ANNEXURE 6

Environmental Noise Impact Assessment

prepared by

Harwood Acoustics

ANNEXURE 6

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Environmental Noise Impact Assessment Shoalhaven Starches - Proposed Modification to DDG Driers, Cooling Towers & Bio Filters

Bolong Road,

Bomaderry, NSW 2541

Prepared for:-

Shoalhaven Starches Pty Ltd
C/- Cowman Stoddart Pty Ltd
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Attention: Mr Stephen Richardson

Reference: 1609010E-R

Document Control Page

Revision	Author	Released By	Date
Draft	MH	MH	18/10/2016
Draft 2	MH	MH	23/10/2016
Draft 3	MH	MH	27/10/2016
Final	MH	MH	27/10/2016

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1. INTRODUCTION AND SUMMARY

Shoalhaven Starches Pty Ltd is part of the Manildra Group of companies and their existing facility is located on the southern side of Bolong Road, Bomaderry, NSW, on the northern side of the Shoalhaven River. The surrounding area is a mix of commercial, industrial and residential premises. The nearest residences are located in the township of Bomaderry to the north-west and across the Shoalhaven River in Nowra to the south and Terara to the south-east.

In 2009 Shoalhaven Starches received Project Approval from the Minister for Planning for the Shoalhaven Starches Expansion Project (SSEP), reference 06_0228. The SSEP includes approval for the construction of an additional six (6) Dried Distillers Grain (DDG) dryers, associated cooling towers and bio filters near to the south western corner of the site.

Shoalhaven Starches now propose to modify the approval for this component of the SSEP by reducing the number of DDG dryers to four (4), slightly modifying the footprint of the dryers, and constructing two new bio filters. This modification application further seeks approval for the construction of a forklift maintenance building, container preparation area and container storage area adjacent to the proposed location of the dryers.

A coal and woodchip storage area is currently located to the west of the proposed new dryer location and will continue to be utilised on a temporary basis until this location is required for container storage purposes. Thereafter coal and woodchip will be stored at an existing coal and woodchip storage area at Hannagan's Lane on the north side of Bolong Road within the Environmental Farm, as shown in Figure 1.

A site plan showing the proposed location of the new DDG dryers and other developments on the site is provided in the attached Appendix A.

It is proposed to stage this development over time with the initial stage comprising the construction of one DDG dryer only, associated cooling towers, establishment of the container preparation and storage areas and construction of the forklift maintenance building. Subsequent stages will see the construction of the additional three (3) dryers, associated cooling towers, bio filters and relocation of the coal and woodchip area, if and as required.

This report has been prepared in response to the NSW Environment Protection Authority, which requires an assessment of the proposed modification in accordance with the NSW Industrial Noise Policy 2000 and Interim Construction Noise Guideline 2008. The report is to provide a description of the proposed mitigation measures and a review of the modification against the existing Environment Protection Licence Conditions and any noise reduction programs.

The main sources of noise associated with this modification application will be the DDG dryers and associated cooling towers.

Shoalhaven Starches operates under Environment Protection Licence Number 883 which sets noise limits for the overall operation of the complex.

The noise goals for any new plant are typically a minimum 10 dB below the EPL noise limits in accordance with Shoalhaven Starches Noise Management Plan originally prepared 31 October 2009 and revised 7 September 2010 under the Project Approval conditions for the Shoalhaven Starches Expansion Project.

Noise goals have been designed for the proposal so as to ensure existing noise levels are not increased by the introduction of the new plant and equipment. These range between 28 dBA and 32 dBA depending upon the residential receptor location.

Noise modelling has been undertaken using manufacturer's noise data supplied for the DDG dryer components and cooling towers in combination with measured noise levels from existing plant and equipment.

Consideration has been given to the potential noise emission from the initial construction of one dryer and associated cooling towers only and a second stage comprising the construction of the additional three dryers and cooling towers at a later date.

Based on the manufacturer's noise data supplied, no additional noise controls will be required for initial construction of one dryer and the associated cooling tower.

Noise controls are likely to be required for the subsequent installation of all four dryers and cooling towers as outlined in Section 6 of this report. These will not be extensive and involve the judicious section of low noise plant and equipment and / or localised acoustical treatment.

The construction works will consist of the removal of initial earthworks, pouring of concrete slabs, potential piling work and erection and installation of the DDG dryer/s and cooling towers.

