Section 75W Application to Modify Development Consent DA-318-12-2004-i

Allied Mills Pty Ltd

20 September 2016

330 Picton Road
Lot 1 DP 1128013

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1. Introduction

1.1 Allied Mills operates a flour and maize mill near Maldon in the Wollondilly Local Government Area with an operation capacity of 300,000 tonnes per annum.

1.2 The mill was approved by way of a development consent (DA-318-12-2004-i) (the **Consent**). granted on 9 August 2005 by the Minister under Part 4 of the *Environmental Planning and Assessment Act 1979* (**EPA Act**).

1.3 This modification application relates to the waste water and sewage treatment facility on the site and the use of effluent for irrigation.

1.4 This application proposes the modification of the conditions of the Consent to provide for appropriate ongoing maintenance and assessment of the aerated wastewater treatment system (**AWTS**) to ensure acceptable environmental outcomes into the future.

2. Statutory Context

2.1 The Consent was granted by the Minister pursuant to *State Environmental Planning Policy No.34 - Major Employment-Generating Industrial Development.*

2.2 For the purposes of modification, the Consent is taken to be an approval under Part 3A of the EPA Act. (see clause 8J(8)(b) of the *Environmental Planning and Assessment Regulation 2000*). Section 75W of the EPA Act therefore applies to the application.

3. Background to Proponents

3.1 Allied Mills is one of Australia's largest manufacturers and distributors of bakery premixes, flour and semi-finished products. Allied Mills' heritage encompasses more than 100 years of flour milling and food ingredient experience.

3.2 Allied Mills has a wide range of customers incorporating major independent and multinational food manufacturers, supermarket retailers and foodservice operators.

3.3 Allied Mills has a diverse flour milling operation in all mainland states of Australia and operates a total of seven state-of-the-art milling facilities (including the Picton Mill).

3.4 Every year Allied Mills procure from Australian growers approximately 800,000 tonnes of wheat and specialty grains including maize, rye, triticale, organic, hard, soft and noodle wheats.

4. The Site

4.1 The Site comprises the portion of Lot 1 DP 1128013 located to the north of the Great Southern Railway Line and known as 330 Picton Road, Maldon. Figure 1 is aerial photograph of the site and surrounds.

4.2 The Site is located within the Wollondilly Local Government area, approximately 80 km south-west of the Sydney CBD.

4.3 The Site is bounded by the railway line to the south, Picton Road to the north and agricultural land containing residential properties to the east and west.

Figure 1: Aerial photograph of Site and surrounds. The approved milling operation is undertaken on the portion of Lot 1 DP 1128013 to the north of the railway line. Source: NSW Government Sixmaps website.

4.4 Surrounding land uses in the vicinity comprise:

(a) Some residential development to the north on Picton Road, west of the junction with Menangle Road.

(b) To the south of the railway line, the remaining portion of Lot 1 DP 1128013 is undeveloped, and comprises a mixture of pasture and woodland.

(c) Land immediately adjacent to the site to the west is undeveloped. The Blue Circle Southern Maldon Cement works is located approximately 500 m to the west of the Site.

(d) There is a dwelling on each lot immediately to the east of the Site (Lots 30 and 31 in DP 826690) with the remaining areas of those lots used for grazing land. An application was lodged to change the use of that land and on 28 April 2015,

development consent was granted by the Land & Environment Court to the applicants, Mr & Mrs Barca, for construction of a resource recovery and waste management facility on those lots.

5. The existing development

5.1 The existing development on the Site comprises:

(a) A modern milling facility including silos, bulk storage, grain handling, rail handling, loading and unloading facilities, office administration building and ancillary on-site facilities.

(b) An 800 metre double rail siding with shunting and turn back facilities.

5.2 Since the granting of the Consent on 9 August 2005, the following approvals have been granted to modify the Consent:

(a) On 11 June 2007, the development consent was modified (Mod 51-6-2007) to approve some minor modifications to the location and design of the amenities building.

