

ASSESSMENT REPORT

Shoalhaven Starches Expansion Project Installation of Dried Distillers Grain Pelletising Plant Section 75W Modification - MP 06_0228 MOD 4

1. BACKGROUND

Shoalhaven Starches Pty Ltd (the Proponent) operates a factory off Bolong Road on the outskirts of Nowra in the Shoalhaven local government area (see Figure 1).

The factory processes wheat and grain transported by rail from central NSW to produce starch, gluten, ethanol and other related products for the food, beverage, confectionary, paper and motor transport industries. The wastewater from the factory is treated and irrigated on a nearby 'environmental farm'.

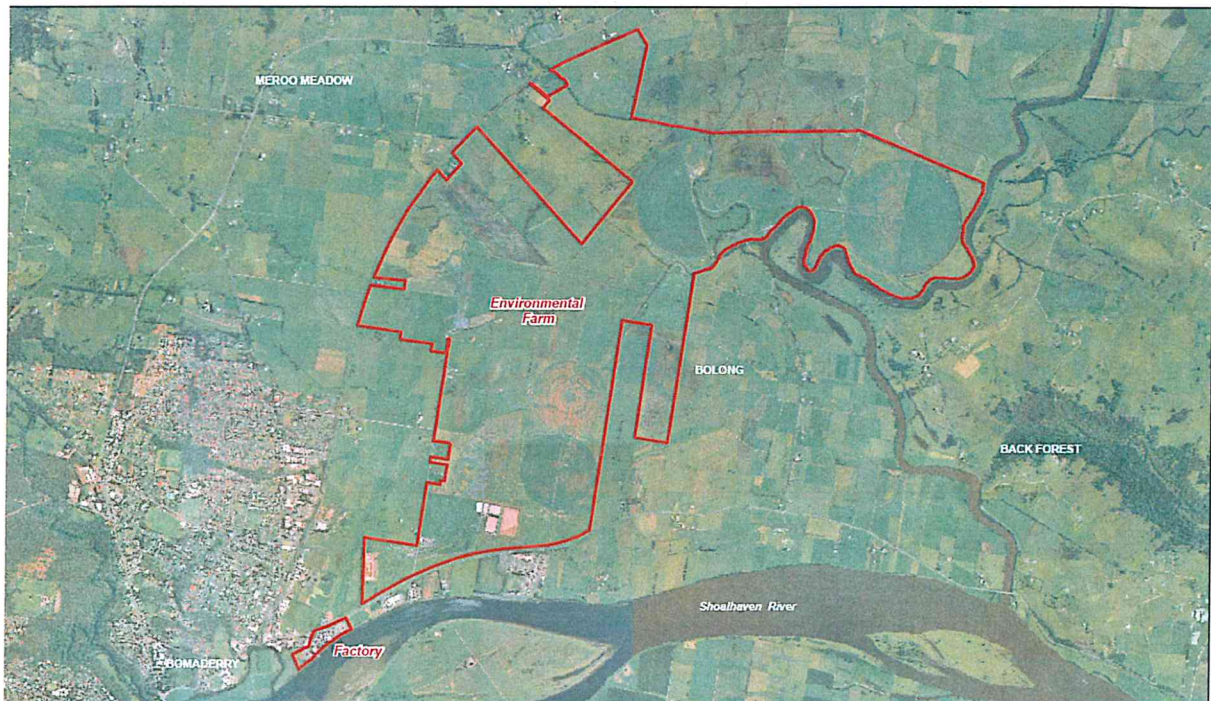


Figure 1 - Shoalhaven Starches processing plant and environmental farm

In 2006, the Proponent was fined by the Land and Environment Court for producing offensive odour, and required to undertake a comprehensive audit of all odour sources at the factory and environmental farm (see Appendix G).

The odour audit was completed by GHD in 2007 (see Appendix F), and concluded that:

"[Of the] overall odour emissions from the factory and environmental farm, the environmental farm generated 84% of the emissions, the starch plant around 7%, the DDG [Dried Distiller's Grain] plant 6%, ethanol plant 3% and the glucose and

distillation plants contributing less than 1%. Of the emissions from the environmental farm, the spray irrigators generated 85% of the odour emissions. This was attributed to release of the volatile odorous compounds from the wastewater by the use of mist nozzles.”

It also recommended the implementation of a range of odour controls to reduce the odour impacts of both the factory and environmental farm, with the most significant measure being the installation of a wastewater treatment plant on the environmental farm.

