the vehicles arriving from AP2 and the BOC CO2 facilities to immediately turn back to the west.
- Allow vehicles entering the car park – the highest potential movement - to have effective priority, with no real opposed movements along their path, thereby reducing queuing potential.
- Retain - for any potential future adaptive reuse of the DF Site – access to the existing car park to the east of the main driveway.

The draft design has been discussed with Council, and it is our understanding that the general design principles provided by the design have been agreed with Council. Final design plans will be prepared by APA.

2.8 Car Park Design

The proposed car park will provide a total of 60 spaces, and therefore meet the requirements of the Shoalhaven Starches Expansion Project (06_0228) Approval.

The design of the car park will be finalised by APA further to consultation with Council; ARC provides the following comment in regard to the design of the car park: -

- The car park will necessarily be designed to provide compliance with AS 2890.1:2004, with regard to the width of the access aisle (two-way traffic) and space dimensions in particular.
- Preliminary designs indicated a single access road/parking aisle with 90° angle spaces, terminating at the end of the final eastbound spaces. This is referred to as a blind aisle. Given the length of the aisle, it is necessary to provide turning provisions at the eastern end of the car park so as to prevent long reversing movements, i.e. to prevent a member of staff travelling to the eastern end of the parking aisle, realising no space is

available, and then reversing back along the aisle. This could be achieved either using a small turning circle or turning head, and would also provide for the easternmost spaces to appropriately depart in a forward direction.

- ARC would also recommend that SSPL develop a plan of management for the use of the car park, and specifically a plan which 'assigns' to as great an extent as possible parking spaces in the new car park to particular staff. This would remove the potential for staff to enter the car park and find no space available; or to travel to the SS Site and then need to return to a free space.

2.9 Pedestrian Access

The proposed car park lies within 400m of the majority of the larger SS Site, and as such would provide appropriate proximity for staff to the SS Site.

Based on the availability of the pedestrian path along Bolong Road from AP1 to the west, ARC would recommend that the new car park be linked to this existing path (along the SS Site frontage). Further to design considerations, the following options are available: -

- A new path that turns immediately north from the eastern end of the car park, and then a new path along Bolong Road to AP1.
- A new path that runs east from the car park to AP1(internal) and then turns north to connect to the existing path at AP1.

For both options, ARC would recommend that a pedestrian path be designated across the AP1 access point from the new path to the existing path on the western side of AP1. We would also recommend that appropriate lighting be provided at AP1 and along the car park access path for safety.

ARC notes that there are also a number of informal pedestrian 'paths' across the broader SS Site – and specifically within the broad driveway apron off AP1. While pedestrian demands in this area are minor, ARC would recommend that the provision of pedestrian access across the SS Site be the subject of a review, with the goal being to define (mark) pedestrian paths through all areas of potential conflict. For example, a marked pedestrian path through sections of the broad AP1 apron area might provide paths along the side of each vehicle area, linked with simple pedestrian crossing areas. This would further increase pedestrian (staff) safety.

3 Conclusions & Recommendations

3.1 Conclusions

Following a detailed and independent assessment of the access, traffic and parking conditions associated with the Proposal, ARC has concluded the following: -

- The provision of 60 parking spaces at the DF Site would provide fulfil the Conditions of the Shoalhaven Starches Expansion Project (06_0228) Approval of 2009.
- The Proposal provides for a minor redistribution of SS Site access trips between the DF Site and AP3; the Proposal would not increase vehicle generation east of the DF Site or west of AP3.
- The redistribution of trips in Bolong Road between the DF Site and AP3 is very minor, and would not impact the previous determined good operation of the SS Site intersections, particularly further to the recent upgrades of the intersections at AP2, AP6, AP4 and AP3.
- The assessment of future flows prepared by ARC indicates that the intersection of Bolong Road & DF Site requires a number of upgrades to accommodate the Proposal. These include: -
 - An upgrade of the existing CHR(S) Bolong Road to DF Site to a CHR
 - An upgrade of the existing BAL Bolong Road to DF Site to an AUL