(b) On 11 February 2008, the development consent was modified (DA-318-12-Mod 2) to approve a revised layout of the proposed rail siding.

6. Existing sewage treatment system

6.1 The EIS lodged with the application for the Consent (which is incorporated into condition 1.1(b) of the Consent) suggested the use of a primary settling tank and subsurface flow reed bed system for treatment of sewage, mainly due to power saving advantages.

6.2 Subsequent analysis of settling tank and reed bed treatment system determined that there are several disadvantages to the reed bed system. On advice from its consultants, Allied Mills lodged an application pursuant to section 68 of the *Local Government Act 1993* (**LG Act**) for an Econocycle AWTS which would overcome the following disadvantages of the reed bed system:

(a) Lack of flexibility with the settling tank and reed bed system as it is hydraulically restricted to the designed volume of 3000 litres per day;

(b) The reed bed system would attract insects, birds, amphibians and reptiles which presents a problem for milling operations.

(c) Concerns that an intensive rainfall event could create an overflow from the reed bed.

6.3 The Econocycle AWTS was approved by Wollondilly Shire Council on 29 September 2007 (**Appendix 2**) and subsequently constructed.

6.4 Details of the AWTS and its location are contained within the Appendices:

(a) The approved plan relating to the Econocycle AWTS is contained in **Appendix 2**.

(b) A photograph of the Econocycle AWTS is at Attachment B, Figure1 of **Appendix 1**.

(c) An aerial photograph marking the existing irrigation area for treated water is contained at Attachment 1, Figure A of **Appendix 1**.

7. Background to the proposed modifications

7.1 In response to concerns raised by the Department with respect to non-compliance with conditions, Allied Mills engaged Dr Robert Patterson to undertake monitoring and a peer review of the Econocycle AWTS and the conditions of the Consent.

7.2 Dr Patterson is a soil scientist and environmental engineer with significant experience in sewage wastewater treatment and disposal.

7.3 A copy of Dr Patterson's report containing a CV with his relevant qualifications is at **Appendix 1**. In summary, Dr Patterson advises that:

(a) the existing aerated tank system is working well and has an acceptable environmental impact;

(b) the targets and requirements in the approved EIS and the Soil and Water Management Sub-Plan are not suitable for the system that has been installed and do not ensure an acceptable environmental impact and conservation of water.

7.4 The proposal seeks approval for the modification of conditions of the Consent to ensure that they are suited to the AWTS and allow for the ongoing assessment and maintenance of appropriate environmental outcomes. Further conditions relating to monitoring and management are also proposed by the applicant which are appropriate to the system that has been installed in accordance with the section 68 approval from Wollondilly Shire Council. This will ensure acceptable soil loads are maintained in the future on the site dispersal field.

8. Relevant existing conditions of the Consent

8.1 Condition 1.1 of the development consent (as modified) provides:

> ***1. GENERAL***
>
> ***Scope of Development***
>
> *1.1 The Applicant shall carry out the development generally in accordance with:*
>
> *…*
>
> *b) the Environmental Impact Statement, EIS for Grain Milling Facility, Picton Road, Maldon, prepared by Kellogg Brown and Root Pty Ltd, dated 22 December 2004*;
>
> …

g) Mod 51-6-2007, prepared by KBR, dated 30 May 2007;

8.2 Section 7.6 of the Environmental Impact Statement referred to in condition 1.1(b) (**EIS**) proposes a primary settling tank and subsurface flow reed bed system, followed by land application of the effluent.

8.3 Section 7.6.5 of the EIS provides:

Effluent Quality

Effluent Quality that meets the 90th percentile targets is described in Table 7.16. The system would comply with the NSW EPA's re-use guidelines and the National Water Quality Management Strategy (NWQMS) Guidelines for Sewerage System Use of Reclaimed Water.