Calculations show that the level of noise emission from the construction phase will be within noise management levels set by the NSW EPA's *Interim Construction Noise Guideline* at all receptor locations for the majority of the construction phases. There is potential for the noise management levels to be exceeded during piling works by up to approximately 2 dB at the nearest receptors. This is not considered to be a significant impact, however it is recommended that piling works are carried out during day time hours only, as recommended in the Project Approval. A Construction Noise and Vibration Plan detailing best practices for the construction phase may be commissioned if required.

2. SITE AND DEVELOPMENT DESCRIPTION

2.1 Site Description

The Shoalhaven Starches complex is located on the southern side of Bolong Road across the Shoalhaven River from Nowra.

The area surrounding Shoalhaven Starches is a mix of commercial, industrial and residential premises with vacant land, owned by the Manildra Group, to the north.

The nearest residential receptor locations to the proposal are as follows:-

- Location 1 – Nobblers Lane, Terara approximately 1500 metres to the south east
- Location 2 – Riverview Road, Nowra approximately 845 metres to the south west;
- Location 3 – Meroo Street, Bomaderry approximately 470 metres to the north west;
- Location 4 – Coomea Street, Bomaderry approximately 565 metres to the north west;

Locations are listed in keeping with the order shown in Environment Protection Licence number 883, as detailed in Section 3.1 of this report. Distances are based on the location of the proposed initial DDG dryer to each receptor.

The Shoalhaven Starches site, surrounding area and receptor locations are shown in Figure 1.

Figure 1. Location Plan – Shoalhaven Starches, Bomaderry, NSW *(source: Google Maps © 2016)*

2.2 Description of Proposal

In 2009 Shoalhaven Starches received Project Approval from the Minister for Planning for the Shoalhaven Starches Expansion Project (SSEP), reference 06_0228. The SSEP includes approval for the construction of an additional six (6) Dried Distillers Grain (DDG) dryers and associated cooling towers near to the south western corner of the site.

It is proposed to modify the approval for this component, as follows:-

- Reduce the number of DDG dryers from six to four;
    - Construct one dryer only initially and the remaining three at later stages;
- Slightly modify the footprint of the dryers on the site;
- Install cooling towers within the site, adjacent to each new dryer;
- Provide an additional two bio filters;
- Construct a forklift maintenance building;
- Establish a container preparation area;
- Establish a container storage area; and
- Relocate the coal and woodchip area on site to the southern side of the Environmental Farm on Hannagan's Lane (see Figure 1).

3. NOISE CRITERIA

This section outlines the noise guidelines applicable to this proposal and establishes the project specific noise goals.

3.1 NSW Department of Planning and Environment

3.2.1 Existing Project Approval

Project Approval for Application No. 06_0228, provided by the Minister for Planning, dated January 2009, Schedule 2, Condition 2, 'Terms of Approval' states:-

"The proponent shall carry out the project generally in accordance with the:

a) EA and associated site plans (see Appendix 2);

b) Statement of commitments; and

c) Conditions of this approval."

The original Project Approval incorporates noise mitigation measures recommended in the 'Acoustical Assessment, Proposed Ethanol Upgrade, Shoalhaven Starches' – prepared by The Acoustic Group Pty Ltd, ref 38.3849.R52:ZJM, dated 26 June 2008. This document forms part of the EA and statement of commitments and it is implicit that the noise control recommendations within this document are required to be implemented as part of the Project Approval. These are addressed in Section 7 of this report.

Schedule 3, Conditions 11 to 14 inclusive of the Project Approval, also refer to noise emission and are summarised as follows:-

Condition 11 relates to restricted hours of construction activities. Condition 12 reiterates the noise limits contained with Environment Protection Licence 883. Condition 13 requires that all feasible and reasonable noise mitigation measures must be implemented during the construction phase of the project. Condition 14 required the preparation of a noise management plan (see Section 3.3 below).

3.2.2 Existing Project Approval

In response to a request for information relating to noise emission from the proposed modification to the DDG dryer approval, the NSW Environment Protection Authority, states:-

"Noise Impacts:

A noise impact assessment in accordance with the Industrial Noise Policy (EPA 2000) will need to be prepared that assesses the potential operational noise impacts of the proposal (again noted this has been identified in the supplied document from Cowman Stoddard. The noise impact assessment should identify whether the proposal will comply with the existing noise limits in the EPL and if not, provide details of all reasonable and feasible mitigation measures that will be implement to ensure compliance."

