MAJOR PROJECT ASSESSMENT: Shoalhaven Starches Flour Mill, Bomaderry

Director-General's
Environmental Assessment Report
Section 75I of the
Environmental Planning and Assessment Act 1979

September 2007

Published September 2007
NSW Department of Planning
www.planning.nsw.gov.au

EXECUTIVE SUMMARY

The Manildra Group owns and operates flour mills at Manildra, Gunnedah and Narrandera. Shoalhaven Starches is a member of the Manildra Group and operates the Shoalhaven Starches factory near Nowra. The factory was constructed in 1970 and currently produces starch, gluten, glucose and ethanol. The factory is located 0.5km east of Bomaderry and 2km north east of Nowra in, the Shoalhaven Local Government Area.

The project involves construction and operation of a new flour mill and two grain silos. The flour mill would produce 265,000 tonnes of industrial grade flour a year for use within the Shoalhaven Starches factory. The flour mill would be housed in a new building on the southern boundary of the factory, constructed of concrete panels and 25 metres high. The two grain silos would be located adjacent to an existing silo, would be approximately 23 metres high and would have capacity to store 3600 tonnes of wheat grain. The project has a capital investment value of $12 million and would create eight jobs during operation.

The Department received three submissions on the project during exhibition, from the Department of Environment and Climate Change, the Department of Water and Energy and Shoalhaven City Council. The submissions raised issues about odour management across the whole site, wastewater management, traffic and access and river bank stability.

The proposed mitigation measures, implementation of the preliminary recommendations of the odour audit and the conditions of approval would address the issues raised in submissions, and assist Shoalhaven Starches to improve environmental performance to a level consistent with legislative obligations.

Shoalhaven Starches is a large employer in the region, with a workforce of 225 employees. Continued investment in the factory will have benefits for the local area through the generation of additional jobs; 20 during construction and up to 8 during operation.

The Department believes that the project would result in minimal environmental impacts and has been adequately justified on economic, social and environmental grounds.

Consequently, the Department believes the project is in the public interest, and should be approved subject to conditions.

1. BACKGROUND

1.1 Project Setting

The Manildra Group owns and operates flour mills at Manildra, Gunnedah and Narrandera. Shoalhaven Starches is a member of the Manildra Group and operates the Shoalhaven Starches factory near Nowra, constructed in 1970, and currently producing starch, gluten, glucose and ethanol.

The Shoalhaven Starches factory is located 0.5km east of Bomaderry and 2km north east of Nowra on the northern bank of the Shoalhaven River, in the Shoalhaven local government area (see Figure 1). The village of Terara is located on the southern bank of the Shoalhaven River, separated from the site by Pig Island, which is used for dairy cattle grazing.

The factory covers an area of 12.5 hectares and is bounded to the north by Bolong Road and to the south by the Shoalhaven River. The site is surrounded by a mix of agricultural and industrial properties with the township of Bomaderry located to the west and the nearest residence located 200 metres to the north-west. A strip of other industrial properties occupy the land between Bolong Road and the Shoalhaven River. In addition to the factory, Shoalhaven Starches owns over 1000 hectares of land to the north of the site that is utilised for irrigation of treated wastewater from the factory, see Figure 1. The irrigation area, known as the Environmental Farm comprises cleared grazing land, spray irrigation lines and 6 wet weather storage ponds with a total capacity of 925 megalitres.

1.2 Existing Operations

The Bomaderry factory produces starch, gluten, glucose and ethanol from industrial grade milled flour and mill feed (husk material from processed grain) which is transported to the site via train from the Manildra Group flour mills at Manildra, Gunnedah and Narrandera. The factory comprises of:

- a grain plant;
- a starch plant;
- an ethanol plant; and
- a wastewater treatment and disposal system comprising a stillage recovery plant (comprising decanters, evaporators and dried distillers grain dryers), and effluent irrigation.

The production process at the factory has three primary inputs, derived from wheat and sorghum. These include grain, flour and mill feed (husk material). Currently, all of these materials are transported to the site from other Manildra Group operated mills in NSW.

The production process has many interdependencies, with waste products from each part of the process reused to produce other saleable products. An overview of the production process is provided in Figure 2 and a brief description is outlined below.

- Flour is mixed with water to separate it into the components of starch and gluten;
- Gluten is dried, packaged and sold as a food additive product to local and export markets;
- Starch is produced in dried and liquid forms, which is sold to paper and food industries;
- Starch is also used in the production of syrups, including glucose and brewer's syrup. These are used in foods, confectionary and drinks including beer;
- The lower grade starch and syrups that can not be sold are reused in the process to produce ethanol (fuel and industrial grades). Crushed grain is also fed into this process. Products for pharmaceuticals, printer's ink and methylated spirits are also produced;
- Ethanol production also creates lower grade product which is further processed in the Stillage Recovery plant to produce stock feed; and
- The effluent from ethanol production is irrigated onto the environmental farm area to the north of the factory.