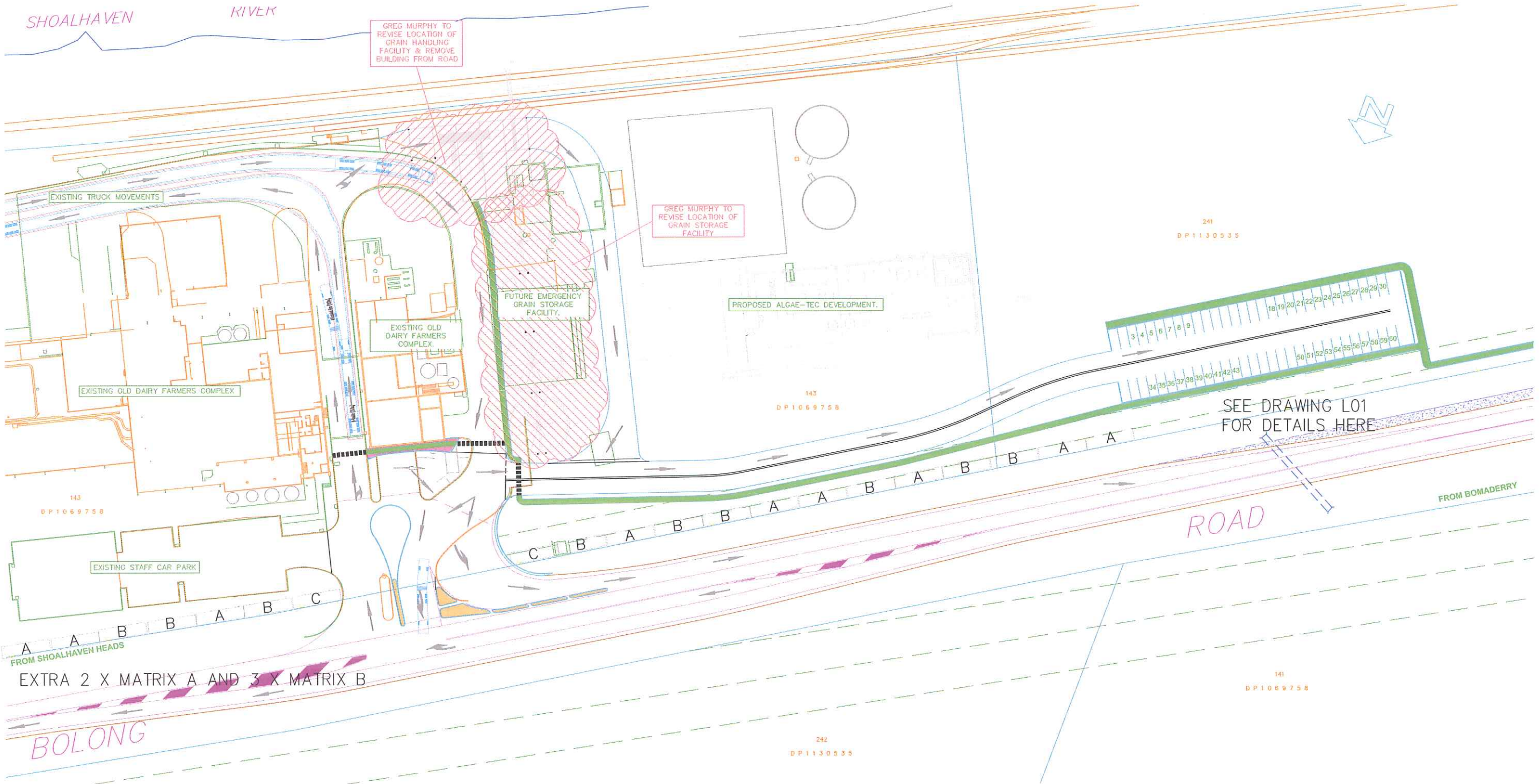
The design of these upgrades will be prepared by Allan Prices & Associates and finalised further to consultation with the RMS and Council.

- The internal design of the DF Site, providing for safe and efficient access for heavy vehicles and light vehicles, provides appropriate priorities and will minimise queuing demands. Design plans have been prepared by Allen Price & Associates and will be finalised further to consultation with Council.
- The car park design will necessarily reference AS 2890.1:2004 and make provisions for the safe departure of vehicles in a forward direction, as well as allowing vehicles to turn at the eastern end of the car park so as to remove potential reversing movements. The design of the car park will be prepared by Allen Price & Associates and finalised further to consultation with Council.