In November 2007, the Proponent lodged an application for the Shoalhaven Starches Ethanol Expansion Project under Part 3A of the *Environmental Planning & Assessment Act 1979* (EP&A Act) seeking approval for:

- the implementation of a selection of the odour controls detailed in the 2007 odour audit (see Table 1 below); and
- an increase in the ethanol production of the factory from 126 mega-litres a year to 300 mega-litres a year.

Table 1 - Proposed odour control measures and implementation stages in the Part 3A application.

Odour Source	Odour Control
Stage 1	Proposed to commence April 2009, subject to date of approval
Dried Distillers Grain (DDG) Plant	Install a bioscrubber and duct key odour sources to the bioscrubber Install wet legs on tanks to condense vapour emissions. Wet legs to be installed on odour sources not ducted to the bioscrubber at this stage Undertake housekeeping such as ductwork cleaning and maintenance to prevent the build up of putrescent contamination Install a Pelletiser Plant for the DDG product
Ethanol Plant	Decommission cooling towers Install wet legs on tanks to condense vapour emissions
Starch Plant	Undertake housekeeping such as ductwork cleaning and maintenance Decommission kestner dryer
Glucose Plant	Install wet legs on enzyme tanks to condense vapour emissions
Flour Mill	Improve dispersion from cyclone and fabric filters
Environmental Farm	Install a biological wastewater treatment plant
Stage 2	To assess within 6 months of completing Stage 1 controls
DDG Plant	Duct condenser drain decanters to bioscrubber
Ethanol Plant	Install a bioscrubber and duct propagation and farm tanks to bioscrubber
Glucose Plant	Install a bioscrubber and duct enzyme tanks to bioscrubber
Stage 3	If required, depending on the outcomes of Stage 2 implementation
DDG Plant	Duct light phase tank to bioscrubber
Ethanol Plant and Distillery	Duct remaining odour sources to bioscrubber
Glucose Plant	Duct remaining odour sources to bioscrubber
Starch Plant	Duct remaining odour sources to bioscrubber Install a common tall stack for emissions from gluten and starch dryers and the dry gluten bin

In January 2009, following a review by the Planning Assessment Commission (PAC), the Minister approved the Shoalhaven Starches Ethanol Expansion Project (MP 06_0228) subject to strict conditions (see the Director-General's Report and existing conditions of approval in Appendix E).

These conditions required the Proponent to:

- implement a number of 'mandatory odour controls' before increasing the ethanol production of the factory; and
- commission regular odour audits of the operation's performance; and if necessary, implement a range of 'additional odour controls'.

One of the by-products of ethanol production is Dried Distillers Grain Syrup (DDGS). It is recovered from the wastewater of the fermentation process, dried into a powder and on sold as cattle feed.

The powder is odourous and susceptible to air dispersion.

The odour audit conducted by GHD in 2007 found that the DDGS Plant contributed to 6% of overall odour emissions at the facility.

Subsequently, the 2009 PAC approval included a mandatory requirement for the Proponent to install a Dried Distillers Grain Syrup (DDGS) Pelletising Plant at the DDG Recovery Plant to improve odour control at the site.

However, due to poor external market demand for pelletised DDGS, in September 2011 the PAC approved a modification application by Starches to remove this mandatory requirement and allow the installation of alternate odour controls. The DDG Pelletising Plant was added to a list of optional odour controls that may be implemented at the facility by the Proponent in the future.

Export market demand for pelletised DDGS product has since increased and the Proponent now wishes to install a DDGS Pelletising Plant at the site. The DDGS Pelletising Plant would give the Proponent the flexibility to process powdered DDGS material into pellets to meet overseas demand for cattle feed when local demand is reduced.

However, following detailed engineering investigations, the Proponent has recently identified that the approved footprint, design and location of the originally proposed DDGS Pelletising Plant would need to be modified to optimise its operational efficiency and meet current international best practice for design. The modified DDGS Pelletising Plant would not result in any increase to the approved DDGS production capacity of the facility or resultant odour emissions.