Figure 1: Shoalhaven Starches Factory and Environmental Farm

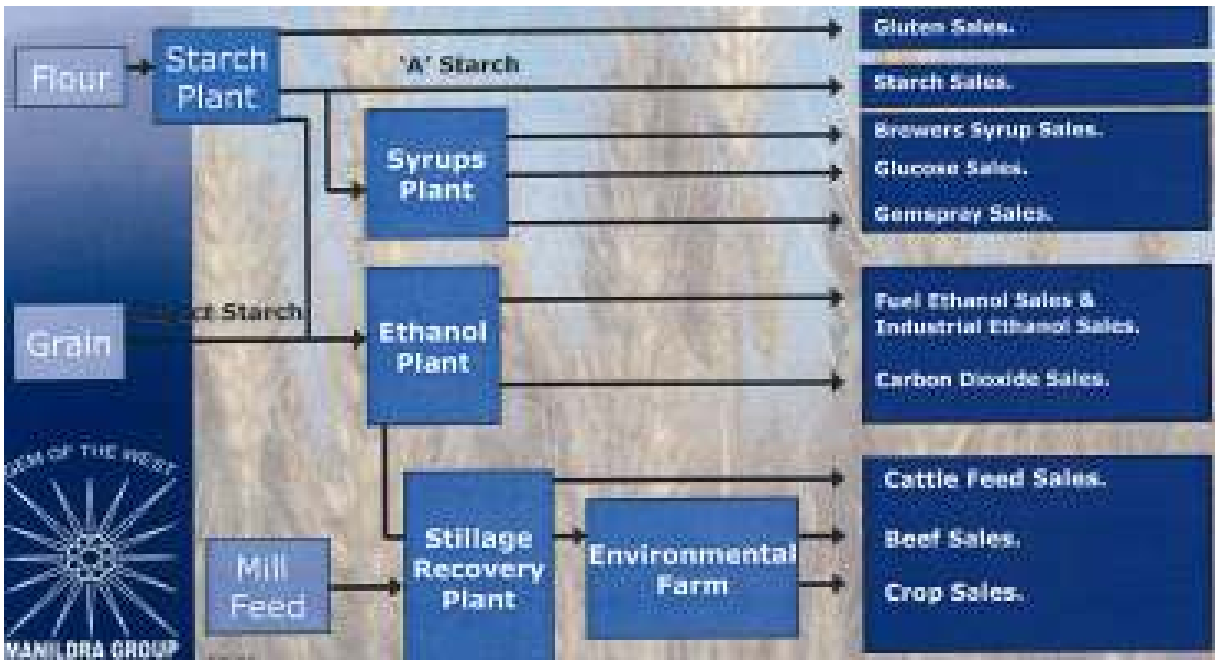

Figure 2: Shoalhaven Starches Production Process

1.3 Development History

Development at the factory has evolved from wheat starch and gluten production in the 1970's to ethanol production and wastewater treatment in the mid 1980's. The factory has been the subject of various development applications in the past, including:

- 1991: construction of storage ponds and cessation of effluent discharge into the Shoalhaven River;
- 1992: approved production of ethanol up to 20 million litres/yr, from excess starch;
- 1994: approval of a larger ethanol distillery (up to 90 million litres/yr) and installation of a spray irrigation system for wastewater disposal to farmland to the north of the factory; and
- 2003: approved the Pollution Reduction Program (PRP) No. 7 including extension of the area receiving irrigated wastewater, and removal of the solids from effluent (known as stillage recovery), with the primary purpose of reducing odour emissions. This involved installation of additional dryers and an evaporation plant. The approval also enabled ethanol production to increase from 90 million litres/yr to 126 million litres/yr. All works associated with this approval have not been completed to date.

On 6 September 2006, Shoalhaven Starches were convicted in the Land and Environment Court for causing offensive odours. The Court ordered a comprehensive audit of all odour sources at the premises to identify options to prevent or treat odours. The Court ordered a report on what action will be taken in response to the audit, which is due to the Court by 2 November 2007.

2. PROPOSED DEVELOPMENT

2.1 Project Description

The project involves the construction and operation of a new flour mill and grain silos within the Bomaderry factory. The major components of the project are summarised in Table 1 and illustrated in Figures 3, 4 and 5. The Environmental Assessment (EA) for the project was lodged with the Department in June 2007 (see Appendix C).

Table 1: Major Components of the Proposed Facility

Component	Description
Flour Mill	Construction of a flour mill within a new building on the existing factory site. The building would cover an area of 240m^2, be 25 metres high and of concrete panel construction. The flour mill would be located on the southern boundary of the site adjacent to the existing flour unloader.
Grain Silos	• Construction of two additional silos with a total capacity of 3600 tonnes and approximately 23 metres high, adjacent to the new building and the existing flour unloading facility. • Relocation of a previously approved silo adjacent to the new silos, to allow adequate space.
Production	265,000 tonnes of industrial grade flour a year for use within the Shoalhaven Starches factory. Total flour processed on site would not exceed the currently approved amount of 10,000 tonnes per week. There would be no change to production levels of gluten, starch, glucose or ethanol.
Transport	A total of 10,000 tonnes per week of flour and mill feed are currently transported to the site in two train deliveries per week. The quantity of deliveries and number of trains would not change as a result of the project. The project would require deliveries of 5000 tonnes per week of wheat and 5000 tonnes per week made up of flour and mill feed.
Capital Value	$12 million.
Jobs	20 during construction; current operational workforce of 225 may increase by up to 8 additional employees.
Length of Construction	Approximately nine months.

2.2 Need for the Project

Currently, flour and husk material (mill feed) is transported to the factory from other mills in NSW. By constructing a flour mill at the Bomaderry factory, Shoalhaven Starches would be able to receive the wheat raw material and produce flour and mill feed on-site for use in the production of starch, gluten, glucose and ethanol.

By relocating part of the industrial grade flour production to the Bomaderry factory, subsequent spare capacity would be created at the Manildra plant, which would be devoted to production of higher grade flour, increasing export opportunities for the Manildra Group.

3. STATUTORY CONTEXT

3.1 Major Project

The project is classified as a major project under Part 3A of the *Environmental Planning and Assessment Act 1979* (EP&A Act) because it is development within the coastal zone that is designated development and therefore triggers the criteria in Schedule 2, Clause 1(e) of *State Environmental Planning Policy (Major Projects) 2005*.

Consequently, the Minister is the approval authority for the project.

3.2 Permissibility

Under Section 75J(3) of the EP&A Act, the Minister cannot approve the carrying out of a project that would be wholly prohibited under an environmental planning instrument.

The site is zoned 4(e) Industrial (Restricted Development) zone under the *Shoalhaven Local Environmental Plan 1985.* Development for the purpose of a rural industry is permissible with development consent in this zone.

Consequently, the Minister may approve the project.