Table 7.16 90 Percentile Targets for Effluent Quality

Serial Number	*Effluent*	*Units of Measure*	*NSW EPA Loading*	*NWQMS Loading*
1	*pH*			*6.5 - 8.5*
2	*BOD*	*mg/L*	*<40*	*Secondary with pathogen removal.*
3	*Total Nitrogen*	*mg/L*	*<50*	
4	*Total Phosphorus*	*mg/L*	*<10*	
5	*TDS*	*mg/L*	*<500*	
6	*Thermotolerant Coliforms*	*Per 100ml*	*Geometric Mean <750 per 100ml, Upper Limit <5000 per 100 ml*	

8.4 Section 7.6.6 provides that it is recommended that an irrigation area of over 1 ha would be adequate to prevent nutrient imbalance and water release from the site.

8.5 Condition 5.3 of the Consent provides that the Applicant shall prepare and implement an Operation Environmental Management Plan (**OEMP**) to detail an environmental management framework, practices and procedures to be followed during operation of the development.

8.6 Condition 5.4 provides:

5.4 As part of the Operation Environmental Management Plan for the development, required under condition 5.3 of this consent, the Applicant shall prepare and implement the following Management Plans:

…

*(b) a **Water Monitoring and Management Plan** to outline measures that will be employed to manage water on the site, to minimise soil erosion and the discharge of sediments and other*

pollutants to lands and/or waters throughout the life of the development …

8.7 Condition 5.5 provides that the OEMP is to be reviewed every three years.

8.8 On 24 February 2009, the Department approved the OEMP for the development which incorporated a Soil and Water Management Sub-Plan (**WMP**).

8.9 In accordance with condition 5.5 of the Consent, the OEMP and WMP was reviewed in July 2015.

8.10 Paragraph 4.2 of the WMP repeats the 90th percentile targets within section 7.6.5 of the EIS.

8.11 Paragraph 5.1 of the WMP provides that the AWTS "*differs from the system described in the EIS which described the reed bed systems however the target effluent quality of the system is the same*".

9. Relevant non-compliances

9.1 In August 2015, the Department sought an effluent management assessment to determine whether the facility was meeting its obligations against the DEC Environmental Guidelines - Use of Effluent by Irrigation, 2004 (**DEC Guidelines**).

9.2 On 25 November 2015, an assessment was prepared by GHD in response to that request (**AEMR**). The AEMR concluded that the AWTS is highly effective at removing carbonaceous material (resulting in low BOD). However, nitrogen and phosphorus in the effluent were significantly higher than the levels nominated in the EIS. The pH results also indicated that the effluent is slightly acidic.

9.3 Relevant corrective actions were incorporated within the AEMR. One of those actions was to revise the effluent management performance criteria to meet low strength effluent criteria set by DEC criteria.

9.4 On 9 June 2016, the Department sent a letter to Allied Mills providing Allied Mills with the opportunity to show cause as to why the Department should not take formal action in relation to alleged non-compliances identified in the AEMR.

9.5 On 16 June 2016, the Department issued Allied Mills with a Notice of Intention to issue an order pursuant to section 121B of the *Environmental Planning and Assessment Act 1979*. The proposed order requires, in summary, an upgrade to water management and monitoring measures, to minimise the discharge of sediments and other pollutants to land and/or waters.

9.6 In response to those letters, Allied Mills engaged Dr Patterson to undertake a peer review of the EIS requirements, the OEMP, the installed dispersal system and the recommendations within the AEMR.

9.7 Allied Mills considers that it is appropriate for the recommendations made by Dr Patterson in that peer review to be incorporated into the conditions of the Consent.

9.8 Dr Patterson has prepared the report at **Appendix 1** which is lodged in support of this section 75W application.

10. **Dr Patterson's report**

10.1 Dr Patterson concludes that the existing system is resulting in acceptable environmental outcomes despite any non-compliances with the effluent quality parameters in section 7.6.5 of the EIS. Soil samples within the irrigation area show no sign of overloading. Dr Patterson's measurements of annual load of nitrogen and phosphorus, for example, determined that it was equivalent of one horse. Dr Patterson also concluded that disinfection was successful with the bacteriological indicators meeting drinking water quality. Soil pH is considered to be ideal.