3.2 Recommendations

Further to the conclusions outlined above, ARC provides the following recommendations: -

- i. That SSPL develop a plan of management for the use of the new car park to assist in the allocation of staff to specific parking areas across the SS Site and DF Site.
- ii. That a new pedestrian path be provided between the new car park and AP1 which includes appropriate lighting and markings across AP1.
- iii. That SSPL examine the provision of marked pedestrian paths across the broader SS Site.
- iv. That the existing informal access point immediately east of AP1 be removed.



LANDSCAPE PLAN

PLANT SCHEDULE FOR MATRIX PLANTING

Symbol	Name	Name	Size	Pot Size	NO.
TREES					
CS	Callistemon salignus	Callistemon Pink Tips	9mx3m	200mm	47
ER	Elaeocarpus reticulatus	Blueberry Ash	8mx5m13x75lt;45x200mm	58	
HF	Hymenosporum flavum	Native frangipani	15mx8m	45lt	24
LP	Leptospermum petersonii	Lemon Scented Tea Tree	5mx4m	200mm	22
LC	Lophostemon confertus	Brushbox	15mx10m	75lt	34
WF	Waterhousia floribunda	Weeping Lilly Pilly	15mx8m	45lt	22

Symbol	Name	Common Name	Size	Pot Size	NO.
SHRUBS					
ASM	Acmena smithii Minor	Dwarf Lilly Pilly	5mx3m	75mm	45
BE	Banksia ericifolia	Coastal Banksia	5mx5m	"	46
CC	Callistemon citrinus Endeavour	Endeavour Bottlebrush	3mx3m	"	89
CG	Ceratopetalum gummiferum	NSW Christmas Bush	5mx3m	"	32
MH	Melaleuca hypericifolia	Red Flowering Paperbark	4mx2m	"	12
MT	Metrosideros Thomasii	NZ Christmas Bush	8mx4m	"	62
SA	Syzygium australae	Brush Box	"	"	69
GRASSES + GROUNDCOVERS					
DR	Dianella Breeze	Flax Lily	0.5mx0.5m	75mm	248
LL	Lomandra longifolia	Matt Rush	1mx1m	"	136
LT	Lomandra Tanika	Dwarf Mat Rush	.75mx.75m	"	230
MS	Microlena stipoides	Weeping Grass	1mx1m	"	217
PE	Poa Eskdale	BlueTussock Grass	.75mx.75m	"	194

DESIGN NOTES

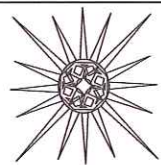
Landscape contractor must show extreme care in protecting services and works by other contractors. This will include all paths and structures.

MOUNDING OF GARDEN BEDS
Landscape contractor is to allow to install extra soil to provide mounding to the planting bed to a maximum height of 400mm. This will provide a medium for good growth. Existing ground is to be ripped and cultivated to a depth of 200mm minimum with gypsum to be incorporated.

CULTIVATION OF EXISTING GROUND
See specification for rates.

GARDEN EDGING
Timber edging shall be installed along the boundary fence to deter grass invading the planting beds.