2. PROPOSED MODIFICATION

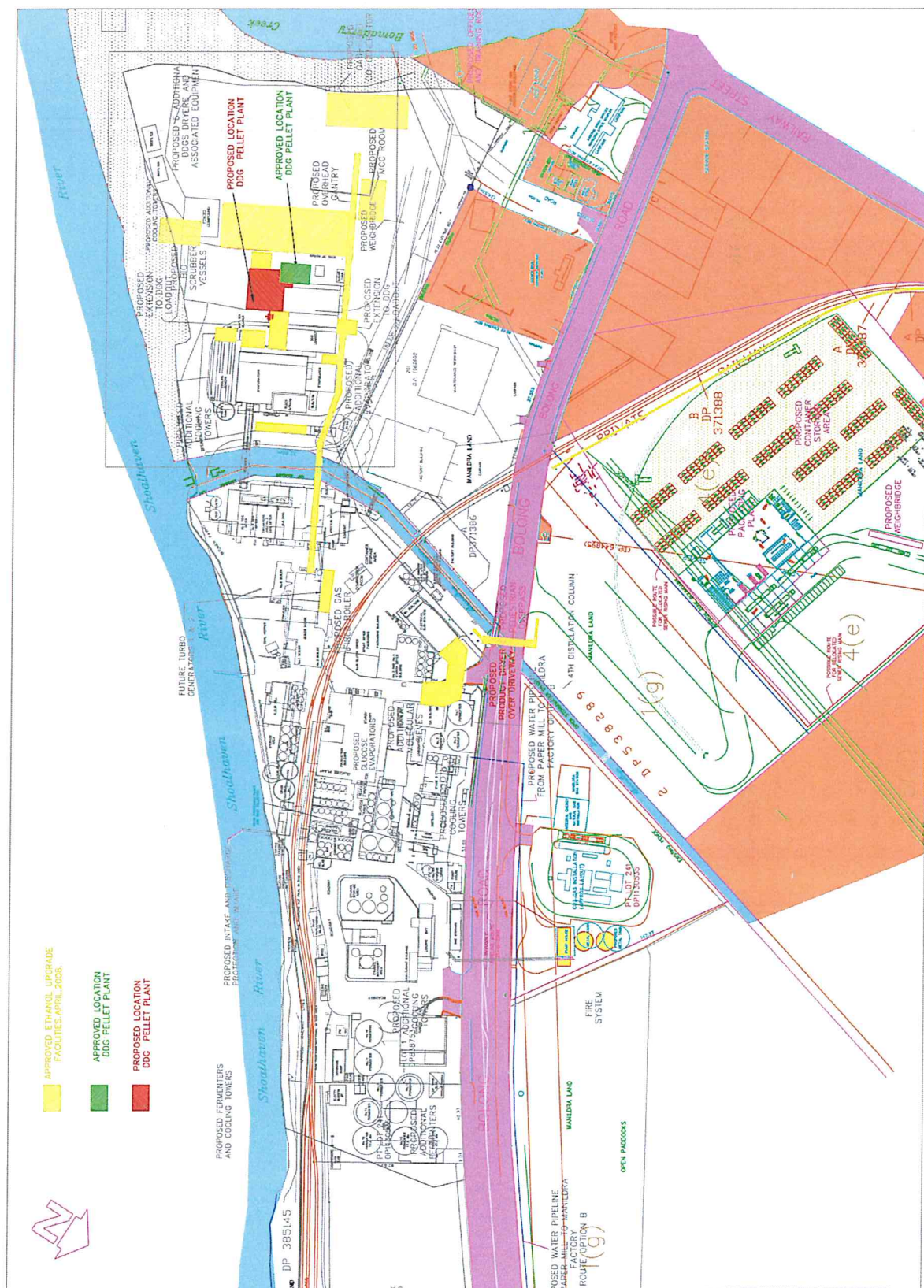
On 24 February 2014, the Proponent lodged a modification application with the agency under Section 75W of the *Environmental Planning and Assessment Act 1979* (EP&A Act) to:

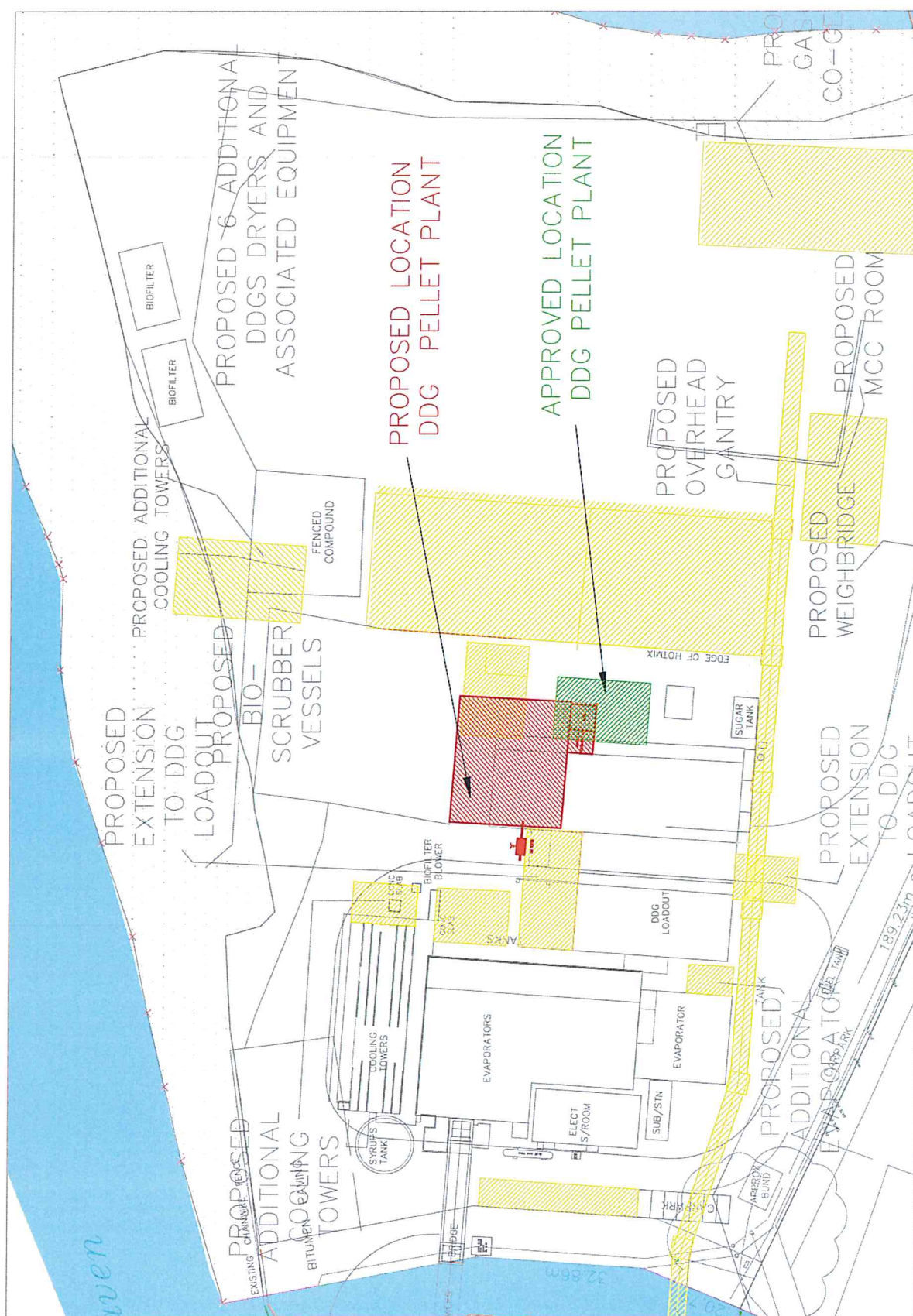
- relocate the approved DDGS Pelletising Plant 19 metres (m) to the south;
- increase the approved footprint of the DDGS Pelletising Plant from 224.5m² to 600m²;
and
- increase the maximum approved height of the DDGS Pelletising Plant from 21.6m to 28m.

The proposed modification is illustrated in Figures 2 to 4 below.

No change is proposed to the approved ethanol, grain or DDGS production capacity at the facility or to the volume of wastewater generated.

The proposed modification is described in full in the modification application and accompanying Environmental Assessment (EA) in Appendix B of this report.