3.2 NSW EPA's Environment Protection Licence

Shoalhaven Starches operates under Environment Protection Licence 883 issued by the NSW Environment Protection Authority.

Section L5 'Noise Limits' of the licence states:-

"L5.1 the $L_{A10\ (15min)}$ sound pressure level contribution generated from the premises must not exceed the following levels when measured at or near the boundary of any residential premises:

a) 38 dBA at locations in Terara on the south side of the Shoalhaven River;

b) 38 dBA at locations in Nowra on the south side of the Shoalhaven River;

c) 42 dBA at locations in Meroo Street, Bomaderry;

d) 40 dBA at other locations in Bomaderry."

These noise limits apply to the overall operation of the Shoalhaven Starches complex.

3.3 Shoalhaven Starches Noise Management Plan

Previous approval for the Shoalhaven Starches Expansion Project, required the preparation of a Noise Management Plan for addressing and managing noise emission from the expansion project.

The Shoalhaven Starches Noise Management Plan originally prepared 31 October 2009 and revised 7 September 2010 addresses, among other things, acoustic criteria relating to the Shoalhaven Starches complex and any new developments. Section 3 of the plan lists noise limits from the Environmental Protection Licence as shown in Section 4.1 above and states:-

"Compliance testing conducted on a regular basis on behalf of the Mill

[Shoalhaven Starches complex] *has found noise emission from the premises satisfies the EPA criteria as a result of works on the Shoalhaven Starches site. In order to ensure that there is no increase in noise emission from the subject premises, with respect to the noise criteria nominated by the EPA in License Condition 6.3* [now 5.1], *the design goal for such additional plant should be at least 10 dB below the criteria nominated by the EPA."*

3.4 Construction Noise Criteria

The NSW EPA published the *Interim Construction Noise Guideline* in July 2009. While some noise from construction sites is inevitable, the aim of the Guideline is to protect the majority of residences and other sensitive land uses from noise pollution most of the time.

The Guideline presents two ways of assessing construction noise impacts; the quantitative method and the qualitative method.

The quantitative method is generally suited to longer term construction projects and involves predicting noise levels from the construction phase and comparing them with noise management levels given in the guideline.

The qualitative method for assessing construction noise is a simplified way to identify the cause of potential noise impacts and may be used for short-term works, such as repair and maintenance projects of short duration.

In this instance the entire construction phase may take several months although significant noise producing aspects, such as piling, if required, will last a total of approximately two weeks. Consideration is given to the potential for noise impact from construction activities on residential receptors in Section 6 of this report.

Table 2 in Section 4 of the Guideline sets out noise management levels at affected residences and how they are to be applied during normal construction hours. The noise management level is derived from the rating background level (RBL) plus 10 dB in accordance with the Guideline. This level is considered to be the 'noise affected level' which represents the point above which there may be some community reaction to noise.

The author has carried out numerous noise surveys in Nowra, Bomaderry and Terara and has found daytime background noise levels range between 33 and 40 dBA depending on the location, as shown in Table 1 below.

Table 1 Rating Background Levels – Nowra, Terara and Bomaderry, NSW

Location	Time of Day	Rating Background Level (L_{90})
135 Terara Road, Terara March 2012	Day (7 am to 6 pm)	**33 dBA**
55 Terara Road, Nowra February 2015	Day (7 am to 6 pm)	**36 dBA**
Cambewarra Rd, Bomaderry July 2010	Day (7 am to 6 pm)	**40 dBA**
Shoalhaven Village Caravan Park, Nowra March 2012	Day (7 am to 6 pm)	**40 dBA**

For the purpose of determining the potential for community reaction to noise emission from construction activities, previously measured background noise levels in the vicinity of each receptor location have been used to determine the noise management levels as shown in Table 2 below.

Table 2 L_{eq} Noise Management Levels from Construction Activities

Receptor Location	Noise Management Level	How to Apply
Location 1 (Terara) Location 2 (Nowra) Locations 3 & 4 (Bomaderry)	**43 dBA** (33 + 10) **50 dBA** (40 + 10) **48 dBA** (38 + 10)	The noise affected level represents the point above which there may be some community reaction to noise. ▪ Where the predicted or measured $L_{Aeq\ (15\ min)}$ noise level is greater than the noise affected level, the proponent should apply all feasible and reasonable* work practices to meet the noise affected level. ▪ The proponent should also inform all potentially impacted residents of the nature of works to be carried out, the expected noise levels and duration, as well as contact details.
	Highly noise affected 75 dB(A)	The highly noise affected level represents the point above which there may be strong community reaction to noise. ▪ Where noise is above this level, the relevant authority (consent, determining or regulatory) may require respite periods by restricting the hours that the very noisy activities can occur, taking into account: 1. times identified by the community when they are less sensitive to noise (such as before and after school for works near schools, or mid-morning or mid-afternoon for works near residences) 2. if the community is prepared to accept a longer period of construction in exchange for restrictions on construction times.