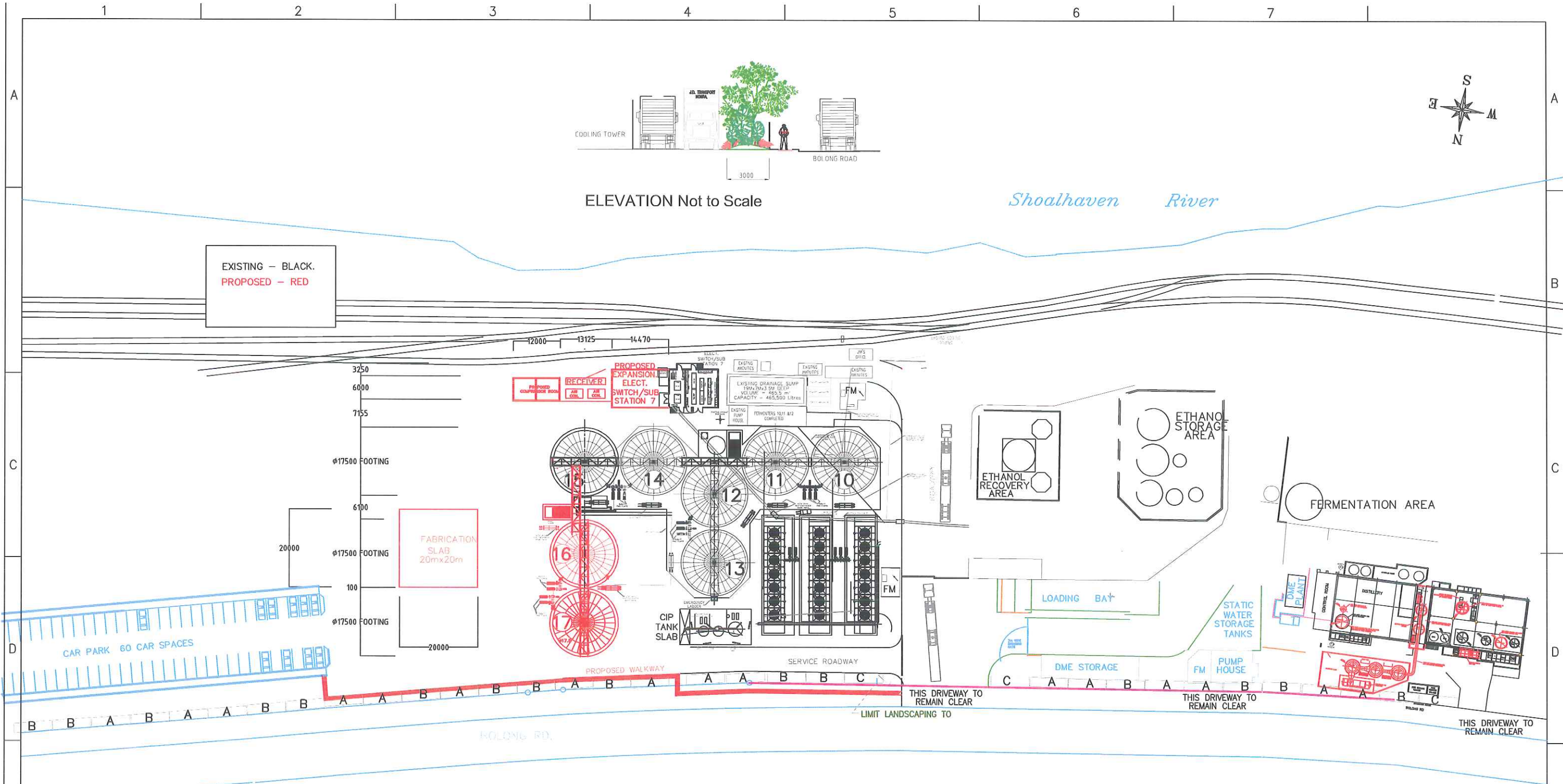
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ISS	DATE	ZONE	AMENDMENT	BY	CKD



MANILDRA
GROUP
100% AUSTRALIAN

TITLE: MANILDRA GROUP
LANDSCAPE SCREEN PLANTING
SITE PLAN

PPLA Peter Phillips Landscape Architecture	4 BINION CLOSE BOMADERRY 2541 FAX : 0244221310 MOB : 0410040507		
	PROJECT :PROPOSED MODIFICATIONS TO DAIRY FACTORY		
	For : MANILDRA GROUP NOWRA		
	LANDSCAPE PLAN		
SCALE : 1:500 A1		DWG. LO3	Rev : A
DATE : May 2012		DRAWN : Peter Phillips	