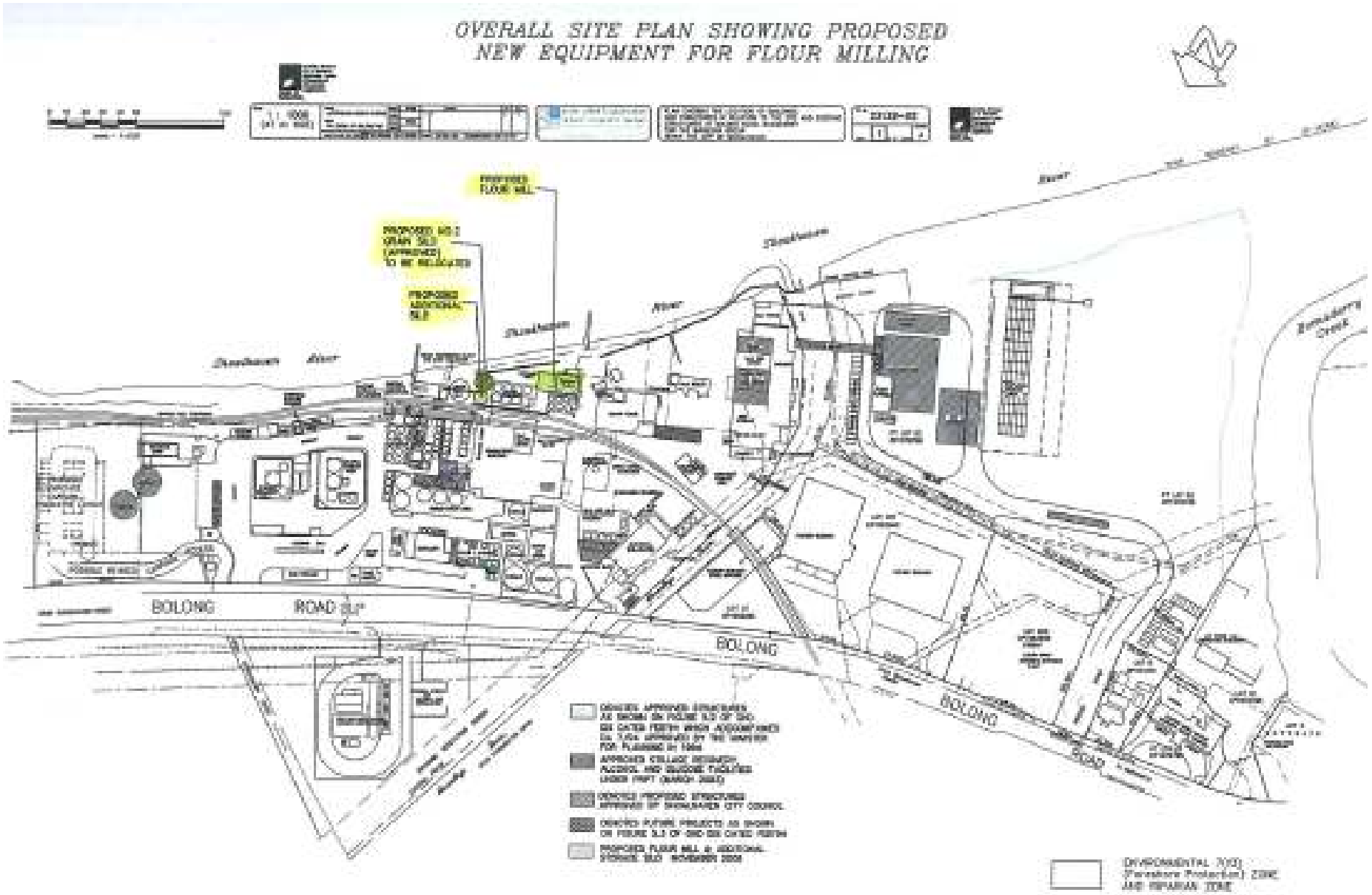

Figure 3: Proposed Flour Mill and Silos – Overall Site Context

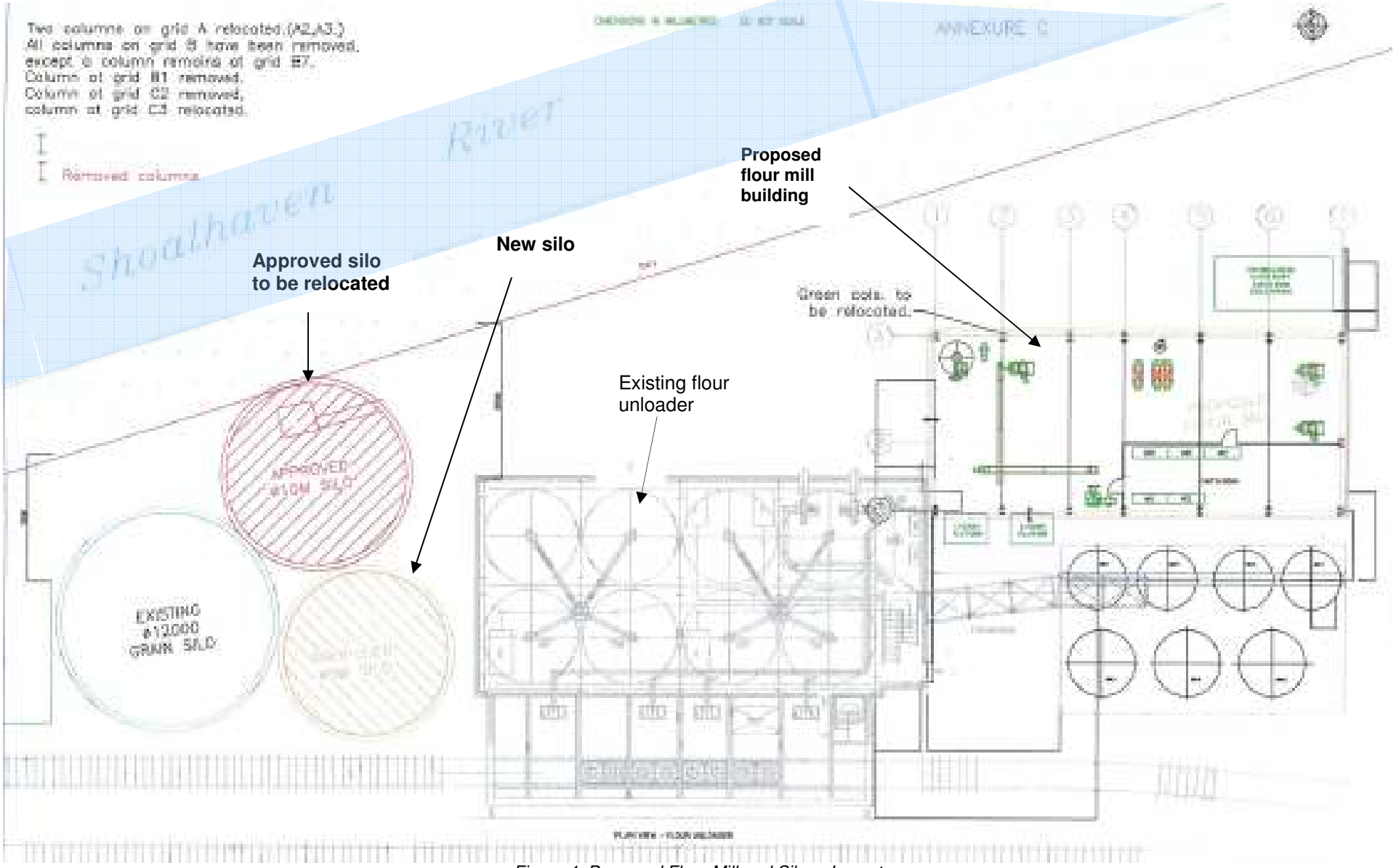

Figure 4: Proposed Flour Mill and Silos - Layout

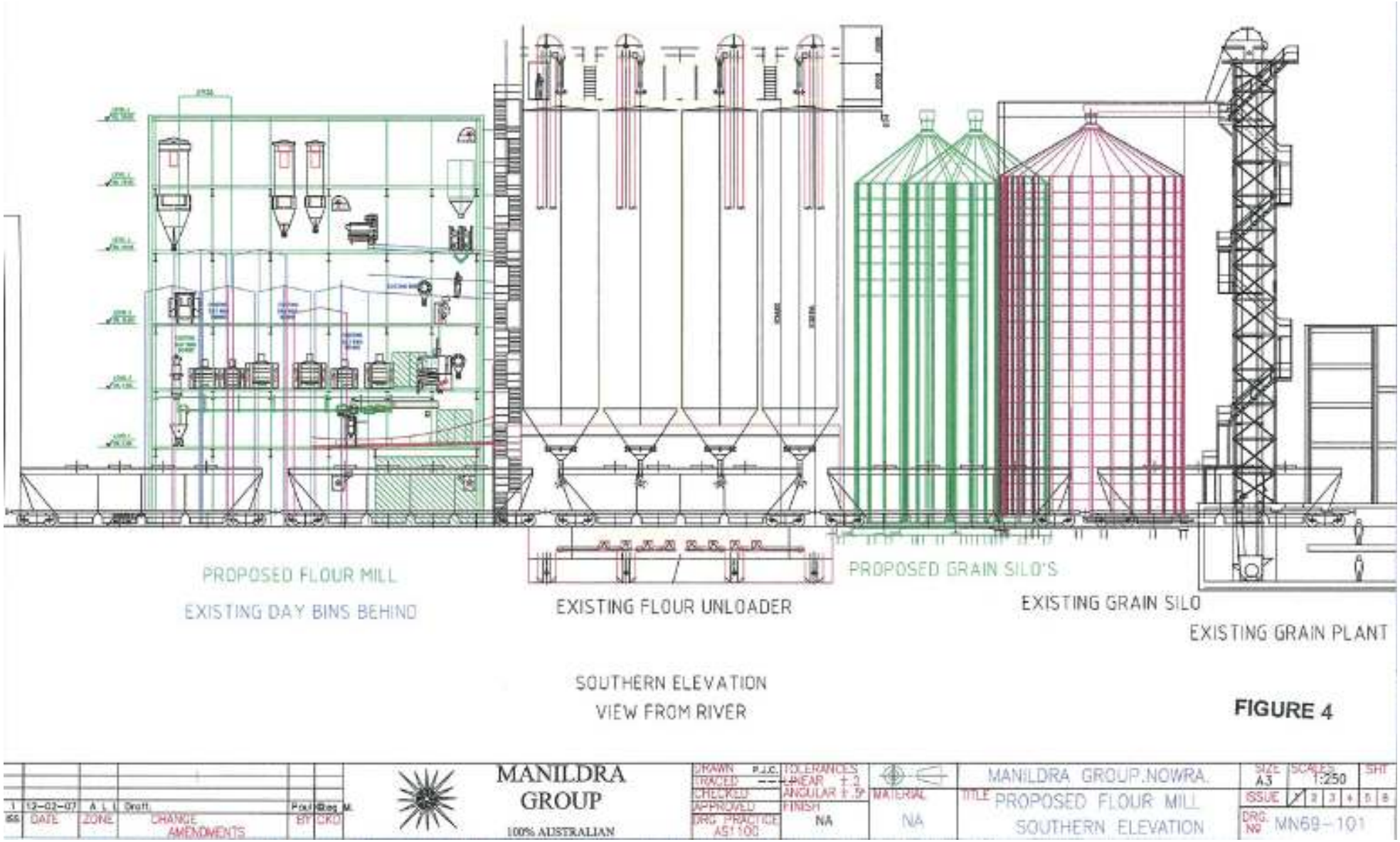

Figure 5: Proposed Flour Mill and Silos and Existing Infrastructure - Elevation

3.3 Public Exhibition

The EA for the project was exhibited from 5 July 2007 until 6 August 2007 which satisfies the requirements for public consultation in Section 75H of the EP&A Act.

3.4 Environmental Planning Instruments

Under Section 75I(2) of the EP&A Act, the Director-General's report on this project is required to include a copy of or reference to the provisions of any *State Environmental Planning Policy* (SEPP) that substantially governs the carrying out of the project.

The Department has assessed the project against the relevant provisions of several SEPPs (including SEPPs 11, 14, 33 and 71), (see Appendix D), and is satisfied that none of the SEPPs substantially govern the carrying out of this project.

- *State Environmental Planning Policy No 11 – Traffic Generating Developments;*
- *State Environmental Planning Policy No 14 – Coastal Wetlands;*
- *State Environmental Planning Policy No 33 – Hazardous and Offensive Development;*
- *State Environmental Planning Policy No 71 – Coastal Protection.*

This assessment concludes that the project is generally consistent with the aims, objectives and requirements of these instruments.