10.2 The effluent quality parameters in the EIS are not in Dr Patterson's view an appropriate means to ensure acceptable environmental outcomes, primarily because the table headings are ‘load’ when the units of measure are ‘concentration’

10.3 The parameters in the EIS relate to total concentration within water which is not a suitable criterion for determining environmental impact. The appropriate criterion is the total load of nutrients being applied to the land application area.

10.4 Action could be taken, for example, to ensure that the AWTS complies with the requirements of the EIS by adding 1000 L of clean water to the daily flow of the STP (increasing the flow from 2000 L / day to 3000 L / day). However, this would result in exactly the same outcome because there would be more water but exactly the same load A significant amount of water would be wasted with no beneficial environmental outcome.

10.5 Despite Dr Patterson's conclusion that the present output is acceptable, Dr Patterson recommends measures for future monitoring and maintenance to ensure that appropriate environmental outcomes are maintained.

10.6 Those measures are summarised in the proposed conditions below.

11. Relevant Environmental Considerations

11.1 The modification of an approval pursuant to section 75W of the EPA Act is "*something intended to have limited consequences beyond those which had been the subject of assessment*"[1].

11.2 The proposed modification clearly meets that threshold as it will result in effective management and maintenance leading to acceptable environmental outcomes.

Consideration	**Impact**	**Comments within Dr Patterson's Report**

[1] *Barrick Australia Ltd v Williams* (2009) 168 LGERA 43.

Soil quality	Positive	• The soil samples in the land application area presently show no sign of loading. • Proposed condition 4 ensures that the relevant soil parameters are measured regularly and compared from year to year with recommendations of a suitably qualified soil scientist implemented to ensure that the application of irrigation water results in positive outcomes for the soil.
Quality of irrigated water	Positive	• Dr Patterson's conclusion is that the quality of the effluent was within acceptable levels for inputs from a workplace. • The proposed conditions provide for regular servicing and monitoring of the aerated system (see condition 1) to ensure that it operates satisfactorily into the future.
Conservation of Water	Positive	• The existing conditions of consent discourage water conservation practices because they seek to regulate 'concentration' rather than 'load'. This encourages additional water to dilute the effluent with no corresponding environmental benefit. • The proposed conditions ensure appropriate environmental outcomes while also allowing for Allied Mills' water conservation practices.
Quality of Groundwater	Neutral	• Dr Patterson advises that the groundwater is at a depth of approximately 50 metres. In Dr Patterson's opinion there could be no adverse impact associated with irrigation because there is adequate treatment through the clay soil over depth. This will remain unchanged in the amended proposal. Appropriate soil testing has been provided for in the draft conditions of consent.

12. Proposed amended conditions

12.1 In accordance with the recommendations of Dr Patterson, it is proposed that the following additional conditions are imposed on the Consent:

1. *The aerated sewage treatment plant is to be serviced on a quarterly basis. Before commencing each service, measurements are to be taken to demonstrate that the following target requirements have been met:*

    1. *Faecal coliforms, or E.coli (Thermotolerant coliforms) meets the requirement of < 10 colony forming units per 100 mL in the irrigation chamber.*

    2. *Dissolved oxygen in the irrigation chamber is more than 5 mg O2/L at 20 degrees Celsius.*

    3. *Free available chlorine in the irrigation chamber is 0.5 to 2.0 mg/L.*

    The service report, together with records of those measurements are to be submitted to the Department on a quarterly basis

2. *Twice annually (once in summer and once in winter), 2 x 1L samples from the irrigation chamber are to be taken and measured for the following parameters:*

    1. *Ammonia-N*

    2. *Nitrate-N*

    3. *Total N (nitrate-N plus Total Kjeldahl Nitrogen)*

    4. *pH*

    5. *Electrical conductivity*

    6. *Orthophosphate-P*

    7. *Total Phosphorus*

    8. *Major cations (sodium, calcium, potassium, magnesium)*

    9. *Calculation of sodium absorption ratio.*

3. *On an annual basis, the following measurements are to be taken within each of the six environmental management areas (within 1 metre in diameter) identified in Attachment A of the report prepared by Lanfax Laboratories dated 31 July 2016:*