LANDSCAPE PLAN									
PLANT SCHEDULE FOR MATRIX PLANTING									
Symbol	Name	Name	Size	Pot Size	NO.	Symbol	Name	Common Name	Size
TREES						SHRUBS			
CC	Callistemon salignus	Callistemon Pink Tips	9mx3m	200mm	71	ASM	Acmena smithii Minor	Dwarf Lilly Pilly	5mx3m
ER	Elaeocarpus reticulatus	Blueberry Ash	8mx5m	8x75lt/70x200mm	88	BE	Banksia ericifolia	Coastal Banksia	5mx5m
HF	Hymenosporum flavum	Native frangipani	15mx8m	45lt	36	CC	Callistemon citrinus Endeavour	Endeavour Bottlebrush	3mx3m
LP	Lepidospermum petersonii	Lemon Scandled Tea Tree	5mx4m	200mm	34	CG	Ceratopetalum gummiiferum	NSW Christmas Bush	5mx3m
LC	Lophostemon confertus	Brushbox	15mx10m	75lt	52	MH	Melaleuca hypericifolia	Red Flowering Paperbark	4mx2m
WF	Waterhousea floribunda	Weeping Lilly Pilly	15mx8m	45lt	34	MT	Metrosideros thomasi	NZ Christmas Bush	8mx4m
						SA	Syzygium australe	Brush Box	8mx4m
Symbol	Name	Common Name	Size	Pot Size	NO.				
GRASSES + GROUNDCOVERS									
DR	Dianella breeze	Flax Lily	0.5mx0.5m	75mm	411				
LL	Lomandra longifolia	Matt Rush	1mx1m		261				
LT	Lomandra tanika	Dwarf Mat Rush	.75mx.75m		319				
MS	Microlena stipoides	Weeping Grass	1mx1m		327				
PE	Poa eskdale	Blue Tussock Grass	.75mx.75m		405				

08-05-2012

Submission

PP

PP

DATE

CHANGE

AMENDMENTS

BY

CKD

MANILDRA GROUP

100% AUSTRALIAN

TITLE:

MANILDRA GROUP.NOWRA

LANDSCAPE SCREEN.

SITE PLAN.

PPLA

Peter Phillips Landscape Architecture

4 BIRCH CLOSE BORAHERRY 2541 FAX: 0244721310 MCRB: 0110040507

PROJECT: PROPOSED MODIFICATIONS TO FERMENTERS

MANILDRA FACTORY

MANILDRA GROUP NOWRA

LANDSCAPE PLAN

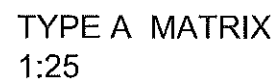
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DATE: April 2012

DWG: L01

Rev: A

DRAWN: Peter Phillips



TREES	Name	Common Name
CC	Callistemon salignus	Callistemon Pink Tips
ER	Elaeocarpus reticulatus	Blueberry Ash
HF	Hymenosporum flavum	Native frangipani
LP	Leptospermum petersonii	Lemon Scented Tea Tree
LC	Lophostemon confertus	Brushbox
WF	Waterhousia floribunda	Weeping Lilly Pilly

SHRUBS

ASM	<i>Acmena smithii</i> Minor	Dwarf Lilly Pilly
BE	<i>Banksia ericifolia</i>	Coastal Banksia
CC	<i>Callistemon citrinus</i> Endeavour	Endeavour Bottlebrush
CG	<i>Ceratopetalum gummiferum</i>	NSW Christmas Bush
MH	<i>Melaleuca hypericifolia</i>	Red Flowering Paperbark
MT	<i>Metrosideros Thomasii</i>	NZ Christmas Bush
SA	<i>Syzygium australe</i>	Brush Box

GRASSES + GROUNDCOVERS

DR	Dianella Breeze	Flax Lily
LL	Lomandra longifolia	Matt Rush
LT	Lomandra Tanika	Dwarf Mat Rush
MS	Microlena stipoides	Weeping Grass
PE	Poa Eskdale	BlueTussock Grass

SPECIFICATION NOTES

SERVICES

Before landscape work is commenced, the Landscape Contractor is to establish the position of all service lines and ensure tree planting is carried out at least 3 metres away from these services. Service lids, vents and hydrants shall be left exposed and not covered by any landscape finishes (turfing, paving, garden beds etc.) Finish adjoining surfaces flush with pit lids.

PLANTING MIXTURE

Shall be Native Plant Mix as supplied by Soilco Ph 02 44229944

MULCH

APPLICATION: Place mulch to the required depth, (refer to drawings clear of plant stems, and rake to an even surface finishing 25mm below adjoining levels. Ensure mulch is watered in and tamped down during installation.

MULCH TYPE:

- Brush chippings and leaf litter: approved vegetative material (which may include leaf matter and tree loppings from Eucalyptus, *Tristania*, *Pinus* or other suitable species, but not privet, camphor laurel, coral tree, poplar, willow, or noxious weeds), processed through a chipper to pieces not larger than 75x50x15mm.