3.5 Objects of the Environmental Planning and Assessment Act, 1979

The Minister is required to consider the objects of the EP&A Act when he makes decisions under the Act. These objects are detailed in Section 5 of the Act, and include:

'The objects of this Act are:

(a) to encourage:

(i) the proper management, development and conservation of natural and artificial resources, including agricultural land, natural areas, forests, minerals, water, cities, towns and villages for the purpose of promoting the social and economic welfare of the community and a better environment,

(ii) the promotion and co-ordination of the orderly and economic use and development of land,

(iii) the protection, provision and co-ordination of communication and utility services,

(iv) the provision of land for public purposes,

(v) the provision and co-ordination of community services and facilities, and

(vi) the protection of the environment, including the protection and conservation of native animals and plants, including threatened species, populations and ecological communities, and their habitats, and

(vii) ecologically sustainable development, and

(viii) the provision and maintenance of affordable housing, and

(b) to promote the sharing of the responsibility for environmental planning between the different levels of government in the State, and

(c) to provide increased opportunity for public involvement and participation in environmental planning and assessment.'

The objects of most relevance to the Minister's decision on whether or not to approve this project are those under Section 5(a)(i), (ii) and (vii).

With respect to ecologically sustainable development (ESD), the EP&A Act adopts the definition in the *Protection of the Environment Administration Act 1991*. Section 6(2) of that Act states that ESD *'requires the effective integration of economic and environmental considerations in decision-making processes'* and that ESD *'can be achieved through'* the implementation of the principles and programs including the precautionary principle, the principle of inter-generational equity, the principle of conservation of biological diversity and ecological integrity, and the principle of improved valuation, pricing and incentive mechanisms. In applying the precautionary principle, public decisions should be guided by careful evaluation to avoid, wherever practicable, serious or irreversible damage to the environment and an assessment of the risk-weighted consequences of various options.

The Department has fully considered the objects of the EP&A Act, including the encouragement of ESD, in its assessment of the project application.

This assessment integrates all significant economic, social and environmental considerations and seeks to avoid any potential serious or irreversible damage to the environment, based on an assessment of risk-weighted consequences.

Shoalhaven Starches has undertaken an environmental risk analysis of the project, and considered the project in the light of the principles of ESD.

3.6 Statement of Compliance

Under Section 75I of the EP&A Act, the Director-General's report is required to include a statement relating to compliance with the environmental assessment requirements for the project.

The Department is satisfied that the environmental assessment requirements have been complied with.

4. ISSUES RAISED IN SUBMISSIONS

During the exhibition period, the Department received three submissions on the project from the Department of Environment and Climate Change (DECC), the Department of Water and Energy (DWE) and Shoalhaven City Council (Council), see Appendix B.

The DECC initially raised concerns about offensive odours from the site and the need to improve overall environmental performance of the site in line with environmental legislation before support could be given to further development on the site. Following provision of additional assessment information incorporating the preliminary findings of the odour audit into the environmental assessment of the flour mill, the DECC advised they were satisfied that the issues they raised had been adequately addressed. The DECC reiterated that commitments to reduce odour from other sources on the site must be fully integrated with the flour mill project.

The DWE requested additional consideration of river bank stabilisation options and were satisfied with the additional information provided in the final EA. The DWE provided recommended conditions of approval in relation to river bank stabilisation.

Council raised concerns about traffic and access, and the need for Shoalhaven Starches to satisfy previous development consents in this regard. Council also raised concerns about flooding, acid sulfate soils and erosion controls. The recommended conditions of approval require improvement of site access, traffic management, flood studies during detailed design and soil management.

No submissions were received from the general public during the exhibition period.

Outside of the public exhibition process, Shoalhaven Starches coordinates a Community Consultative Committee as part of the PRP No.7. The committee includes resident representatives from Bomaderry, Terara and Nowra. The committee convened on 21 March 2007 to discuss the flour mill project. The key issues raised by the committee included:

- water use;
- wastewater disposal;
- odour generation;
- train movements;
- greenhouse gas emissions; and
- energy use and options for recycling heat energy through the plant.

The Department has assessed the issues raised in the submissions and by the Community Consultative Committee in Section 5 of this report.

5. ASSESSMENT

The Department has assessed the project, in accordance with the requirements of Clause 8B of the *Environmental Planning and Assessment Regulation 2000*, and considers the key issues to be odour, hazards and risk, noise and river bank stability. Consideration of these and other issues is presented below.

5.1 Odour

The Shoalhaven Starches factory has a history of odour problems, relating primarily to the discharge of effluent from the site onto the environmental farm. A Pollution Reduction Program (PRP) No. 7 was approved in 2003 with the primary objective of managing odour emissions from the site. The program included a stillage recovery process which removes the solids from the effluent, thereby reducing the primary odour generating components of the effluent. The program also included an extension of the area receiving effluent from the site.

However, continued release of offensive odours from the site and complaints from the community culminated in a conviction of Shoalhaven Starches in the Land and Environment Court on 6 September 2006. The Court ordered Shoalhaven Starches to undertake a comprehensive audit of all odour sources to identify options to prevent or treat odours. A report on the actions to be taken in response to the audit is required by the Court by 2 November 2007.

The odour audit is currently underway, and Shoalhaven Starches has considered the proposed flour mill in the context of the preliminary findings of the audit. An assessment of the potential for odour emissions from the flour mill is outlined below, along with the preliminary findings of the odour audit, and the resulting effect on odour emissions reduction for the whole site.

Potential odour emissions from the flour mill

An estimate of odour emissions generated by the processing and handling of flour was prepared as part of the EA. The estimate calculated odour emission rates from existing flour handling processes on site, including emissions from exhaust points for the flour bin motor drive, two flour bin aspirators, five flour day bins and the grain silo. Given the warmer operating conditions of the proposed flour mill, the emission rates from existing processes were doubled to provide a conservative estimate of potential emissions.

The total odour emission rate for the flour mill is estimated at 4,300 odour units (OU) m^3/second, which equates to less than 0.1% of the total odour emission rate for the factory (excluding the environmental farm, which generates significantly greater emissions).

The quality and quantity of wastewater irrigated onto the Environmental Farm would remain unchanged as a result of the project; therefore odour emissions from wastewater irrigation would not change.