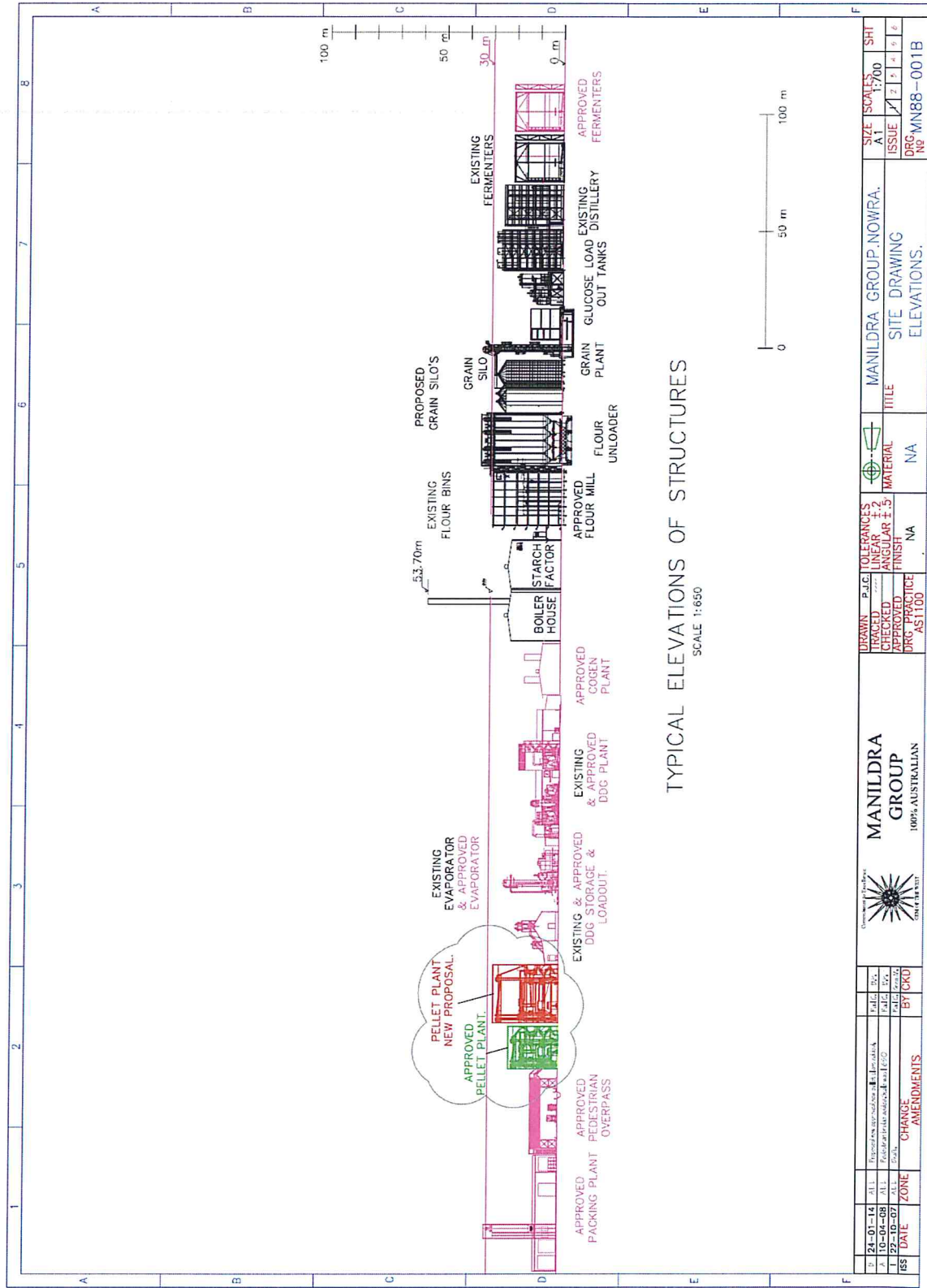


Figure 3 – Typical elevations of existing and proposed structures

3. STATUTORY CONTEXT

Approval Authority

The Minister was the approval authority for the original project, and is consequently the approval authority for this application.

However, as reportable political donations were made by the Proponent in respect of the modification application, the application will be determined by the Planning Assessment Commission in accordance with the Minister's Instrument of Delegation, dated 14 September 2011.

Section 75W

In accordance with Clause 12 of Schedule 6A of the *Environmental Planning and Assessment Act 1979* (EP&A Act), Section 75W of the Act as in force immediately before its repeal on 1 October 2011 and as modified by Schedule 6A, continues to apply to transitional Part 3A projects.

Under Section 75W of the EP&A Act, the Minister is obliged to be satisfied that what is proposed is indeed a modification of the original proposal, rather than being a new project in its own right.

The agency notes that:

- the primary function and purpose of the approved project would not change as a result of the proposed modification;
- the modification is of a scale that warrants the use of Section 75W of the EP&A Act;
- the approved throughput/waste processing capacity of the project would remain unchanged as a result of the proposed modification; and
- any potential environmental impacts would be minimal and appropriately managed through the existing or modified conditions of approval.

Therefore, it is considered that the proposed modification is within the scope of Section 75W of the EP&A Act. Consequently, the agency considers that the application should be assessed and determined under Section 75W of the EP&A Act rather than requiring a new development or project application to be lodged.