PLANT MATERIAL

All plants supplied are to conform with those species listed in the Plant Schedule on the drawings. Generally plants shall be vigorous, well established, hardened off, of good form consistent with species or variety, not soft or forced, free from disease or insect pests with large healthy root systems and no evidence of having been restricted or damaged. Trees shall have a leading shoot. Immediately reject dried out, damaged or unhealthy plant material before planting. All stock is to be container grown for a minimum of six (6) months prior to delivery to site.

FERTILISER

MASS PLANTING AREAS: Fertiliser shall be 'Nutricote' or approved equivalent in granule form intended for slow release of plant nutrients over a period of approximately nine months. Thoroughly mix fertiliser with planting mixture at the recommended rate, prior to installing plants.

TURF: Shall be Shirleys No. 17 or approved equal thoroughly mixed into the topsoil prior to placing turf.

TURF: Shall be Shirleys No. 17 or approved equal thoroughly mixed into the topsoil prior to placing turf.
TREES IN GRASS AND SUPER ADVANCED TREES: Pellets shall be in the form intended to uniformly release plant food elements for a period of approximately nine months equal to Shirleys Kokei pellets, analysis 6.3:1-8.2.9. Kokei pellets shall be placed at the time of planting to the base of the plant, 50mm minimum from the root ball at a rate of two pellets per 300mm of top growth to a maximum of 8 pellets per tree.

STAKING AND TYING

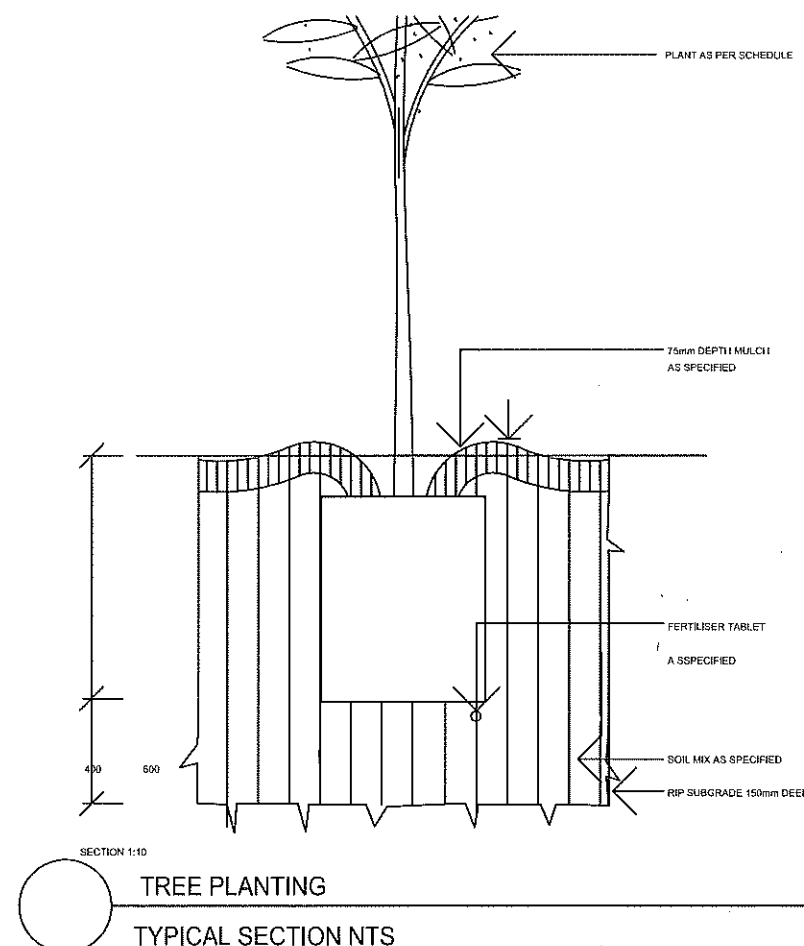
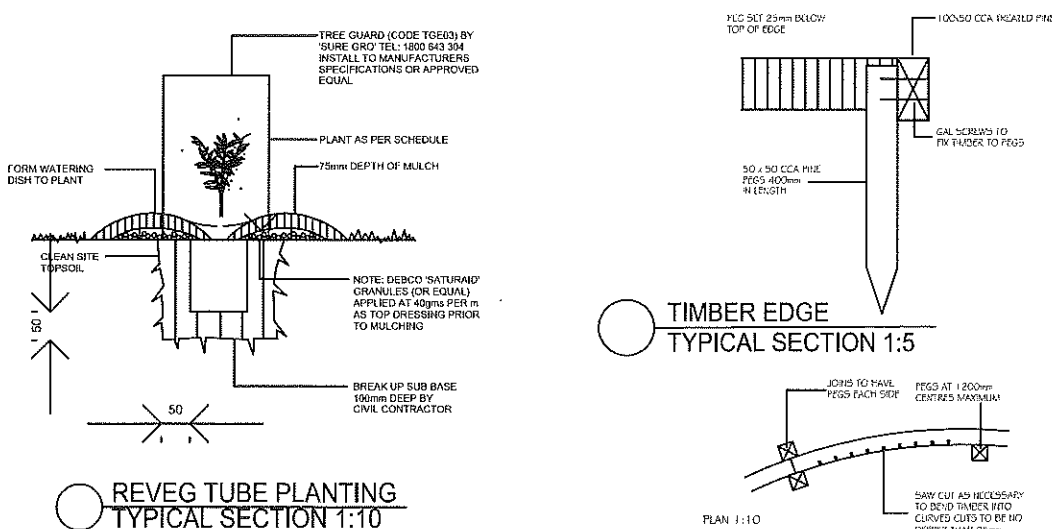
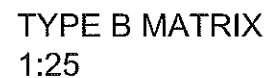
Stakes shall be straight hardwood, free from knots and twists, pointed at one end and sized according to size of plants to be staked.