The proposed flour mill represents a negligible increase in total odour emissions from the site and would not significantly contribute to cumulative odour emissions.

Preliminary findings of the odour audit

The DECC raised concerns that further development on the site could lead to additional odour generation. To address these concerns, Shoalhaven Starches considered the estimate emissions from the flour mill in the context of the broader odour audit of the site.

The primary focus of the odour audit has been to identify the top contributing odour sources and develop measures to prevent or minimise odour from these sources. Preliminary results of the audit indicated that the spray irrigators are the primary odour sources, and installation of low mist nozzles would reduce odour emissions from these sources by 56%.

In the context of the flour mill, generating an estimated 4,300 OU m^3/second, installation of the low mist nozzles is anticipated to reduce odour emissions by 1,600,000 OU m^3/second. Therefore, the levels of reduction achieved by implementing the preliminary findings of the odour audit, is significantly greater than the additional odour generated by the flour mill. Shoalhaven Starches fitted the nozzles

in August 2007, and are in the process of pursuing further odour reduction measures identified by the audit.

Therefore, the DECC and the Department is satisfied that odour generated by the proposed flour mill would not contribute significantly to the release of offensive odours from the site, and implementation of the recommendations arising from the odour audit would manage emissions from the whole site to achieve compliance with legislative requirements for 'no offensive odour'. Shoalhaven Starches has also continued consultation with the Department and the DECC on the progress of the odour audit and on-going implementation of odour reduction measures.

5.2 Hazards and Risk

A Preliminary Hazard Analysis (PHA) was prepared to assess hazards resulting from production and handling of flour on the site. The proposed flour mill and silos would not require any new chemicals or dangerous goods to be used or transported to the site.

The PHA identified scenarios with the potential for off-site impacts, including the deflagration of wheat dust in storage silos, tempering bins, bag houses and screening bins.

The qualitative risk analysis conducted as part of the PHA concluded that these scenarios have a limited potential for off-site impacts given:

- the limited explosion capacity of wheat dust or flour;
- the extent of engineering controls in place at the factory; and
- the low probability of such a scenario coinciding with the presence of a passing vessel on the Shoalhaven River, for it to have an impact on adjacent land users.

Given the low level of risk for off-site impacts, a number of management controls are proposed by Shoalhaven Starches, as well as mitigation measures in the event of a risk scenario occurring. These controls have been incorporated into the recommended conditions of approval.

The qualitative risk analysis also identified the deflagration of wheat dust or flour as posing an on-site risk. Therefore, further analysis and controls would need to be implemented, during the design and construction phase. This requirement is included in the conditions of approval via a requirement for a Construction Safety Study and a Fire Safety Study, prior to commencement of construction.

The Department is satisfied that the PHA adequately addresses the hazards and risks of the proposed flour mill and that recommendations arising from the PHA would be implemented via the recommended conditions of approval.

5.3 Noise

A noise assessment was undertaken as part of the EA to estimate noise levels at the nearest residences as a result of construction and operation of the flour mill. Estimated noise levels were compared with existing noise limits prescribed in the Environment Protection Licence (EPL) for the site.

The nearest residents are located in Meroo Street in Bomaderry approximately 200 metres north-west of the site, and other nearby residents are located on the south side of the Shoalhaven River at Terara and Nowra.

Construction

The key noise sources during the construction phase relate to piling and foundation works and pouring of the concrete slab. These works would take a period of five weeks, including two weeks for pile driving. All other construction works would be completed within a 26 week period and all works would be restricted to day time working hours.

The construction noise assessment considered all activities and concluded that they would not exceed the construction noise goals detailed in the *Environmental Noise Control Manual*, of background + 10 dB(A) for a 26 week construction period, with the exception of piling works. As piling works would be undertaken over a two week period, the construction noise goal for these activities would be background + 20 dB(A) (for construction activity period of up to 4 weeks), which would not be exceeded.

As all construction activities would be undertaken during the day time, noise impacts to residents is unlikely to occur.

Operation
The proposed flour mill would be housed within a new building comprised of concrete walls and a metal deck roof. Two grain silos would be constructed adjacent to the building. The primary noise sources from the flour mill and grain silos are from external components including the roof and external tanks. Noise modelling using the flour mill manufacturer's specifications estimated that noise from the flour mill and silos would exceed the EPL noise limits at the nearest residences. A range of noise control measures would be required to bring noise levels below the noise limits. These include housing blowers in a concrete room, installing silencers on blowers, limiting the sound power emission levels on fan discharges and constructing the roof to have a weighted noise reduction (Rw) of not less than 40.

The Department is satisfied that implementation of the proposed noise control measures would adequately minimise noise levels from the flour mill to meet the limits prescribed in the EPL at the nearest residences.

5.4 Transport

Rail
A private rail line is located on the site as a spur from the main South Coast line at Bomaderry. A total of 10,000 tonnes per week of flour and mill feed are currently transported to the site in two trains deliveries per week. The quantity of deliveries and number of trains would not change as a result of the project, however the composition of the materials delivered to the site would change with deliveries comprising of 5000 tonnes per week of wheat and 5000 tonnes per week made up of flour and mill feed.

As production rates would not increase, no additional train or product truck movements would be generated by the flour mill. There may be some changes to the scheduling of train deliveries to the site, as required by State Rail. Train deliveries would continue to be managed in accordance with Shoalhaven Starches safety procedures described in the EA.

Road
Access to the factory is provided at three points along Bolong Road, at the eastern and western ends of the site and at a central point to the site. The eastern access point contains the primary staff car park and the western access is shared with the adjacent Cleary Bros concrete site.

The regional road network comprises Bolong Road adjacent to the site, the Princes Highway which borders the western side of the township of Bomaderry, Meroo Street and Meroo Road bordering the eastern side of the town and Cambewarra Road, which passes through the residential area.

The proposed flour mill would generate an additional 16 light vehicle trips per day, based on the creation of eight jobs. The Bomaderry factory currently generates approximately 860 vehicle trips per day, comprising 770 light vehicles and 89 heavy vehicles. The proposed flour mill would result in a total of 876 vpd, comprising 786 light vehicles and 89 heavy vehicles.