4. CONSULTATION

Under Section 75W of the EP&A Act, the agency is not required to notify or exhibit the application. Upon receipt, the application was placed on the agency's website and following a review of the application, the agency did not believe formal public notification of the application was necessary. Notwithstanding, the agency sought comments from Shoalhaven City Council (Council) and the Environment Protection Authority (EPA).

Council

Council supported the proposal on the grounds of its positive economic impacts to the local community.

Council noted that the DDGS Pelletising Plant would be in keeping with the industrial character of that section of Bolong Road and the frontage of the Shoalhaven River. Council also considered that the modified DDGS Pelletising Plant would not be unduly intrusive when viewed from the surrounding locations at Nowra, Terara, Bomaderry and the Bolong Road rural area.

EPA

The EPA did not object to the proposed modification and noted that the impacts of the modified DDGS Pelletising Plant would be consistent with the environmental impacts assessed as part of the approved project. The EPA also considered that the DDGS Pelletising Plant should reduce odour emissions and waste at the site.

The EPA noted that air emissions from the modified DDGS Pelletising Plant would be directed to the existing Biofilters on site for treatment of odours. The EPA recommended that the Proponent be required to demonstrate that the existing Biofilters have sufficient capacity to treat this odour or whether additional odour treatment capacity is required, prior to determination.

5. CONSIDERATION

The agency has assessed the merits of the proposed modification. During this assessment, the agency has considered the:

- environmental assessment and Director-General's assessment report of the original project application;
- existing conditions of approval (as modified) (Appendix A);
- the EA supporting the proposed modification (Appendix B);
- submissions from government authorities (Appendix C);
- relevant environmental planning instruments, policies and guidelines; and
- requirements of the EP&A Act, including the objects of the Act.

The agency considers odour to be the key environmental issue associated with the modification. The Department's assessment of all other issues is outlined in Table 2 below.

5.1 Odour

As outlined above, an odour audit conducted by GHD in 2007 found that the DDGS Plant contributed to around 6% of overall odour emissions from the facility.

Under the 2009 PAC approval, prior to increasing ethanol production above the approved upper limit of 300 ML a year, the Proponent was required to implement a number of 'mandatory odour controls' to reduce odour emissions. To date, the Proponent has installed a range of these controls which have significantly reduced odour emissions from the facility and odour related complaints.

On 4 June 2012, the agency granted final approval to the Proponent to increase ethanol production at the factory to a maximum of 300 ML a year, subject to the completion of construction and successful commissioning of a new biofilter at the site. In July 2012, the Proponent confirmed that the new biofilter had been completed and successfully commissioned.

Given that the original intent of the DDGS Pelletising Plant was as an odour control, the agency considers that the installation of the DDGS Pelletising Plant at the facility is likely to result in a positive impact on odour emissions at the site. This view is supported by the EPA.

Although the function of the DDGS Pelletising Plant is to reduce odour, its operation would result in the generation of a high volume of air, albeit with a very low odour concentration.

The EPA noted that air emissions from the modified DDGS Pelletising Plant would be directed to the existing Biofilters on site for treatment of odours. In its submission, the EPA recommended that the Proponent be required to demonstrate that the existing Biofilters have sufficient capacity to treat this odour or whether additional odour treatment capacity is required, prior to determination.

However, the agency has since further discussed this issue with the EPA and has confirmed that the EPA is comfortable for the verification of the Biofilters to be completed prior to construction of the DDGS Pelletising Plant. The agency and the EPA consider that as long as capacity testing of existing Biofilters is completed prior to construction, odour emissions would not increase above current levels.

In the unlikely event that the Biofilters are found to have insufficient capacity to cater for the DDGS Pelletising Plant, the agency in consultation with the EPA would require the Proponent to install additional odour treatment controls or modify the existing odour controls at the facility (e.g. by redirecting air emissions from the DDGS Pelletising Plant to the existing boilers on site).

The agency has incorporated the above requirements into the recommended conditions.

In addition, there are a number of existing conditions in the project approval which aim to ensure odour is effectively managed at the facility. This includes conditions which require the Proponent to:

- not cause or permit the emission of offensive odour;
- ensure the DDGS Pelletising Plant complies with all regulatory requirements including air and odour emissions standards in force at the time of installation to the satisfaction of the agency and the EPA;
- implement an Odour Management Plan (OMP) for the facility;
- conduct annual Odour Audits (OA) of the facility including recommendations to improve the odour controls on site and/or the OMP; and
- implement additional mandatory odour controls as directed by the agency arising from the assessment of any OA, Independent Environmental Audit or monitoring results or project related complaints.