* Section 6, "work practices" of The *Interim Construction Noise Guideline*, states:- *"there are no prescribed noise controls for construction works. Instead, all feasible and reasonable work practices should be implemented to minimise noise impacts.*

This approach gives construction site managers and construction workers the greatest flexibility to manage noise".

Definitions of the terms feasible and reasonable are given in Section 1.4 of the Guideline.

The 'highly noise affected' level of 75 dBA represents the point above which there may be strong community reaction to noise. This level is provided in the Guideline and is not based on the RBL.

3.5 Project Specific Noise Goals

The most relevant criteria are as follows:-

Operational Phase (Environment Protection Licence noise limits less 10 dB) -

- *28 dBA ($L_{10,\ 15\ minute}$) at locations in Terara on the south side of the Shoalhaven River;*
- *28 dBA ($L_{10,\ 15\ minute}$) at locations in Nowra on the south side of the Shoalhaven River;*
- *32 dBA ($L_{10,\ 15\ minute}$) at locations in Meroo Street, Bomaderry;*
- *30 dBA ($L_{10,\ 15\ minute}$) at other locations in Bomaderry.*

Construction Phase Noise Management Levels

- *43 dBA ($L_{eq,\ 15\ minute}$) at locations in Terara;*
- *48 dBA ($L_{eq,\ 15\ minute}$) at locations in Bomaderry; and*
- *50 BA ($L_{eq,\ 15\ minute}$) at locations in Nowra.*

The criteria are to be assessed at the most-affected point on or within the residential property boundary or, if that is more than 30 metres from the residence, at the most-affected point within 30 metres of the residence. For upper floors, the noise is assessed outside the nearest window.

4. DDG DRYER AND ASSOCIATED DEVELOPMENT NOISE EMISSION

4.1 Dryers, Mechanical Plant and Equipment Source Noise Levels

The main sources of noise associated with the modification proposal will be the DDG dryers and associated cooling towers.

An equipment list of the individual noise producing components of the DDG dryers has been supplied by the manufacturer's along with noise data for low noise cooling tower options.

Table 3 below provides a schedule of overall 'A' frequency weighted sound power levels, in decibels re: 1 pW, of noise sources associated with proposed modification.

Table 3 L_{10} Sound Power Levels – Plant and Equipment

Description	$L_{10,\ 15\ minute}$ Sound Power Level (dBA)
DDG Dryer Components (Shoalhaven Starches' reference)	
Condenser Tank Pump (40A103)	**80**
High Speed Mixer Motor (40R191)	**81**
Leakage Air Fan (40V261)	**71**[1]
Manual Condenser Pump (40P183)	**70**
Dryer Drive Motor (40D200)	**89**
Wet Scrubber Pump (40F120)	**80**
Vapour Fan (40V260)	**83**[1]
DDG Dryer Components Combined	**91**
Other Plant and Equipment	
Cooling Towers (Low Noise – Baltimore)	**87**
Truck Movement	**100**
Front End Loader Movement	**105**

1. Housing / casing sound power level

We are advised that the DDG dryers are closed system and as such there are no external air intake or discharge outlets for the fans associated with each dryer. Consequently, the sound power levels used in calculations are based on the manufacturer's data for casing noise and not the sound power levels ascribed to the inlet or discharge side of either fan.

4.2 Noise Level Predictions

4.2.1 Modelling Equations

For all outdoor noise sources, the external noise level at each receptor has been calculated from the formula:-

$$L_{eq} = L_W + Dc - A$$

Where:

- L_W is the sound power level of the noise source;
- Dc is directivity correction; and
- A is the attenuation that occurs during the propagation from source to receiver.

The term A in the equation includes attenuation from geometric divergence (distance loss), atmospheric absorption, ground absorption, barrier effects and miscellaneous other effects.