The EA analysed traffic data from the PRP No. 7 project approved in 2003, to identify impacts on the capacity of the existing road network due to the small increase in light vehicle trips.

The assessment concluded that Bolong Road has sufficient capacity to accommodate the additional vehicle trips and would therefore not be affected by the minor increase in light vehicles.

Despite the minor increase in vehicle movements, the Department requires Shoalhaven Starches to improve the three site accesses in line with condition 3.57 of the project approval for PRP No. 7. In addition, Council requested that an outstanding condition of consent in relation to provision of a pedestrian footbridge on the south side of Bolong Road across Abernethy's Creek between the office buildings and the factory, be incorporated. These conditions are considered necessary prior to commencement of construction of the flour mill in order to improve safe access to and within the site for staff.

5.5 River Bank Stability

The proposed flour mill and grain silos would be located on the northern bank of the Shoalhaven River with excavation works for foundations occurring within 40 metres of the river bank.

An assessment of current river bank stability, the effect of development on stability and measures to reduce the risk of failure of the river bank was included in the EA. The assessment also considered the possible effects on the proposed structures in the event of river bank failure.

The assessment concluded that under normal flow and tidal conditions, the risk of failure of the river bank in the area of the proposed flour mill and grain silos is low. However, risk of failure increases with significant flooding events and rapid drawdown of water levels following flooding, causing erosion and over-steepening of the bank.

A recent failure of the river bank occurred over a 20 metre section immediately east of the area of the proposed grain silos. Rock revetment works have been completed in this area to stabilise the bank.

Further rock revetment works are proposed for the section of river bank immediately adjacent the proposed flour mill and grain silo areas. The works would extend from the existing rock revetment shown in Figure 6 to the jetty, covering a length of bank of approximately 60-75 metres.

The use of large rocks to act as a lining would reduce the risk of undercutting or over-steepening of the bank.

Figure 6: Bank Stabilisation Works

Works would require removal of vegetation from the banks resulting in the loss of several coral trees. In addition, the flour mill and grain silos would be constructed on deep piles to rock to mitigate the potential impacts from river bank failure.

The Department is satisfied that adequate consideration and assessment of options has been undertaken for bank stabilisation works. However, given that there have been recent bank failures in the vicinity of the proposed works, and the close proximity of the grain silos and flour mill to the river bank, the Department requires stabilisation works to be implemented in consultation with the Department of Water and Energy, particularly in relation to re-establishing native vegetation along the river bank. Stabilisation works shall be integrated with the landscape and re-vegetation plan outlined in the EA. In addition, the Department requires Shoalhaven Starches to survey and monitor the near shore river bank profile below the Mean High Water level over the life of the project.

These measures would minimise the risks associated with river bank failure and ensure long term protection of the river bank in the vicinity of the flour mill and grain silos.

5.6 Water Management

Water supply

Water consumption for flour milling on site would increase by 79 kilolitres per day (kL/day), which represents a 1% increase on total site usage of 7,500 kL/day. The additional water requirement is minor in the context of the total site requirement and would not place additional strain on water supply.

Stormwater

Construction works would occur within 40 metres of the riverbank, with the potential to cause erosion and sedimentation of the Shoalhaven River. A soil and water management plan is required as part of the recommended conditions of approval to minimise impacts from construction on the Shoalhaven River.

Stormwater from the central part of the site, where the flour mill and silos would be located is currently conveyed to the Environmental Farm for irrigation. During construction and operation, all stormwater would continue to be conveyed to the Environmental Farm. The flour mill and silos would not change the volume or quality of stormwater runoff as the area is currently hardstand and would remain as a combination of hardstand and buildings.

Wastewater

Currently, wastewater discharges from the Bomaderry factory are licensed by an EPL, with discharges required to meet volumetric and quality requirements. Wastewater discharges would not change as a result of the flour mill as production levels remain the same.

The Department is satisfied that the proposed flour mill would not alter existing water management practices at the site and would not result in adverse impacts. The recommended conditions of approval require Shoalhaven Starches to continue to comply with license conditions in relation to volumes and quality of wastewater discharges, as well as implement stormwater management controls during construction.

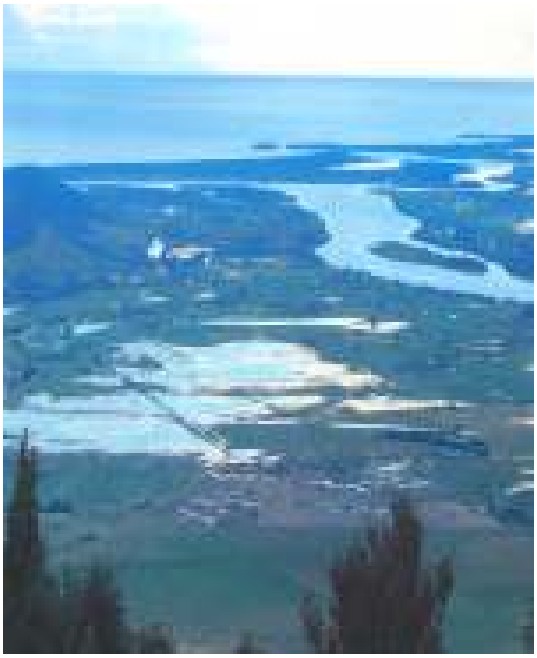

Figure 7: Environmental Farm

5.7 Other Issues

Other issues and impacts associated with the project are summarised in Table 2.

Table 2: Other Impacts

Issue	Impact	Recommendation
Air Quality	• Fine particulate matter (PM_{10}) and total suspended particulates (TSP) would increase marginally with operation of the flour mill, 2.4% for PM_{10} and 1.5% for TSP. However, emissions from the whole facility would **not** exceed relevant air quality goals. • Exhaust discharge points from the flour mill would comply with the *Protection of the Environment Operations (Clean Air) Regulation 2002*.	• Post operation testing would be undertaken as part of an overall air quality management plan to assess compliance with the *Protection of the Environment Operations (Clean Air) Regulation 2002.*
Acid Sulfate Soils (ASS)	• River bank stabilisation works are unlikely to disturb ASS, however, excavation below 2 metres should be avoided.	• ASS management to be incorporated into bank stabilisation works, carried out in consultation with the DWE.
Flooding	• Given that a limited area of the site remains undeveloped, and the flour mill would cover a small area, it would have only a minor adverse hydraulic impact and would represent a marginal increment to the cumulative effect of the whole site in acting as a barrier to floodwaters.	• Prior to construction, a flood hazard and structural assessment report must be provided to the Department.