The agency is satisfied that existing and recommended conditions would ensure that odour is effectively managed at the facility. Further, following the commencement of operations of the modified DDGS Pelletising Plant, the agency and the EPA are satisfied that odour emissions at the facility are likely to reduce.

5.2 Other Issues

Table 2: Assessment of other issues

Issue	Assessment	Recommendation
Visual Amenity	<ul style="list-style-type: none"> • The proposed modification would increase the height of the approved DDGS Pelletising Plant by 6.4m from 21.6m to 28m and increase the approved footprint by 375.5m² from 224.5m² to 600m². • The factory is exposed to intermittent viewing from persons in vehicles and pedestrians travelling along Bolong Road, surrounding industrial sites (many owned by Starches) and adjoining rural farmland. • The site is 12.5 hectares in size and the factory partially visible from the nearest residences in Meroo Street, approximately 200m to 500m to the north-east and the village of Terara, approximately 1.5 kilometres (km) to the south on the southern bank of the Shoalhaven River. • The Proponent considers the visual impacts of the proposed modification would be minimal given the scale of the existing industrial development on site and that the additional structures would generally be of a similar appearance, height and bulk to the existing structures on site. • Views to the modified DDGS Pelletising Plant from Bolong Road are likely to be predominantly shielded by existing buildings on site (e.g. maintenance and factory buildings to the north and the adjacent DDGS load out extension). • The maximum height of the DDGS Pelletising Plant at 28m 	<ul style="list-style-type: none"> • Manage through existing conditions of approval.

	<p>would also be similar in height to tall components of the existing Distillery.</p> <ul style="list-style-type: none"> • Further, the agency considers the DDGS Pelletising Plant is unlikely to be visible from the nearest residences given the location of existing mature vegetation and existing and approved buildings located between the Starches site and these properties. • Council did not object to the proposed modification and noted that the DDGS Pelletising Plant would be in keeping with the industrial character of that section of Bolong Road and the frontage of the Shoalhaven River. Council also considered that the modified DDGS Pelletising Plant would not be unduly intrusive when viewed from the surrounding locations at Nowra, Terara, Bomaderry and the Bolong Road rural area. • The agency concurs with the views of Council and Proponent and is satisfied that the visual impacts of the proposed modification would be negligible. 	
Traffic	<ul style="list-style-type: none"> • No change is proposed to the DDGS or ethanol production capacity of the facility. • As such, the proposed modification would not result in an increase in traffic movements to those assessed as part of the approved project. • Further, no change is proposed to the approved vehicular access to the site and DDGS Pelletising Plant. • Council did not raise any issues in relation to traffic. • The agency is therefore satisfied that the proposed modification would not result in traffic impacts beyond the approved facility. 	<ul style="list-style-type: none"> • Manage through existing conditions of approval.
Soil and Water	<ul style="list-style-type: none"> • The construction of the DDGS Pelletising Plant would involve shallow excavations consistent with the approved project which would be managed via the implementation of standard erosion and sediment controls. • Under the existing conditions, Starches is required to implement the approved Erosion and Sediment Control Plan and Acid Sulphate Soil Management Plan for the construction of the project which would include the proposed modification works. • Given the increase in the approved footprint of the DDGS Pelletising Plant would be minor when compared to the footprint of structures approved as part of the Shoalhaven Starches Expansion Project (i.e. around 6.5%), the Proponent considers that the proposed modification would not result in additional stormwater or flooding impacts beyond the approved project. • Further, the proposed modification would not affect any riparian land associated with the Shoalhaven River and would not increase the potable requirements of the approved project. • The EPA did not raise any issues in relation to soil or water. • The agency is satisfied that the soil and water impacts of the proposed modification would therefore be minimal. 	<ul style="list-style-type: none"> • Manage through existing conditions of approval.
Noise	<ul style="list-style-type: none"> • The Noise Impact Assessment in the original EA for the approved project specified building requirements (i.e. reduction weights for walls, floors and ceilings) for the DDGS Pelletising Plant to ensure acceptable noise levels would be achieved. • The proposed modification does not seek to alter these aspects of the approved project and as such, the Proponent considers the proposal would not result in noise impacts beyond the approved facility. • The EPA did not raise any issues in relation to noise. • The agency is satisfied that the proposed modification would not result in noise impacts beyond the approved facility. 	<ul style="list-style-type: none"> • Manage through existing conditions of approval.
Waste Management	<ul style="list-style-type: none"> • The proposed modification would not increase the volume of wastewater generated by the project requiring treatment and irrigation onto the Proponent's environmental farm. • Further, the proposed modification would not increase the amount of solid waste produced at the facility nor alter the 	<ul style="list-style-type: none"> • Manage through existing conditions of approval.