This model derives from the International Standard ISO 9613-2 (1996(E)) *'Acoustic – Attenuation of sound during propagation outdoors Part 2 General method of calculation'*.

The method described in the Standard is general in the sense that it may be applied to a wide variety of noise sources, and covers the major mechanism of sound attenuation. The method allows for propagation conditions with the wind blowing from the source to the receiver.

4.2.2 Predicted Noise Levels

Given the nature of the potential staging of the proposal, the following scenarios have been acoustically modelled and the results are shown in Tables 4 and 5 below:-

- Stage 1 (Table 4);
  - One DDG dryer constructed only, initially; and
  - Cooling towers located adjacent to the dryer, as shown in Appendix A.
- Stage 2 (Table 5);
  - Following Stage 1, with an additional three (3) dryers and associated cooling towers constructed in the locations shown in Appendix A; and
  - Relocation of the coal and woodchip storage area to the corner of Hannagan's Lane and Bolong Road (see Figure 1) and the occasional use of a loader with associated truck movements in this location alternatively.

Predictions in Tables 4 and 5 do not include noise controls.

The above scenarios include all noise producing aspects of the proposed modification.

The modification also includes the establishment of the container preparation and storage areas adjacent to the DDG dryer location, as shown in Appendix A, and further seeks to formalise the existing location of the coal and woodchip storage area. Noise sources associated with these two aspects, including the use of forklifts to move containers, front end loader to transport fuel to the boiler house and trucks delivering fuel to the storage area all form part of existing operations in these locations. These activities form part of the existing level of noise emission from the overall operation of the site and are included in 6 monthly noise compliance assessments to date. There will be no significant increase in these activities as a result of this modification applicant.

Consideration is however give to noise emission arising from the use of a loader and truck movements at the proposed coal and woodchip area near to the corner of Bolong Road and Hannagan's Lane in the future.

The bio-filters remove odour causing compounds from waste gas streams by filtering waste gas through woodchip. There are no significant noise producing activities associated with this aspect of the modification application.

Similarly, the forklift maintenance building will provide protection from the elements to maintenance staff performing tasks currently undertaken at the site. There will be no noise producing activities associated with this aspect of the modification application.

Table 4 Predicted Noise Levels at Receptor Locations – Stage 1

Description	Predicted Noise Level $L_{10,\ 15\ minute}$ (dBA) at Receptor Location			
	Location 1	Location 2	Location 3	Location 4
DDG dryer	19	23	28	26
Cooling Towers (adjacent)	>10	22	28	26
Combined	19	26	31	30
Design Noise Goal ($L_{10,\ 15\ minute}$)	28	28	32	30
Complies	✓	✓	✓	✓

Table 5 Predicted Noise Levels at Receptor Locations – Stage 2

Description	Predicted Noise Level $L_{10,\ 15\ minute}$ (dBA) at Receptor Location			
	Location 1	Location 2	Location 3	Location 4
DDG dryers (4)	25	29	34	32
Cooling Towers (4 x 2)	>15	28	34	32
Coal Storage at Hannagan's Lane (truck & loader)	18	21	17	20
Combined	26	32	37	36
Design Noise Goal ($L_{10,\ 15\ minute}$)	28	28	32	30
Complies	✓	**No + 4**	**No + 5**	**No + 6**

The calculations and predictions in Tables 4 and 5 consider distance loss to each receptor as well as the following:-

- Two 'cooling towers' with a sound power level of 87 dBA each (refer Table 3) are assumed to be associated with each dryer;

- Barrier attenuation from existing site structures for various items of plant and equipment;
- Manufacturer's sound power levels are achieved as detailed in Section 6; and
- Ground absorption to receptors R1, R3 and R4 for the coal and woodchip area in Stage 2 only.

It can be seen from the predicted noise levels in Tables 4 and 5 that the design noise goals for this proposal can be met without the need for additional noise controls, this is providing that the assumed power levels for individual plant and equipment are achieved as detailed in Section 6.1.

It can be seen from Table 5 that there is a potential for an exceedance of the noise design goals for the potential future inclusion of the additional three (3) dryers and associated cooling towers at a later stage.

However, the predicted exceedances are not considered to be excessive and noise control recommendations are provided in Section 6 of this report to reduce the level of noise emission to within acceptable limits for both stages.

5. CONSTRUCTION NOISE EMISSION

The construction process will involve earth works and site preparation works, pouring of concrete slabs, the erection of the DDG dryers, cooling towers, and forklift maintenance building.