6. RECOMMENDED CONDITIONS OF APPROVAL

The Department has prepared recommended conditions of approval for the project (see Appendix A).

These conditions are required to:
- Ensure no offensive odour occurs;
- Manage flood hazard and erosion;
- Manage hazards and risk;
- Reduce noise impacts;
- Improve site access and road safety; and
- Improve river bank stability.

Shoalhaven Starches does not object to the imposition of the recommended conditions.

7. CONCLUSION

The Department has assessed the EA and submissions on the project in accordance with the requirements of the *Environmental Planning and Assessment Regulation 2000*.

The Department is satisfied that Shoalhaven Starches have demonstrated that environmental performance of the whole site would improve, particularly in relation to odour emissions.

This assessment shows the key issues of concern relate to odour, hazards and risk, noise and river bank stability. Other minor issues include traffic, water management, air quality, flooding and acid sulfate soils.

The Department has assessed these concerns in detail having regard to the objects of the EP&A Act, and the principles of ecologically sustainable development. The Department is satisfied that the flour mill would not lead to unacceptable environmental impacts. In conjunction with implementation of commitments arising from the odour audit, odour emissions from the Shoalhaven Starches factory would reduce and wastewater management would improve. Hazards and risks from flour milling and handling would be adequately managed, noise would be controlled to acceptable levels and river bank stability would be improved through revetment works.

The Department is satisfied that the proposed mitigation measures and conditions of approval can effectively reduce the impacts of the project to acceptable levels and provide an avenue for evaluating the environmental performance of the site, such that continual improvements can be sought. In addition, on-going implementation of the findings of the odour audit would continue to improve odour emissions from the site.

The Bomaderry factory is a large employer in the region, with a workforce of 225 employees. Continued investment in the factory will have benefits for the local area through the generation of additional jobs; 20 during construction and up to 8 during operation.

Overall, the Department believes that the project has been adequately justified on economic, social and environmental grounds; it is in the public interest and should be approved subject to conditions.

8. RECOMMENDATION

It is recommended that the Minister:

- consider the findings and recommendations of this report;
- approve the project application, subject to conditions, under section 75J of the *Environmental Planning and Assessment Act 1979*; and
- sign the attached project approval (see Appendix A).

Deana Burn
Manufacturing and Rural Industries
Major Development Assessment
Tel: 9228 6471

David Kitto
Director
Major Development Assessment

Chris Wilson
Executive Director
Major Project Assessment

Sam Haddad
Director-General

APPENDIX A – CONDITIONS OF APPROVAL

Refer to Major Project Assessment section of the Department's website, www.planning.nsw.gov.au

APPENDIX B – SUBMISSIONS

Refer to Major Project Assessment section of the Department's website, www.planning.nsw.gov.au

APPENDIX C – ENVIRONMENTAL ASSESSMENT

The report can be viewed online at http://www.manildra.com.au/community/proposed_mill.php

APPENDIX D – CONSIDERATION OF ENVIRONMENTAL PLANNING INSTRUMENTS

Section 75I(2) of the *Environmental Planning and Assessment Act 1979* requires that reference be made to the provisions of any environmental planning instrument that would (but for Part 3A of the Act) substantially govern the carrying out of the project. The following environmental planning instruments include provisions that would have substantially governed the proposed development:

- *State Environmental Planning Policy No 11 – Traffic Generating Developments;*
- *State Environmental Planning Policy No 14 – Coastal Wetlands;*
- *State Environmental Planning Policy No 33 – Hazardous and Offensive Development;* and
- *State Environmental Planning Policy No 71 – Coastal Protection.*

Consideration of the proposed development in the context of the objectives and provisions of these environmental planning instruments is provided below.

State Environmental Planning Policy No. 11

State Environmental Planning Policy No. 11 – Traffic Generating Developments aims to ensure that the RTA is made aware of and allowed to comment on projects for developments listed in Schedules 1 and 2 of SEPP 11. Schedule 2 identifies developments including the erection of a building for the purpose of industry where the gross floor area of the building is or exceeds 5000m^2. The proposed building for the flour mill has a floor space area of 1440m^2 and therefore, does not trigger the referral requirements under SEPP 11.

State Environmental Planning Policy No. 14

State Environmental Planning Policy No. 14 – Coastal Wetlands aims to protect coastal wetlands and requires the consent of the DECC for clearing or construction works within an area of wetland identified under SEPP 14. A wetland declared under SEPP 14 is located within the environmental farm area of the Shoalhaven Starches site, north of Bolong Road. The proposed flour mill and grain silos would not be constructed within the vicinity of this wetland, therefore the application does not require the consent of the DECC. The Department is satisfied with the consideration of SEPP 14 in the EA.

State Environmental Planning Policy No. 33

State Environmental Planning Policy No. 33 – Hazardous and Offensive Development applies to the flour mill as a potentially hazardous industry. SEPP 33 aims to identify proposed developments with the potential for significant off-site impacts, in terms of risk and/ or offence (odour, noise etc). A development is defined as potentially hazardous and/ or potentially offensive if, without mitigating measures in place, the development would have a significant risk and/ or offence impact, on off-site receptors. A Preliminary Hazard Analysis was conducted to assess the hazards and risks associated with production of wheat flour. The analysis indicated that the project would comply with the relevant guidelines for hazard and risk and the Department is satisfied with this analysis.

State Environmental Planning Policy No. 71

State Environmental Planning Policy No. 71 – Coastal Protection applies to the site. SEPP 71 aims to protect and manage the NSW coast through improving public access, protecting Aboriginal cultural heritage, protecting visual amenity and coastal habitats and managing the scale, bulk and height of development along the coast. The Department is satisfied with the consideration of SEPP 71 contained in the EA and is satisfied that the development is generally consistent with the objectives of SEPP 71.