	<p>way solid waste is currently managed on site.</p> <ul style="list-style-type: none"> • The Proponent therefore considers the proposal would not result in waste impacts beyond the approved project. • The EPA did not raise any issues in relation to waste management. • The agency is satisfied that the proposed modification would not result in waste impacts beyond the approved project. 	
Hazards and Risk	<ul style="list-style-type: none"> • The modification EA states that the DDGS Pelletising Plant was not identified in the original Preliminary Hazards Analysis prepared for the approved ethanol expansion project. • As such, the Proponent considers that the proposed modification would not introduce any new issues associated with hazards and risk at the facility. • The agency acknowledges that a similar DDGS Pelletising Plant was included in the scope of the original approved project in 2009 but the approval was modified in 2011 to remove this component (MOD 1). • It is unclear if the DDGS Pelletising Plant was included in scope of the hazards analysis for the approved ethanol expansion project as there is no reference to this Plant. • To ensure that the potential risks associated with the modified DDGS Pelletising Plant are identified and appropriate control measures are included in the design and operation of the modified facility, the agency has recommended a number of additional hazards and risk conditions (see recommendation) to ensure the risks associated with the proposed modification do not significantly differ from the original approved project. • The agency is satisfied that, with these conditions in place, the proposed modification would not increase hazards or risk at the facility. 	<ul style="list-style-type: none"> • New conditions requiring the Proponent to: <ul style="list-style-type: none"> – prepare a Construction Safety Study for the modification; – prepare an updated Preliminary Hazards Analysis and Fire Safety Study for the modification, prior to construction; – prepare a Hazards and Operability Study for the modification, prior to construction; – prepare an updated Emergency Plan, Safety Management System and Final Hazards Analysis for the modified facility, prior to commissioning; and – undertake on-going Hazards Audits of the modified facility.
Flora and Fauna	<ul style="list-style-type: none"> • The proposed site of the relocated DDGS Pelletising Plant is devoid of vegetation and was not identified in the Flora and Fauna Assessment in the original EA for the approved project as having any specific ecological constraints. • The agency is therefore satisfied that the proposed modification would not result in flora and fauna impacts beyond the approved project. 	<ul style="list-style-type: none"> • Manage through existing conditions of approval.
Heritage	<ul style="list-style-type: none"> • The proposed site of the relocated DDGS Pelletising Plant was not identified in the Aboriginal Archaeological Assessment in the original EA for the approved project as having any specific heritage constraints. • The agency is therefore satisfied that the proposed modification would not result in heritage impacts beyond the approved project. 	<ul style="list-style-type: none"> • Manage through existing conditions of approval.

6. CONCLUSION

The agency has assessed the proposed modification in accordance with the requirements of Clause 8B of the Regulations. This assessment has found that the proposed modification would:

- result in minimal environmental impact beyond the approved facility;
- give the Proponent the flexibility to process powdered DDGS material into pellets to meet overseas demand for cattle feed;
- optimise the operational efficiency of the DDGS Pelletising Plant and ensure it meets current international best practice for design; and
- improve odour management at the facility.

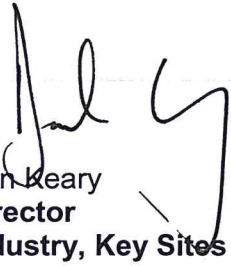
Further, Council is supportive of the proposed modification and the EPA considers it should reduce odour.

Consequently, the agency is satisfied that the modification should be approved.

7. RECOMMENDATION

It is RECOMMENDED that the Planning Assessment Commission:

- approve the proposed modification under Section 75W of the EP&A Act; and
- sign the attached notice of modification (in Appendix A).

 20/2/14
Dan Keary
Director
Industry, Key Sites and Social Projects

Chris Ritchie
Manager – Industry
Industry, Key Sites and Social Projects
 20.3.14
Chris Wilson
Executive Director
Development Assessment Systems &
Approvals

APPENDIX A – NOTICE OF MODIFICATION

APPENDIX B – MODIFICATION ENVIRONMENTAL ASSESSMENT

APPENDIX C – MODIFICATION SUBMISSIONS