- | | | |
|----|------------------------|------------------|
| a. | 5-15 litre size plant | 1x(1200x25x25mm) |
| b. | 35-75 litre size plant | 2x(1500x38x38mm) |

Ties shall be 50mm wide hessian webbing or approved equivalent nailed or stapled to stake. Drive stakes a minimum one third of their length, avoiding damage to the root system, on the windward side of the plant.

CULTIVATION

Supply and install Gypsum at a rate of 0.25 Kgs per sq metre



MAINTENANCE NOTES

Landscape contractor must carry out maintenance for a minimum period of 26 weeks from the date of practical completion of revegetation works to ensure the full establishment of plant material. Maintenance is to include but not be limited to watering, weeding, rubbish removal, staking and tying, fertilising, pest and disease control, replacement of dead plant material and turf, renovation, pruning, cultivation and reinstatement of mulch.

DURATION AND ATTENDANCE

Landscape contractor is to attend the site weekly for the duration of the stated maintenance or plant establishment period and maintain the site to the satisfaction of Council.

WATERING

Water grasses, trees, shrubs, groundcovers to ensure their establishment and continued healthy,
Water at 2 day intervals in the first 3 weeks and then weekly for the next 12 weeks

RUBBISH

Remove rubbish from site at each weekly maintenance visit to ensure neat presentation of site at all times.

PLANT MATERIAL

Replace all dead, damaged or missing plant material at contractor's cost. Replacement plants are to be identical to those originally installed unless otherwise approved by Landscape Architect. Replacements shall be made within 2 weeks of the plant failing or being removed.

STAKING

Replace or adjust stakes and ties as required or directed by Landscape Architect. Remove stakes and ties at end of maintenance period or as directed by Landscape Architect.

PRUNING

Remove dead, diseased or damaged plant material to improve the health, vigour and foliage density of the plant material. Remove and dispose of prunings away from site according to relevant authorities regulations.

MULCH

Reinstate mulch to maintain 75mm depth. Ensure mulch does not contact plant stems.

PEST AND DISEASES

Report detection of pests and diseases to Landscape Architect as soon as they are noticed. Spray according to manufacturer's recommendations to control infestations of pests and diseases.

<div style="text-align: center;"> <h1>PPLA</h1> <p>Peter Phillips Landscape Architecture</p> </div>	4 BINDON CLOSE BOMADERRY 2541 FAX : 0244221310 MOB : 0410040507		
	PROJECT : PROPOSED MODIFICATIONS TO FERMENTERS MANILDRA FACTORY For : MANILDRA GROUP NOWRA		
	DETAILS, MATRIX, SPECIFICATION & MAINTENANCE NOTES		
	SCALE : 1:200	DWG. LO2	Rev : A
	DATE : aPRIL 2012 DRAWN : Peter Phillips		