Table 6 below shows a schedule of sound power levels for typical construction equipment.

Table 6 Construction Equipment – L_{eq} Sound Power Levels

Description	L_{eq} Sound Power Level (dBA)
Piling Rig	118
Mobile Crane (Diesel)	110
30 Tonne Excavator	110
Concrete Truck / Pump	105
Grinder	105
Power Saw	101

Table 7 below shows the predicted level of potential noise emission from construction activities at each of the receptor locations.

Table 7 Predicted Noise Levels at Receptor Locations – Construction Phase

Description	Predicted Noise Level $L_{eq,\ 15\ minute}$ (dBA) at Receptor Locations			
	Location 1	Location 2	Location 3	Location 4
Construction Activity*	39 – 45	45 – 51	41 – 47	39 – 45
Acceptable Noise Limit ($L_{eq,\ 15\ minute}$)	43	50	48	48
Complies	**No + 2 dB (during piling)**	**No + 1 dB (during piling)**	✓	✓

* Range provided with and without piling activity.

6. RECOMMENDED NOISE CONTROLS

It can be seen from the noise modelling and predictions in Section 4.2 that the noise design goals can be met for Stage 1 without the need for additional noise controls. This is providing that manufacturer's sound power levels for individual items of plant are achieved.

Noise controls are likely to be required for the subsequent installation of an additional three dryers as considered in Stage 2.

6.1 Stage 1

The initial dryer may be constructed in the open, without a building or acoustical screening based on the manufacturer's sound power levels provided.

Cooling towers may be installed adjacent to the dryer, as shown in Appendix A, without the need for additional noise controls.

This is providing that the maximum combined sound power level (L_w) of the cooling towers does not exceed **90 dBA**.

This equates to, for example:-

- Two cooling towers with a sound power level of 87 dBA each; or
- Four cooling towers with a sound power level of 84 dBA each.

Once the final selection of plant is made and / or the DDG dryer and cooling towers installed, a final compliance assessment should be undertaken prior to commissioning of the plant to ensure the noise design goals are achieved.

6.2 Stage 2

Stage 2 involves the installation of an additional three (3) DDG dryers and their associated cooling towers.

Based on the manufacturer's sound power levels provided in Table 3 of this report being achieved, a further reduction of a minimum **6 dB** will be required for each of the DDG dryers and the cooling towers including the dryer and cooling towers installed initially as part of Stage 1.

The required reduction may be achieved through a combination of the judicious selection of low noise plant and localised acoustical treatment.

A final assessment will be required prior to installation or commissioning of the additional three plant and equipment, to ensure the most appropriate and cost-effective noise controls are implemented if and where required.

6.3 Construction Noise

The Project Approval prescribes allowable operation hours for construction activities in Clause 11 and Clause 13, which states:-

> *"During construction, the Proponent shall prepare and implement all reasonable and feasible measures to minimise the construction noise impacts of the project."*

It can be seen from Table 8 that the construction noise management levels are likely to be met at each receptor location during general construction activity, with the exception of piling. During piling (if required) there is potential for the noise management levels to be exceeded at Receptors L3 and L4, by up to 2 dB, on some occasions. This is not considered a significant exceedance during day time hours for short and sporadic duration.

However, a Construction Noise Management Plan may be provided in accordance with NSW EPA's Interim Construction Noise Guideline and to satisfy Condition 13 of the Project Approval.

Construction noise mitigation measures are included in the Construction Safety & Environmental Management Plan prepared the Shoalhaven Starched Project Manager.

7. CONCLUSION

An assessment of the potential noise impact from the proposed construction and operation of approved DDG dryers, associated cooling towers, container preparation and storage area, forklift maintenance building and a coal and woodchip storage area at Shoalhaven Starches on Bolong Road, Bomaderry, NSW has been undertaken.

Calculations show that the level of noise emission from the modification to this approved proposal will be within the noise design goals derived from Environment Protection Licence 883 noise limits at each receptor location providing noise control recommendations made in Section 6 of this report are implemented and adhered to.

The level of noise emission from the construction phase of the project will be within the noise management levels set by the NSW EPA's *Interim Construction Noise Guideline*

Matthew Harwood, MAAS

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Attachments:-

Appendix A – Site plan showing proposed components of the approval

Site Layout (source: Manildra Group Drawing No. MN261-001Q, dated 26/10/16)	**Appendix A**