    (i) soil pH (1:5 in water) and (1:5 in 0.01M CaCl2)

    (ii) Electrical conductivity (1:5 soil:water)

    (iii) Major cations (sodium, calcium, potassium, magnesium)

    (iv) Exchangeable acidity (measure of hydrogen and aluminium ions in soil solution)

    (v) calculation of exchangeable sodium percentage (using iii above)

(vi) calculation of cation exchange capacity (CEC) (using iii and iv above)

(v) Organic carbon Walkely & Black method

(vi) extractable phosphorus

(vii) extractable sulphur

(viii) Nitrate-N (Mineral N)

(ix) Chloride

(x) Emerson Aggregate Stability Test

Samples are to be taken from the surface (A horizon 0 - 100 mm) and the top 100 mm of the B horizon (clay horizon) 350 - 450 mm.

4. A report is to be prepared by a suitably qualified soil scientist that is a member of Soil Science Australia on an annual basis and submitted to the Department which:

(a) provides details of the measurements referred to in conditions 2 and 3 above on a progressive spreadsheet where the changes from one year to the next can be evaluated; and

(b) compare those measurements with previous years and provide recommendations for the land application area of the irrigation to ensure acceptable environmental outcomes.

The land application area as recommended by the annual report is to be implemented.

5. A diversion bank of no higher than 200 mm is to be maintained between the road above the irrigation and the irrigation area to divert runoff away from the irrigation area. The diversion bank is to ensure that runoff is diverted into the tree row.

6. Any depressions capable of ponding water (such as natural depressions or wheel tracks) in the irrigation area are to be levelled with top soil from outside the irrigation area as soon as practicable.

13. Conditions to be amended

13.1 To ensure consistency amongst the other conditions of the Consent, the applicant proposes that the following documents be incorporated into condition 1.1 of the Consent:

(a) the plans and conditions relating to the approval of Wollondilly Shire Council under section 68 of the LG Act dated 11 September 2007; and

(b) the recommendations within section 11 of Dr Patterson's report.

13.2 A corresponding amendment should also be made to condition 1.2(b) of the conditions to ensure that this application prevails over the EIS to the extent of any inconsistency.

13.3 The applicant then proposes a further sentence to be included within condition 1.2(b) to the following effect: "*For the avoidance of doubt, the sewage and wastewater monitoring and management measures (including the effluent quality parameters) within section 7.6 of the Environmental Impact Statement, EIS for Grain Milling Facility, Picton Road, Maldon, prepared by Kellogg Brown and Root Pty Ltd, dated 22 December 2004 are superseded.*"

14. Conclusion

14.1 The existing Econocycle AWTS is in good condition, effectively maintained and operates in an environmentally sound manner.

14.2 In Dr Patterson's opinion, the limits set in the EIS incorrectly label Table 7.6 with "load" when the units of measure are concentration. The load based upon the current figures (see Table 1 of Appendix 1) meet the EIS limits for load rather than concentration. Thus, the Picton Mill is being disadvantaged because if its water conservation practices that limit water at the expense of concentration.

14.3 The requirements moving forward as recommended by Dr Patterson are expressed in detail in section 12 and are summarised as follows:

(a) Quarterly maintenance to ensure an effective dissolved oxygen rate, a suitable target for disinfection and a measurable free chlorine in the irrigation chamber;

(b) Half yearly monitoring of effluent quality as inputs to monitoring the loading to the land application area;

(c) Development of a small diversion bank between the road above the irrigation and the irrigation area to divert runoff away from the irrigation area;

(d) Depressions in the irrigation area be levelled with topsoil from some area away from the irrigation area.

14.4 Approval of the recommended measures will ensure that the conditions of the development consent are suited to the Econocycle AWTS. It will also result in further benefits as it makes for provision for detailed monitoring and management conditions which will ensure that the acceptable environmental impacts of the mill are maintained into the future.